PROJECT MANUAL

MGCCC - ATHLETIC PERFORMANCE ADDITION

Perkinston Campus

Mississippi Gulf Coast Community College

EGH Architects, PA
1091 Tommy Munro Drive
Biloxi, MS 39532
Tel: 228.594.2323
www.egh.ms

REGISTERED ARCHITECT
Kyle L. Kish
4202
16·1·26
STATE OF MISSISSIPPI

Date: 01 October 2026

A/E Project No: 26-028a

SECTION 00 01 03
PROJECT DIRECTORY

PROJECT:
MGCCC - ATHLETIC PERFORMANCE ADDITION
Perkinston Campus - Mississippi Gulf Coast Community College
51 Main Street
Perkinston, Mississippi 39573

OWNER:
MISSISSIPPI GULF COAST COMMUNITY COLLEGE
51 Main Street
Perkinston, Mississippi 39573

ARCHITECT:
EGH ARCHITECTS, P.A.
1091 Tommy Munro Drive
Biloxi, Mississippi 39532
Office: (228) 594-2323

CIVIL ENGINEERS:
O'NEAL-BOND ENGINEERING, INC.
312 Mill Avenue
Wiggins, Mississippi 39577
Office Phone: (601) 928-7390

STRUCTURAL ENGINEERS:
SIMPKINS & COSTELLI
401 32nd 1/2 Street
Gulfport, Mississippi 39507
Office Phone: (228) 864-6289

MEP ENGINEERS:
STEPHENS MECHANICAL ENGINEERS
925 Tommy Munro Drive
Biloxi, Mississippi 39532
Office: (228) 207-3322

ELECTRICAL ENGINEERS:
WELCON ELECTRICAL CONSULTANTS, PLLC
9414 Three Rivers Road, Suite #4
Gulfport, Mississippi 39503
Office: (228) 822-8000

SECTION 00 10 10
TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

DIVISION 00 – PROCUREMENT AND CONTRACTING DOCUMENTS

Section 00 00 00 – Project Manual Cover

Section 00 01 03 – Project Directory

Section 00 10 10 – Table of Contents

Section 00 11 13 – Advertisement for Bids

Section 00 21 13 – Instructions to Bidders

Section 00 31 00 – Available Project Information
- 00 31 00.01 - Report of Subsurface Investigation and Geotechnical Engineering Evaluation

Section 00 41 13 - Bid Form

Section 00 43 13 – Bid Security Form
- 00 43 13.01 – AIA Document A310-2010

Section 00 52 13 – Agreement Form
- 00 52 13.01 – AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor
- 00 52 13.02 – AIA Document A101-2017 Exhibit A

Section 00 61 13 – Performance and Payment Bond Form
- 00 61 13.01 – AIA Document A312-2010 Performance Bond
- 00 61 13.02 – AIA Document A312-2010 Payment Bond

Section 00 62 16 - Insurance and Bond Check List

Section 00 72 13 – General Conditions
- 00 72 13.01 - AIA Document A201-2017 General Conditions of the Contract for Construction

Section 00 73 10 - Supplementary Conditions

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

Documents Prepared/Provided by Structural Engineer (Structural) *

DIVISION 1 – GENERAL REQUIREMENTS

Section 01 11 00 - Summary of Work

Section 01 21 00 – Allowances

Section 01 22 00 - Unit Prices

Section 01 23 00 – Alternates

Section 01 26 00 – Contract Modification Procedures.
- Section 01 26 00.01 – AIA Document G709 - Change Proposal
- Section 01 26 00.02 – AIA Document G701-2017 - Change Order
- Section 01 26 00.03 – AIA Document G714-2017 - Construction Change Directive

Section 01 29 00 – Payment Procedures
- 01 29 00.30 - Contractor's First Payment Application Check List
- 01 29 00.40 - Contractor's Payment Application Check List
- 01 29 00.50 - Contractor's Final Payment Application Check

Section 01 31 13 – Project Coordination

Section 01 31 19 - Project Meetings

Section 01 31 23 - Project Web Site
Section 01 32 53 - Request for Interpretation
Section 01 33 00 – Submittal Procedures
Section 01 41 00 – Regulatory Requirements
Section 01 45 00 - Quality Control
Section 01 45 29 - Testing Laboratory Services
Section 01 50 00 – Temporary Facilities and Controls
Section 01 60 00 – Product Requirements
01 60 00.01 - Substitution Request Form
Section 01 71 23 - Field Engineering
Section 01 74 13 - Progress Cleaning
Section 01 77 00 – Closeout Procedures
DIVISION 2 – EXISTING CONDITIONS
Section 02 41 19 – Selective Structural Demolition
DIVISION 3 – CONCRETE
Section 03 30 00 - Cast-In-Place Concrete (Structural)*
Section 03 30 05 - Moisture Vapor Reducing Admixture for Cast-In-Place Concrete
Section 03 35 00 - Concrete Finishing
DIVISION 4 – MASONRY
Section 04 20 00 - Reinforced Unit Masonry
Section 04 21 00 - Clay Unit Masonry
DIVISION 5 – METALS
Section 05 50 00 - Metal Fabrications
Section 05 52 13 - Pipe and Tube Railing
DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES
Section 06 10 00 – Rough Carpentry
Section 06 40 23 - Interior Architectural Woodwork
Section 06 65 00 – Solid Surface Fabrications (Shower Enclosure & HDPE Lockers)
DIVISION 7 – THERMAL AND MOISTURE PROTECTION
Section 07 21 00 – Thermal Insulation
Section 07 26 00 – Vapor Retarders
Section 07 92 00 – Joint Sealants
Section 07 95 13 - Expansion Joint Cover Assemblies
DIVISION 8 – DOORS AND WINDOWS (NOT USED)
Section 08 12 13 – Hollow Metal Frames
Section 08 14 16 – Flush Wood Doors
Section 08 31 00 - Access Doors and Panels
Section 08 41 13 - Aluminum Framed Entrances and Storefronts
Section 08 71 00 – Door Hardware
Section 08 80 00 – Glazing

DIVISION 9 – FINISHES
Section 09 22 16 – Non-Structural Metal Framing
Section 09 30 00 – Tiling
Section 09 51 13 – Acoustical Panel Ceilings
Section 09 65 10 – Resilient Tile Flooring
Section 09 65 66 - Resilient Athletic Flooring
Section 09 68 00 - Carpeting
Section 09 91 23 - Interior Painting
DIVISION 10 – SPECIALTIES
Section 10 14 00 - Signage
Section 10 21 13.17 - Phenolic Toilet Compartments & HDPE Lockers
Section 10 28 00 - Toilet and Bath Accessories
Section 10 44 13 - Fire Extinguisher Cabinets
Section 10 73 16.13 - Extruded Aluminum Canopies
DIVISION 11 – EQUIPMENT (NOT USED)
DIVISION 12 – FURNISHINGS (NOT USED)
DIVISION 13 – SPECIAL CONSTRUCTION
Section 13 34 19 - Metal Building Systems
DIVISION 14 – CONVEYING EQUIPMENT (NOT USED)

FACILITY SERVICES SUBGROUP

INDEX TO STRUCTURAL SPECIFICATONS

INDEX TO PLUMBING AND MECHANICAL SPECIFICATONS

DIVISION 21 – FIRE SUPPRESSION (NOT USED)
DIVISION 22 – PLUMBING
Section 22 00 00 - Plumbing
Section 22 05 00 - Basic Materials and Methods
DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
Section 23 00 00 - HVAC Equipment
Section 23 01 00 – Mechanical General Requirements
Section 23 07 00 - Insulation of Mechanical Systems
Section 23 20 00 - Heating and Air Conditioning Piping
Section 23 30 00 - Air Distribution

INDEX TO ELECTRICAL SPECIFICATONS

DIVISION 26 - ELECTRICAL
Section 26 01 00 – Basic Electrical Requirements
Section 26 01 11 - Work in Existing Facilities
Section 26 05 19 – Low-Voltage Electrical Power Conductors
Section 26 05 26 - Grounding and Bonding for Electrical Systems
Section 26 05 33 - Raceways and Boxes for Electrical Systems
Section 26 24 16 - Panelboards
Section 26 27 26 – Wiring Devices

Section 26 28 16 - Disconnect Switches
Section 26 51 00 – Lighting
DIVISION 27 - COMMUNICATIONS
Section 27 15 00 – Communications Horizontal Cabling MGCCC Cabling Standards
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY (NOT USED)

INDEX TO CIVIL SPECIFICATONS

DIVISION 31 - EARTHWORK
Section 02 41 00 - Demolition
Section 31 10 00 - Site Clearing
Section 31 14 11 - Earthwork (Structural) *
Section 31 20 00 - Earthwork (Civil)
Section 31 25 00 - Erosion and Sedimentation Controls
Section 31 31 16 - Termite Control (Architectural)
DIVISION 32 - EXTERIOR IMPROVEMENTS
Section 32 12 73 - Concrete Joint Sealant
Section 32 13 13 - Site Work Concrete
Section 32 31 15 - PVC Coated Chain Link Fences and Gates
Section 32 92 00 - Turf and Grasses (Repair and Replacement)
DIVISION 33 - UTILITIES
Section 33 40 00 - Storm Sewer Collection System

END OF SECTION 00 10 10

SECTION 00 11 13
ADVERTISEMENT TO BID

You are hereby invited to submit a sealed bid for **"MGCCC - Athletic Performance Addition**" located at the Perkinston Campus of Mississippi Gulf Coast Community College, Gulfport, Mississippi. Bids will be received from contractors at the Maintenance, Transportation and Technology Services Center on the Perkinston Campus, Mississippi Gulf Coast Community College until 2:00 P.M., Thursday, October 29, 2026, and then publicly opened and read aloud.

Single stipulated sum bids will be received for all work required by the Contract Documents in accordance with the Instructions to Bidders.

Instructions to Bidders, Form of Bid, Form of Contract, Form of Contract Bond, Drawings, Specifications and other Contract Documents may be examined at the following locations:

1. Office of the Architect, **EGH Architects PA**, 1091 Tommy Munro Drive, Biloxi, Mississippi 39532.
2. ABC Plan Rooms, Jackson, Mississippi.
3. AGC Plan Rooms, Jackson, Mississippi.

Bid documents are being made available via hard copy or digital copy at www.eleyguildhardyprojects.com . Interested bidders should log-in or register for a free account to view and/or order Bid Documents. All plan holders are required to have a valid email address for registration. The cost of the bid documents is non-refundable and must be purchased through the website (digital and hard copies). Questions regarding website registration and online orders please contact Plan House at (662) 407-0193.

All proposals must be on file with the College prior to the opening time as stated above. All proposals must be sealed and clearly marked on the outside of the envelope as indicated **"Athletic Performance Center Additon"** to be opened on "----*Insert Date*---". Envelopes not so marked are submitted at the risk of the Bidder and the College assumes no responsibility for the premature opening of same by any College employee.

At the Bidders option, in lieu of submitting a physical sealed Bid, electronic bids may be submitted at www.eleyguildhardyprojects.com. Bids shall be received electronically until the date/time as stated above. For any questions relating to the electronic bidding process, please call Plan House at (662) 407-0193. Electronic submittal of Bids is not required.

The Owner reserves the right to waive any informalities and to reject any or all bids.

Each bidder must deposit with his bid (or upload at Bidders Option), security in the amount, form and subject to the conditions provided in the Instructions to Bidders. Performance and Payment Bonds will be required from the successful bidder. Bidders shall comply with laws of the State of Mississippi requiring Certificate of Responsibility.

Resident contractors shall, in accordance with laws of the State of Mississippi, be granted preference over non-residents in the award of this contract in the same manner and to the same extent as provided by the laws of the state of domicile of the non-resident. A non-resident contractor shall attach to his proposal a copy of his resident state's current law pertaining to such state's treatment of non-resident contractors.

No bidder may withdraw his bid within sixty (60) days after the actual date of the opening thereof.

BOARD OF TRUSTEES

MISSISSIPPI GULF COAST COMMUNITY COLLEGE

Run: Thursday, October 1, 2026

Thursday, October 8, 2026

END OF SECTION 00 11 13

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

DEFINITIONS

1.01 REFERENCE STANDARDS

A. AIA A201 - General Conditions of the Contract for Construction; 2017.

1.02 DEFINITIONS

A. Owner: Wherever the term “Owner” is used in these specifications, it refers to the Mississippi Gulf Coast Community College, Perkinston, Mississippi.

B. Architect: Wherever the term “Architect” is used in these specifications, it refers to the Architect, EGH Architects PA, 1091 Tommy Munro Drive, Biloxi, MS 39532, who by separate contract with the Owner is authorized to provide the Architectural Services for this Project.

C. All definitions set forth in the General Conditions of AIA Document A201 are applicable to these Instructions to Bidders.

D. Bidding Documents include the Advertisement for Bids, Instructions to Bidders, the Bid Form, the Bid Security Form, and the proposed Contract Documents, including any Addenda issued prior to receipt of bids.

E. Addenda are written or graphic instruments issued prior to the execution of the Contract, which modify or interpret the Bidding Documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.

1. All addenda shall be issued by electronic format (e-mail). All interested bidders shall submit a valid e-mail address when requesting Bidding Documents for the Project.

F. A Bid is a complete and properly signed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

G. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted with adjustments to the Base Bid amount as stated in Alternate Bids.

H. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to, or deducted from, the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

I. A Bidder is a person or entity who submits a Bid to the Owner.

1.03 BIDDER'S REPRESENTATION

A. Each Bidder, by making his bid, represents that he has read and understands the Bidding Documents.

B. Each Bidder, by making his bid, represents that he has visited the sites and familiarized himself with local conditions under which the work is to be performed.

C. No allowance will be made to any Bidder because of lack of examination of the proposed Contract Documents or the site of the Work, or for lack of knowledge of any conditions affecting the Work. The submission of a proposal shall be construed as conclusive evidence that the Bidder has made such examinations.

1.04 BIDDING PROCEDURES

A. All bids must be prepared on the forms provided by the Architect, or exact copies thereof, and submitted in accordance with these Instructions to Bidders.

B. A bid is invalid if it has not been deposited at the designated location prior to time and date for receipt of bids indicated in the Advertisement for Bids or prior to any extension thereof issued to Bidders.

C. Unless otherwise provided in any supplement to these Instructions to Bidders, no Bidder shall modify, withdraw or cancel his bid or any part thereof for sixty (60) days after the time designated for the receipt of bids in the Advertisement to Bid.

D. Prior to receipt of bids, Addenda, if issued, will be mailed or delivered to each prime Bidder recorded by the Architect as having received the Bidding Documents. Addenda issued after receipt of bids will be mailed or delivered to only the selected Bidder.

E. All blank spaces in the Bid Form must be filled in, type written, or hand written in ink, and all amounts must be in words as well as in figures. In case of a discrepancy between words and figures, the words will govern and the figures will be corrected. In case of discrepancy between unit price and the extension, the unit price will govern and the extension along with the total sum of extension and the stated subtotal or total, the corrected subtotal or total will govern. For items where no bid is submitted or the Bidder is not bidding that portion of the Work, insert "NO BID" in space provided for price. A bid shall be submitted for all alternates unless the alternate results in no change in price in which case "NO CHANGE" shall be entered in the space provided for the alternate bid amount, or in the case where the Bidder is not bidding on that portion of the Work , “NO BID” shall be entered in the space provided.

F. Signatures on bids must be in longhand and by a person or persons duly authorized to make contract. Bidder's legal name must be clearly stated. If Bidder is a Corporation affix corporate seal and write State of Incorporation in space provided.

G. A bid must be either submitted electronically via the College’s approved secure electronic system or physically delivered to the address indicated on the Advertisement for Bids prior to the time and date stated. If physically submitted, only one original of Bid Proposal shall be submitted which should be sealed in an opaque envelope marked, mailed or hand-delivered. A duplicate copy will not disqualify your bid, but the second copy, without comparison, will be destroyed in the bid opening, not read aloud nor used thereafter, in order to prevent inadvertent differences in the duplicate forms.

H. Any bid which fails to name a price in both figures and in writing will be deemed informal and it may be rejected; in case of any discrepancies between the price written in the bid, and that given in figures, the price in writing will be considered the bid.

I. No telephoned, telefaxed or telegraphed proposals, corrections or modifications will be considered.

J. Non-Resident Contractor: When a non-resident contractor submits a bid for a Mississippi public project, he shall attach thereto a copy of his resident State's current law pertaining to such State's treatment of non-resident contractors as required by House Bill Number 850, Chapter 527, Laws of 1988.

K. The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids.

L. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

1.05 EXAMINATION OF BIDDING DOCUMENTS

A. Each Bidder shall examine the bidding documents carefully and, not later than seven (7) days prior to date of receipt of bids, shall make written request to the Architect for interpretation or correction of any ambiguity, inconsistency or error therein which he may discover or of any question he may have as to their meaning. Any interpretation or correction will be issued as an Addendum by the Architect. Only a written interpretation or correction by Addendum shall be binding. No Bidder shall rely upon any interpretation or correction given by any other method.

1.06 SUBSTITUTIONS

A. Substitutions of materials and equipment will be permitted only as hereinafter specified under Division 1 Section 01 60 00 “Product Requirements".

B. Prior approvals must be received within the Architects office ten days in advance of the bid in order to be considered for inclusion as an equal.

1.07 PREPARATION OF BID

A. Each bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, his address, the name of the project for which the bid is submitted, and his Certificate of Responsibility number or statement that enclosed bid does not exceed $50,000.00, as applicable. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the Bid Form.

B. **NO MODIFICATIONS MAY BE MADE TO THE BID ON THE OUTSIDE OF THE ENVELOPE.**

1.08 METHOD OF BIDDING AND CONTRACT AWARD

A. A single stipulated sum base bid will be received covering all work.

B. The Owner intends to award a Contract to the lowest and best Bidder within allocated funds, based on the sum of the base bid plus accepted alternates, if any. In making award to the lowest and best bidder, the Owner will consider price; bidder's honesty and integrity, skill and business judgment, experience, facilities for carrying out the Contract, conduct under previous contracts, particularly any prior contracts with Owner, quality of work previously done; availability of appropriate financial, material, facility, managerial and personnel resources; warranties, life cycle costs; and any other legal factors relevant to evaluating the bidder's capability to perform Contract requirements in a timely and proper manner.

C. In considering the bids received and award of the Contract, the Owner has the following options:
   1. Reject all bids and to cancel the award of Contract without liability any time prior to the execution of Contract by both parties.
   2. Waive any and all minor irregularities in any bid.
   3. Award the Contract on the basis of the lowest and best base bid, or
   4. Award the Contract on the basis of lowest and best base bid, and any combination of alternates.
   5. Award to other than the low Bidder when, in the Owner's judgment, it is in its best interest to do so. For instance, a bid may not be considered best for such reasons as:
      a. Bidder being in arrears on existing contracts.
      b. Bidder being in litigation with the Owner.
      c. Bidder having defaulted on or failed to satisfactorily complete a previous contract with the Owner, including Bidder's failure to satisfactorily fulfill the warranty obligations of a previous contract with the Owner.

D. Any protest from any bidder must be delivered to the Owner in writing within seventy-two (72) hours of bid opening.

E. Any claim of error and request to be released from the bid by any bidder must be delivered to the Owner within twenty-four (24) hours of bid opening. Sufficient documentation and proof must accompany this written request clearly showing an error was made by the bidder.

F. Time is of the essence for this contract. Therefore, the Contract will provide for liquidated damages in the amounts indicated in the schedule on the Bid Form. Amounts indicated are to be paid per day by the Contractor for this Project to the Owner for each calendar day after the date of substantial completion.

1.09 ADDENDA AND INTERPRETATION

A. No interpretation to the meaning of the plans, specifications or other pre-bid document will be made to any bidder orally.

B. Every request for such interpretation should be in writing to the following:
   1. Via email to Brice Miller, bmiller@egh.ms
   2. Or mail to EGH Architects PA, 1091 Tommy Munro Drive, Biloxi, MS 39532.

C. Written interpretation must be received at least seven days prior to the date fixed for the opening of the bids. **Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the bidding documents which if issued will be**

transmitted by electronic format (e-mail) with request for acknowledgment on the bid form, to all plan holders at the respective e-mail addresses furnished for such purposes, not later than 48 hours prior to the date fixed for the opening of the bids. Failure of any bidder to receive such addendum or interpretation, or to acknowledge receipt on the bid form, shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

1.10 CONDITIONS OF WORK

A. Each bidder must inform themselves fully of the conditions relating to the construction of the Project and the liquidated damages provision for failure to complete the Work by the date of substantial completion specified. Failure to do so will not relieve the successful bidder of his obligation to furnish material and labor necessary to carry out the provisions of their contract. Insofar as possible, the Contractor, in carrying out their Work, must employ such methods or means as will not cause any interruption of, or interference with the Work of any other Contractor.

1.11 BID SECURITY

A. Each bid must be accompanied by certified check of the Bidder; or a bid bond duly executed by the Bidder as principal, signed by an agent resident in Mississippi, and having as surety thereon a surety company authorized to do business in Mississippi, rated A or better by A.M. Best Company, and which is acceptable to the Owner; in the amount of 5% of the bid. Such checks or bid bonds will be returned, upon demand, after the Owner and the accepted Bidder have executed the Contract, or, if no award has been made within sixty (60) days after date of the opening of bids, upon demand of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

B. Make bid security payable to **Mississippi Gulf Coast Community College**.

C. Bonds shall be written or countersigned by a Mississippi Resident Agent.

1.12 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

A. The successful Bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within seven (7) days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the difference between his bid and the next acceptable bid, up to the maximum amount of the Bid Security.

1.13 TIME OF COMPLETION

A. Bidder must agree to commence work on a date to be specified in a written "Notice to Proceed" and to substantially complete the Work within the number of calendar days indicated on the bid form.

B. Bidders shall substantially complete all the work involved in its contract within the calendar days stated and shall be subject to damages for each calendar day of delay thereafter in accordance with the General Conditions of the Contract for Construction.

1.14 QUALIFICATION OF BIDDERS

A. If required, a Bidder shall submit to the Architect a properly executed Contractor's Qualification Statement AIA Document A305, within five (5) days from request.

B. By submitting a Bid, the Contractor is representing that they are an expert in the Scope of Work bid on and thereby agrees to providing the post bid information stated herein. The successful low bidder will have to meet the following criteria to the Owners' satisfaction, prior to award of bid. Failure to do so may result in the rejection of the defaulting Contractors' Bid.

1. The ability to perform the designated scope of work
2. Qualified personnel
3. Satisfactory construction plan
4. Satisfactory safety plan and work history related to safety and reportable OSHA related incidences
5. Adequate work force capable of completing the project(s) specified

C. Independent Contractor Status: It is understood and agreed that the contractor is an independent Contractor and not an employee of the College and that the Contractor shall be responsible for all necessary licenses, federal and state taxes, liability insurance, worker's compensation coverage and other obligations imposed upon him and his employees as an independent Contractor under applicable laws, rules and regulations.

D. Indemnity to the College: It is understood and agreed that the Contractor shall hold the College harmless and indemnify the College against any losses, damages, or liabilities resulting from the performance of the aforesaid services by said Contractor. Contractor shall be responsible for all employee withholding, payroll and FICA taxes, and shall maintain any and all Worker's Compensation Insurance on its laborers as required by law and shall hold the College harmless from all claims, if any, concerning Contractor's employees or subcontractors.

E. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. Conditional bids will not be accepted. The Owner may consider either of the following reasons as being sufficient for the disqualification of a bidder and the rejection of the bidder's proposal:
   1. Submission of more than one proposal for the same work from an individual, partnership, firm or corporation under the same or different name(s),
   2. Evidence of collusion among bidders. Participants of such collusion may be disqualified for future Work of the Owner, and
   3. If the Bidder has been placed in default on another project with the Owner.

1.15 REJECTION OF BIDS

A. The Bidder acknowledges the right of the Owner to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the Bidder recognizes the right of the Owner to reject a bid if the Bidder failed to furnish required bid security or to submit the data required by the bidding documents, or if the bid is in any way incomplete or irregular. Each actual or prospective bidder agrees to waive any claim it has or may have against the Owner, or against the Architect, or against the Owner's Representative, and their respective employees and agents, arising out of or in connection with the bidding process specifically including the receipt, evaluation, recommendation, and administration of any bid.

1.16 SUBMISSION OF POST-BID INFORMATION

A. Upon request by the Architect, the selected Bidder shall within seven days thereafter submit the following:
   1. A statement of costs for each major item of work included in the bid.
   2. A designation of the work to be performed by the Bidder with his own forces.
   3. A list of names of the Subcontractors or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for use on this project. The Bidder will be required to establish to the satisfaction of the Architect, Owner and the Owner's Representative the reliability and responsibility of the proposed Subcontractors to furnish and perform the work. Subcontractors and other persons and organizations proposed by the Bidder and accepted by the Owner, Architect, and the Owner's Representative must be used on the work for which they were proposed and accepted and shall not be changed except with the written approval of the Owner, Architect and Owner's Representative.

1.17 PERFORMANCE AND LABOR AND MATERIAL PAYMENT BOND

A. The Owner will require the Contractor to furnish bond in the amount of the Contract Sum covering faithful performance of the Contract and payment of all obligations arising there under. Bond form shall be that designated in this Project Manual and with surety acceptable to the Owner, licensed to do business in Mississippi, and rated A or better by A.M. Best Company. Bonds shall be signed by an agent resident in Mississippi.

B. All certificates and contracts must be completed in accordance with "00 62 16 – Insurance and Bond Check List", with a completed copy of the Insurance and Bond Checklist included with

transmittal of same. **Incomplete Checklist Submittal will be returned to the Contractor post haste, no questions asked.**

1.18 POWER OF ATTORNEY

A. Attorneys in fact who sign Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their Power of Attorney.

1.19 CERTIFICATE OF RESPONSIBILITY

A. Attention of all Bidders is called to the provisions of Chapter 3, Title 31, Mississippi Code of 1972, as amended, including Chapter 505, 1985 General Laws of Mississippi, requiring a Certificate of Responsibility for all Contractors contracting for public work in excess of $50,000. Bidders shall have complied with the requirements of this law and shall state their Certificate number on the face of the envelope containing their bid and in the space provided in the Bid Form. Each of the Contractors participating in the bid must indicate their individual Certificate of Responsibility numbers on the bid and on the face of the envelope. When multiple Contractors submit a joint venture bid in excess of $50,000.00, a joint venture Certificate of Responsibility number, or all joint venture participants Certificate of Responsibility numbers, must be shown on the bid and on the face of the envelope containing the bid.

1.20 PROGRESS PAYMENTS

A. Monthly progress payments will be per AIA A201 – General Conditions of the Contract for Construction.

B. The College will make payment in accordance with the General Conditions of the Contract. At the option of the Mississippi Gulf Coast Community College, payments may be made by electronic funds transfer, or check.

1.21 CONFLICT OF INTEREST

A. The offeror shall not offer or accept gifts or anything of value nor enter into any business arrangement with any employee, official or agent of Mississippi Gulf Coast Community College.

B. By signing their proposal, the offeror certifies and represents to the College the offeror has not offered, conferred or agreed to confer any pecuniary benefit or other thing of value for the receipt of special treatment, advantage, information, recipient's decision, opinion, recommendation, vote or any other exercise of discretion concerning this Project.

1.22 BUILDING PERMITS AND SALES TAXES

A. Bidder shall include as part of his Bid, all applicable sales and use taxes, to include, but not be limited to, Gross Receipts Tax.

B. General building permits **ARE NOT** required for this project.

1.23 LAWS AND REGULATIONS

A. The Bidder's attention is directed to the fact that all applicable federal and state laws, city and county ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

1.24 PRE-BID CONFERENCE

A. A pre-bid conference will be scheduled at a later date per an Addendum.

B. Bidders will be able to request interpretation on any aspect of Drawings, Specifications, and Bidding Documents of the Project which could result in a written Addendum.

END OF DOCUMENT

SECTION 00 31 00
AVAILABLE PROJECT INFORMATION

1.01 ADDITIONAL INVESTIGATION

A. The Contractor should visit the site and acquaint himself with site conditions.

B. Prior to bidding, the Contractor may make their own investigations to satisfy themselves with site and subsurface conditions.

C. These visits must be scheduled with the Architect at least 48 hours in advance for coordination on site access.

1.02 EXISTING DRAWINGS

A. Some existing drawings of **Building 17, Athletic Perfomance Facility (APF) at the MGCCC Perkinson Campus** are available for view at the office of the Architect.

END OF DOCUMENT

SOUTHERN EARTH SCIENCES
Geotechnical | Environmental | Materials Testing

Mississippi Gulf Coast Community College (MGCCC) – Proposed Weight Training Facility Addition

51 Main Street

Perkinston, MS

Report of Subsurface Investigation and

Geotechnical Engineering Evaluation

Prepared for:
EGH ARCHITECTS, P.A.
SES Project No: M26-397
September 30, 2026

SOUTHERN EARTH SCIENCES
Geotechnical | Environmental | Materials Testing

MOBILE OFFICE
5460 Rangeline Road
Mobile, AL 36619

Tel: (251) 344-7711
Fax: (251) 443-9000
www.soearth.com

September 30, 2026

EGH ARCHITECTS, P.A.
1091 Tommy Munro Drive
Biloxi, MS 39532

ATTENTION: Mr. Kyle Kish

REFERENCE: Report of Subsurface Investigation and Geotechnical Engineering Evaluation
MGCCC – Proposed Weight Training Facility Addition
51 Main Street
Perkinston, MS
SES Project No: M26-397

Dear Mr. Kish:

Southern Earth Sciences, Inc. (SES) has completed the authorized scope of subsurface investigation and geotechnical engineering evaluation for the referenced project. This report presents our understanding of the available project information and outlines our soil related recommendations and comments regarding construction and foundation support for the proposed building.

We appreciate this opportunity to be of service and look forward to our continued involvement throughout construction phases of the project. Please do not hesitate to contact us if you have any questions.

Sincerely,

SOUTHERN EARTH SCIENCES, INC.

Curran Nicholas, P.E.
Geotechnical Project Engineer

Jaren Cook, E.I.
Assistant Project Manager

Matt Coaker, P.E.
Vice President
Registered, Mississippi 20350

JC/CN/mc
Attachments

EGH ARCHITECTS, P.A.

Report of Subsurface Investigation and Geotechnical Engineering Evaluation
MGCCC - Proposed Weight Training Facility Addition
Perkinston, MS
SES Project No: M26-397
September 30, 2026

1.0 Project Information and Site Description ..... - 1 -

2.0 Field Investigation ..... - 1 -

3.0 Laboratory Testing ..... - 2 -

4.0 Generalized Subsurface Conditions ..... - 2 -

5.0 Groundwater ..... - 3 -

6.0 Foundation Considerations and Conclusions ..... - 4 -

6.1 Sub-Grade Preparation ..... - 4 -

6.2 Shallow Foundations ..... - 5 -

7.0 General Comments and Limitations ..... - 6 -

APPENDIX 1

Test Location Plan

APPENDIX 2

Soil Boring Logs

APPENDIX 3

Laboratory Test Results

1.0 PROJECT INFORMATION AND SITE DESCRIPTION

Based on our understanding of the provided information, the project will consist of an addition to the existing Mississippi Gulf Coast Community College Weight Training Facility at the Perkinston, MS campus. The proposed addition is planned to total approximately 4,000 ft^2 in plan area. No detailed structural loading information was available at the writing of this report. For reporting purposes, we assume column and wall loads will be on the order of 30 kips and 4 kips/lf. A grading plan was not available at the writing of this report. For reporting purposes, we have assumed Finished Floor Elevation (FFE) of the proposed addition will match the existing building FFE. Based on our visual observations, existing grades appear relatively flat. We assume earthwork will be minimal, with no more than 2 feet of grade change beneath and adjacent to the proposed building addition.

An existing concrete slab is present within the proposed building addition footprint and is connected to the grandstands east of the project site. Grassed areas extend across the western and northern portions of the site. A storm drain inlet is located near the center of the site. There is also an existing gas line running across the southeast portion of the site. The school's track and field borders the site to the south, and a parking lot borders the site to the north. No other project information was available at this time.

2.0 FIELD INVESTIGATION

Two (2) manual auger borings with Dynamic Cone Penetrometer Tests (DCP) were performed within the proposed building addition area. Test locations were selected by SES engineering staff and estimated in the field using an aerial image overlay and reference to existing site features. The approximate locations of the soil borings are shown on the Test Location Plan in **Appendix 1**.

Manual Auger Borings were advanced to a depth of approximately 13.5 feet below the existing ground surface by manually twisting a steel hand auger tool into the ground. Representative portions of soil samples obtained during the investigation were transported to our laboratory for visual classification by an engineer in accordance with the AASHTO Soil Classification System. Soil descriptions are shown on the appropriate Soil Boring Log sheets attached in **Appendix 2**.

Dynamic Cone Penetrometer (DCP) tests were performed in accordance with ASTM STP 399 using a Sowers Dynamic Cone Penetrometer, manufactured by Kessler Soils Engineering Products, Inc. Once at the desired depth, the cone tip is seated approximately 2 inches into the substrata, and a reference point is established on the cone rods. A 15-pound steel ring weight is dropped (in free fall) a distance of 20 inches striking the Driving Anvil in an attempt to advance the 1.5-inch 45-degree cone into the soil substrata. The number of blows required to advance the cone 1.75 inches is recorded and the process is

repeated at desired depths during the investigation. The DCP test results, provided in **Appendix 2**, have been correlated to conventional Standard Penetration Resistance "N" values utilizing methods developed by Sowers and Hedges.

3.0 LABORATORY TESTING

Laboratory testing included physical examination and general classification testing of samples obtained during the soil test boring operation. Testing included Moisture Content Determination (ASTM D 2216), No. 200 Sieve Washes (ASTM D 1140), and Atterberg Limits Tests (ASTM D 4318). Test results are included on Soil Boring Logs attached in **Appendix 2** and on Laboratory Test Data Summary Sheets attached in **Appendix 3**.

4.0 GENERALIZED SUBSURFACE CONDITIONS

The subsurface descriptions below are generalized to highlight the major subsurface stratigraphy encountered across the site. The Soil Boring Logs attached in **Appendix 2** present specific information at individual boring locations including soil description, stratification, ground water level, penetration resistance, and laboratory test results. This information is representative of conditions encountered at the soil boring locations. Variations may occur and should be expected between test locations. The stratification represents the approximate boundary between subsurface materials as the actual transition may be gradual. Reference to depth has been made with respect to the existing ground surface at the time of our field investigation. Detailed descriptions of soils encountered at each test location are shown on the appropriate soil boring log included in **Appendix 2**. Generalized subsurface soil conditions are summarized in **Table 1** below.

TABLE 1

GENERALIZED SUBSURFACE SOIL CONDITIONS

Approximate Depth from Existing Ground Surface (ft)	Consistency or Relative Density	Soil Descriptions	Special Remarks
0 to 0.25-0.67		Topsoil	Test location B-2 encountered damp surface conditions at the time of our investigation, likely due to recent rainfall.
0.25-0.67 to 0.75-1	Med. Stiff	Sandy Clay / Clay	Test location B-1 encountered gravel to approximately 12 inches below existing ground surface.
0.75-1 to 4.5-5	Med. Stiff to Stiff / Loose	Sandy Silt / Silty Sand	
4.5-5 to 13.3*	Med. Stiff to Stiff	Sandy Clay / Clay	Test location B-2 encountered wet clay between depths of approximately 5 to 6 feet below existing ground surface.

***Termination depth of the deepest soil boring.**

5.0 GROUNDWATER

The manual auger borings did not encounter groundwater at the time of our investigation. However, test location B-2 was noted as damp at the ground surface and between approximately 0.75 to 4 feet and noted as wet between approximately 5 to 6 feet below existing ground surface at the time of our investigation. The upper fine grained silty and clayey soils encountered across the site will retain moisture and may create shallow perched water conditions after periods of wet weather. Perched water development will be dependent on the season and recent rainfall patterns.

Groundwater depths or elevations should be verified at the time of construction for cases where groundwater variations are potentially significant for construction. Fluctuation in the groundwater table will occur due to variances in rainfall, elevation, drainage, types of soil encountered and other factors not evident at the time measurements were made. Reference to depth has been made with respect to the existing ground surface encountered at the time of our field investigation.

6.0 FOUNDATION CONSIDERATIONS AND CONCLUSIONS

Our evaluation of subsurface conditions and foundation alternatives for this project have been based on the project information previously described in this report and subsurface data obtained during the investigation. In evaluating the soil borings, we have used empirical correlations previously established between standard penetration resistances, cone tip and side resistance values, soil index properties and foundation stability. Soil parameters used in the evaluation were derived from the DCP data.

Beneath the upper approximate 3 to 8 inches of topsoil, subsurface conditions encountered within the upper 4 to 5 feet of the site generally consist of medium stiff to stiff clays and silts and loose silty sand. With proper foundation design and subgrade improvement (i.e., limited undercutting and replacement), these materials will be capable of supporting the anticipated structural loading using conventional shallow foundations. Although medium stiff/stiff in their in-situ state, these fine-grained soils will be easily degraded by construction traffic and will soften when exposed to moisture. The medium stiff/stiff in-situ clays and silts will exhibit very low/slow infiltration, creating perched water conditions that may collect within the backfill during construction.

6.1 Sub-Grade Preparation

Establishing and maintaining drainage throughout construction will be a critical aspect of general site grading. Effective drainage, including ditching and positive grading, should be established across the working areas during the initial stages of site stripping and modified as necessary during construction. Once adequate drainage is in place, the initial step in site preparation should be the complete removal of all existing topsoil, organic laden material, rubble, debris, concrete slabs, utilities, and otherwise unsuitable material extending laterally to at least 5 feet outside the construction area.

All remnants of past development such as existing concrete slabs or abandoned utilities (i.e. storm drain and gas line) should be removed. After site stripping, excavations within the building area should extend to a depth necessary to allow placement of a minimum of 24 inches of Select Structural Fill beneath foundations and floor slab subgrade elevation or deeper as necessary to remove loose or unsuitable soils that cannot be improved by compaction. Excavated materials should be wasted and not reused in structural areas.

Although the exposed soils are reasonably stiff in their in-situ state, these fine grained soils will be easily degraded by construction traffic and will soften when exposed to moisture. These materials will not sustain construction equipment traffic after periods of wet weather and may be difficult to

move, dry, and compact as they will be moisture sensitive and will retain moisture for long periods of time. Contractor technique and experience working in similar conditions will be crucial to minimizing undercut and replacement quantities. Perched groundwater or saturated soil conditions may be encountered after rainfall above the in-situ clayey and silty soils, and if so will need to be managed through dewatering using gravel-filled sumps and pumps at times.

Exposed surfaces in the excavated bottom should be smoothed and compacted in place as much as conditions at the time of construction will allow with a static smooth drum roller. Proof-rolling with pneumatic tired equipment is not recommended. Exposed surfaces in areas too small or confined for a smooth drum roller should be evaluated by manual probing or Dynamic Cone Penetrometer (DCP) by an experienced soils technician. We recommend the excavation and backfilling operation should be observed by an experienced soils technician under the direct supervision of the Geotechnical Engineer of Record.

If shallow perched groundwater or saturated soil is encountered, the exposed surfaces should be compacted as much as conditions will allow and the initial lifts of backfill should consist of Clean Sand Fill with less than about 10 percent (by weight) passing the No. 200 mesh sieve and 70 percent or less (by weight) passing the No. 40 mesh sieve. Below and within 18 inches of the groundwater/saturated soil level, in lieu of measured compaction tests, Clean Sand Fill should be thoroughly compacted with heavy tracked equipment to achieve some compaction and fill voids. Above the groundwater and saturated soil level, Clean Sand Fill should be compacted to 98 percent of the Standard Proctor maximum dry density as determined by ASTM D-698 with a moisture content between 1 percentage point below and 3 percentage point above the optimum moisture content.

Imported Select Structural Fill soil placed in dry conditions and/or above the Clean Sand Fill to final subgrade elevation should consist of a sandy material with less than about 30 percent of the soil particles (by weight) passing the No. 200 mesh sieve, less than 80 percent passing the No. 40 sieve, and a Liquid Limit less than 25. Fill material should be compacted in 12-inch (maximum) lifts to at least 95 percent of the soil's Modified Proctor maximum dry density as determined by ASTM D 1557. In place density tests should be made at frequent intervals to measure the effectiveness of the compaction operations.

6.2 Shallow Foundations

After completion of the recommended subgrade improvements outlined above, shallow foundations designed to support the assumed structural loads and bearing at a depth of at least 18 inches below surrounding grade may be designed for an allowable soil bearing pressure of up to 1,500 psf.

Minimum footing widths of 18 inches for continuous (wall) and 24 inch isolated (column) should be observed. The bottom of all footing excavations should be observed by an experienced soil technician and compacted to the above specifications.

The bottom of the foundation excavations must be dry, clean and free of loose, soft materials and construction debris prior to placement of steel or concrete. Excavations should be observed by a qualified inspector prior to steel or concrete placement. Concrete shall be poured as quickly as possible to avoid exposure of the footing materials to moisture changes (wetting or drying). Surface run-off water should be channeled away from the excavation and not be allowed to pond. If for any reason foundation excavations are required to be open for an extended period or if inclement weather is imminent, excavations shall be protected to minimize moisture loss/gain. The bottom of all footing excavations should be stable, free of water, debris and should be compacted 95 percent of the Modified Proctor maximum dry density as determined by ASTM D1557 with moisture content between 1 percentage points below and 3 percentage points above the optimum moisture content.

Assuming that the site will be prepared as previously outlined and structural loads will be consistent with our stated assumptions, foundation settlements are expected to be less than 1 inch. SES should be notified if our assumptions of foundation loadings are not consistent with final design loads.

7.0 GENERAL COMMENTS AND LIMITATIONS

While the soil test borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local variations characteristic of the subsurface materials of the region are anticipated and may be encountered. The delineation between soil types shown on the logs is approximate and the description represents our interpretation of subsurface conditions at the designated test locations and on the particular date explored.

This report has been prepared in order to aid in the evaluation of this project and to assist the engineers in the project planning and structural design. At the time of writing, changes were still being considered to foundations, site grading, and other aspects of the project that could have a significant impact on the applicability or relevance of the recommendations provided in this report. SESI should be consulted as the design process continues to ensure that the recommendations provided in this report are still applicable, and that they are being properly interpreted.

This report is intended for use with regard to the specific project discussed herein as we understand it at this time, and any substantial changes in the project, loads, locations, or assumed grades should be brought to our attention so that we may determine how such changes may affect our conclusions and

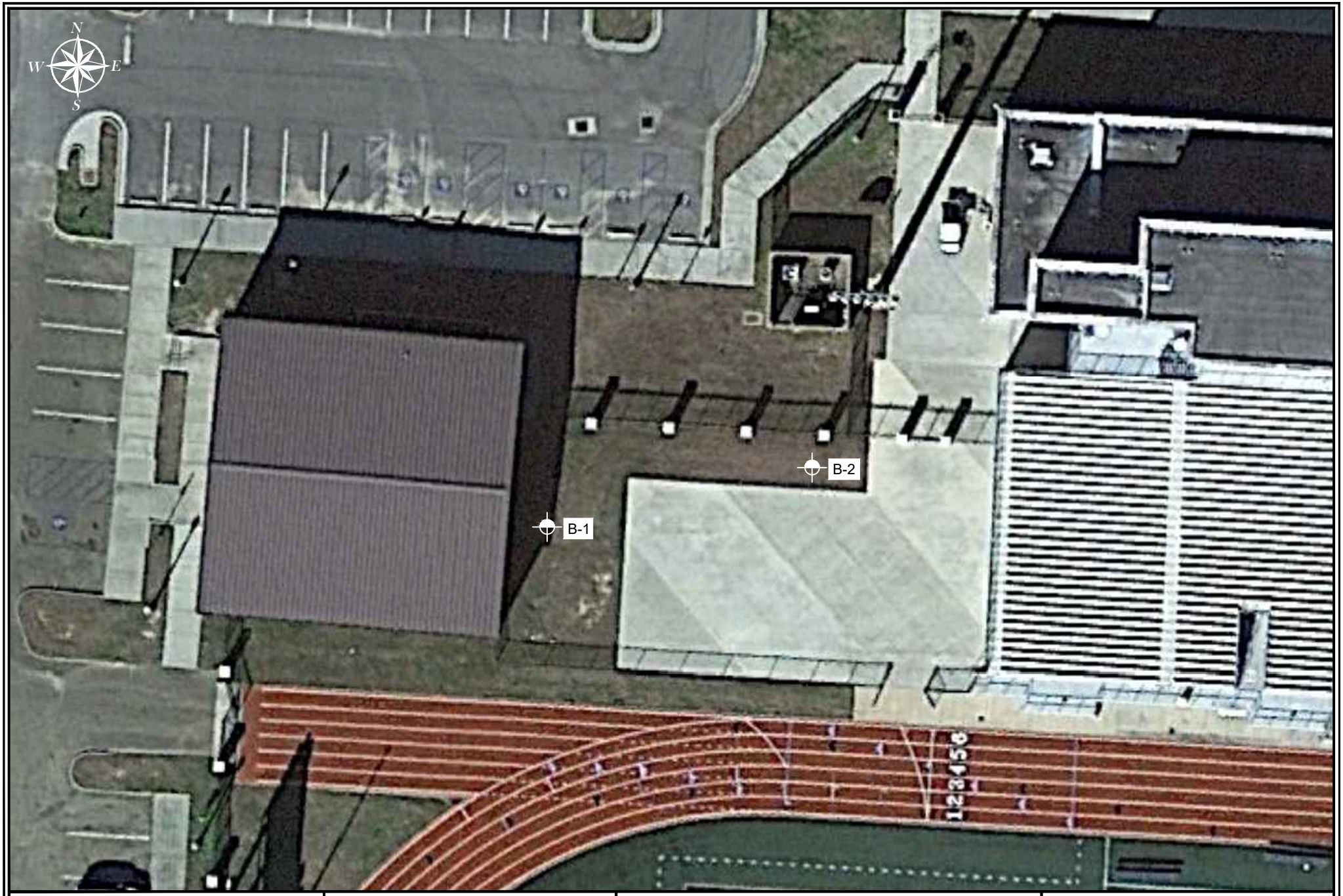
recommendations. We would appreciate the opportunity to review the plans and specifications for construction to ensure that our conclusions and recommendations are interpreted correctly.

Professional judgments on design alternatives and criteria are presented in this report. These are based partly on our evaluations of technical information gathered, partly on our understanding of the characteristics of the project being planned, and partly on our general experience with subsurface conditions in the area. We do not guarantee performance of the project in any respect, only that our engineering work and judgments rendered meet the standard of care of our profession.

The Geotechnical Engineer of Record should be retained by the Owner in the construction phase of the project so they can observe subsurface conditions revealed during construction, confirm that design assumptions are still applicable or provide revised recommendations based on conditions encountered during construction, and to help ensure that our recommendations are properly interpreted. We recommend that Southern Earth Sciences, Inc. be retained to perform observation and field-testing services during the site preparation and foundation construction.

APPENDIX 1

Test Location Plan



NOT TO SCALE

DCP/HAND AUGER

PROPOSED MGCCC BLDG ADDITION
PERKINSTON, MS

SOUTHERN EARTH SCIENCES
Geotechnical | Environmental | Materials Testing

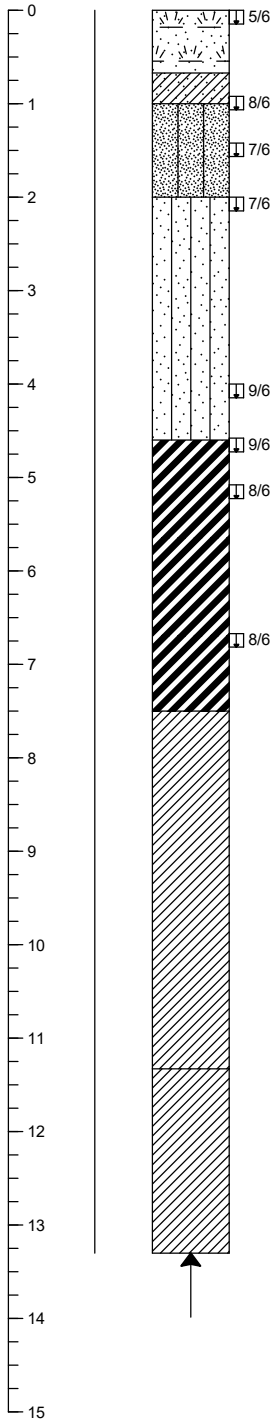
TEST LOCATION PLAN
SESI JOB #: M26-397

APPENDIX 2

Soil Boring Logs

SOIL BORING LOG

BORING NO.: B-1
PROJECT: MGCCC BLDG ADDITION
PROJECT NO.: M26-397
PROJECT LOCATION: PERKINSTON, MS
METHOD: HAND AUGER & DCP
BORING LOCATION: SEE TEST LOCATION PLAN
BORING ELEVATION: EXISTING GROUND
DATE DRILLED: 08/28/26
DATE COMPLETED: 08/28/26
WATER LEVEL: NOT ENCOUNTERED
WATER LEVEL DATE: 08/28/26
GEOL / ENGR: J. COOK
DRILLER: J. COOK



Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N	Moist. %	LL %	PI %	% passing #200 / #40 sieve
			8" TOPSOIL with Traces of Gravel	5				
		CL	Medium Stiff Light Brown, Gray and Red Sandy CLAY with Gravel	8	14.8	27	15	57 / 87
		SM	Loose Brown and Gray Silty SAND	7				
		ML	Medium Stiff Light Gray and Tan Sandy SILT	7				
				9				
				9				
		CH	Medium Stiff to Stiff Gray, Brown and Red CLAY	8	23.9	51	37	90 / 99
				8				
		CL	Tan and Gray CLAY					
		CL	Gray CLAY					

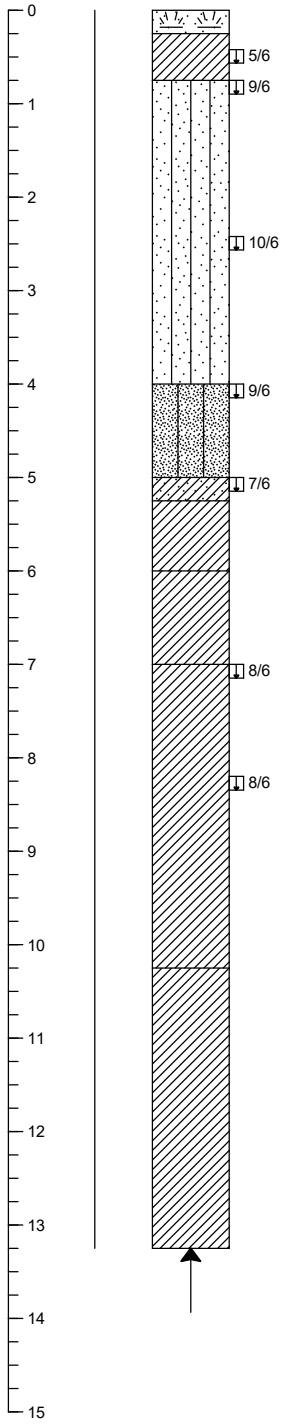
Remarks: N30.782911
W89.145953

SES SOUTHERN EARTH SCIENCES

GEOLOG WITH PI 40SIEVE GFLIBRARY DSM REV7-6-21.GLB SO_EARTH.GDT F:\PROJECTS\JOB FOLDERS\2026\26-397 MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION\GINT\M26-397 SOIL BORING LOGS.GPJ 9/30/26

SOIL BORING LOG

BORING NO.: B-2
PROJECT: MGCCC BLDG ADDITION
PROJECT NO.: M26-397
PROJECT LOCATION: PERKINSTON, MS
METHOD: HAND AUGER & DCP
BORING LOCATION: SEE TEST LOCATION PLAN
BORING ELEVATION: EXISTING GROUND
DATE DRILLED: 08/28/26
DATE COMPLETED: 08/28/26
WATER LEVEL: NOT ENCOUNTERED
WATER LEVEL DATE: 08/28/26
GEOL / ENGR: J. COOK
DRILLER: J. COOK



Elevation / Depth	USCS	Description	SPT N	Moist. %	LL %	PI %	% passing #200 / #40 sieve
		3" TOPSOIL (Damp)					
	CL	Medium Stiff Brown, Gray and Red CLAY	5	20.4	45	29	81 / 98
	ML	Stiff Light Gray and Tan Sandy SILT (Damp)	9				
			10	18.4	NP	NP	84 / 98
	SM	Loose Tan and Orange Silty SAND with a Gray Clay Lense	9				
	CL	Medium Stiff Gray and Tan Sandy CLAY (Wet)	7				
	CL	Medium Stiff Gray and Orange CLAY (Wet)					
	CL	Medium Stiff Gray and Orange CLAY					
	CL	Medium Stiff Gray, Orange and Red CLAY	8				
			8				
	CL	Tan, Orange and Red CLAY					

Remarks: N30.782948
W89.145760

SOUTHERN EARTH SCIENCES

GEOLOG WITH PI 40SIEVE GFLIBRARY DSM REV7-6-21.GLB SO_EARTH.GDT F:\PROJECTS\JOB FOLDERS\2026\26-397 MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION\GINT\M26-397 SOIL BORING LOGS.GPJ 9/30/26

APPENDIX 3

Laboratory Test Results

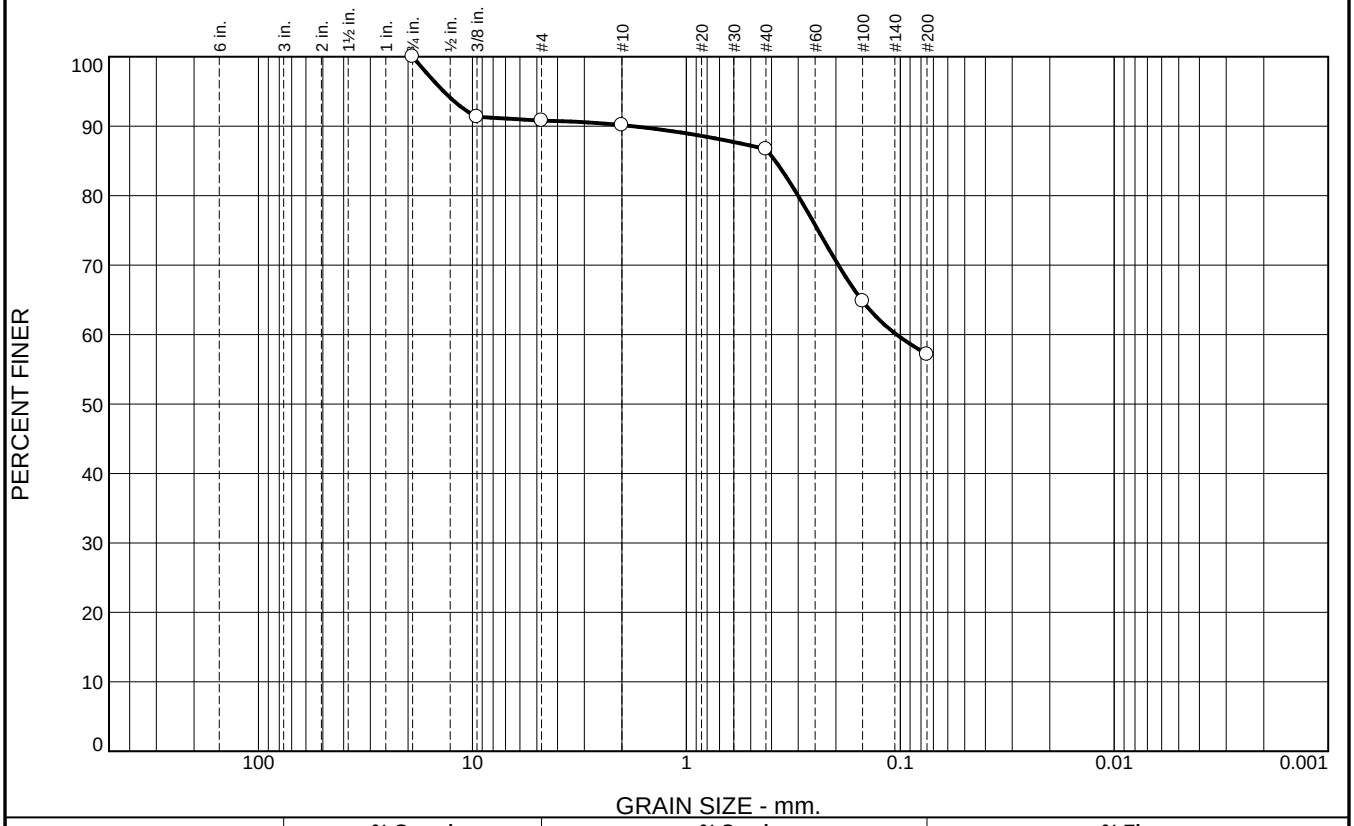
Laboratory Test Data Summary

SOUTHERN EARTH SCIENCES

Client:	EGH ARCHITECTS, P.A.	**Date:**	09/23/26
Project:	MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION	**Project No:**	M26-397

Test Location	Sample	Sample Depth (ft)	USCS Classification	AASHTO Classification	Moisture Content (%)	Atterberg Limits		Passing No. 200 (%)	Passing No. 40 (%)
						LL	PI		
B-1	S-2	0.67-1.0	CL	A-6(5)	14.8	27	15	57.1	86.7
B-1	S-5	4.6-5.1	CH	A-7-6(34)	23.9	51	37	89.6	99.3
B-2	S-2	0.25-0.75	CL	A-7-6(23)	20.4	45	29	80.8	97.7
B-2	S-3	0.75-4.0	ML	A-4(0)	18.4	NV	NP	83.5	98.4

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.2	0.7	3.4	29.6	57.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	91.3		
#4	90.8		
#10	90.1		
#40	86.7		
#100	64.8		
#200	57.1		

* (no specification provided)

Soil Description

BROWN SANDY CLAY

Atterberg Limits

PL= 12 LL= 27 PI= 15

Coefficients

D_{90}= 1.7958 D_{85}= 0.3840 D_{60}= 0.1042
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(5)

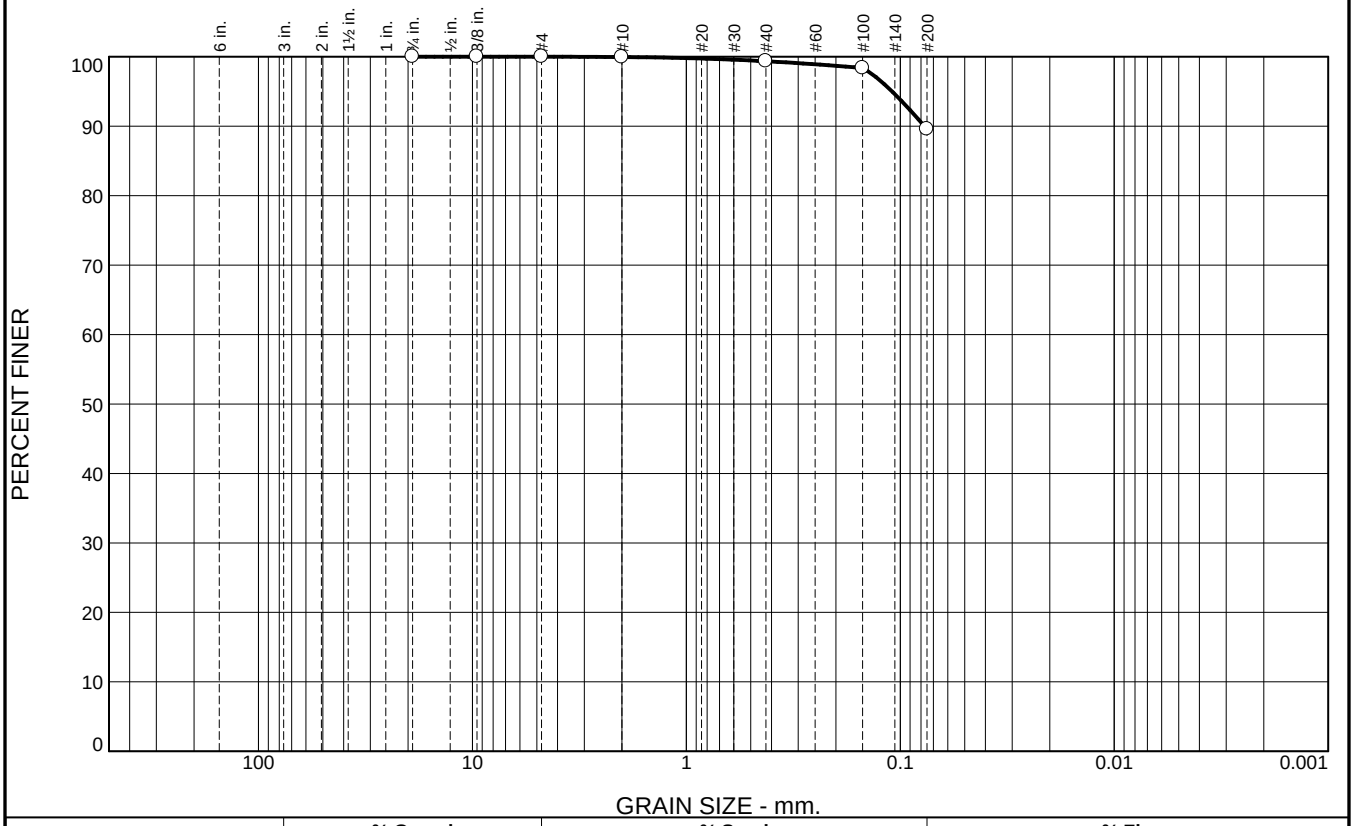
Remarks

Source of Sample: B-1 **Depth:** 0.67'-1.0'
Sample Number: S-2 **Date:**

SOUTHERN EARTH SCIENCES
Mobile, Alabama

Client: EGH ARCHITECTS, P.A.
Project: MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION
Project No: M26-397 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.6	9.7	89.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.9		
#40	99.3		
#100	98.4		
#200	89.6		

* (no specification provided)

Soil Description

BROWN-GRAY FAT CLAY

Atterberg Limits

PL= 14 LL= 51 PI= 37

Coefficients

D_{90}= 0.0772 D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(34)

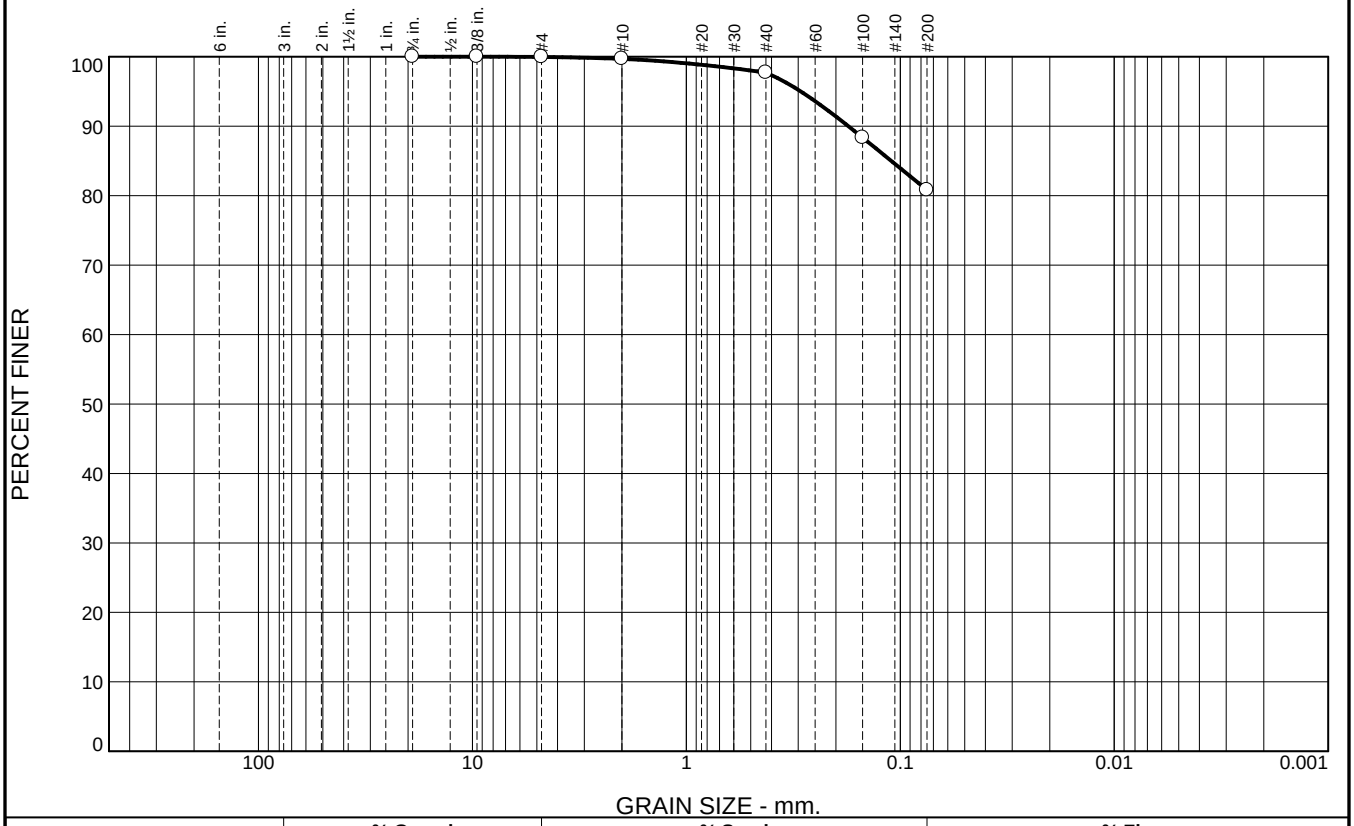
Remarks

Source of Sample: B-1 **Depth:** 4.6'-5.1'
Sample Number: S-5 **Date:**

SOUTHERN EARTH SCIENCES
Mobile, Alabama

Client: EGH ARCHITECTS, P.A.
Project: MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION
Project No: M26-397 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.0	16.9	80.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	97.7		
#100	88.3		
#200	80.8		

* (no specification provided)

Soil Description

BROWN CLAY WITH SAND

Atterberg Limits

PL= 16 LL= 45 PI= 29

Coefficients

D_{90}= 0.1752 D_{85}= 0.1102 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

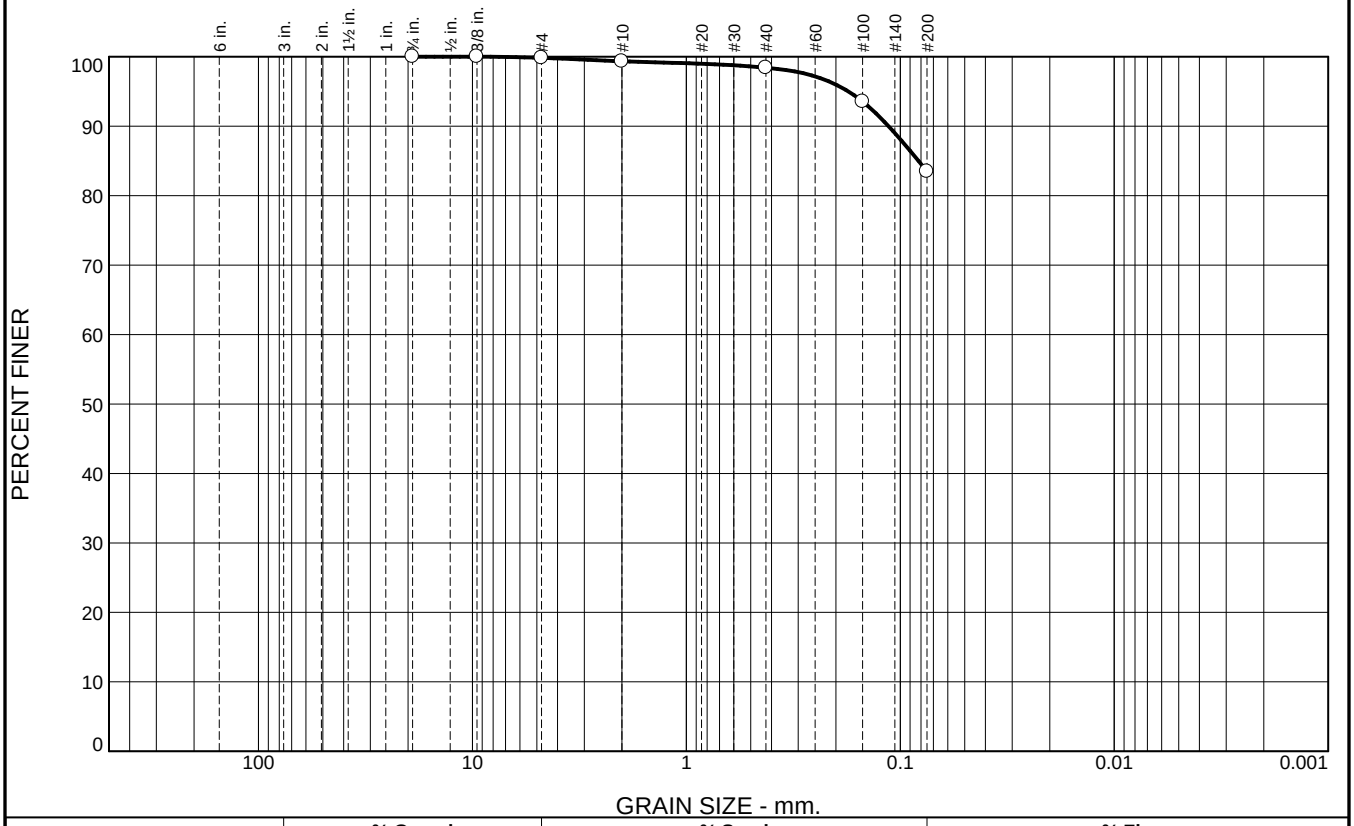
Remarks

Source of Sample: B-2 **Depth:** 3.0"-9.0"
Sample Number: S-2 **Date:**

SOUTHERN EARTH SCIENCES
Mobile, Alabama

Client: EGH ARCHITECTS, P.A.
Project: MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION
Project No: M26-397 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	0.9	14.9	83.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	99.8		
#10	99.3		
#40	98.4		
#100	93.5		
#200	83.5		

* (no specification provided)

Soil Description

BROWN SILT WITH SAND

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.1135 D_{85}= 0.0823 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: B-2 **Depth:** 9.0"-4.0'
Sample Number: S-3 **Date:**

SOUTHERN EARTH SCIENCES
Mobile, Alabama

Client: EGH ARCHITECTS, P.A.
Project: MGCCC PERKINSTON CAMPUS WEIGHT TRAINING FACILITY ADDITION
Project No: M26-397 **Figure**

SECTION 00 41 13
BID FORM

FOR: MGCCC - ATHLETIC PERFORMANCE ADDITION

TO: MISSISSIPPI GULF COAST COMMUNITY COLLEGE

Perkinston, Mississippi

(hereinafter called "Owner")

DATE: _____

SUBMITTED BY:

Bidder's Full Name (hereinafter called "Bidder"):_____

Address:_____

City, State, Zip: _____

OFFER

Having examined the site of the proposed work, the availability of materials and labor, and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by EGH Architects PA for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to furnish all labor, materials and supplies, to perform the Work within the time set forth herein for the prices stated below:

BASE BID LUMP SUM PRICE:

_____

_____DOLLARS ($).

ALTERNATE #1:

Should the "Toilet Room Renovations" alternate and related work be accepted, as described in Division 1, Section 01 23 00 "Alternates", add to the Base Bid the Sum of:

_____

_____DOLLARS ($).

ALTERNATE #2:

Should the "Logos" alternate and related work be accepted, as described in Division 1, Section 01 23 00 "Alternates", add to the Base Bid the Sum of:

_____

_____DOLLARS ($).

UNIT PRICE ITEM #1: MUCK EXCAVATION

Unit Cost per Cubic Yard for the undercut and removal of existing unsatisfactory fill materials as described in Division 1 Section "Unit Prices".

_____DOLLARS ($_____) Per Cubic Yard

UNIT PRICE ITEM #2: BORROW MATERIAL

Unit Cost per Cubic Yard for Procurement and Installation of imported fill materials as described in Division 1 Section "Unit Prices".

_____DOLLARS ($_____) Per Cubic Yard

ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for sixty (60) calendar days from the bid closing date.

If this bid is accepted by Owner within the time period stated above, we will:

1. Execute the Agreement within seven days of receipt of Notice of Award.
2. Furnish the required bonds within seven days of receipt of Notice of Award.
3. Commence work within seven days after written Notice to Proceed of this bid.

If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

CONTRACT TIME

If this Bid is accepted, we will substantially complete the Work in the following Contract Days:

Base Bid_____days (includes 3 weeks of "Turnover" time listed on the phasing plan).

Alternate #1_____additional days required

Alternate #2_____additional days required

If the Substantial Completion date falls beyond the above date based on days, we will pay to the Owner the following amount as liquidated damages, not as a penalty, for each calendar day of delay for the Project until the actual date of Substantial Completion of the Project.

Five Hundred Dollars ($500.00) per each calendar day that occurs beyond the elapsed Contract Time that **PARTIAL** and/or **FINAL** Substantial Completion has not yet occurred.

ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Price.

Addendum No. dated_____ Addendum No. dated_____

Addendum No. dated_____ Addendum No. dated_____

Addendum No. dated_____ Addendum No. dated_____

Addendum No. dated_____ Addendum No. dated_____

BID FORM SUPPLEMENTS

The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form. Failure to complete and submit these forms with the bid proposal will cause the bid to be considered non-responsive.

1. Non-Resident Contractor: attach a copy of your State's current law (refer to "Instructions to Bidders" for additional information)

BID FORM CHECKLIST (INCLUDING SUPPLEMENTS)

Failure to complete this checklist and submit these forms with the bid proposal will cause the bid to be considered non-responsive. The Supplements are attached to this Bid Form and are to be considered an integral part of this Bid Form.

_____I am a Resident Contractor

OR

_____I am a Non-Resident Contractor and have attached a copy of my State's current law (refer to "00 21 13 – Instructions to Bidders" for additional information)

_____I have included all Allowances indicated per Division 1 Section "Allowances" in the Base Bid amount

_____I understand that if we are the apparent low bidder, within 24 hours of bid opening we will provide experience requirements if requested (refer to "00 21 13 – Instructions to Bidders" for additional information)

BID FORM SIGNATURE

Bidder's Name: _____

_____By (Seal – If Bid is by Corporation)

(Signature)

Name and Title: _____

Business Address: _____

Certificate of Responsibility No.: _____

END OF SECTION 00 41 13

SECTION 00 43 13
BID SECURITY FORM

The standard form of Bid Bond of the American Institute of Architects, A.I.A. Document A310, or surety's standard form containing substantially the same provisions, shall be used.

A draft copy of the **AIA Document A310 – 2010** is attached for reference.

END OF SECTION 00 43 13

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT: $

PROJECT:
(Name, location or address, and Project number, if any)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

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(3B9ADA1C)

Signed and sealed this day of ,

	(Contractor as Principal) *(Seal)*
(Witness)	*(Title)*
	(Surety) *(Seal)*
(Witness)	*(Title)*

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User Notes: (3B9ADA1C)

SECTION 00 52 13
AGREEMENT FORM

Standard Form of Agreement Between Owner and Contractor, American Institute of Architects Document **A101, 2017 Edition** will be used for the Contract.

A draft copy of the **AIA Document A101 – 2017** is attached for reference.

A copy of the **AIA Document A101 – 2017 Exhibit A** Insurance and Bonds is attached.

END OF SECTION 00 52 13

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year Two Thousand Twenty-six
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Memorial Hospital at Gulfport
4500 Thirteenth Street
Gulfport, Mississippi 39501
Telephone: 228-865-3256

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

24-028t, East Tower Roof Replacement
Memorial Hospital
Gulfport, Mississippi

The Architect:
(Name, legal status, address and other information)

EGH Architects, PA
1091 Tommy Munro Drive
Biloxi, Mississippi 39532
Telephone: 228-594-2323

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[X] A date set forth in a notice to proceed issued by the Owner.

[ ] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

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[ ] Not later than ( ) calendar days from the date of commencement of the Work.

[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

If the work is not substantially complete on the date set forth in the contract documents, the Contractor shall pay the Owner the sum of five hundred dollars ($1000) as liquidated damages for each calendar day of the delay until the work is substantially complete.

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

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ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect and approved by the Owner, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the fifth day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the twentieth day of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than thirty (30) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Five Percent (5%)

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§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

Once work is fifty percent (50%) complete, the retainage shall be reduced to two and one half percent (2.5%), if the work is satisfactory to the Owner and Architect and the project is on schedule. If at any point after this time, work falls behind schedule or becomes unsatisfactory to the Owner or Architect, the retainage shall be raised back to five percent (5%).

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

0 % Zero Percent

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

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§ 6.2 Binding Dispute Resolution
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[X] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION
§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS
§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Mark Thomas, Director of Facilities, Engineering Department
Memorial Hospital at Gulfport
4500 Thirteenth Street
Gulfport, Mississippi 39501
Telephone: 228-865-3256

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

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§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with a building information modeling exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with a building information modeling exhibit, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 Building information modeling exhibit, dated as indicated below:
(Insert the date of the building information modeling exhibit incorporated into this Agreement.)

.5 Drawings

Number	Title	Date
Exhibit "B"		

.6 Specifications

Section	Title	Date	Pages
Exhibit "C"			

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

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[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
00 73 10	Supplementary Conditions		

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Kevin Holland, Vice President Memorial Hospital at Gulfport	
(Printed name and title)	*(Printed name and title)*

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AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the day of in the year Two Thousand Twenty-six
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

24-028t, East Tower Roof Replacement
Memorial Hospital
Gulfport, Mississippi

THE OWNER:
(Name, legal status and address)

Memorial Hospital at Gulfport
4500 Thirteenth Street
Gulfport, Mississippi 39501
Telephone: 228-865-3256

THE CONTRACTOR:
(Name, legal status and address)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

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§ A.2.2 Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance
§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

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§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.
(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

[ ] **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance,** to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

[ ] **§ A.2.4.2 Ordinance or Law Insurance,** for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

[ ] **§ A.2.4.3 Expediting Cost Insurance,** for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

[ ] **§ A.2.4.4 Extra Expense Insurance,** to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

[ ] **§ A.2.4.5 Civil Authority Insurance,** for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

[ ] **§ A.2.4.6 Ingress/Egress Insurance,** for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

[ ] **§ A.2.4.7 Soft Costs Insurance,** to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.
The Owner shall purchase and maintain the insurance selected below.

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(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

[ ] **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information. *(Indicate applicable limits of coverage or other conditions in the fill point below.)*

[ ] **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than One Million ($ 1,000,000) each occurrence, Two Million ($ 2,000,000) general aggregate, and Two Million ($ 2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

.2 personal injury and advertising injury;

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.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
.4 bodily injury or property damage arising out of completed operations; and
.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
.3 Claims for bodily injury other than to employees of the insured.
.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
.8 Claims related to roofing, if the Work involves roofing.
.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
.10 Claims related to earth subsidence or movement, where the Work involves such hazards.
.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than One Million ($ 1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than One Million ($ 1,000,000) each accident, One Million ($ 1,000,000) each employee, and One Million ($ 1,000,000) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than ($) per claim and ($) in the aggregate.

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§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[X] **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

a. The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on an "Installation Floater Insurance Coverage" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis permanently installed, at which time the Owner will fully cover the Work in place under their existing insurance coverage.
b. The "Installation Floater" or equivalent policy form shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings, and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expense required as a result of such insured loss. For these purposes the Architect's compensation shall be calculated at 7% of the Cost of Construction.

[ ] **§ A.3.3.2.2 Railroad Protective Liability Insurance,** with policy limits of not less than ($) per claim and ($) in the aggregate, for Work within fifty (50) feet of railroad property.

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[ ] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance,** with policy limits of not less than ($) per claim and ($) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

[ ] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

[X] **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

[ ] **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits

§ A.3.4 Performance Bond and Payment Bond
The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	Full Amount of Contract
Performance Bond	Full Amount of Contract

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS
Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

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SECTION 00 61 13
PERFORMANCE AND PAYMENT BOND FORM

The Standard Performance Bond and Labor and Material Payment Bond Form of the American Institute of Architects, **A.I.A. Document A312, 2010 Edition**, will be used for the Contract Bond.

Amount for performance and labor and material shall each equal 100% of the Contract Sum.

A draft copy of the **AIA Document A312 – 2010** (two separate documents) is attached for reference.

END OF SECTION 00 61 13

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

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§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

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§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

Init.

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Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

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§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

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§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

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SECTION 00 62 16
INSURANCE AND BOND CHECK LIST

Upon acceptance of bids by the Owner, a completed AIA Document A101 Standard form of Agreement between Owner and Contractor; as well as AIA Document A101 Exhibit A Insurance and Bonds will be delivered to the successful contractor. The following insurance certificates and bonds are indicated on these Documents and must be completed and returned with the signed copies of the Contract, within seven days, in order to be considered for execution. This completed checklist must be attached to your company transmittal and returned with the contracts with all the check boxes completed certifying that the required insurance certificates and bonds are complete and included. Include contact information from Bonding Company completing the checklist.

Contract Bonds in accordance with Document 00 61 13 and AIA A101 Exhibit A. Number of originals needed (3).

Name and Phone Number of Agency Contact:

_____

Certificate of Commercial General Liability (CGL) and umbrella policy in accordance with Article A.3.2.2.1 of AIA A101 Exhibit A with Owner and Architect named as additional insured under CGL. Number of originals needed (3).

Name and Phone Number of Agency Contact:

_____

Certificate of Business Auto Insurance in accordance with Article A.3.2.3 of AIA A101 Exhibit A. Number of originals needed (3).

Name and Phone Number of Agency Contact:

_____

Certificate of Workers Compensation Insurance (Employer's Liability) in accordance with Article A.3.2.6 of AIA A101 Exhibit A. Number of originals needed (3).

Name and Phone Number of Agency Contact:

_____

Certificate of Property Insurance (Builder's Risk Policy) in accordance with Article A.3.3.2 of AIA A101 Exhibit A. Number of originals needed (3).

Name and Phone Number of Agency Contact:

_____

Contact Information of individual completing checklist:

_____

(name)_____

_____

(company)_____

_____

(phone and fax number)_____

END OF SECTION 00 62 16

SECTION 00 72 13
GENERAL CONDITIONS

The following pages of the General Conditions of the Contract for Construction, American Institute of Architects Document **A201, 2017 Edition**, are hereby included as part of the Contract Documents of this project.

REFERENCE STANDARDS

AIA A201 - General Conditions of the Contract for Construction; 2017.

Refer to "00 73 10 – Supplementary Conditions" for changes to the AIA A201 Document.

END OF SECTION 00 72 13

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

24-028t, East Tower Roof Replacement
Memorial Hospital
Gulfport, Mississippi

THE OWNER:
(Name, legal status and address)
Memorial Hospital at Gulfport
4500 Thirteenth Street
Gulfport, Mississippi 39501
Telephone: 228-865-3256

THE ARCHITECT:
(Name, legal status and address)

EGH Architects, PA
1091 Tommy Munro Drive
Biloxi, Mississippi 39532
Telephone: 228-594-2323

TABLE OF ARTICLES

1 GENERAL PROVISIONS
2 OWNER
3 CONTRACTOR
4 ARCHITECT
5 SUBCONTRACTORS
6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7 CHANGES IN THE WORK
8 TIME
9 PAYMENTS AND COMPLETION
10 PROTECTION OF PERSONS AND PROPERTY
11 INSURANCE AND BONDS
12 UNCOVERING AND CORRECTION OF WORK
13 MISCELLANEOUS PROVISIONS

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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INDEX
(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work
9.6.6, 9.9.3, **12.3**
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, **13.4**
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**
Administration of the Contract
3.1.3, **4.2**, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, **15.4**
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5

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Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS
1.1.4, **6**
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR
SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, **14**
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5**, **15.2.5**
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal
Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2

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Contractor's Employees
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, **3.17**
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, **15.1.5**
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

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Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**
Failure of Payment
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, **10.3**
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5, 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, **11**
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6, 4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3, 11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7, 5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15, 15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, **10.3**
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1, 15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**

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MISCELLANEOUS PROVISIONS
13
Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, **12.3**
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's
3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, **9.9**
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Payments, Progress
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Permits, Fees, Notices and Compliance with Laws
2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, **3.12**, 4.2.7
Progress and Completion
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

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Project, Definition of
1.1.4
Project Representatives
4.2.10
Property Insurance
10.2.5, **11.2**
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2

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Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, **10**, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, **14.2**, 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, **15.1.7**
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, **11.3**
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

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G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

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§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

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§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

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§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

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§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

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delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

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specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

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§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

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§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

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ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

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§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

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.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

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§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

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§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

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.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

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§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

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§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

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.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

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promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act

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or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

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The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

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§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and

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approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

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§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

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§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

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§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

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§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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SECTION 00 73 10
SUPPLEMENTARY CONDITIONS

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. AIA A101 - Standard Form of Agreement Between Owner and Contractor where the basis of Payment is a Stipulated Sum; 2017.

1.02 DESCRIPTION

A. The following Supplementary Conditions modify the "General Conditions of the Contract for Construction," AIA Document A201, 2017. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect. In the event of a conflict between the General Conditions of the Contract for Construction and 00 73 10 – Supplementary Conditions, 00 73 10 Supplementary Conditions shall control even if the conflicting provision in the General Conditions of the Contract for Construction is not expressly revised or deleted by reference in 00 73 10 Supplementary Conditions.

B. The General Conditions may also be supplemented or amplified elsewhere in the Contract Documents by provisions located in, but not necessarily limited to, Division 1 of the Specifications.

1.03 SUPPLEMENTS

ARTICLE 1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS:

Delete the last sentence in Article 1.1.1 and insert the following:

The Contract Documents shall include the Instructions to Bidders, the plans, the specifications, including Divisions 1 through 49 (Masterformat 2004), all Addenda and modifications to the plans and/or specifications, the Agreement between Owner and Contractor, the performance and payment bonds, the notice to proceed and any executed change orders. Information and documentation pertaining to soil investigation data, laboratory investigations, soil borings and related information included herein are not part of the Contract Documents. In the event of a conflict between the provisions of Division 0 and any other section of the Contract Documents, such other sections(s) shall govern.

1.1.2 THE CONTRACT

Add the following to the end of Article 1.1.2:

Large scale drawings shall govern over small scale drawings where there are differences or conflicts between such drawings. Where the word “similar” appears on the plans, it shall not be interpreted to mean “identical” and shall require the Contractor to coordinate the actual conditions and dimensions of the location where the “similar” conditions are shown to occur.

1.1.9 MISCELLANEOUS DEFINITIONS

Add the following:

The term "products" as used in these Supplementary Conditions includes materials, systems and equipment.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.4 ADD THE FOLLOWING ARTICLE 1.2.4:

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated in the Work, in full accordance with the Contract Documents.

1.2.5 ADD THE FOLLOWING ARTICLE 1.2.5:

The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the intent of the Contract Documents. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as “Not In Contract” (“N.I.C.”), the Contractor’s obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor’s expense to produce a product or system that is complete, appropriately tested, and in operable condition ready for use or subsequent construction or operation by the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

Words or phrases used in the Contract Documents which have well-known technical or construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement of Bids.

In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect’s interpretation.

Generally, portions of the Contract Documents written in longhand take precedence over typed portions, and typed portions take precedence over printed portions.

Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

1.6 TRANSMISSION OF DATA IN DIGITAL FORM

Delete the phrase “they shall endeavor to” in the second line and insert the phrase “the Parties shall” and add the following to the end of the sentence:

“, which protocols shall be the same as or similar to the Digital Data Protocol Exhibit, AIA Doc. E201-2007.”

ARTICLE 2 - OWNER

2.2 EVIDENCE OF THE OWNERS FINANCIAL ARRANGEMENTS

2.2.1 ADD THE FOLLOWING TO THE BEGINNING OF ARTICLE 2.2.1:

IF THE PROJECT IS A PRIVATE PROJECT, NOT FUNDED BY PUBLIC FUNDS, THEN . . .

2.2.2 DELETE ARTICLE 2.2.2 INCH (55.88 MM) ITS ENTIRETY.

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.1 DELETE ARTICLE 2.3.1 INCH (78.74 MM) ITS ENTIRETY.

2.3.2 ADD THE FOLLOWING AT THE END OF ARTICLE 2.3.2

NOTE:

The term “Architect”, “Engineer” or “Design Professional” as used in the Contract Documents refers to Eley Guild Hardy Architects.

2.3.4 DELETE ARTICLE 2.3.4 INCH (86.36 MM) ITS ENTIRETY.

2.3.6 DELETE ARTICLE 2.3.6 INCH (91.44 MM) ITS ENTIRETY AND INSERT THE FOLLOWING:

NOTE:

2.3.6 The Contractor will be furnished 1 CD with all Contract Documents included for purposes of making reproductions pursuant to Section 1.5.2.

2.4 OWNER’S RIGHT TO STOP THE WORK

2.4 DELETE ARTICLE 2.3 INCH (58.42 MM) ITS ENTIRETY AND INSERT THE FOLLOWING:

2.3 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Article 12.2 or fails to carry out Work in accordance with the Contract Documents or fails to perform any of its obligations under the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. However, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Article 6.1.3.

The rights and remedies under this Article 2.4 are in addition to and do not in any respect limit any other rights of the Owner, including its termination rights under Article 14.

ARTICLE 3 - CONTRACTOR

3.1 GENERAL

3.1.1 ADD THE FOLLOWING AT THE END OF ARTICLE 3.1.1:

The relationship of Contractor to Owner shall be that of independent contractor, and nothing in the Contract Documents is intended to nor should it be construed as creating any other relationship, expressed or implied, between Owner and Contractor.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.5 ADD THE FOLLOWING ARTICLE 3.2.5:

The Owner is entitled to deduct from the Contractor’s pay applications for amounts paid to the Architect for evaluating and responding to the Contractor’s requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

3.4 LABOR AND MATERIALS

3.4.2 ADD THE FOLLOWING TO THE END OF ARTICLE 3.4.2:

Some Sections of the Specifications may not allow substitution of materials, products or equipment. Where substitution is allowed the request for substitution will only be considered if made in strict accordance with the requirements of Article 3.4.4 below and Division 1 Section “Product Requirements”.

3.4.4 ADD THE FOLLOWING ARTICLE 3.4.4:

After the Contract has been executed, the Owner and the Architect may consider a request for the substitution of products in place of those specified only under the conditions set forth in Division 1 Section “Product Requirements”. of the specifications.

By making requests for substitutions, the Contractor:

1. Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respect to that specified;
2. Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
3. Certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent; and
4. Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects at its costs.

All substitutions shall be submitted within 30 days of the Notice to Proceed, as per Division 1 Section “Product Requirements”.

3.4.5 ADD THE FOLLOWING ARTICLE 3.4.5:

Contractor represents that it has independently investigated, considered and understands the labor conditions in the area surrounding the Project and acknowledges that such conditions may impact the Contractor’s cost and/or time of performance of the Contract. Therefore, Contractor further represents that the Contract Price is based upon Contractor’s independent investigations into such labor conditions and that the Contract time is reasonable and the date of Substantial Completion is obtainable. As a result, Contractor assumes the risk of increased costs, if any, incurred by it arising out of or related to such labor conditions and acknowledges that Contractor and its surety will reimburse Owner for any additional costs Owner incurs arising out of or related to such labor conditions.

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

3.7.1 Delete Article 3.7.1 inch (180.34 mm) its entirety and insert the following:

The Contractor shall secure and pay for the building permit and all other permits, fees, licenses, inspections and all other approvals and charges necessary for proper execution and completion of the Work.

3.7.3 DELETE THE WORDS “KNOWING IT TO BE” FROM ARTICLE 3.7.3.

3.8.2.3 ADD THE FOLLOWING TO THE END OF ARTICLE 3.8.2.3;

. . . except when installation is specified to be included as part of the allowance in the General Requirements (Division 1 of the Specifications).

3.9 SUPERINTENDENT

Add the following to the end of Article 3.9.1:

The Contractor shall also employ a competent project manager who shall be primarily responsible for the Contractor’s home office activities in connection with the Contract. The Owner shall have the right, which shall be exercised in a reasonable fashion, to approve the project manager and/or superintendent employed by the Contractor, either before or during the progress of construction.

The superintendent and project manager for the project shall be designated by the Contractor at the pre-construction conference. After Owner's approval of such project manager and superintendent, they shall not be replaced by the Contractor without the Owner's prior written consent, which consent is required unless the Contractor submits proof satisfactory to the Owner that the superintendent and/or the project manager should be terminated by the Contractor for cause.

3.10 CONTRACTOR'S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.1 Add "but, in any event, no less than submission of a revised schedule with each monthly application for payment pursuant to Section 9.3" between "intervals" and "as" in the fourth sentence.

3.10.3 DELETE ARTICLE 3.10.3 INCH (261.62 MM) ITS ENTIRETY AND INSERT THE FOLLOWING:

Time being of the essence, the Contractor shall perform the Work in accordance with the most recent schedule submitted to and approved by the Owner and Architect.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.6 Add the following to the end of Article 3.12.6:

In reviewing Shop Drawings, Product Data, Samples and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

3.12.8 Add the following to the end of Article 3.12.8:

Unless such written notice has been given, the Architect's approval of a Shop Drawing, Product Data, Sample or similar submittal shall not constitute approval of any changes not requested on the prior submittal.

3.12.9 Add the following to the end of Article 3.12.9:

The Architect's review of the Contractor's submittals will be limited to examination of an initial submittal and one (1) resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

3.12.10.1 Delete the second sentence entirely and replace with: "The performance and design criteria specified by the Architect in the Contract Documents shall be prepared in accordance with the applicable standard of care."

3.18 INDEMNIFICATION

3.18.1 Add the word "defend," before the word "indemnify" in the first line, add the words "or nonperformance" after the word "performance" in the third line and delete the phrase which begins "provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself)," to the end of the sentence.

4.2 ADMINISTRATION OF THE CONTRACT

4.2.4 Delete the last sentence entirely.

4.2.10 Delete Article 4.2.10 inch (53.34 mm) its entirety.

ARTICLE 5 - SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Delete the phrase "Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract" from the first sentence of Article 5.2.1 and insert the following in lieu thereof:

1. “The Contractor, with its first Application for Payment and as a condition to the Owner’s obligation to make payments to Contractor under Article 9 of the General Conditions as supplemented herein,”

5.2.5 ADD THE FOLLOWING:

The Contractor’s unauthorized substitution of any subcontractor, supplier, person or entity previously identified by Contractor in accordance with Article 5.2.1 shall entitle the Owner to reject the work, materials or product furnished and require removal and replacement at no additional cost to the Owner.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

DELETE ARTICLES 6.1.1, 6.1.2, 6.1.3, 6.1.4 INCH (35.56 MM) THEIR ENTIRETY AND INSERT THE FOLLOWING:

6.1 The term “Separate Contractor(s)” shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner’s own forces and to award separate contracts either in connection with other portions of the Project or other construction or operation on the site. In such event, the Contractor shall coordinate its activities with those of the Owner and of Separate Contractors so as to facilitate the general progress of all work being performed by all parties. Cooperation will be required in the arrangement for the storage of materials, and in the detailed execution of the Work.

The Contractor, including his subcontractors, shall keep informed of the progress and the detailed work of the Owner or Separate Contractors and shall immediately notify the Architect of lack of progress or delays by Separate Contractors which are affecting Contractor’s Work. Failure of Contractor to keep informed of the progress of the work of the Owner or Separate Contractors and/or failure of Contractor to give notice of lack of progress or delays by the Owner or Separate Contractors shall be deemed to be acceptance by Contractor of the status of progress by Separate Contractors for the proper coordination and completion of Contractor’s Work. If, through acts or neglect on the part of the Contractor, the Owner or any Separate Contractors shall suffer loss or damage or assert any claims of whatever nature against the Owner, the Contractor shall defend, indemnify and hold harmless the Owner from any such claims or alleged damages, and the Contractor shall resolve such alleged damages or claims directly with the Separate Contractors.

6.2 MUTUAL RESPONSIBILITY

6.2.3 Delete Article 6.2.3 inch (58.42 mm) its entirety.

ARTICLE 7 - CHANGES IN THE WORK

7.1 GENERAL

7.1.3 Add the following to the end of Article 7.1.3:

Except as permitted in Article 7.3, a change in the Contract Sum or the Contract Time shall only be accomplished by written change order. Therefore, the Contractor acknowledges that it is not entitled to a change in the Contract Sum or the Contract Time in the absence of a written change order on the basis of the course of conduct or dealings between the parties and/or the Owner’s express or implied acceptance of alterations or additions to the Work and/or the Owner has been unjustly enriched by the Contractor’s Work or any other basis otherwise allowed by law or the facts and Contractor agrees that any such extra or changed work was performed by it as a volunteer.

7.2 CHANGE ORDERS

7.2.2 ADD THE FOLLOWING ARTICLE 7.2.2:

Contractor’s execution of a change order constitutes a final settlement to the Contract Sum and construction schedule and the Contract Time for all matters relating to or arising out of the change in the Work that is the subject of the change order including, but not limited to, all direct and indirect costs associated with such change, all extended direct job site and home office overhead expenses and any and all delay and impact cost for the change, whether alone or in combination with other changes, including any impact, ripple or cumulative effect resulting therefrom, if any.

7.2.3 ADD THE FOLLOWING ARTICLE 7.2.3:

Adjustments to the Contract Sum by change order shall be based upon one of the methods set forth in Article 7.3.3.1, 7.3.3.2, 7.3.3.3 or 7.3.3.4, as appropriate. A reasonable allowance for the combined overhead and profit included in the change order shall be based upon the schedule set forth in Article 7.3.11, as supplemented.

7.2.4 ADD THE FOLLOWING ARTICLE 7.2.4:

In order to facilitate consideration of change order requests, all such requests, except those involving an amount less than $500 must be accompanied by a complete itemization of costs, including labor, materials and subcontractor costs which shall likewise be itemized. Changes for more than $500 will not be approved without such itemization.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.5 ADD “OWNER OR” BETWEEN “THE” AND “CONTRACTOR” IN BOTH PLACES THEY APPEAR IN THIS ARTICLE.

7.3.8 DELETE THE FIRST SENTENCE AND INSERT THE FOLLOWING:

A. The amount of credit to be given by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be the actual net cost plus reasonable allowance for overhead on net cost and profit thereon as approved by the Architect and Owner.

7.3.11 ADD THE FOLLOWING ARTICLE 7.3.11:

The allowance for overhead and profit combined, including extended direct job and home office overhead and any and all delay, impact, inefficiency, disruption and ripple effect to be included in the total cost to the Owner, shall be based on the following schedule:

1. .1 For the Contractor, for work performed by the Contractor's own forces, 15 percent of the cost.
2. .2 For the Contractor, for work performed by the Contractor's subcontractor, 10 percent of the amount due the subcontractor.
3. .3 For each subcontractor or sub-subcontractor involved, for work performed by that subcontractor or sub-subcontractor's own forces, 15 percent of the cost.

   .4 For each subcontractor, for work performed by the subcontractor's sub-subcontractor's, 10 percent of the amount due the sub-subcontractor.

.5 Costs to which overhead and profit is to be applied shall be determined in accordance with Article. 7.3.4.

ARTICLE 8 - TIME

8.2 PROGRESS AND COMPLETION

8.2.1 ADD THE FOLLOWING TO THE END OF THE SECOND SENTENCE:

and that the Contractor is fully capable of properly completing the Work within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.3 ADD THE FOLLOWING TO THE END OF ARTICLE 8.3.3:

No delay, interference, hindrance or disruption, from whatever source or cause, in the progress of the Contractor's Work shall be a basis for an extension of time and/or additional compensation, unless the delay, interference, hindrance or disruption (1) is without the fault and not the responsibility of the Contractor, its subcontractors and/or suppliers and (2) directly affects the overall completion of the Work as reflected on the critical path of the Contractor's updated and accepted construction schedules. The Contractor expressly agrees that the Owner shall have the benefit of any float in the construction schedule and that delays to construction activities, which do not affect the overall completion of the Work, do not entitle the Contractor to any extension in the Contract Time and/or increase in Contract Sum.

8.3.4 ADD THE FOLLOWING ARTICLE 8.3.4:

All claims by the Contractor for an increase in the Contract Time must follow the procedures set forth in Articles 15.1.2, 15.1.3, 15.1.5, AND 15.1.6, including the requirement that the Contractor give written notice of any claim within twenty-one (21) days after occurrence of the event giving rise to such claim or within twenty-one (21) days after the Contractor first recognizes the condition giving rise to the claim, whichever is earlier.

8.3.5 ADD THE FOLLOWING ARTICLE 8.3.5:

If the Contractor submits a schedule indicating or otherwise expressing an intent to complete the Work prior to the date of substantial completion, the Owner shall have no liability to the Contractor for any failure by the Contractor to complete the Work prior to the expiration of the Contract Time.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.3 APPLICATION FOR PAYMENTS

9.3.1 Add the following sentence to the end of Article 9.3.1:

The form of Application for Payment will be the current edition of the AIA Document G702, Application and Certification for Payment, supported with AIA Document G703, Continuation Sheet.

9.3.1.3 ADD THE FOLLOWING ARTICLE 9.3.1.3:

The Owner will retain, until the Work is one hundred percent (100%) complete, five percent (5%) of the amount due the Contractor on account of progress payments. No reduction in retainage will be made until final payment is made except that when the original Contract amount is in an amount equal to or greater than $750,000, then whenever such Work is fifty percent (50%) complete and on schedule and satisfactory, in the opinion of the Architect and the Owner, fifty percent (50%) of the retainage may be returned to the Contractor and two and one half percent (2.5%) will be retained on all subsequent progress payments. The Owner may subsequently increase the retainage if the Contractor's manner of completion of the Work and/or its progress do not remain satisfactory to the Architect and/or Owner or if the Surety withholds its consent to payment for other good and sufficient reasons.

9.3.2.1 ADD THE FOLLOWING ARTICLE 9.3.2.1:

A. Payment for materials stored at some location other than the Project site, may be approved by the Architect and the Owner after the Contractor has submitted the following items:
   1. An acceptable Lease Agreement between the Contractor or one of its subcontractors or suppliers and the owner of the land, or building, where the materials are stored covering the specific area where the materials are located.
   2. Consent of Surety or other acceptable bond to cover the materials stored off-site.
   3. All Perils Insurance coverage for the full value of the materials stored off-site.
   4. A Bill of Sale from the Manufacturer to the Contractor for the stored materials.
   5. A complete list and inventory of materials manufactured, stored and delivered to the storage site and of materials removed from the storage site and delivered to the Project.

6. A review by the Architect of the materials stored off-site prior to release of payment. Proof of payment of stored materials verified by the supplier must be submitted to the Architect within thirty (30) days of the Application for Payment on which payment for said materials was made. If proof of payment is not submitted within thirty (30) days, then payment for said materials will be deducted from the next application for payment and withheld until proof of payment is received.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1.7 Delete the word “repeated”.

9.5.1.8 ADD THE FOLLOWING ARTICLE 9.5.1.8:

A. The letter from the Contractor which is required by Article 15.1.6.2 has not been received.

9.6 PROGRESS PAYMENTS

9.6.1 DELETE ARTICLE 9.6.1 IN ITS ENTIRETY AND INSERT THE FOLLOWING:

Subject to the conditions of the Contract, the Owner shall make payment to the Contractor in the amount certified within thirty (30) days after receipt of the Certificate for Payment from the Architect. Payment shall not be considered late until thirty (30) days after Owner’s receipt of the approved Certificate for Payment from the Architect.

9.6.1.1 Contractor’s Applications for Payment shall be submitted on or before the 25th day of each month, or as agreed upon by the Owner and Contractor. Any application not submitted on or before this date may not be processed or approved until the following month.

9.6.7 Delete the word “Unless” from the first sentence and insert the phrase “Whether or not.”

Add the following to the end of Article 9.6.7:

The amount retained by the Contractor from each payment to each Subcontractor and material supplier shall not exceed the percentage retained by the Owner from the Contractor for the Subcontractor’s Work.

9.7 FAILURE OF PAYMENT

9.7 IN THE FIRST SENTENCE, DELETE THE WORDS "OR AWARDED BY BINDING DISPUTE RESOLUTION".

9.8 SUBSTANTIAL COMPLETION

9.8.1 DELETE ARTICLE 9.8.1 INCH (205.74 MM) ITS ENTIRETY AND INSERT THE FOLLOWING:

Substantial completion for purposes of this Contract occurs only upon Contractor’s compliance with the following conditions precedent: (a) the Contractor furnishes to the Architect all close-out documents required by the Contract Documents in a form satisfactory to the Architect and the Owner, (b) the Contractor furnishes the manufacturers’ certifications and/or warranties required by the Contract Documents; (c) the Contractor furnishes the Guarantee of Work set forth hereinbelow; and (d) the Architect certifies that the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended purpose.

The Guarantee of Work shall be submitted as a separate document signed by Contractor and Contractor’s Surety and shall state the following:

Contractor and Contractor’s Surety hereby guarantee that all Work performed on the Project is free from defective and/or nonconforming materials and workmanship and that for a period of one year from the date of final completion or such longer period of time as may be called for in the Contract Documents for such portions of the Work, Contractor or its Surety will repair and/or replace any defective and/or nonconforming materials and workmanship in accordance with the requirements of the Contract Documents.

9.8.2.1 ADD THE FOLLOWING ARTICLE 9.8.2.1:

The Contractor shall be responsible for the costs of inspections made by the Architect including any and all other related expenses incurred by the Architect for providing services for the

Project required by failure of the Contractor to achieve final acceptance / completion of the Project within 30 days after the first occurrence of the below described events:

1. Specified date of Substantial Completion; or
2. Actual date of Substantial Completion.

The costs of the Architect's additional services shall be deducted by the Owner from the Contractor's final application for payment to pay the Architect for additional services required by the Contractor's failure to achieve final completion of the project within the 30 day period described above.

9.8.4 DELETE THE LAST SENTENCE OF ARTICLE 9.8.4 AND INSERT THE FOLLOWING:

Warranties required by the Contract Documents shall commence and continue for one (1) year from the date of Substantial Completion unless otherwise provided in the Contract Documents. Exception is that the roof system shall be warranted by the Contractor for a period of two (2) years from the date of Substantial Completion.

9.8.5 ADD THE FOLLOWING TO THE END OF ARTICLE 9.8.5:

Contractor's execution of the Certificate of Substantial Completion constitutes Contractor's representation that the items on the list accompanying the Certificate can and will be completed by Contractor and his subcontractors within thirty (30) days of Contractor's execution of the Certificate. Based upon this representation by Contractor and upon the acknowledgment of the Architect that the listed items remaining can be completed within thirty (30) days, the Owner agrees to execute the Certificate of Substantial Completion. If Contractor fails to complete the items on the list within thirty (30) days of Contractor's execution of the Certificate, then the Owner, at its option and without prejudice to any other rights or remedies it may have under this Contract or otherwise and without notice to Contractor or Surety, may proceed to have same completed and to deduct the reasonable costs thereof from the amounts then due or thereafter to become due to Contractor.

9.8.6 ADD THE FOLLOWING ARTICLE 9.8.6:

The costs of inspections requested by Contractor and made by Architect which are not required by Articles 4, 9.8 or 9.10 of the General Conditions and any other inspection required by Article 12 other than the year-end inspection itself, will be the responsibility of the Contractor and will be deducted by the Owner from the Application for Payment submitted after the Owner's receipt of the Architect's statement for its costs of additional inspections. These costs are not the result of Contractor's failure to timely complete the Contract within the specified time and, therefore, such costs are in addition to and not a part of any liquidated damages calculation, if any.

9.8.7 ADD THE FOLLOWING ARTICLE 9.8.7:

Upon the Owner's acceptance of the Work as substantially complete and upon Contractor's compliance with all conditions precedent to substantial completion as stated in 00 73 00 – Supplementary Conditions, Article 9.8.1 and upon application by the Contractor, the Owner will pay to the Contractor all retainage held by the Owner less an amount equal to the greater of (a) two percent (2%) of the Contract Sum, or (b) two hundred percent (200%) of the estimated cost of the Work remaining to be performed by the Contractor in accordance with the Architect's determination. Final payment, including all retainage, shall be made at the time and in the manner provided for final payment in accordance with the provisions of Article 9.10 and the additional conditions precedent to final acceptance / payment set forth in 00 73 00 – Supplementary Conditions, Article 9.8.5.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1.2 ADD THE FOLLOWING ARTICLE 9.9.1.2:

The Owner's occupancy or use of any completed or partially completed portions of the Work shall not affect Contractor's obligation to complete incomplete items on the list attached to the Certificate of Substantial Completion within the time fixed in the Certificate and does not waive Owner's right to obtain completion of incomplete items at Contractor's expense upon Contractor's failure to timely complete same.

9.11 LIQUIDATED DAMAGES

Liquidated Damages. Time being of the essence of this Contract and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the Project is not substantially complete on the date set forth in the Contract Documents. The Contractor and his Surety will be liable for and will pay the Owner the sums hereinafter stipulated as fixed and agreed as liquidated damages for each calendar day for delay until the Work is substantially complete. The Contractor and his Surety acknowledge that the Owner's losses caused by the Contractor's delay are not readily ascertainable and that the amount estimated per day for liquidated damages is reasonable and is not a penalty.

The amount established per day for liquidated damages is indicated on the Bid Form.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following to the end of Article 10.1:

The Architect shall not administer the Contractor's performance of its duties and responsibilities under Article 10 (including Articles 10.1 through 10.6) because the initiation, maintenance and supervision of safety precautions and programs is the sole responsibility of the Contractor as means, methods, techniques, sequences and procedures of construction and, therefore, is not part of the Contractor's scope of Work which is to be administered by the Architect.

ARTICLE 11 – INSURANCE AND BONDS

NOTE: ALL TERMS AND PROVISIONS OF INSURANCE AND BONDS ARE LOCATED ON AIA A101 EXHIBIT A, INSURANCE AND BONDS.

11.4 LOSS OF USE, BUSINESS INTERRUPTION, AND DELAY IN COMPLETION INSURANCE

11.4 Delete Article 11.4 inch (289.56 mm) its entirety.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 ADD THE FOLLOWING TO THE END OF ARTICLE 12.2.2.1:

Prior to the end of the one-year period, the Architect may schedule a warranty inspection which shall be attended by the Architect, the Owner, the Contractor and all major subcontractors. During this inspection, the parties shall identify all defective and/or nonconforming items and fix a time within which all defective and/or nonconforming items shall be repaired and/or replaced.

12.2.2.1.1 ADD THE FOLLOWING ARTICLE 12.2.2.1.1:

Within the one-year period provided for in the Guarantee of Work required by Article 9.8.1, if repairs or replacement are requested by Owner in connection with the Work which, in the opinion of the Owner, are rendered necessary as a result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the Contract Documents, the Contractor and/or its Surety shall promptly, upon receipt of notice from and without expense to the Owner, place in satisfactory condition in every particular, all such Work, correct all defects therein and make good all damages to the building, site, equipment or contents thereof; and make good any work or materials or the equipment and contents of said buildings or site disturbed in fulfilling any such guarantee. If, after notice or within the time agreed upon by the parties at the warranty inspection, the Contractor and/or its Surety fail to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected in accordance with Article 2.4 and the Contractor and his Surety shall be liable for all expenses incurred. All special guarantees applicable to definite parts of the Work stipulated in the Contract Documents shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.5 INTEREST

13.5 DELETE ARTICLE 13.5 INCH (342.9 MM) ITS ENTIRETY AND INSERT THE FOLLOWING:

Payments due and unpaid under the Contract Documents shall bear interest as provided by applicable Mississippi law.

13.6 ATTORNEYS' FEES AND EXPENSES

A. Add the following Article 13.6 to private projects not funded in whole or in part by public monies.

B. The prevailing party in any dispute between the parties arising out of or related to this Agreement or the breach thereof, shall be entitled to reasonable attorneys' and expert witness(es) fees and expenses incurred in pursuing or defending any claim.

13.7 ENFORCEABLE PROVISIONS

Add the following Article 13.7:

If it is determined that any provision of the Agreement is not enforceable under Mississippi law, Contractor agrees that the unenforceability of such provision shall not alter or modify any other provisions of the Contract Documents and that the Contract Documents shall be interpreted as if such provision was never included in the Agreement or Contract Documents.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1.4 Delete Article 14.1.1.4 inch (35.56 mm) its entirety.

14.1.3 Delete ", as well as reasonable overhead and profit on Work not executed," between "executed" and "and" in the third line.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1.1 Delete the word "repeatedly" from Article 14.2.1.1.

14.2.1.3 Delete the word "repeatedly" from Article 14.2.1.3.

14.2.1.5 ADD THE FOLLOWING ARTICLES 14.2.1.5 AND 14.2.1.6:

.5 fails to achieve Substantial Completion of the Project as described in 00 73 00, Article 9.8.5, within the time stated therein;

.6 fails to meet any deadline required by the Contract. Contractor acknowledges that time is of the essence of this Contract and that all deadlines required by the Contract are critical to timely completion of the Contract. Therefore, Contractor agrees that its failure to meet any deadline constitutes a substantial and material breach of this Contract, entitling the Owner to terminate the Contract.

14.2.2 DELETE THE WORD "CERTIFICATION" IN THE FIRST SENTENCE AND INSERT THE WORD "ADVICE" AND DELETE THE PHRASE "INITIAL DECISION MAKER" AND INSERT THE WORD "ARCHITECT".

14.2.4 DELETE THE PHRASE "INITIAL DECISION MAKER" AND INSERT THE WORD "ARCHITECT".

14.2.5 ADD THE FOLLOWING ARTICLE 14.2.5:

If the Owner terminates the Contract for cause, and it is determined for any reason that the Contractor was not actually in default under the Contract at the time of termination, the Contractor shall be entitled to recover from the Owner the same amount as the Contractor would be entitled to receive under a termination for convenience as provided by Article 14.4. The foregoing shall constitute the Contractor's sole and exclusive remedy for termination of the Contract. In no event shall the Contractor be entitled to special, consequential, or exemplary damages, nor shall the Contractor be entitled to anticipated profits resulting from termination of this Contract.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.3 DELETE FROM THE LAST LINE OF ARTICLE 14.4.3 THE PHRASE “ALONG WITH REASONABLE OVERHEAD AND PROFIT ON THE WORK NOT EXECUTED” AND ADD AFTER THE END OF THAT SENTENCE: “THE CONTRACTOR SHALL NOT BE ENTITLED TO RECEIVE ANY PAYMENT FOR EITHER OVERHEAD OR PROFIT ON WORK NOT PERFORMED.”

ARTICLE 15 - CLAIMS AND DISPUTES

15.1.2 DELETE THE PHRASE “IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL DISPUTE RESOLUTION METHOD SELECTED WITHIN THE AGREEMENT”.

15.1.6 CLAIMS FOR ADDITIONAL TIME

15.1.6.2 ADD THE FOLLOWING TO THE END OF ARTICLE 15.1.6.2:

The Contractor must submit each month with his Application for Payment a separate letter stating that he is requesting an extension of time for abnormal adverse weather or that he has no claim for an extension for that period of time. Payment is not due on the Application for Payment until the letter is received. Complete justification, including weather reports, daily reports, correspondence and any other supporting data must be provided for each day for which a request for time extension is made. A letter or statement that the Contractor was delayed is not as adequate justification. The receipt of this request and data by the Architect will not be considered as Owner or Architect approval of a time extension in any way.

15.1.6.3 ADD THE FOLLOWING ARTICLE 15.1.6.3:

A. This Article governs the procedure for determination of time extensions for abnormally adverse or unusually severe weather. In order for the Owner and Architect to award a time extension under this clause, the following conditions must be satisfied:
   1. The weather experienced at the project site during the contract period must be found to be abnormally adverse or unusually severe, that is, more severe that the adverse weather anticipated for the project location during any given month.
   2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contactor.

B. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the Project location and will constitute the base line for monthly weather time evaluations. The Contractor’s activity durations in the progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAYS

BASED ON FIVE (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	JUN	JUL	NOV	DEC
(6)	(9)	(9)	(9)	(5)	(5)	(5)	(7)	(4)	(4)	(4)	(7)

A. Upon receipt of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor shall record on the daily report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on the overall project’s critical activities for 50 percent or more of the contractor’s schedule work day and register .10 inches of rain or more. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated above, the Owner and Architect will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather days and issue a modification in accordance with the contract.

B. The Contractor must submit each month with his application for payment a separate letter stating that he is requesting an extension of time for abnormal adverse weather or that he has

no claim for an extension for that period of time. No payment on a monthly application is due until the letter is received. Complete justification including an analysis verifying that conditions as stated herein above must accompany each request. A Contractor's letter or statement that it was delayed will not be considered as adequate justification. The receipt of this request and data by the Architect will not be considered as Owner and Architect approval of a time extension in any way.

15.1.6.4ADD THE FOLLOWING ARTICLE 15.1.6.4:

Claims for increase in the Contract Time shall set forth in detail the facts and circumstances which support such Claim, including but not limited to, the cause of such delay, the date such delay began to affect the critical path, the date such delay ceased to affect the critical path and the number of days of additional time requested. The Contractor shall not be entitled to an increase in the Contract Time for delays which did not affect the critical path or to the extent there were concurrent non-excusable delays. The Contractor may be requested to provide additional documentation to substantiate its Claim, including but not limited to, schedules that indicate all activities affected by such delay.

15.1.8 ADD THE FOLLOWING ARTICLE 15.1.8:

The Contractor expressly agrees that the Article 15 Claims and Disputes process is the only dispute resolution mechanism that will be recognized by the parties for any claims put forward by the Contractor, notwithstanding any other claimed theory of entitlement on the part of the Contractor or its subcontractors or suppliers against the Owner and/or the Architect or any of their design consultants, including, but not limited to, all claims of breach of contract, breach of warranty, misrepresentation, negligence, professional negligence, and/or any other tort.

15.2 INITIAL DECISION

15.2.4 Add "within thirty (30) days" to the end of Article 15.2.4.

15.3 MEDIATION

15.3.1 Delete the phrase "shall be subject to mediation as a condition precedent to binding dispute resolution" and insert the phrase "may be subject to mediation upon mutual agreement of the Owner and Contractor".

15.3.2 Delete the word "shall" in the first sentence wherever it appears and insert the word "may".

15.3.3 Delete Article 15.3.3 inch (83.82 mm) its entirety.

15.4 ARBITRATION

15.4.1 Delete the word "parties have" in the first sentence and insert the word "Owner has" and delete the phrase "unless the parties mutually agree" in the first sentence and insert the phrase "unless the Owner chooses".

15.4.4 CONSOLIDATION OR JOINDER

15.4.4 Delete Article 15.4.4, including subparts .1 - .3 inch (7.62 mm) its entirety and insert the following:

15.4.4.1 The Owner, at its sole discretion, may consolidate any arbitration, if any, conducted under this Agreement with any other arbitration to which it is a party where the Owner determines that the arbitrations to be consolidated substantially involve common questions of law or fact and the Owner, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration.

END OF SECTION 00 73 10

SECTION 01 11 00
SUMMARY OF WORK

PART 1 – GENERAL

1.01 PROJECT IDENTIFICATION

A. The project, **MGCCC - ATHLETIC PERFORMANCE ADDITION**, located on the Perkinston Campus of Mississippi Gulf Coast Community College, Perkinston, Mississippi, as shown on the Contract Documents.

1.02 PROJECT DESCRIPTION

A. Work includes renovation of existing Athletic Performance Facility (APF) as indicated on Drawings.

B. All accessories or incidental items not specifically shown and detailed in the specifications herein, which are necessary and/or required to complete the work within the intent of the specifications, shall be included by the Contractor without additional cost to the Owner.

C. Alternates: Refer to Division 1, Section 01 23 00 “Alternates” for descriptions.

1.03 REVIEW OF CONTRACT DOCUMENTS

A. Contractor represents that he has thoroughly reviewed the drawings, specifications, and contract documents and that they are suitable for submitting a valid bid.

B. Contractor shall submit a written description of all deficiencies and ambiguities in the contract documents relating to their portion of the Work to the Architect within 30 days of signing the Agreement. Change orders for design deficiencies or ambiguities not included in Contractor’s description will not be allowed.

1.04 WORK BY OWNER AND OTHERS (EXCLUDED FROM BID PACKAGES)

A. Some items will be furnished (and some installed) by Owner under separate contracts. Contractors shall coordinate and cooperate with these separate contractors including scheduling delivery and installation dates, storage of materials, and use of utilities.
   1. Loose furniture
   2. Furnishings

1.05 GENERAL INFORMATION

A. All work shall be performed in a professional manner and workmanlike manner.

B. Submittals: Submittals shall be submitted in accordance with Division 1 Section – Submittal Procedures.

C. Scheduling: Contractor shall prepare a construction schedule using an industry recognized electronic scheduling program showing each construction activity, based on the project specifications 49 Divisions, prior to starting work and will be required to follow the requirements as outlined in Division 1 Sections. Schedule shall factor in allowances for inclement weather as described elsewhere in this Section and “Supplementary Conditions”.

D. Contractor will be expected to cooperate with the Architect, Owner, and other Owner’s representatives in pursuing work continuously and with the highest degree of efficiency possible.

E. Contractor will be required to finish the job and leave the site in a condition similar to starting project.

F. Inclement Weather: The performance period for this project has incorporated allowances for inclement weather. The basis for determining this allowance is indicated in 00 72 13 – General Conditions and 00 73 10 – Supplementary Conditions.
   1. For the purposes of this contract, weather days shall be defined as a working day in which work cannot be effectively performed due to inclement weather. If the number of weather days in any given month exceeds the planned number shown in the table, the performance period will be extended on a one for one basis upon request and approval by

the Owner. For consideration, this request shall be submitted monthly with the progress report. All requests should identify all weather days in that month.

G. Storm Damage: Should warnings of winds of gale force or stronger be issued, the Contractor shall take every practical precaution to minimize danger to persons and damage to property. These precautions shall be coordinated through the Owner's Representative and shall include closing all openings; removing all loose materials, tools, and equipment from exposed locations; as well as removing or securing scaffolding and other temporary work.

H. Interruption of Utility Service: Interruptions to utility services shall be minimized. Necessary outages shall be coordinated with the Owner and Architect a minimum of 10 days in advance of the planned outage.

1.06 WORKING CONDITIONS

A. Each Contractor shall take all necessary and prudent safety precautions to ensure the safety of the workforce and other exposed personnel.

B. Building Occupancy: the areas around this project WILL be occupied during the performance of this work. Workmen shall be limited to the use of only those areas necessary to perform the work. Coordinate use of the facilities during occupancy with the Architect.

C. Hazardous Electrical Exposure: all power at the facility is disconnected at the nearest utility transformer. No buildings currently have power.

D. No Smoking (Tobacco) Policy:
   1. Smoking and other tobacco products (including smokeless tobacco and vapor type apparatuses) are prohibited within and outside of all buildings. This applies to ALL Prime Contractors, sub-contractors, and suppliers on site during construction.

1.07 TYPICAL CONTRACTOR REQUIREMENTS

A. General:
   1. Do not unreasonably encumber site with materials or equipment.
   2. Do not load structure with weight that will endanger structure.
   3. Assume full responsibility for protection and safe-keeping of products stored on premises.
      a. Move any stored products which interfere with operations of other Contractors.
      b. Obtain and pay for, use of additional storage or work areas needed for operations.
      c. Refer to Division 1 Section "Temporary Facilities and Controls" for additional information.

B. Contractor's Duties:
   1. Except as specifically noted, provide and pay for:
      a. Labor, materials, equipment.
      b. Tools, construction equipment and machinery.
      c. Water, heat and utilities required for construction.
      d. Other facilities and services necessary for proper execution and completion of work.
   2. Pay legally required sales, consumer, use, payroll, privilege and other taxes.
   3. Secure and pay for, as necessary for proper execution and completion of work, and as applicable at time of receipt of bids:
      a. Building permit fee and all other Permits and Government Fees that may be applicable.
      b. Licenses
   4. Give required notices.
   5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.
   6. Promptly submit written notice to Architect of observed variance of Contract Documents from legal requirements. It is not the contractor's responsibility to make certain that Drawings and Specifications comply with codes and regulations. Appropriate modifications to Contract Documents will adjust necessary changes. Assume responsibility for work known to be contrary to such requirements, without notice.

7. Enforce strict discipline and good order among employees. Do not employ on work, unfit persons or persons not skilled in assigned task.

C. Confine operations at site to areas permitted by:
   1. Law
   2. Ordinances
   3. Permits
   4. Contract Documents

D. Vehicular Requirements:
   1. Each Contractor is responsible for employees under their employment. Ensure that employees are familiar with and obey traffic, safety, and security regulations.
   2. Motor Vehicle Operation - Ingress and egress of personnel will be subject to the security regulations of the Project Site.
      a. All personnel must be made aware of the speed limits.
   3. Maintenance of Traffic Flow: Work performed under this contract shall be planned to minimize disruption to normal traffic flow. Barricades shall be utilized where necessary to properly route vehicular or pedestrian traffic.
      a. Coordinate all road closures and disruptions with the Owner and Architect.

PART 2 – PRODUCTS

2.01 NOT USED

PART 3 – EXECUTION

3.01 NOT USED

END OF SECTION 01 11 00

SECTION 01 22 00
UNIT PRICES

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:
   1. Section 01 2100 "Allowances" for procedures for using unit prices to adjust contingency allowances.

1.02 DEFINITIONS

A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.03 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

C. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: The Geotech report (and previous project) required over excavation to 2 feet below the footing bearing. I recommend using 1000 CY @ $25 / CY (or allow Contractor to fill in) on the bid form for removal of unsuitable materials, disposal offsite, and backfill with select fill material.
   1. Description: Reviewing the soil borings for the addition, the depth specified as base bid needs to be a maximum, because this puts us very close to a bad clay soil that is 7 ft + thick.
   2. Reviewing the soil borings for the addition, the depth specified as base bid needs to be a maximum, because this puts us very close to a bad clay soil that is 7 ft + thick.
   3. Geotech will need to be involved during construction to observe the over excavation and determine at what depth to stop mucking so we can keep as much separation from these bad soils as possible.
   4. Unit of Measurement: 1000 CY @ $25 / CY
   5. Contingency Allowance: Coordinate unit price with allowance adjustment under requirements in Section 01 2100 “Allowances”..
   6. During the pre-bid meeting, attention should be drawn to the earthwork construction equipment requirements recommended in the Geotech report. They say to use a static smooth drum roller for compaction and no proof roll efforts. The existing soils are sensitive to moisture and contractor technique and experience working in similar conditions will be crucial to minimizing undercut and replacement quantities. Dewatering efforts shall be included in Contractor’s lump sum price.

SECTION 01 23 00
ALTERNATES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

B. Coordinate related work and modify surrounding work as required to complete the project under Alternate designated in the Contract.

1.02 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.03 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. Alternate #1 Toilet Room Renovations: Women's E106 and Mens E102 Toilet Room Renovations to Exisitng Athletic Preformance Facility (APF): Alternate consists of the following:
   1. Removal of existing tile flooring and installation of new tile flooring and base in Rooms E102, E103, E105, and E106.
   2. Removal of existing toilet partitions and installation of new toilet partitions in Men's E102.
   3. Removal of existing vanity counters and sinks and installation of new vanity counter and sinks in Women's E106 and Men's E102.
   4. Removal of existing tile flooring and installation of new rubber sports flooring in Halls E103 & E105.
   5. Removal of exisitng plumbing fixtures and installation of new plumbing fixtures in rooms E102 and E106 as indicated on drawings.
   6. Removal of existing toilet accessories and installation of new toilet accessories in rooms E102 and E106 as indicated on drawings.
   7. Include is all other associated work shown and/or noted on the drawings.

B. Alternate #2 Logos: Alternate consists of the following:

1. Inlaid logos in athelic flooring, refer to ID Drawings for locations.
2. Graphic allowance, refer to section 01 21 00 Allowances.

END OF SECTION 01 23 00

SECTION 01 21 00
ALLOWANCES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section sets forth the following allowances included in the Contract:
   1. Contingency Allowance
   2. Logo Graphic Allowance **(Alternate #2)**
   3. Testing Allowance
   4. Exterior Building Logo Signage
   5. Removal/Replacement of Unsuitable Soils

B. Conditions:
   1. The Contractor shall include in his base bid the cash and/or material allowances as described hereinafter for the purchase of materials as described or as to be determined herein. All costs for overhead, profit, bond, insurance and taxes shall not be included as part of the specified allowances and these overhead amounts shall be carried as an additional cost, where applicable, in a separate line item on the contractor's bid and subsequent schedule of values.
   2. All specified allowances shall appear as a line item amount, matching the amount specified herein, on the contractor's AIA Document G703, schedule of values.
   3. Selections shall be made by the Architect (And Owner) or as specified herein and the contract price shall be adjusted as per the final price of the materials used.

1.02 ALLOWANCES

A. General:
   1. Purchase products under allowance as directed by Architect or as specified herein.
   2. The amount of all specified allowances shall include:
      a. Net cost of product
      b. Delivery to site
      c. Installation
      d. Labor
      e. Equipment Rental
   3. At close-out of Contract, funds remaining in Allowance will be credited to owner by Change Order. In addition to the balance of the allowance all applicable costs for overhead, profit, bond, insurance and taxes will be added to the allowance change order credit. Overhead amounts that can be clearly documented as being expended over the course of the project will be excluded from this added amount to the allowance credit.

B. Contingency Allowance:
   1. In addition to the work shown on the contract documents include in the base bid contract amount the following lump sum contingency cash allowance amount:
      a. Base Bid: Eighty Thousand Dollars ($35,000).
   2. Contractor shall solicit a minimum of three (3) quotes for additional material or work to be performed under the Contingency Allowance.
   3. Use of contingency allowance shall be specifically authorized in writing upon approval by authorized Owner Representative. A final accounting of all contingency funds used will be made by issuance of a change order at the end of the project. At close-out of Contract, funds remaining in Contingency Allowance will be credited to owner by Change Order.

C. Graphic Allowance: **Alternate #2**
   1. Include the following amount in Contract Sum as part of **Alternate No. 2**:
      a. Five Thousand Dollars ($5,000).
      b. Contractor to provide 3 (three) separate proposals. Approval of agency will be based upon qualifications.

D. Testing Allowance:

1. Include following amounts in Bid, for inclusion in Contract Sum, for acquisition of independent testing agency per Division 1 Section “Testing Laboratory Services”:
    a. Five Thousand Dollars ($5,000).
    b. Contractor to provide 3 (three) separate proposals. Approval of agency will be based upon qualifications.

E. Exterior Building Logo Allowance: East side of new addition refer to drawing for size and location.
1. Include following amounts in the Base Bid, for inclusion in Contract Sum:
    a. One Thousand Dollars ($1,000).

F. Hardware Allowance:
1. Include the following amount in the Base Bid for inclusion in Contract Sum:
    a. Twelve Thousand Dollars ($12,000.00).
    b. Installation shall be included in Base Bid; Materials only are part of the allowance.
    c. Contractor to provide 3 (three) separate proposals. Approval of agency will be based upon qualifications.

G. Removal/Replacement of Unsuitable Soils Allowance:
1. Include following amounts in Bid, for inclusion in Contract Sum in addition to Work indicated on Drawings and specified herein:
    a. Twenty-Five Thousand Dollars ($25,000).
    b. Allowance is for the removal and disposal, off site, by the Contractor of any muck excavation materials encountered in excavation within the project limits and the replacement of the muck excavation with borrow materials suitable for project construction.
    c. Material to be calculated as compacted cubic yards.
    d. Refer to Contract Documents for additional information.

1.03 SELECTION OF PRODUCTS

A. Architect's Duties:
1. Consult with Contractor in consideration of products and suppliers.
2. Make selection, designate products to be used.

B. Contractor's Duties:
1. Assist Architect in determining qualified suppliers.
2. Obtain proposals from suppliers when requested by Architect.
3. Make appropriate recommendations for consideration of Architect.
4. Notify Architect of any effect anticipated by selection of product or supplier under consideration on:
    a. Construction schedule.
    b. Contract sum.
5. On notification of selection, enter into purchase agreement with designated supplier.

1.04 DELIVERY

A. Contractor Responsibility:
1. Arrange for delivery and unloading.
2. Promptly inspect products for damage and defects.
3. Submit claims for transportation damage.

1.05 INSTALLATION

A. Comply with requirements of referenced specification section.

1.06 ADJUSTMENT OF COSTS

A. Should actual purchase cost be more or less than specified amount of allowance, Contract Sum will be adjusted by Change Order equal to amount of difference in accordance with Paragraph 1.2 above.

B. For products specified under unit cost allowance:
   1. Should quantity used be more or less than that listed in Schedule of Values, unit cost applies to quantity actually used.
   2. Submit invoices or other data to substantiate quantity actually used.
   3. Submit request for other costs, claimed for additional work caused by increase over amount of allowance, prior to execution of work.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION 01 21 00

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 1 Section 01 21 00 "Allowances" for procedural requirements for handling and processing allowances.

1.02 MINOR CHANGES IN THE WORK

A. Architect will authorize Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on a standardized form.

1.03 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
   2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 or Architect’s Work Change Proposal Request” form for Proposal Requests.

1.04 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in purchase amount only where indicated as part of the allowance.
   2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
   3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
   4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1.05 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.06 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 26 00

AIA® Document G709™ – 2018

Proposal Request

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: Date:	Architect's Project Number: Proposal Request Number: 001 Proposal Request Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

The Owner requests an itemized proposal for changes to the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. The Contractor shall submit this proposal within Zero (0) days or notify the Architect in writing of the anticipated date of submission.
(Insert a detailed description of the proposed modifications to the Contract Documents and, if applicable, attach or reference specific exhibits.)

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

REQUESTED BY THE ARCHITECT:

PRINTED NAME AND TITLE

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AIA® Document G701™ – 2017

Change Order

PROJECT: *(Name and address)*	**CONTRACT INFORMATION:** Contract For: General Construction Date:	**CHANGE ORDER INFORMATION:** Change Order Number: 001 Date:
OWNER: *(Name and address)*	**ARCHITECT:** *(Name and address)*	**CONTRACTOR:** *(Name and address)*

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original Contract Sum was	$	0.00
The net change by previously authorized Change Orders	$	0.00
The Contract Sum prior to this Change Order was	$	0.00
The Contract Sum will be increased by this Change Order in the amount of	$	0.00
The new Contract Sum including this Change Order will be	$	0.00

The Contract Time will be increased by Zero (0) days.
The new date of Substantial Completion will be

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

ARCHITECT *(Firm name)*	**CONTRACTOR** *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
DATE	**DATE**	**DATE**

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AIA® Document G714™ – 2017

Construction Change Directive

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: General Construction Date:	**CCD INFORMATION:** Directive Number: 000 Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

The Contractor is hereby directed to make the following change(s) in this Contract:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits.)

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:
   - ☒ Lump Sum decrease of $0.00
   - ☐ Unit Price of $ per
   - ☐ Cost, as defined below, plus the following fee:
     (Insert a definition of, or method for determining, cost)
   - ☐ As follows:

2. The Contract Time is proposed to remain unchanged. The proposed adjustment, if any, is (0 days).

NOTE: The Owner, Architect and Contractor should execute a Change Order to supersede this Construction Change Directive to the extent they agree upon adjustments to the Contract Sum, Contract Time, or Guaranteed Maximum price for the change(s) described herein.

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Contractor signature indicates agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this CCD.

ARCHITECT *(Firm name)*	**OWNER** *(Firm name)*	**CONTRACTOR** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
DATE	**DATE**	**DATE**

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SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.02 BREAKDOWN OF PROJECT COST

A. Provide a breakdown of the Contract Sum in detail. Coordinate with the Project Manual table of contents. Provide a separate line item for each part of the Work. Provide several line items for principal subcontract amounts.
   1. Within 5 working days of receipt of bids the low bidder will provide a preliminary schedule of values break out of the primary project components. Refer to “Schedule of Values” paragraph as specified herein for a complete listing.
   2. Schedule of values will be acceptable if detail is sufficient to Architect. Submit prior to first Application for Payment for approval. Payment will not be processed until breakdown is sufficient. After approval, submit and update accordingly.
   3. Contractor to include in Base Bid Price additional time required to perform these duties.

1.03 ESTIMATED PAYMENT SCHEDULE

A. Contractor to submit no more than 14 days after written Notice to Proceed, an estimated payment schedule to the Owner. Breakdown of the payment schedule will consist of Base Bid Items only.

B. Payment schedule will be used for planning purposes only, and will not reflect the actual Application for Payment.

1.04 FEDERAL REQUIREMENTS: E-VERIFY

A. The Recipient represents and warrants that it will ensure compliance with the Mississippi Employment Protection Act (71-1-57 of the Mississippi Code of 1972, as amended) and will register and participate in the status verification system for all newly hired employees. The term “employee” as used herein means any person that is hired to perform work within the State of Mississippi. As used herein, “status verification system” means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. Grantee agrees to maintain records of such compliance and, upon request of the State or Owner and approval of the Social Security Administration or Department of Homeland Security, where required, to provide a copy of each such verification to the State or Owner. Grantee further represents and warrants that any person assigned to perform services hereunder meet the employment eligibility requirements of all immigration laws of the State of Mississippi. Grantee understands and agrees that any breach of these warranties may subject Grantee to the termination of this Agreement. In the event of such termination/cancellation, Grantee would also be liable for any additional costs incurred by the Owner due to contract cancellation or loss of license or permit.

B. Contractor shall enroll as a Federal Contractor in the E-Verify program within 30 calendar days of the award of this Contract. Within 90 calendar days of the enrollment in the E-Verify program, Contractor shall begin to use E-Verify to verify the employment eligibility of all new hires of the Contractor who are working in the United States, whether assigned to this Contract or not, within 3 business days after the date of hire; and for each employee assigned to this Contract, Contractor shall initiate verification within 90 calendar days after date of enrollment in the E-Verify program or within 30 calendar days of the employee’s assignment to work under this Contract, whichever date is later. The Contractor shall include the requirements of this clause in each subcontract that:
   1. Is for –

a. Commercial or noncommercial services (except for commercial services that are part of the purchase of a COTS item (commercially available off the shelf item) (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or
b. Construction

2. Has a value of more than $3,000; and
3. Includes work performed in the United States.

C. Contractor may find more information on Contractor's requirement to use E-Verify at www.dhs.gov/e-verify.

1.05 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. Items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.
2. Arrange schedule of values in the format of AIA Document G703.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
a. For each line item which has installed value of more than $10,000, break down costs to list major products or operations under each item, rounding figures to nearest dollar.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

1.06 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
   1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements. See “Checklist” paragraph at end of Section.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application for Payment Forms: Use **AIA Document G702 and AIA Document G703** as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
   1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
   2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit **three** signed and notarized original copies of each Application for Payment to **Architect** by a method ensuring receipt **within 24 hours**. One copy shall include waivers of lien and similar attachments.
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

1.07 MOBILIZATION/DEMOBILIZATION/GENERAL CONDITIONS

A. Partial payment for Mobilization/Demobilization/General Conditions will be made in accordance with the following schedule:

Percent Complete (Based on Total Base Bid)	Maximum Amount Payable
2%	30%
25%	15%
50%	15%
75%	15%
100%	25%

1.08 CHECKLISTS

A. A checklists are attached with requirements for each phase of the Work. **Submit checklist with all applicable applications** – failure to submit checklist will delay processing. Checklists are to be used as a guide only – other items may be required during Construction.

B. Attached checklists include the following:
   1. **01 29 00.30 "Contractor's First Payment Application Checklist”**
      a. This checklist includes the forms and submittals that must precede or coincide with submittal of first Application for Payment.
   2. **01 29 00.40 "Contractor's Payment Application Checklist”**
      a. This checklist includes the forms and submittals that must be included with every Application for Payment.
      b. At Substantial Completion, include additional documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

3. **01 29 00.50 “Contractor's Final Payment Application Checklist”**
   a. This checklist includes the forms, releases, and submittals that must be included with the Final Application for Payment. Final payment will not be processed until all items are completed on list.

END OF SECTION 01 29 00

SECTION 01 29 00.30
CONTRACTOR'S FIRST PAYMENT APPLICATION CHECK LIST

CONTRACTOR'S FIRST PAYMENT APPLICATION CHECK LIST

_____Payment application (AIA documents G702 & G703 3 originals notarized)

_____AIA document G706 attached (3 originals notarized)

_____AIA document G706a attached (3 originals notarized)

_____List of subcontractors

_____Contractors construction schedule

_____Submittal schedule

_____List of contractor’s staff assignments

_____List of contractor’s principal consultants

_____Copies of building permits

_____Copies of authorizations and licenses from authorities having jurisdiction for performance of the work

_____Initial progress report

_____Report of preconstruction conference

_____Time extension letter with the proper back up on contractors letterhead, negative report required

Other _____

END OF SECTION 01 29 00.30

SECTION 01 29 00.40
CONTRACTOR'S PAYMENT APPLICATION CHECK LIST

CONTRACTOR'S PAYMENT APPLICATION CHECK LIST

_____Payment application (AIA documents G702 & G703 - 3 originals notarized)

_____AIA document G706 attached (3 originals notarized)

_____AIA document G706a attached (3 originals notarized)

_____Proof of stored materials if applicable

_____As built monthly update certification letter

_____Updated project schedule if applicable

_____Affidavit certifying payment to all subcontracts if applicable

_____Time extension letter with the proper back up on contractor’s letterhead, negative report required

_____Other _____

END OF SECTION 01 29 00.40

SECTION 01 29 00.50
CONTRACTOR'S FINAL PAYMENT APPLICATION CHECK LIST

CONRACTOR'S FINAL PAYMENT APPLICATION CHECK LIST

_____Conractor's Final Payment Application Check List
_____Payment application (AIA documents G702 & G703 - 3 originals notarized)
_____Contractors guarantee of work/warranty (on GC's letterhead)
_____AIA document G706 attached (3 originals notarized)
_____AIA document G706a attached (3 originals notarized)
_____AIA document G707 with attached power of attorney (3 originals notarized)
_____Operation and Maintenance Manuals (hardcopy and CD/DVD/USB copy)
_____As-builts (record drawings)
_____Certificate of occupancy
_____All above documents to be scanned on placed on CD/DVD/USB
_____Letter certifying all punch lists items are completed
_____Other _____

END OF SECTION 01 29 00.50

SECTION 01 31 13
PROJECT COORDINATION

PART 1 – GENERAL

1.01 SUMMARY

A. To set forth procedures, conditions and responsibility for coordination of the total project and for cutting and patching.

B. Project Coordinator: The Contractor shall designate one individual as Project Coordinator as indicated in the General Conditions of this Contract. He shall competently perform his duties.

C. Superintendent: The Contractor shall designate one individual as Superintendent as indicated in the General Conditions of this Contract for the duration of the Project. He shall competently perform his duties.
   1. No superintendent may be removed from the Project without written authorization from the Owner.

1.02 DUTIES

A. General:
   1. Coordination: Coordinate the work of all Subcontractors and material suppliers.
   2. Supervision: Supervise the activities of every phase of work taking place on the project.
   3. Communication: Establish lines of authority and communication at the job site.
   4. Location: The Project Coordinator must be present on the job all of the time.
   5. Permits: Assist in obtaining building and special permits required for construction.

B. Interpretations of Contract Documents:
   1. Consultation: Consult with Architects, Engineers and Owner's Representative to obtain interpretations.
   2. Assistance: Assist in resolution of any questions.
   3. Transmission: Transmit written interpretations to concerned parties.

C. Cessation of Work: Stop all work not in accordance with the requirements of the Contract Documents.

D. Division One: Coordinate and assist in the preparation of all requirements of Division One and specifically as follows:
   1. Cutting and Patching: Supervise and control all cutting and patching of other trades' work.
   2. Project Meetings: Schedule and preside at all project meetings.
   3. Construction Schedules: Assist in preparation of all construction schedules. Supervise work to monitor compliance with schedules. Review schedule with Architect and Owner's Representative on a monthly basis.
   4. Shop Drawings, Product Data and Samples: Submit copies of all submittals required by the Project Manual in accordance with Division 1 Section "Submittal Procedures".
   5. Schedule of Values: Assist in preparation and be knowledgeable of each entry in the Schedule of Values.
   6. Temporary Facilities and Controls: Allocate, maintain and monitor all temporary facilities provided under individual portion of Work.
   7. Substitutions and Product Options: Administer the processing of contract substitutions.
   8. Project Closeout: Participate in final inspections and prepare all closeout documents.
   9. Cleaning: Direct and execute a continuing cleaning program throughout construction, requiring each trade to dispose of their debris.
   10. Project Record Documents: Maintain up-to-date project record documents.
   11. Enforce all safety requirements.

E. Changes: Recommend and assist in the preparation of requests to the Architect for any changes in the Contract.

F. Application for Payment: Assist in the preparation and be knowledgeable of each entry in the Application and Certificate for Payment.

1.03 SUBCONTRACTOR'S DUTIES

A. The Subcontractor is responsible to coordinate and supervise his employees in the work accomplished under his part of the Contract.

B. Schedules: Conduct work to assure compliance with construction schedules.

C. Suppliers: Transmit all instructions to his material suppliers.

D. Cooperation: Cooperate with Project Coordinator and other Subcontractors.

1.04 CUTTING AND PATCHING

A. The following conditions are in addition to and enforce those listed in the General Conditions.

B. Avoid unnecessary cutting and patching by careful coordination of the work.

C. Execute necessary cutting, fitting, or patching of work where required to:
   1. Make several parts fit properly.
   2. Uncover work to provide for installation of ill-timed work.
   3. Remove and replace defective work.
   4. Remove and replace work not conforming to Contract requirements.

D. In addition to Contract requirements, upon Architect's written instructions:
   1. Uncover work for observation of covered work.
   2. Remove samples of installed materials for testing.

E. Do not endanger any work by cutting or altering.

F. Do not cut or alter work of another Contractor without permission.

G. Payment for Costs: Costs caused by ill-timed or defective work or work not conforming to Contract Documents will be borne by party responsible for ill-timed, rejected or non-conforming work.

PART 2 – PRODUCTS

2.01 MATERIALS FOR CUTTING AND PATCHING

A. Materials for replacement of work removed: Comply with specifications for type of work to be done. Match existing materials when patching existing surfaces.

PART 3 – EXECUTION

3.01 CUTTING AND PATCHING

A. General:
   1. Inspection: Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.
   2. Preparation Prior to Cutting: Provide shoring, bracing and support as required to maintain structural integrity of project. Provide protection for other portions of project and protection from the elements.
      a. Performance:
         1) Execute cutting methods, which prevent damage to other work and will provide surfaces to receive installation of repairs and new work.
         2) Execute excavating and backfilling by methods, which prevent damage to other, work and prevent settlement.
         3) Restore work, which has been cut or removed; install new products to provide complete work in accordance with requirements of the Contract Documents.
         4) Refinish entire surfaces as necessary to provide an even finish. Refinish continuous surfaces to the nearest intersection and assemblies entirely.
         5) Perform all patching in the existing buildings to match and blend with the existing finishes to avoid any conspicuous evidence of the operation.

END OF SECTION 01 31 13

SECTION 01 31 19
PROJECT MEETINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Pre-Construction Meeting: A Pre-Construction Meeting will be held within seven (7) days after date of "Notice to Proceed."
   1. Attendance:
      a. Owner and Owner's Representative
      b. Architect
      c. General Contractor
   2. Minimum Agenda:
      a. Procedures for submittals and other administrative information.
      b. Distribution and discussion of construction schedule
      c. Designation of responsible personnel
      d. Procedures for maintaining record documents
      e. Use of premises, including storage areas
      f. Owner's requirements
      g. Security procedures
      h. Housekeeping procedures

B. Progress Meetings
   1. A minimum of one regularly scheduled meeting per month will be held at the Project Site.
   2. Other Meetings will be held as progress of work dictates.
   3. Attendance:
      a. Owner
      b. Architect
      c. General Contractor
      d. Subcontractors
   4. Minimum Agenda **(agenda to be sent to Architect 3 days prior to meeting)**:
      a. Review work progress since last meeting
      b. Note field observations, problems and decisions
      c. Identify problems which impede planned progress
      d. Review off-site fabrication problems
      e. Review and establishment of any permitted delays for proceeding month
      f. Revise construction schedule as indicated (and review recovery schedule if required)
      g. Plan progress during the next work period
      h. Review proposed changes
      i. Complete other current business

C. **Contractor** will record the meeting minutes at each Progress Meeting and distribute to all parties within 3 business days.
   1. Pay application will not be processed without meeting minutes from the monthly meeting.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 01 31 19

SECTION 01 31 23
PROJECT WEB SITE

PART 1 – GENERAL

1.01 SUMMARY

A. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using **"Submittal Exchange"**, a website service designed specifically for transmitting submittals between construction team members.
   1. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.

B. The electronic submittal process is not intended for color samples, color charts, or physical material samples. These will still need to be logged into the software, but the actual sample sent to the Architect for approval.

1.02 PROJECT WEB SITE

A. Contractor to utilize a website of their choosing or email.
   1. Website shall have electronic submittal software "Submittal Exchange" for purposes of hosting and managing project communication and documentation until Final Completion.
   2. The Architect's Project Manager shall be listed as the "Project Leader" of the site.

B. Provide unlimited Project Web site user access/licenses for use of the Owner, Architect, Architect's consultants, and any other party authorized by the Architect.
   1. Provide software training at Architect's office for Project Web site users if needed.

C. Computer and wireless access is required.

1.03 SUBMITTALS

A. Upon completion of Project, provide two (2) complete archive DVD copies of Project Web site files to Owner and to Architect.

1.04 PROCEDURES

A. Submittal Preparation - Contractor may use any or all of the following options:
   1. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the Submittal Exchange website.
   2. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
   3. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.

B. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.

C. Contractor shall transmit each submittal to Architect using the Submittal Exchange website, www.submittalexchange.com.

D. Architect / Engineer review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.

E. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.

F. Submit electronic (and paper copies where required) of submittals at project closeout for record purposes in accordance with Division 1 Section 01 77 00 "Closeout Procedures".

END OF SECTION 01 31 23

SECTION 01 32 53
REQUESTS FOR INTERPRETATION

PART 1 – GENERAL

1.01 REQUESTS FOR INTERPRETATION (RFIS)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
   1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
   1. Project name.
   2. Date.
   3. Name of Contractor.
   4. Name of Architect.
   5. RFI number, numbered sequentially.
   6. Specification Section number and title and related paragraphs, as appropriate.
   7. Drawing number and detail references, as appropriate.
   8. Field dimensions and conditions, as appropriate.
   9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   10. Contractor's signature.
   11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Format: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow **five (5)** working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
   1. The following RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Time or the Contract Sum.
      e. Requests for interpretation of Architect's actions on submittals.
      f. Incomplete RFIs or RFIs with numerous errors.
   2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
   3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 2 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within **two (2) days** if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **every two (2) weeks**. Form to include the following information:
   1. Project name.

2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 32 53

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
   1. Contractor to submit all submittals required by the individual Specification Sections as well as other submittals that are pertinent to the Work.

B. Related Sections include the following:
   1. Division 1 Section 01 29 00 “Payment Procedures”
   2. Division 1 Section 01 31 23 “Project Web Site”
   3. Division 1 Section 01 32 16 “Construction Progress Schedule”

1.02 SUBMITTALS – GENERAL

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
   1. The Architect shall review the Contractor’s submittal schedule and shall not unreasonably delay or withhold approval. The Architect’s action in reviewing submittals shall be taken in accordance with the approved submittal schedule or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect’s professional judgment to permit adequate review.
   2. Indicate on submittal schedule what phase of construction the particular material or assembly is required in.

B. In accordance with the approved submittal schedule, the Architect shall review and approve or take other appropriate action upon the Contractor’s submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of such submittals is not for the purpose of determining the accuracy and completeness of other information such as dimensions, quantities, and installation or performance of equipment precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect’s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

C. Schedule shall be updated monthly on Project Web Site.

1.03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. General Submittal Procedure Requirements:
   1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project. Refer to Division 1 Section “Project Web Site” for additional information.
      a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

B. Submit to Architect, shop drawings, product data, and samples required by specification sections.

C. Shop Drawings: Original drawings prepared by Contractor, Supplier or Distributor which illustrate some portion of the work; showing fabrication, layout, setting or erection details.
   1. Prepared by qualified detailer.
   2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
   3. Minimum sheet size: 8 1/2" X 11".

D. Product Data

1. Manufacturer's standard schematic drawings: Modify drawings to delete information which is not applicable to the project. Supplement standard information to provide additional information applicable to project.
2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data: Clearly mark each copy to identify pertinent materials, products or models. Show dimensions and clearances required. Show performance characteristics and capacities, wiring diagrams and controls.
3. Where required, product data shall include Safety Data Sheets listing material content subject to EPA regulations or listed by them as carcinogenic or toxic.

E. Samples
1. Physical examples to illustrate materials, equipment or workmanship and to establish standard by which completed work is judged.
   a. Office Samples: Of sufficient size and quantity to clearly illustrate functional characteristics of products or material with integrally related parts and attachment devices and full range of color samples. After review, samples remain in possession of the Architect until completion of the construction project.
   b. Field Samples and Mock-Ups: Erect on project site at location acceptable to Architect. Construct each sample or mock-up complete, including work of all trades required in finished work.

F. Contractor Responsibilities
1. Review and approve shop drawings, product data and samples prior to submission.
   a. **Any submittals that appear to be "rubber stamped" and not reviewed and approved prior to submission to Architect will be returned with no comments. Architect will not review until submittal has been reviewed and approved by the Contractor.**
2. Verify field measurements, field construction criteria and catalog numbers and similar data.
3. Coordinate each submittal with requirements of work and of Contract Documents.
4. **Contractor's responsibility for errors and omissions in submittals is not relieved by Architect/Engineer's review of submittals.**
5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect/Engineer's review of submittals unless Architect/Engineer gives written acceptance of specific deviations.
6. Notify Architect in writing at the time of submission, of deviations in submittals from requirements of Contract Documents.
7. Begin no work requiring submittals until the return of submittals bearing Architect/Engineer's stamp and initials or signature, indicating review.
8. After Architect/Engineer's review, distribute copies.

G. Submission Requirements
1. Contractor shall submit submittals only with "Submittal Identification" transmittal provided by the Architect. A sample is included at the end of this Section. Electronic format will be available to the Contractor to modify the Project Web Site. Include Project Name and Number, Architect's Representative (Construction Administrator), Specification Section number, and other items on transmittal.
   a. **Incomplete transmittals will be returned to the Contractor without review.**
2. Schedule submission with ample time before reviewed submittals will be needed.
3. **After Architect's review, it is the responsibility of the Contractor to reproduce the required amount of copies for distribution to subcontractors, suppliers, etc.**
4. Submit number of samples specified in each of the specification sections.
5. Submittals shall include:
   a. Date and revision dates.
   b. The names of: Architect (& Engineer where applicable), Contractor, supplier, manufacturer and separate detailer, where pertinent.

c. Identification of product or material.
d. Relation to adjacent structure or materials.
e. Field dimensions, clearly identified as such.
f. Applicable standards, such as ASTM number or Federal Specification.
g. Identification of deviations from Contract Documents.
h. Contractor's stamp, initialed or signed, certifying to review and approval of submittal, verification of field measurements and compliance with Contract Documents.

H. Resubmission Requirements
1. Shop Drawings: Revise initial drawings as required and resubmit as specified for initial submittal. Indicate on drawings, any changes which have been made other than those required by Architect/Engineer.
2. Product Data and Samples: Submit new data and samples as required for initial submittal.
3. Include in the CPM schedule resubmission time for all submittals. Any submittals that are returned “rejected” or “revise and resubmit” shall be given a new submittal tracking number in the Project Web Site. This will ensure that adequate review time on the resubmission is included.

I. Distribution of Submittals after Review
1. Distribute copies of shop drawings and product data which carry Architect/Engineer's stamp to: Contractor's file, Job Site file, Subcontractor, Supplier and Fabricator. Make necessary number of prints for distribution.
2. Distribute samples as directed.

J. Architect/Engineer's Duties
1. Review submittals with reasonable promptness. Submittals will only be reviewed if received per the Submittal Schedule. Submittals sent prior to the dates approved in this schedule will be returned with no comment.
2. Review for design concept of project and information given in Contract Documents.
3. Review of separate item does not constitute review of an assembly in which item functions.
4. Affix stamp and initials or signature certifying to review of submittal.
5. Return submittals to contractor for distribution.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 33 00

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 STANDARDS AND CODES

A. References to standards, codes, specifications, recommendations and regulations refer to the latest edition or printing prior to the date of issue of the Project Specifications, unless otherwise indicated.

B. Applicable portions of standards listed that are not in conflict with provisions of the Contract Documents are fully incorporated in the Contract Documents by reference.

C. All work shall comply with the following:

1. As of July 1, 2024, the state of Mississippi through the Mississippi **State Fire Marshal's Office** and the **Mississippi Bureau of Building, Grounds and Real Property Management** - mandates compliance with the **2024 International Codes** (I-Codes).
2. In the jurisdiction of the **Mississippi Building Code Act**, which mandates that coastal jurisdictions adopt the state's minum uniform codes to protect against hurricane and wind risks.
3. **Building Code: 2024 International Building Code (IBC)** published by the International Code Council
4. **Exisitng Building Framework**: 2024 International Exisitng Building Code (IEBC) published by the International Code Council.
5. **ADA Accessibility Standards and Guidelines**: ICC A117.1-2017 (Accessible and Usable Buildings and Facilities), as referenced by Chapter 11 of the 2024 IBC, ensuring full ADA compliance for the new expansion. **Buildings and Facilities (ADAAG)**, current edition.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 41 00

SECTION 01 45 00
QUALITY CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality. Comply fully with manufacturers' instructions, including each step in sequence. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

B. Comply with specified standards as a minimum quality for the Work, except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship. Perform work by qualified people to produce workmanship of specified quality. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

C. Contractor shall install field samples at the site as required by individual specifications Sections for review by the Architect or Owner.
   1. Acceptable samples represent a quality level for the Work.
   2. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect.

D. Tests will be performed under provisions identified in this Section.
   1. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals and finishes.

E. Concrete Quality Control:
   1. The lead finisher on each placing crew of not over five individuals must be certified as an **ACI Flatwork Finisher or ACI Flatwork Technician** with a current certificate. If the lead finisher is not certified, the finishing subcontractor must provide a list of at least three jobs of similar scope along with the name and phone number of the Project Superintendent. The Architect will give tentative approval based upon checking the references and evaluating the first placing and finishing associated with this Project.

1.02 SUBMITTALS

A. ACI Certification or list of projects as indicated above.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

4.01 NOT USED.

END OF SECTION 01 45 00

SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2026.

1.02 SUMMARY

A. The **Contractor** will employ and pay for the services (thru allowance) of an independent laboratory to perform specified services.
   1. **Contractor to provide 3 (three) separate proposals based upon the inspections, sampling, and testing specified herein per allowance. The Owner and Architect shall approve testing agency based upon qualifications.**

B. Related Sections include the following:
   1. Division 1 Section 01 21 00 “Allowances”

C. Structural tests and special inspections, as outlined in Chapter 17 of the IBC shall be conducted by individuals and agents that are under the direct supervision of a Registered Design Professional (RDP) and meet the requirements of ASTM E329.

D. Inspection, Sampling and Testing: Refer to each individual specification Section for specific inspection, sampling and testing requirements above and beyond IBC Chapter 17.

E. Inspection, Sampling and Testing is required, but not limited to sections in the following Divisions:
   1. Division 3 – Concrete
   2. Division 7 – Thermal and Moisture Protection
   3. Others as determined by the Architect during the progress of the work.

F. Laboratory's Duties:
   1. Upon notice, cooperate with Contractor to promptly provide qualified personnel. Perform specified inspections, sampling and testing of material and methods of construction to ascertain compliance with requirements of Contract Documents. Promptly notify Architect and Contractor of irregularities or deficiencies of work observed during performance of services.
   2. Promptly prepare reports of inspections and tests, including:
      a. Date issued
      b. Project title and number
      c. Testing laboratory, name and address
      d. Name and signature of inspector
      e. Date of inspection or sampling
      f. Record of temperature and weather
      g. Date of test
      h. Identification of product and specification section
      i. Location in project
      j. Type of inspection or test
      k. Observations regarding compliance with Contract Documents.
   3. Promptly distribute copies of reports of inspections and tests to:
      a. Architect
      b. Consulting Engineer, when pertinent
      c. General Contractor
      d. Subcontractor, when pertinent

G. Contractor's Responsibilities:
   1. Cooperate with laboratory personnel to provide access to work and to manufacturer's operation. Provide to laboratory in required quantities preliminary representative samples

of materials to be tested. When required, furnish copies of mill test reports. Furnish to laboratory, casual labor to obtain and handle samples at the site and to facilitate inspections and tests. Provide facilities for laboratory's exclusive use for storage and curing of concrete test samples. Notify laboratory sufficiently in advance of operations to allow for his assignment of personnel and scheduling of tests.

1.03 SUBMITTALS

A. A plan for implementing the applicable requirements of the International Building Code (IBC), Chapter 17 "Structural Tests and Special Inspections." The plan will include a listing of the individuals, approved agencies or firms that will be retained for conducting the required special inspections accompanied by a description of individual inspector's experience and a copy of all required certifications.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 45 29

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 SUMMARY

A. Work required under this section consists of all temporary construction facilities, services and related items to complete the Project indicated on the Drawings and described in the Project Manual. Some requirements are set forth herein. Refer to Division 1 Section “Summary of Work” for specific requirements.

B. Standards:
   1. Materials: All materials required by the work of this section shall be as specified in the respective sections.

1.02 SUBMITTALS

A. Prepare and submit a site Laydown and Mobilization Plan for review for the site. Plan shall include at a minimum delivery paths, worker parking, ingress & egress, and drainage area. Do not proceed with construction activities until Plan is approved.
   1. Indicate main and secondary laydown areas for approval. If any existing parking lots or roads are to be indicated and used as primary or secondary lay down areas, the Contractor is required to protect the parking lots from damage. If any damage occurs, repairs shall be provided at no expense to the Owner.

1.03 FACILITIES AND CONTROLS

A. Access: The Contractor shall provide an adequate access and/or roads to each building for the prosecution of work. The Contractor shall also provide and maintain at least one temporary or permanent access to each working elevation to be permanently occupied.
   1. Locate temporary roads and paved areas in same location as permanent roads and paved areas to the greatest extent possible. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
      a. Recondition existing roads, curbs, and utilities after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
   2. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
   3. Traffic Controls: Comply with requirements of authorities having jurisdiction.
      a. Maintain access for fire-fighting equipment and access to fire hydrants.
   4. Locate parking areas on Laydown and Mobilization Plan.
   5. After use of temporary roads (if not in same location as permanent roads or parking), remove road base, fill with topsoil, grade for positive drainage, and spread soil amendments and seed per Division 32 Sections.

B. Contractor Employee Parking: The contractor is required to have all its employees and all the employees under its contract, sub-contractor’s contracts and vendors, etc. park in areas designated by the Owner. Project parking within the laydown area shall be allowed only for Contractor management staff with visitor parking allocation for Owner, A&E and Special Inspection consultants.

C. Hoisting Facilities: The Contractor shall be responsible for providing suitable capacity and hoisting facilities for all people and materials.

D. Field Office and Sheds: At all times, the Contractor shall provide and maintain weatherproof Job Tailer at a location approved by the Architect, for the Contractor's use and that of his Subcontractors and the Architect.
   1. The field office shall be open at all times work is being performed. All submittals and shop drawings shall be placed in this location for review by any party.
   2. The following shall be provided within the General Contractor’s jobsite trailer equipped with the following:

a. Heating and Air Conditioning
b. Telephone
c. Broadband Wireless Internet Connection (access by all parties involved)
d. Power receptacles
e. Photocopier
f. Coffee and Water Beverage Service
g. Conference Room for a minimum 6 persons.
h. Large screen TV (42” minimum) with connectivity for meetings and presentations (HDMI).
i. Separate office with permanent desk and chair for use of Architect and his consultants.
j. Restroom facilities (minimum 2)

E. Computer:
1. Contractor shall have access to a computer at all times to access the project web site. This shall be accomplished thru the use of a hard line connection. A dedicated project router (wireless) shall be included in the Base Bid price and also be accessible by Owner, Architect, and his consultants.
a. Posting of the wireless key is required in the jobsite trailer.

F. Cellular Phone:
1. Contractor shall have a portable cellular telephone with local cellular service which shall be kept with the Superintendent at all times.

G. Sanitation Facilities: The Contractor is responsible for furnishing adequate temporary toilet facilities.

H. Drinking Water: The Contractor shall provide drinking water facilities for all workmen on the job, including icing when required, paper cups, etc., all maintained in a sanitary condition.

I. Fire Protection: Each Contractor will provide general temporary fire protection requirements for their own requirements in accordance with OSHA.

J. Storage Facilities: The Contractor shall provide suitable watertight and damp proof sheds to house construction materials.
1. The Contractor shall provide section for temporary exterior enclosures. 2x4 @ 24” oc, 5/8” fire-treated plywood, visqueen, batt insul, sealed to structure.
2. The Contractor shall coordinate the allocation of storage areas to the various Subcontractors.

K. Temporary Heat: The Contractor shall provide heat, fuel, and services as necessary to protect all work from dampness and cold until final acceptance. If, in the stages of the construction, mechanical and electrical installations will permit, the mechanical and electrical facilities may be used to provide heat and ventilation. However, the Owner is saved harmless of responsibility as to acceptance of mechanical and/or electrical installations.

L. Utilities: The Contractor shall make all temporary connections to utility systems as required for construction purposes. They shall also disconnect and return to original condition upon completion. Lighting shall be of adequate intensity and quality for proper prosecution and inspection of work being performed.

M. Pumping and Draining:
1. The Contractor shall keep working and storage areas and developed areas of the site free from water that could cause damage or that would interfere with work.
2. The Contractor shall pump or drain water to an approved catch basin or other acceptable area.

N. Job Site Security: The Contractor shall be responsible for site security. Contractor shall erect security fences around construction and storage areas to prevent the public from entering the construction areas while work is occurring.

1. The security fence shall consist of 6’-0” high temporary construction fence (chain link) with Gates as required for job site access. Fencing to have wind screen with MGCCC, Contractor, and Architect’s logos (minimum 80% blockage) installed to restrict viewing of the Project site.
    a. OSHA compliant pedestrian job site access shall be provided through a personnel gate to the Contractor laydown area for employee access to the project site.

O. Concrete Spoils Area:
1. Concrete washdown area: Contractor shall locate on the Laydown and Mobilization Plan, an area designated on the site for concrete washdown. All trucks shall use this area only. After all concrete work has been completed, the concrete spoils shall be removed off of the site, area fill with topsoil, grade for positive drainage, and spread soil amendments and seed per Division 32 Sections.

1.04 TEMPORARY HVAC

A. It is the responsibility of the Contractor to maintain consistent temperature and humidity levels once finishing activities proceed in the buildings.
1. Room temperature: 55-85 degrees Fahrenheit
2. Room relative humidity: 35%-65% preferred but maintaining a 15% fluctuation between highest and lowest average is acceptable.

B. Record temperature and humidity every day. Take base line readings for high/low humidity average, and temperature average prior to any construction. Submit documentation with monthly pay application.

C. Use of the new HVAC units is allowed, but warranties will not start until the date of Substantial Completion. Filters are required to be changed at once a week minimum and at Coils and ductwork will be inspected and be required to be cleaned if found to be excessively dirty due to not changing out the filters at Substantial Completion.

D. Additional commercial dehumidifiers or other equipment may be required to maintain these conditions. This cost shall be included in the Base Bid.
1. SITE STORM PROTECTION

E. When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby property.

F. Precautions shall include, but are not limited to, securing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work.

1.05 PROJECT SITE SIGN

A. No other signs shall be displayed on the job site without permission of the architect other than those indicated below. The display of sign advertisements is strictly prohibited.

B. The Contractor shall supply and erect ONE Project Sign. Project Sign shall be placed on adequate supports, and be maintained during the construction period. Sign shall be neatly constructed of “Alumilite” (or printed windscreen is acceptable) and painted 3/4" thick plywood approximately 4' X 8'. Architect will provide colors, lettering, layout and location of sign.

END OF SECTION 01 50 00

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. To set forth the procedure and conditions for substitutions and to give the product options available to the contractor.

1.02 CONTRACTOR'S OPTIONS

A. For products specified only by reference standards, select any product meeting standards, by any reputable manufacturer.

B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
   1. Where more than one manufacturer's product is specified for one use, the Drawings have been prepared for the one listed first; and building adjustments may be necessary to accommodate the others.
   2. **The Contractor will be responsible for any changes in the building construction required because of product selection, and shall make any such changes to the satisfaction of the Architect, at no cost to the Owner.**

C. For product specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or approved equal / equal as approved", or "or equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.

D. **For items followed by "or approved equal" or "equal as approved":**
   1. **Submit request for approval to Architect at least 10 days prior to bid date. Use only those approved in writing prior to bid date. If request is received after the time allowed by above, the request will be denied without further investigation.**
   2. **Submit three (3) copies of requests for prior approval. Include in request the following:**
      a. **Substitution request form (included at end of Section).**
      b. **Itemized side by side comparison of proposed substitution with product specified. This should be in tabular form with key points of each product compared.**
      c. **Manufacturer's literature: Product description, performance and test data and required standards. Safety Data Sheets where required.**
      d. **Samples upon request.**
      e. **If any of the above items are not submitted, the product WILL NOT be considered as an equal product, and therefore the Contractor shall bid the product originally specified.**

E. For items followed by words "or equal" or "equal to":
   1. Unless otherwise specified in other Specification Sections, submit substitutions to Architect for approval **not more than 10 days after date of Agreement**.
   2. Submit electronic copies of requests for substitution to the Architect. Include in request:
      a. Substitution request form (included at end of Section)
      b. Complete data substantiating compliance of proposed substitutions with Contract Documents.
      c. Itemized comparison of proposed substitution with product or method specified. This should be in tabular form with key points of each product compared.
      d. Data relating to changes in construction schedule.
      e. Accurate cost data on proposed substitution in comparison with product or method specified.
      f. For Products:

1) Manufacturer's literature: Product description, performance and test data and required standards. Safety Data Sheets where required.
2) Samples.

g. For Construction Methods:
1) Detailed description of proposed method.
2) Drawings illustrating methods.

h. **If any of the above items are not submitted, the product <u>WILL NOT</u> be considered as an equal product, and therefore the Contractor shall submit the product originally specified.**

F. In making request for substitution, bidder / contractor represents:
1. He has personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified and that no product involved contains ingredients regulated by the EPA or which are carcinogenic or toxic.
2. He will provide the same guarantee for substitution as for product or method specified.
3. He will coordinate installation of accepted substitution into work, making those changes required for work to be complete in all respects.
4. **<u>He waives all claims for additional costs related to substitution which consequently become apparent.</u>**
5. Cost data is complete and includes all related costs under his contract.

G. Substitutions will not be considered if:
1. They are indicated or implied on shop drawings, or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of contract documents.
3. In the Architect's judgment, the product or material is not equal.

H. **<u>Architect is the final judge of equality of all substitutions.</u>**

I. Form: Submit Substitution Requests on Architect's form located at the end of this Section.

1.03 **CONFLICTS**

A. **If there is a conflict between the Drawings and Specifications, and no clarification has been issued, the bidder shall <u>bid the more stringent</u> product or application.**

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 60 00

SECTION 01 60 00.01
SUBSTITUTION REQUEST FORM

SUBSTITUTION REQUEST FORM

(SUBMIT FORM ALONG WITH ITEMIZED SIDE BY SIDE COMPARISON AND OTHER ITEMS IN PARAGRAPH 1.2.D.2 OR 1.2.E.2)

To: **Eley Guild Hardy Architects** **Project: Athletic Performance Center Addition**

1091 Tommy Munro Drive
Biloxi, MS 39532
ATTN: Brice Miller

Specification Section Number and paragraph:_____

Drawing and details affected:_____

Proposed Substitution:_____

Manufacturer's Name:_____

Product Description:_____

WHY IS SUBSTITUTION BEING SUBMITTED (SELECT 1 OF THE FOLLOWING)?

_____ Pre-Bid Substitution (Prior Approval): **Included detailed analysis** comparing proposed substitution against specified product, including redlined specification section showing differences.

_____ Cost savings to Owner. Indicate comparative cost analysis as attachment. If submitted for cost savings, all savings to be returned to the Owner in the form of a deductive Change Order.

_____ Other. Explain:_____

EFFECTS OF PROPOSED SUBSTITUTION

Answer the following questions and attach explanations.

1. Attach list of at least 3 projects where proposed substitution has been used within past 12 months include name, address, and telephone number of Owner and Architect.
   Attachment not included, explain Attachment not included, explain
2. Does substitution affect dimensions indicated on Drawings?
   NO) YES, explain NO) YES, explain
3. Does substitution affect Work of other Sections?
   NO) YES, explain NO) YES, explain
4. Does substitution require modifications to design, changes to Drawings, or revisions to specifications?
   NO) YES, explain

CONTRACTOR'S / BIDDER'S REPRESENTATION

Undersigned accepts responsibility for coordination of proposed substitution and accepts all additional costs resulting from the incorporation of proposed substitution into the Project per Section 01 60 00.

The only response to this Request for Substitution will be by Addendum (if prior to award) or Supplemental Instruction (if after award, unless Change Order is necessary to reduce Contract Amount).

SUBMITTED BY

(included name, address, telephone, and contract person of manufacturer/supplier of proposed substitution)

_____

_____

Signature and date:_____

FOR ARCHITECTS USE

Accepted _____ Reviewed by/date:_____ Not Accepted _____

Cost Savings to Owner only: __ Comments:_____

Cost savings included?

SECTION 01 71 23
FIELD ENGINEERING

PART 1 – GENERAL

1.01 SUMMARY

A. This work consists of performing all calculations and other work necessary to establish and/or verify all horizontal and vertical control data and furnishing, placing, and maintaining construction stakes necessary for the proper construction of all features and items this project. Any references in other sections of the specifications to establishment of control points or construction staking shall be construed to mean “by the Contractor”.

1.02 OWNER'S RESPONSIBILITY

A. Establish bench mark on or near sites.

1.03 CONTRACTOR'S RESPONSIBILITY

A. General:
   1. The Contractor shall furnish all personnel, materials, equipment, and devices necessary for determining, establishing, setting, checking, and maintaining points, lines, grades, and layout of the work. All surveying equipment shall be properly adjusted and suited for performing the work required. Traffic control necessary for the proper execution of the work shall be furnished by the Contractor without separate measurement for payment. Stakes shall be of sufficient length, thickness, and quality to serve the purpose for which they are being used.

B. The Contractor shall verify the accuracy of the Owner provided bench marks and control points before proceeding with the layout for construction.
   1. When errors are discovered and bench marks and/or control points do not agree with the drawings, the Contractor shall promptly notify the Architect in writing and explain the problem in detail. The Architect will advise the Contractor within five (5) working days of any corrective actions which may be deemed necessary.

C. Contractor will be responsible for verifying and modifying as necessary to best fit existing field conditions, lengths, locations, elevations, and skew angles of all structures shown on the construction plans. All structure locations and heights shall also be verified and modified as necessary to fit existing field conditions. Modifications to the plans **shall not** be made without the written consent of the Architect.

D. The Contractor shall perform work necessary to verify alignment and plan grades on all construction and tie-ins. Any discrepancies in grades, alignment, location, and/or dimension detected by the Contractor shall immediately be brought to the attention of the Engineer.

E. The Contractor shall employ sufficient qualified personnel experienced in surveying and layout to complete the work accurately. The Contractor shall also determine and provide all additional grade controls and staking operations necessary to secure a correct layout and construction of the work. All minor variations in layout and grades required to meet field conditions shall be resolved with the Architect and shall not be considered justification for adjusting contract price or time.
   1. Examples of minor variations in layout and grades are:
      a. Adjustment of drainage or other structure length, alignment, and flow line elevation.
      b. Adjustment of grades and alignment at roadway intersections, crossovers, railroad crossings, interchanges, existing bridges, and roadways.
      c. Adjustment of curve data.

F. The Contractor will be responsible for establishing all lines, grades, elevations, and dimensions called for on the plans. All grades and other layout data computed by the Contractor shall be recorded and a copy of this data shall be furnished, with sufficient time for checking, to the Architect before field work is started. The originals of all data shall be furnished to the Architect on or before final inspection for the Owner’s permanent file. The Contractor shall also furnish personnel to assist the Architect in taking stringline or other notes to determine whether

specified tolerances are met. Any observation or checking of the Contractor's layout by the Architect and the approval of all or any part of it will not relieve the Contractor of the responsibility to secure proper dimensions, grades, and elevations of the several parts of the work.

G. Prior to beginning construction on any structure which is referenced to an existing structure or topographical feature, the Contractor shall check the pertinent locations and grades of the existing structures or topographical features to determine whether the locations and grades shown on the plans are correct.

H. The Contractor shall furnish "as-built" finish centerline elevations to the Architect prior to final inspection of the project.

I. The Contractor shall set stakes and/or flags for the project at each station and break or offset from the edge of the pavement or structures as directed by the Architect before operations are started on any section of work.

J. On grading projects, the Contractor shall set slope stakes at each station and at the beginning and end of spirals and curves. Closer intervals will be required for sharp changes in grades or alignment, widening, and certain other geometric details.

K. The Contractor shall set subgrade blue tops on centerline, break points, and at the left and right subgrade shoulder lines at intervals of not more than 100 feet (3048 cm) on tangents and intervals of not more than 50 feet (1524 cm) in curves. Closer intervals will be required fo sharp changes in grades or alignment, widening, or super elevation.

L. On paving areas, the Contractor shall set subgrade, subbase, base, and paving blue tops. The subbase blue tops shall be on the same intervals as subgrade blue tops. The base and pavement blue tops shall be set on intervals in accordance with the appropriate applicable requirements of the technical specification.

M. The Contractor shall exercise care in the preservation of stakes and bench marks and shall reset them when they are damaged, lost, displaced, or removed. The Contractor shall use competent personnel and suitable equipment for the layout work required and shall provide that it be performed under the supervision of or directed by a Registered Professional Engineer or Registered Land Surveyor who is duly registered and entitled to practice as a Professional Engineer or Professional Land Surveyor in the State of Mississippi. The duties performed by said Registrant shall conform to the definitions under the "practice of engineering" and "practice of land surveying" in Mississippi law. The Contractor shall not engage the services of any person in the employ of the Owner, Architect, or Engineer for the performance of any of the work covered by this section.

N. The Architect reserves the right to check for accuracy any or all of the Contractor's layout work and shall be assisted by the Contractor's personnel in such checking. When errors or discrepancies are found, the Contractor will take measures necessary to correct, at no expense to the Owner, any construction that has been performed using the improper layout. An observation, inspection, checking, and/or approval thereof by the Engineer of work for which the Contractor is responsible will not relieve the Contractor of responsibility to secure correct dimensions, grades, elevations, alignments, and locations of the work for satisfactory completion of the project and as a condition for final acceptance by the Owner.

PART 2 – PRODUCTS

2.01 NOT USED.

PART 3 – EXECUTION

3.01 NOT USED.

END OF SECTION 01 71 23

SECTION 01 74 13
PROGRESS CLEANING

PART 1 – GENERAL

1.01 SUMMARY

A. The Contractor shall maintain premises and public properties from accumulations of waste, debris and rubbish caused by operations in association with their portion of the Work. The construction site shall be cleaned **daily**.

B. Refer to Division 1 Section 01 77 00 “Closeout Procedures” for final cleaning requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Use only cleaning materials recommended by Manufacturer of surface to be cleaned. Use cleaning materials only on surfaces recommended by the cleaning materials Manufacturer. Any damage to materials while cleaning shall be the responsibility of that contractor.

PART 3 – EXECUTION

3.01 GENERAL PROGRESS CLEANING

A. The construction site shall be cleaned on every working day, and maintain the site in a neat and orderly condition.

1. **NOTE: If Contractors work, staging, storage or fabrication areas at the site do not meet all requirements for cleanliness and debris removal, an additional five (5) percent may be withheld from any or all Contractor payment requests until the site meets Contract cleanliness requirements.**

B. Contractor shall pick up all scrap, debris and waste material associated with their Work. Remove items to the place designated for storage. Remove combustible waste from the site. Store flammable waste in sealed metal containers until removed from the site. Recycling piles shall be kept neat and orderly until removed from the site.

C. Retain stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.

D. Do not allow the accumulation of scrap, debris, waste material and other items not required for construction of this work.

E. Contractor shall provide adequate storage for items awaiting removal from the job site; observing requirements for fire protection and protection of the ecology.

F. Contractor shall vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.

G. Contractor shall handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights. Schedule cleaning operations so that dust or other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.

END OF SECTION 01 74 13

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Inspection procedures
   2. Warranties
   3. Closeout documents
   4. Record documents
   5. Manuals and Training
   6. Final cleaning

B. Related Sections include the following:
   1. Division 1 Section “Closeout Submittals”

1.02 SUBMITTALS

A. Operation and Maintenance Manual 30 days prior to Substantial Completion (no warranties required); 1 hard copy.

B. Operation and Maintenance Manual prior to final payment (all warranties required, fully executed); 1 hard copy, 1 DVD (or 1 USB flash drives).
   1. Provide one hard copy as described above.
   2. Provide one (1) copy of all maintenance and instruction manuals in Adobe® Portable Document Format (PDF) on DVD (or USB flash drive). Disks shall be appropriately marked with an printed label (no direct markings on disks will be acceptable), in a jewel case printed with all Project information.

C. Record Documents: 1 hard copy, full size drawings. 1 electronic copy placed on DVD (or flash drive) indicated above.

D. Warranties: Bind warranties and bonds in separate binder; 1 hard copy and electronic copies placed on DVD (or flash drive) indicated above.

E. Training Videos (if applicable): 3 DVD

1.03 LIST OF INCOMPLETE ITEMS (CONTRACTORS PUNCH LIST)

A. Preparation: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list, per primary project components (also refer to Division 1 Section “Payment Procedures”), of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name
      b. Date
      c. Name of Architect
      d. Name of Contractor
      e. Page number

1.04 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, each Prime Contractor shall complete the following.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Advise Architect and Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Coordination of complete startup testing of systems (if applicable).
9. Coordinate, assemble, and submit test/adjust/balance records (if applicable).
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover of utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
15. **Thirty (30) days prior to request for Substantial Completion, one (1) hard copy of the Operation and Maintenance Manual shall be submitted to the Architect for approval.**
    a. Note: Warranties do not have to be included in this submittal. Once project is Substantially Complete, submit Operation and Maintenance Manual with content and format as specified herein.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. **CERTIFICATE OF OCCUPANCY MUST BE OBTAINED FROM LOCAL JURISDICTION (OR STATE FIRE MARSHALL) BEFORE FINAL CERTIFICATE OF SUBSTANTIAL COMPLETION WILL BE ISSUED.**
   2. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   3. Results of completed inspection will form the basis of requirements for Final Completion.

1.05 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, in addition to checklist included in Division 1 Section “Payment Procedures”, complete the following:
   1. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   2. Submit all manuals, warranties, record drawings, etc. as required by this by this Section.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Submit pest-control final inspection report and warranty.
   5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videos.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.06 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

C. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

D. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

E. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

F. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.07 RECORD DOCUMENTS

A. Maintenance of Documents:
   1. Maintain one copy in the Contractors trailer: Contract Drawings, Project Manual, Change Orders, Review Shop Drawings, Review Submittals, Product Safety Data Sheets, Equipment Brochures, Parts Lists, Operating Instructions, Field and Laboratory Test Records, and other modifications to the Contract.
   2. Store documents apart from documents used for construction.
   3. Maintain documents in clean, dry, legible condition. Do not use record documents for construction purposes.
   4. Make documents available at all times for inspection by Architect.
   5. Record drawings are to be updated monthly. **Failure to update may result in delay of payment.**

B. Recording:
   1. General: Mark all modifications in red pencil. Keep record documents current. Do not permanently conceal any work until required information has been recorded.
   2. Contract Drawings: Legibly mark to record actual construction:
      a. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
      b. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
      c. Field changes of dimension and detail.
      d. Changes made by Change Order or Field Order.

1.08 OPERATION AND MAINTENANCE MANUALS

A. Arrange, by appointment, to give physical demonstration and oral instructions for machine and equipment operation to the Owner or a designated representative.

B. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
   1. Operation Data:
      a. Emergency instructions and procedures.

b. System, subsystem, and equipment descriptions, including operating standards.
c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
d. Description of controls and sequence of operations.
e. Piping diagrams.

2. Maintenance Data:
a. Manufacturer's information, including list of spare parts.
b. Name, address, and telephone number of Installer or supplier.
c. Maintenance procedures.
d. Maintenance and service schedules for preventive and routine maintenance.
e. Maintenance record forms.
f. Sources of spare parts and maintenance materials.
g. Copies of maintenance service agreements.
h. Copies of warranties and bonds.

C. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents. **Final payment will not be released without the following:**
1. Provide one hard copy as described above.
2. Provide an archive of Project Web site files.
3. Provide one (1) copy of all maintenance and instruction manuals in Adobe® Portable Document Format (PDF) on CD-ROM, DVD, (or USB flash drive). Disks shall be appropriately marked with an printed label (no direct markings on disks will be acceptable), in a jewel case printed with all Project information.
a. **ALL OPERATION AND MAINTENANCE MANUALS, RECORD DOCUMENTS, AND OTHER CLOSEOUT DOCUMENTS SHALL BE ASSEMBLED ONTO ONE (1) DVD (OR USB FLASH DRIVE) WITH A PRINTED LABEL. MULTIPLE DISKS WILL ONLY BE ALLOWED IF STORAGE CAPACITY IS EXCEEDED ON ORIGINAL DISK.**

1.09 DEMONSTRATION AND TRAINING

A. Provide demonstration and Owner training for all operating and serviceable components.
1. Refer to other specification Sections for additional training and information.

B. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Each Contractor to video all training sessions and provide 3 DVD’s for Owner’s use.
1. Provide instructors experienced in operation and maintenance procedures.
2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
3. Schedule training with Owner through the Architect with at least seven days' advance notice.
4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

C. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.

5. Troubleshooting.
6. Maintenance.
7. Repair.

1.10 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
      a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
      b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
      c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
      d. Remove tools, construction equipment, machinery, and surplus material from Project site.
      e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
      f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
      g. Sweep concrete floors broom clean in unoccupied spaces.
      h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
      i. Remove labels that are not permanent.
      j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      k. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
      l. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
      m. Replace parts subject to unusual operating conditions.
      n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
      o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
      p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
      q. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous

materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION 01 77 00

SECTION 02 41 19
SELECTIVE STRUCTURE DEMOLITION

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2027.

1.02 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of selected portions of the existing building or structure.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, and locations of temporary partitions and means of egress.

B. Landfill Records: Indicate receipt and acceptance of hazardous waste by a landfill facility licensed to accept hazardous waste.

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.06 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: there are hazardous materials present and is indicated in a report per “Information Available to Bidders”.
   1. If other materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

E. Storage or sale of removed items or materials **on-site** is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.03 PREPARATION

A. Temporary Facilities: Provide temporary partitions, barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.04 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
    a. Where façade and/or glazing is removed from building, provide waterproofing measures to prevent water intrusion into existing building until permanent construction is in place.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Removed and Reinstalled Items:
   1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
   2. Pack or crate items after cleaning and repairing. Identify contents of containers.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

B. Burning or burying of any material on site is prohibited.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.06 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2020.

B. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2025.

C. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2026.

D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

E. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.

F. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).

G. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

H. PS 1 - Structural Plywood; 2023.

1.02 DESCRIPTION OF WORK

A. The work includes the provision of cast-in-place concrete. In the ACI publications referred to herein, the advisory provisions shall be considered to be mandatory, as though the word "shall" has been substituted for "should" wherever it appears; reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" shall be interpreted to mean the Architect.

1.03 SUBMITTALS

A. Shop Drawings: Reproductions of contract drawings are unacceptable. Submit shop drawings to the Architect prior to fabrication.
   1. Shop Drawings for Reinforcing Steel: ACI 315. Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions, and details of bar reinforcing, accessories, and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing rods. Submit to the Architect for approval.
   2. Shop Drawings for Reinforcing Steel Placement: The contract drawings shall not be used to prepare placement drawings. Prepare sections, details, elevations and other drawings for field personnel to properly place reinforcing. Indicate spacings, clearances, cover, bolsters and any other information for correct placing of the reinforcement. Submit for approval to the Architect with reinforcing steel shop drawings.

B. Contractor Mix Design: Thirty (30) days minimum prior to concrete placement, submit for Architect approval a mix design for each strength and type of concrete. Proportioning of mix and submittal of mix design shall conform to ACI 318-95 Section 5.3. Cylinder break data used shall be submitted with the mix design submittal. Mix designs submitted without supporting cylinder break data will be rejected without review. If required cylinder break data is not available as required by ACI and the Standard Building Code, then increase design strength shown on the drawings by [1200] psi ([8273.71] kPa). Furnish complete list of materials including type, brand, source and amount of cement, fly ash, pozzolan, ground slag, and admixtures, and applicable reference specifications. Provide fly ash and pozzolan test results performed within 6 months of submittal date. Obtain approval before concrete placement. Submit additional data regarding concrete aggregates if the source of aggregate changes.

C. Certificates of Compliance:
   1. Aggregates
   2. Admixtures

3. Reinforcement
4. Cement
5. Fly ash
6. Pozzolan
7. Ground slag

D. Catalog Data:
1. Materials for curing concrete
2. Joint sealant
3. Joint filler
4. Vapor barrier
5. Reinforcing bolsters

1.04 DELIVERY

A. Do not deliver concrete until vapor barrier, forms, reinforcement, embedded items, and chamfer strips are in place and ready for concrete placement.

STORAGE

A. ACI 301 for job site storage of concrete aggregates. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground to avoid excessive rusting. Protect from contaminants such as grease, oil, and dirt. Provide for accurate identification after bundles are broken and tags removed.

PART 2 - PRODUCTS

2.01 CONCRETE

A. Contractor -Furnished Mix Design: ACI 211.1 and ACI 301 and ACI 211.2. Concrete shall have a 28-day compressive strength of indicated or specified below.

Location	Strength	Max W/C Ratio	Air Entr.	Slump*
Foundations	3000 psi	0.60	4-6%	4”
Interior Slabs on Grade	4000 psi	0.45	1-3%	4”
All other work	4000 psi	0.45	4-6%	4”

*Slump requirement is before the addition of high range water reducer or mid range water reducer admixture (HRWR or MRWR). Maximum slump after addition of HRWR or MRWR is 6 inches (152.4 mm).

2.02 MATERIALS

A. Cement: ASTM C 150, Type I or II or ASTM C 595, Type IP blended cement, except as modified herein. The blended cement shall consist of a mixture of ASTM C 150 cement and one of the following materials: ASTM C618 pozzolan or fly ash, or ASTM C 989 ground iron blast furnace slag. The pozzolan/fly ash content shall not exceed 25 percent by weight of the total cementitious material and the ground iron blast furnace slag shall not exceed 50 percent by weight of total cementitious material. For exposed concrete, use one manufacturer for each type of cement, ground slag, fly ash, and pozzolan.
1. Fly Ash and Pozzolan: ASTM C618, Class F, except that the maximum allowable loss on ignition shall be 6 percent for Type F. Add with cement.
2. Ground Iron Blast-Furnace slag: ASTM C 989, Grade 120.

B. Water: Water shall be fresh, clean, and potable.

C. Aggregates: ASTM C 33, except as modified herein. Obtain aggregates for exposed concrete surfaces from one source. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalies in the cement.

D. Non shrink Grout: COE CRD-C-621.

E. Admixtures:
   1. Air-Entraining: ASTM C 260.
   2. Accelerating: ASTM C 494, Type C.
   3. Retarding: ASTM C 494, Type B, D, or G.
   4. Water Reducing: ASTM C 494, Type A, E, or F.

F. Materials for Forms: Provide wood, plywood, or steel. Use plywood or steel forms where a smooth form finish is required. Lumber shall be square edged or
   1. tongue-and-groove boards, free of raised grain, knotholes, or other surface defects. Plywood: PS 1, B-B concrete form panels or better. Steel form surfaces shall not contain irregularities, dents, or sags.

G. Reinforcement:
   1. Reinforcing Bars: ACI 301 unless otherwise specified.
   2. Welded Wire Fabric: ASTM A 185 or ASTM A 497. Provide flat sheets only of welded wire fabric for slabs.
   3. Wire: ASTM A 82 or ASTM A 496.
   4. Dowels: Plain steel; ASTM A 675, Grade 80 or ASTM A 499.

H. Vapor Barrier: ASTM E1745-17, Class A:
   1. Use full vapor retarder system in all areas under slabs, footings, and grade beams providing a complete moisture barrier between the subsurface ground and the concrete structure.
   2. Use 15 mil (0.381 mm) high density polyethylene sheet.
   3. Use greatest widths and lengths practical to eliminate joints whenever possible. Lap joints a minimum of 12 inches (304.8 mm) and seal with manufacturer's seam tape per manufacturer's recommendations. Remove torn, punctured, or damaged vapor barrier material and provide with new vapor barrier prior to placing concrete. Concrete placement shall not damage vapor barrier material.

I. Materials for Curing Concrete:
   1. Impervious Sheeting: ASTM C171; waterproof paper, clear or white polyethylene sheeting, or polyethylene-coated burlap.
   2. Pervious Sheeting: AASHTO M 182.
   3. Liquid Membrane-Forming Compound: ASTM C309, Type 2, Class B.
   4. Liquid Chemical Sealer-Hardener Compound: Shall be a magnesium fluosilicate compound which when mixed with water penetrates the concrete and seals and hardens the surface of the concrete. Do not use on exterior slabs exposed to freezing conditions. Compound shall not reduce the adhesion of resilient flooring, tile, paint, roofing, waterproofing, or other material applied to concrete.

J. Expansion/Contraction Joint Filler: ASTM D1751 or ASTM D1752, 1/2-inch thick, unless otherwise indicated.

K. Joint Sealants:
   1. Horizontal Surfaces (3 percent slope, maximum):
      a. Outside Buildings: ASTM D 1190.
      b. Inside Buildings: ASTM D 1190 or ASTM D 1850.
   2. Vertical Surfaces (greater than 3 percent slope): ASTM C920, Type M, Grade NS, Class 25, Use T.

L. Release Agent for Fiberglass Forms: Nox-Crete as manufactured by The Kinsman Corp., Omaha, Nebraska.

PART 3 - EXECUTION

3.01 FORMS

A. ACI 301. Provide forms, shoring, and scaffolding for concrete placement unless indicated or specified otherwise. Concrete for footings may be placed in excavations without forms upon inspection and approval by the Architect. Excavation width shall be a minimum of 4-inches

greater than indicated. Set forms mortar-tight and true to line and grade. Chamfer above grade exposed joints, edges, and external corners of concrete 0.75 inch (19.05 mm) unless otherwise indicated. Provide formwork with clean-out openings to permit inspection and removal of debris. Forms submerged in water shall be watertight.

B. Coating: Before concrete placement, coat the contact surfaces of forms with a nonstaining mineral oil, nonstaining form coating compound, or two coats of nitrocellulose lacquer. Do not use mineral oil on forms for surfaces to which adhesive, paint, or other finish material is to be applied.

C. Removal of Forms: Prevent concrete damage during form removal. After placing concrete, forms shall remain in place for the following minimum time periods, not necessarily consecutive, where minimum temperatures specified in paragraph entitled "Curing Periods and Minimum Temperatures" are maintained adjacent to the concrete and formwork. The minimum time period for removal of forms shall govern where it exceeds the minimum specified curing period. Where the formwork for one element supports the formwork for another element, the greater time period shall apply to both elements.

D. Elements:

Element	Time Period (Days Minimum
Walls, column, pedestals, slabs, and beams	3

3.02 PLACING REINFORCEMENT & MISCELLANEOUS MATERIALS

A. ACI 301. Provide bars, wire fabric, wire ties, supports, and other devices necessary to install and secure reinforcement. Reinforcement shall not contain rust, scale, oil, grease, clay, and foreign substances that would reduce the bond. Rusting of reinforcement is a basis of rejection if the effective cross sectional area or the nominal weight per foot of the reinforcement has been reduced to less than specified in paragraph entitled "Reinforcing Bars." Remove loose rust prior to placing steel. Tack welding is prohibited.

B. Vapor Barrier: Provide beneath the on-grade concrete floor slab. Use the greatest widths and lengths practicable to eliminate joints wherever possible. Lap joints a minimum of 12-inches and seal with manufacturer’s seam tape per manufacturer’s recommendations. Remove torn, punctured, or damaged vapor barrier material and provide with new vapor barrier prior to placing concrete. Concrete placement shall not damage vapor barrier material.

C. Tolerances: Place reinforcement and secure with galvanized or noncorrodible chairs, spacers, or metal hangers. Use concrete or other noncorrodible material for supporting reinforcement on the ground.

D. Splicing: AWS D1.4, except as otherwise indicated or specified. Splices shall be approved prior to use. Do not splice at points of maximum stress. Overlap welded wire fabric the spacing of the cross wires, plus 2- inches.

E. Cover: ACI 301 for minimum coverage, unless otherwise indicated.

F. Setting Miscellaneous Material: Place and secure anchors and bolts, pipe sleeves, conduits, and other such items in position before concrete placement. Plumb anchor bolts and check location and elevation. Temporarily fill voids in sleeves with readily removable material to prevent the entry of concrete.

G. Construction Joints: Locate joints to least impair strength. Continue reinforcement across joints unless otherwise indicated.

H. Expansion Joints and Contraction Joints: For slabs on grade provided as indicated. Make expansion joints 0.5-inch wide except as indicated otherwise. Fill expansion joints not exposed to weather with preformed joint filler material. Completely fill joints exposed to weather with joint filler material and joint sealant. Do not extend reinforcement or other embedded metal items bonded to the concrete through any expansion joint unless an expansion sleeve is used. Provide contraction joints, either formed or cut with a jointing tool, to the indicated depth after the surface has been finished. Protect joints from intrusion of foreign matter.

I. Form Ties and Accessories: The use of wire alone is prohibited. Form ties and accessories shall not reduce the effective cover of the reinforcement.

J. Waterstop: Install in strict accordance with manufacturer's recommendations and as indicated.

3.03 MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE

A. ASTM C 94, ACI 301, ACI 302.1R, and ACI 304, except as modified herein. ASTM C 94. Provide mandatory batch ticket information for each load of ready mix concrete.

B. Measuring: Make moisture, weight, and air determinations at intervals as specified in paragraph entitled "Sampling and Testing." Allowable tolerances for measuring cement and water shall be 1 percent; for aggregates, 2 percent; and for admixtures, 3 percent.

C. Mixing: ASTM C 94. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 85 degrees Fahrenheit (29.44 degrees Celsius). Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 85 degrees F. Additional water may be added, provided that both the specified maximum slump and water-cement ratio are not exceeded. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.

D. Transporting: Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete which has segregated in transporting and dispose of as directed.

E. Placing: Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet (91.44 cm) from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other. Position grade stakes on 10-foot centers maximum in each direction when pouring interior slabs and on 20-foot centers maximum for exterior slabs.

F. Vibration: ACI 301. Furnish a spare vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 4-inches in depth with high frequency, internal, mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4-inches or less in depth by wood tampers, spading, and settling with a heavy leveling straight edge. Operate vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 impulses per minute when submerged. Do not use vibrators to transport the concrete in the forms. Insert and withdraw vibrators approximately 18-inches apart. Penetrate the previously placed lift with the vibrator when more than one lift is required. Place concrete in 18-inch maximum vertical lifts. External vibrators shall be used on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete.

G. Cold Weather: ACI 306R. Provide 50 degrees Fahrenheit (10 degrees Celsius) minimum concrete temperature. Obtain approval prior to placing concrete when the ambient temperature is below 40 degrees Fahrenheit (4.44 degrees Celsius) or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 50 degrees F minimum adjacent to both the formwork and the structure while curing. Limit the rate of cooling to 5 degrees Fahrenheit (-15 degrees Celsius) in any one hour and 50 degrees F per 24 hours after heat application.

H. Hot Weather: ACI 305R. Provide and maintain required concrete temperature using Figure 2.1.5 inch (38.1 mm) ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square foot of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed

concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment. and water hauling equipment (where work site is remote to water source) to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable, permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.04 SURFACE FINISHES (EXCEPT FLOOR & SLAB FINISHES)

A. Defects: Repair formed surfaces by removing minor honeycombs, pits greater than one square inch surface area or 0.25-inch maximum depth, or otherwise defective areas. Provide edges perpendicular to the surface and patch with nonshrink grout. Patch tie holes and defects when the forms are removed. Concrete with extensive honeycomb (including exposed steel reinforcement, cold joints, entrapped debris, separated aggregate, or other defects) which affect the serviceability or structural strength will be rejected, unless correction of defects is approved. Obtain approval of corrective action prior to repair. The surface of the concrete shall not vary more than the allowable tolerances of ACI 347. Exposed surfaces shall be uniform in appearance and finished to a smooth form finish unless otherwise specified.

B. Not Against Forms (Top of Walls): Surfaces not otherwise specified shall be finished with wood floats to even surfaces. Finish shall match adjacent finishes.

C. Formed Surfaces:
   1. As-Cast Rough Form (for Surfaces Not Exposed to Public View): Remove fins and other projections exceeding 0.25-inch in height; level abrupt irregularities.
   2. As-Cast Smooth Form (for Surfaces Exposed to Public View): Form facing material shall produce a smooth, hard, uniform texture on the concrete. Remove fins and other projections. Provide light sandblast where indicated on the drawings.
   3. Sandblast and provide light sandblast finish where indicated on the drawings.

D. Rubbed Finish: Provide concrete with a smooth form finish. Finish as follows:
   1. Smooth Rubbed: Provide on newly hardened concrete within 24 hours following form removal. Wet surfaces and rub with an abrasive tool to produce uniform color and texture. Use only the cement paste drawn from the concrete rubbing process.

3.05 FLOOR, SLAB & MISCELLANEOUS CONSTRUCTION

A. ACI 302.1R, unless otherwise specified. Slope floors uniformly to drains where drains are provided. Depress the concrete base slab where ceramic tile is indicated. Provide interior floor slabs with a steel troweled finish. After troweling is completed, apply a liquid chemical sealer-hardener compound on interior floor slabs that do not receive floor covering.

B. Finish: Place, consolidate, and immediately strike off concrete to obtain proper contour, grade, and elevation before bleedwater appears. Permit concrete to attain a set sufficient for floating and supporting the weight of the finisher and equipment. If bleedwater is present prior to floating the surface, drag the excess water off or remove by absorption with porous materials. Do not use dry cement to absorb bleedwater.
   1. Floated: Provide for machinery pads and other exterior slabs where not otherwise specified. Float the surface by hand with a wood or magnesium float, or use a power-driven float.
   2. Steel Troweled: First, provide a floated finish. When slab attains a proper set, trowel to a smooth, hard, dense finish. Finished surfaces shall be free of troweled marks, uniform in texture, and a true plane, level and flat within specified tolerance; hand-finish portions of the slab not accessible to power finishing equipment (e.g., edges, corners) to match the remainder of the slab. Power trowel once and finally hand trowel where a finished floor covering (e.g., tile, carpet) is specified. Power trowel twice and finally hand trowel for exposed concrete floors.

3. Broomed: Provide for exterior walks, platforms, patios, and ramps, unless otherwise indicated. Provide a floated finish, then finish with a flexible bristle broom. Permit surface to harden sufficiently to retain the scoring or ridges. Broom transverse to traffic or at right angles to the slope of the slab.

C. Concrete Walks: Provide 4-inches thick minimum. Provide contraction joints spaced every 5 linear feet unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide 0.5-inch thick transverse expansion joints at changes in direction where sidewalk abuts curb, steps, rigid pavement, or other similar structures; space expansion joints every 20 feet (609.6 cm) maximum apart. Provide walks with a broomed finish. Provide a transverse slope of 1/4-inch per foot. Limit variation in cross section to 1/4-inch in 5 feet (152.4 cm).

D. Pits and Trenches: Place bottoms and walls monolithically or provide waterstops and keys.

E. Curbs: Reinforce as indicated. Provide contraction joints spaced every 10 feet (304.8 cm) maximum unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced as indicated. Provide a pavement finish.

3.06 CURING AND PROTECTION

A. ACI 301 unless otherwise specified. Begin curing immediately following form removal. Protect concrete from injurious action by sun, rain, flowing water, frost, mechanical injury, tire marks, and oil stains. Do not allow concrete to dry out from time of placement until the expiration of the specified curing period. Do not use membrane-forming compound on surfaces where appearance would be objectionable, on any surface to be painted, where coverings are to be bonded to the concrete, or on concrete to which other concrete is to be bonded. If forms are removed prior to the expiration of the curing period, provide another curing procedure specified herein for the remaining portion of the curing period.

B. Moist Curing: Provide for the removal of water without erosion or damage to the structure.
   1. Ponding or Immersion: Continually immerse the concrete throughout the curing period. Water shall not be more than 20 degrees Fahrenheit (-6.67 degrees Celsius) less than the temperature of the concrete. For temperatures between 40 and 50 degrees Fahrenheit (10 degrees Celsius), increase the curing period by 50 percent.
   2. Fog Spraying or Sprinkling: Provide uniform and continuous application of water throughout the curing period. For temperatures between 40 and 50 degrees Fahrenheit (10 degrees Celsius), increase the curing period by 50 percent.
   3. Pervious Sheeting: Completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 6-inches over adjacent sheeting. Sheeting shall be at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.
   4. Impervious Sheeting: Wet the entire exposed surface of the concrete thoroughly with a fine spray of water and cover with impervious sheeting throughout the curing period. Lay sheeting directly on the concrete surface and overlap edges 12-inches minimum. Provide sheeting not less than 18-inches wider than the concrete surface to be cured. Secure edges and transverse laps to form closed joints. Repair torn or damaged sheeting or provide new sheeting. Cover or wrap columns, walls, and other vertical structural elements from the top down with impervious sheeting, overlap and continuously tape sheeting joints, and introduce sufficient water to soak the entire surface prior to completely enclosing.

C. Liquid Membrane-Forming Compound Curing: Seal or cover joint openings prior to application of curing compound. Prevent curing compound from entering the joint. Provide and maintain compound on the concrete surface throughout the curing period. Do not use this method of curing where the use of Figure 2.1.5 in ACI 305R indicates that hot weather conditions will cause an evaporation rate exceeding 0.2 pound of water per square foot per hour.

1. Application: Unless the manufacturer recommends otherwise, apply compound immediately after the surface loses its water sheen and has a dull appearance, and before joints are sawed. Mechanically agitate curing compound thoroughly during use. Use approved power-spraying equipment to uniformly apply two coats of compound in a continuous operation. The total coverage for the two coats shall be 200 sq feet (0.21529 sq cm) maximum per gallon of undiluted compound unless otherwise recommended by the manufacturer's written instructions. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel. Immediately apply an additional coat of compound to areas where the film is defective. Respray concrete surfaces subjected to rainfall within 3 hours after the curing compound application.
2. Protection of Treated Surfaces: Prohibit foot and vehicular traffic and other sources of abrasion for not less than 72 hours after compound application. Maintain continuity of the coating for the entire curing period and immediately repair any damage.

D. Liquid Chemical Sealer-Hardener Curing: Apply to interior floors that do not receive a floor covering. Apply the sealer-hardener in accordance with manufacturer's recommendations. Seal or cover joints and openings in which joint sealant is to be applied as required by the joint sealant manufacturer. The sealer-hardener shall not be applied until the concrete has cured for a minimum of 30 days. Apply a minimum of two coats of sealer-hardener.

E. Curing Periods and Minimum Temperatures: After placing concrete, maintain air temperature adjacent to the concrete at 50 degrees Fahrenheit (10 degrees Celsius) minimum for the specified time period, or 70 degrees Fahrenheit (21.11 degrees Celsius) minimum for a period of 3 days after placing, and 40 degrees Fahrenheit (4.44 degrees Celsius) minimum for the remainder of the specified time period.

Time Period (Days Minimum)	Concrete Structure or Cement Type
7	ASTM C 150, Type I or II, either with or without fly ash, pozzolan, or ground slag; and ASTM C 595 cement for concrete not specified otherwise.
10	Retaining walls that will be subjected to frost action or similar deteriorating conditions; pavement not under a roof.

1. Additional Curing: Double the required curing period if either one or the average of both 7-day test cylinders indicate less than 75 percent of the strength specified (f'c).

3.07 SAMPLING AND TESTING

A. Sampling: ASTM C 172. Collect samples of fresh concrete to perform tests specified. ASTM C 31 for making test specimens.

B. Testing:
1. Slump Tests: ASTM C 143. Take concrete samples during concrete placement.
   a. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 10 cubic yards (maximum) of concrete. Perform slump test before and after addition of superplasticizer.
2. Temperature Tests: Test the concrete delivered and the concrete in the forms. Perform tests in hot or cold weather conditions (below 50 degrees Fahrenheit (10 degrees Celsius) and above 80 degrees Fahrenheit (26.67 degrees Celsius)) for each batch (minimum) or every 10 cubic yards (maximum) of concrete, until the specified temperature is obtained, and whenever test cylinders and slump tests are made.
3. Compressive Strength Tests: ASTM C 39. Make five 4” x 8” test cylinders for each set of tests in accordance with ASTM C 31. Test one cylinder at 7 days, three cylinders at 28 days, and hold one cylinder in reserve. Samples for strength tests of each mix design of concrete placed each day shall be taken not less than once a day, nor less than once for each 50 cubic yards of concrete, nor less than once for each 5000 sq feet (5.38213 sq

cm) of surface area for slabs or walls. For the entire project, there shall be no less than five sets of samples taken and strength tests performed for each mix design of concrete placed. Each strength test result shall be the average of two cylinders from the same concrete sample tested at 28 days. If the average of any three consecutive strength test results is less than f'c or if any strength test result falls below f'c by more than 500 psi (3447.38 kPa), take a minimum of three ASTM C 42 core samples from the in-place work represented by the low test cylinder results and test. Concrete represented by core tests shall be considered structurally adequate if the average of three cores is equal to at least 85 percent of f'c and if no single core is less than 75 percent of f'c. Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new acceptable concrete. Repair core holes with non-shrink grout. Match color and finish of adjacent concrete.

4. Air Content: ASTM C 173 or ASTM C 231. Test air-entrained concrete for air content at the same frequency as specified for slump tests.

END OF SECTION 03 30 00

SECTION 03 30 05
MOISTURE VAPOR REDUCING ADMIXTURE FOR CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Moisture vapor reducing admixture (MVRA).

B. High Performance Concrete Moisture Vapor Reducing Admixture (MVRA) for all new interior concrete slabs (including on-grade and elevated, excluding any topping slabs).

C. The information contained in this specification governs over the Division 3 Structural Concrete Section if any conflicts in regards to installation, curing, and testing of concrete.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

1.03 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.04 REFERENCE STANDARDS

A. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

B. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction; 2015.

C. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2024.

D. ASTM D5084 - Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter; 2024.

E. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2024.

F. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

G. NSF 61 - Drinking Water System Components - Health Effects; 2025, with Addendum

H. ASTM D 5084: Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

I. ASTM E 1643: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.

J. ASTM E 1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

K. ASTM F 710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting two weeks prior to the start of the work of this section; require attendance by affected installers.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturer's data on products and installation instructions.

C. Product test reports performed by a qualified independent testing agency evidencing compliance of products with specified requirements of moisture vapor transmission based on comprehensive testing of current products.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Material Certificate: Certify products of this section meet or exceed specified requirements.

F. Material Test Report: Document products of this section comply with specified requirements.

G. Field Quality Control Submittals: Include project name and number, date of MVRA application, name of testing agency, location of concrete batch in work, mix proportions, materials, and test result.

H. Sample life of the concrete warranty.

I. Sample adhesion guarantee.

J. Sample moisture letter.

K. MSDS

L. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm with not less than ten (10) years' experience in the manufacture of the specified concrete moisture vapor reduction admixture, capable of providing test reports indicating compliance with specified performance requirements, and able to provide on-site technical representation should the need arise. Selected product must have certification of compliance with ASTM C494 /C494M testing protocols from an independent AASHTO approved laboratory.

B. Pre-installation Conference.
   1. Verify all are familiar with MVRA project specific quality control procedures, review concrete mix designs and examine procedures for ensuring quality of concrete materials. Each entity directly concerned with MVRA dosed concrete must attend in person, conference call, or provide electronic review of documents, mix designs and procedures.
   2. Those required to participate or to review include but are not limited to: Contractor: Independent testing agency responsible for concrete design mixtures, sampling and testing; Ready-mix concrete manufacturer; Concrete subcontractor; Moisture Vapor Reduction Admixture manufacturer.

C. Ready Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

D. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

E. Moisture Vapor Reduction Admixture Collection Agent / Representative Qualifications

F. Personnel conducting field sampling on behalf of the MVRA manufacturer shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

G. Slab Moisture Testing and Evaluation: Personnel performing laboratory tests shall be certified in the conduct of ASTM D5084 under the supervision of a licensed geotechnical engineer. The determination as to whether the concrete slab is prepared to receive flooring, coatings, etc. rests with the MVRA manufacturer.

H. Source Limitations: Obtain each type of concrete moisture vapor reducing admixture from the same manufacturer.

I. ACI Publications: For slabs to receive moisture sensitive coatings or material, comply with the following unless modified by requirements in the Contract Documents:

J. ACI 302.2R-06, "Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring".

K. For slabs required to have MVRA, do not proceed with placement unless manufacturer's representative is present for every day of placement.

L. Obtain MVRA from a single manufacturer.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver MVRA materials in original, undamaged containers with labels intact.

B. Comply with manufacturer's written MVRA handling instructions prior to mixing.

C. Comply with manufacturer's written MVRA storage instructions.

D. Do not allow MVRA to freeze. Should product freeze, immediately contact the MVRA manufacturer for further instructions.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. MVRA must be installed according to, and in compliance with, the manufacturer's published data sheet to include, but not limited to:
   1. Dosing instructions.
   2. Onsite representation and sampling requirements.
   3. Use of an ASTM E 1745 vapor retarder installed following ASTM E 1643 and ASTM F710 guidelines (elevated slabs to receive flooring do not require a vapor retarder) – refer to Division 7 Section “Vapor Retarders” for additional information.

C. Manufacturer's Warranty: To include:
   1. Term: Life of the concrete.
   2. Repair and/or removal of failed flooring or roofing.
   3. Placement of a topical moisture remediation system.
   4. Replacement of flooring/roofing materials like original installed to include material and labor.

D. Adhesion Warranty: MVRA Manufacturer shall provide an adhesion warranty to match the term of the adhesive and/or primer manufacturer's material defect warranty upon MVRA manufacturer's acceptance of field bond test.

E. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover the cost of flooring failures due to moisture migration from slabs for ten years.
   1. Include cost of repair or removal of failed flooring or roofing, placement of topical moisture remediation system, and replacement of flooring or roofing with comparable flooring system.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Barrier One

B. Specialty Products Group (SPG)

C. Equal as approved
   1. Note: if the Contractor provides a product that **does not** meet or exceeds the MVRA warranty requirements of Part 1 and the MVRA field quality control requirements of Part 3 will result in all subsequent testing and slab remediation costs being borne by the Contractor (and ready mix supplier).

2.02 MATERIALS

A. Provide High Performance Moisture Vapor Reduction Admixture as manufactured by Barrier One, International.

B. Concrete moisture vapor reduction admixture (MVRA) for all on ground and above ground slabs shall be a non-toxic, liquid admixture that is free of all volatile organic compounds (VOC). It shall be specifically designed to have a natural chemical reaction with pre-existing elements inside the concrete to eliminate the route of moisture vapor emission through the slab by restricting the integral capillary system. Chemical reaction shall form a permanent barrier (capillary break) that is integral to the concrete, insoluble, and irremovable.
   1. Hydraulic conductivity: Project specific maximum of 6.0 E-8 cm/s per ASTM D5084

2. Toxicity: None
3. Odor: None
4. Flammability: None

C. VOC levels: zero
1. Solvent: water

D. Freeze Temp: 32 degrees Fahrenheit (0^0 C)(store above 36^0 F (2.3^0 C))
1. Acid resistance: Excellent
2. Hazardous vapors: None
3. Installation: All concrete
4. Capillary break: Calcium Silicate Hydrate
5. pH: 11.3
6. Weight: 10.3 lbs/gal (net)
7. Integral biocide to inhibit growth of mold and bacteria

2.03 MOISTURE VAPOR REDUCING ADMIXTURE

A. Moisture Vapor Reducing Admixture (MVRA): ASTM C494/C494M, Type S; nontoxic, volatile organic compound (VOC) free liquid admixture; reacts with hydroxide ions produced by cement hydration process; creates hydration product within capillary pores and blocks them; manufactured with deionized water to remove trace mineral ions and containing no chloride-based materials.
1. Potable Water Contact Approval: National Science Foundation (NSF) certification for use on structures holding potable water, based on testing in accordance with NSF 61.
2. Capillary Break: Calcium silicate hydrate.
3. Hydraulic Conductivity: 1.968 x 10^-9 feet per second (6 x 10^-8 cm/s), maximum, when tested according to ASTM D5084.
4. Toxicity: None.
5. Odor: None.
6. Flammability: None.
7. Solvent: Water.
8. Freezing Temperature: 32 degrees F (0 degrees C).
9. pH: 11.3.
10. Products:
a. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: See Section 03 30 00.

B. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single-ply polyethylene is prohibited.
1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

2.05 CONCRETE MIX DESIGN

A. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and according to manufacturer's instructions.

2.06 MIXING

A. Mixers: See Section 03 30 00.

PART 3 EXECUTION

3.01 PREPARATION

A. Where new concrete with MVRA is to be bonded to previously placed concrete, prepare surfaces according to admixture manufacturer's instructions.

B. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ACI PRC-302.1 and ASTM E1643. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

3.02 INSTALLATION

A. Comply with the requirements of Division 3 “Cast-in-Place Concrete”, or other appropriate section, for concrete mixing, placing and curing.

B. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643, ASTM F710, ACI 302.2R-06 and manufacturer's written instructions. Refer to Division 7 Section “Vapor Retarders” for additional information.

C. Add MVRA in accordance with manufacturer’s printed data sheet instructions: For mix designs ranging from 0.42 to 0.52 w/cm, dose at 14 ounces per 100 pounds (414ml/45kg) of total cementitious materials. Remove an equal amount of water from the mix. Add separately from other admixtures at the tail end of the load. Mix designs below 0.42 and above 0.52 may require adjustment and consultation with MVRA manufacturer is required prior to their use.
   1. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete with MVRA according to ASTM C 94/C 94M; furnish batch ticket information showing dosage of MVRA.
   2. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Add the MVRA to where it makes direct contact with the ready mix and then rotate drum of batch truck on high for at least seven minutes prior to discharge.

D. Freshening onsite with held back mix water is acceptable so long as the practice is in accordance with published ACI guidelines and does not exceed the original water to cementitious material ratio or instructions of the structural engineer.

E. Use of water reducing admixtures is recommended to achieve slumps greater than 4” (102mm).

F. Use of other admixtures in the same batch as MVRA is acceptable so long as each admixture is added separately.

G. The inclusion of a shrink reducing admixture (SRA) is not acceptable

H. Cold-Weather Placement: Comply with ACI 306.1.

I. Hot-Weather Placement: Comply with ACI 301.

J. Dispense MVRA according to mix design and supplier's written instructions.

K. Add MVRA to concrete according to manufacturer's written instructions.

L. Place and cure concrete. See Section 03 30 00.

3.03 CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Cure concrete slabs to receive moisture sensitive coatings according to ACI 302.2R-06, by one or a combination of the following methods:
   1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure concrete containing MVRA for not less than 24 hours, longer if ambient conditions are hot, windy, and sunny or subject to periods of very low humidity. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3. Removal: After curing period has elapsed, mechanically remove curing compound prior to the installation of final flooring material in accordance with ASTM F-710.
    a. Do not chemically remove.

3.04 FIELD QUALITY CONTROL

A. Testing and Inspecting: The manufacturer of the moisture vapor reduction admixture will, at their expense, engage qualified agencies to obtain project specific sample cylinders and independent certified laboratories for subsequent testing per ASTM D5084 and preparation of test reports.

B. See Section 01 40 00 - Quality Requirements for additional requirements.

C. An independent testing agency will perform field quality control tests. See Section 01 40 00 - Quality Requirements.

D. Provide free access to concrete operations at project site and cooperate with appointed testing agency.

E. Testing of Slabs Containing MVRA:
    1. The moisture vapor reduction admixture (MVRA) manufacturer will perform all moisture testing in accordance with this specification and will issue project specific warranties and adhesion guarantees prior to installation of any slab finishes; no further field slab moisture nor pH testing shall be required.
        a. Failure to provide a product that meets or exceeds these requirements will result in all subsequent testing and slab remediation costs being borne by the contractor.
    2. A representative or agent of the moisture vapor reduction admixture (MVRA) manufacturer must be present at the jobsite during placement of all MVRA treated concrete.
        a. Do not proceed without this representative being present.
        b. A minimum of one business day notification is required.
    3. Field testing technician shall, at the expense of the MVRA Manufacturer, procure at least one 4 inch (102 mm) cylinder from every day of placement of MVRA dosed concrete for the purpose of subsequent hydraulic conductivity/coefficient of permeability testing.
    4. All cylinders shall be independently lab tested in accordance with ASTM D 5084 at the expense of the MVRA manufacturer.
    5. Test results must conform to specified limits.
        a. Should any cylinder from any day of placement deliver results in excess of 6.0 E-08 cm/sec, the concrete moisture vapor reduction admixture manufacturer shall procure, at their expense, a core (or cores) from that day of placement. This core (cores) shall be sent to an independent laboratory for hydraulic conductivity (coefficient or permeability) per ASTM D 5084.
        b. Should any core deliver results in excess of 6.0 E-08 cm/sec per ASTM D 5084, the concrete moisture vapor reduction admixture manufacturer shall provide, at their expense, a topical moisture mitigation system for all areas not meeting the stated limit.
    6. Proceeding with placement of concrete dosed with the MVRA without the required representation will result in the contractor bearing the cost to core and ship appropriate material for testing per ASTM D 5084.

F. Slab Testing: Cooperate with manufacturer of specified MVRA to allow access for sampling and testing concrete for compliance with warranty requirements.
    1. Provide test cylinders as required by MVRA manufacturer.
    2. Demonstrate test cylinders comply with requirements specified in Part 2.

G. Field Quality Control Reports:
    1. Submit test results to Architect, Contractor, and MVRA manufacturer, within 48 hours of testing.
    2. Include project name, project number, date of MVRA application, name of testing agency, location of concrete in the work, concrete mix design, and waterproofing capability.

3. Furnish batch ticket information showing dosage of MVRA product in mix.

H. When test results indicate concrete does not comply with specified requirements, conduct additional tests as directed by Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

3.05 REPAIRS

A. Make repairs to slab in accordance with Division 3 Section “Cast-in-Place Concrete” and as recommended by concrete moisture vapor reduction admixture manufacturer.

B. Repair or replacement of defective concrete will be determined by the Architect.

END OF SECTION 03 30 05

SECTION 03 35 00
CONCRETE FINISHING

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2025.

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.

1.02 SUMMARY

A. Section Includes: Application of clear, liquid concrete sealer to finish concrete flatwork.

B. Related Sections:
   1. Section 03 30 00 - Cast-in-Place Concrete.

1.03 REFERENCES

A. ASTM F710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring .

B. (ASTM C309): Standard Specification for Liquid Membrane-Forming Compounds for Curing and Sealing Concrete.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's technical data sheets and installation instructions.

B. Safety Data Sheets (SDS): Submit copies showing VOC compliance with regional regulations.

C. Maintenance Data: Submit manufacturer’s instructions for cleaning and care.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 3 years of documented experience applying specified materials.

B. Mock-up: Provide a minimum 100 sq. ft. sample area on-site to verify appearance, slip resistance, and penetration/adhesion.

1.06 FIELD CONDITIONS

A. Environmental Requirements: Maintain ambient and substrate temperatures between 50°F (10°C) and 85°F (29°C) during application and curing.

B. Ventilation: Ensure adequate airflow when applying solvent-based sealers.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Systems: Subject to compliance with requirements, provide products from a verified manufacturer: Sherwin Williams, or equivalent.

2.02 MATERIALS

A. Sealer Type: H&C ColorTop Water Based Sealer

B. VOC Content: Must comply with Federal, State, and Local regulations.

C. Finish/Gloss: Opaque Concrete Finish

D. Color: Silver Gray HC124

E. SCONC-1: Opaque Concrete Finish. Refer to drawings for location.
   1. Storage Room E107
   2. Toilet Room 104

F.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that concrete surfaces are fully cured (minimum 28 days for standard slabs) and free of hydrostatic pressure.

B. Ensure surface profile is clean, dry, and free of dirt, paint, oil, wax, or curing compounds.

3.02 SURFACE PREPARATION

A. Mechanical or chemical profiling must align with manufacturer recommendations.

B. Acid-etched or ground floors must be neutralized and completely dry prior to application.

3.03 APPLICATION

A. Methods: Apply sealer evenly using a low-pressure sprayer, microfiber pad, or lint-free roller according to manufacturer instructions.

B. Coatings: Apply 2 to 3 thin, even coats. Allow the specified drying time between applications to avoid bubbling or poor adhesion.

C. Coverage Rate: Follow manufacturer requirements, typically between 50 to 500 sq. ft. per gallon depending on concrete porosity.

3.04 PROTECTION AND CLEANING

A. Curing Protection: Restrict pedestrian traffic for 12–24 hours and wheeled traffic for 48–72 hours.

B. Cleaning: Remove all debris and protective materials from the project site upon completion.

END OF SECTION 03 35 00

SECTION 04 20 00
REINFORCED UNIT MASONRY

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C90 - Standard Specification for Dry-Cast Loadbearing Concrete Masonry Units; 2024a.

B. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2026.

C. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

D. ASTM C67 - Standard Test Methods for Sampling and Testing Brick, 2025

E. ASTM C426 - Standard Test Methods for average dry shrinkage of 0.03% when tested in compliance with ASTM C426.

1.02 SUMMARY:

A. Unit Masonry assemblies

1.03 COMPLETE WORK INCLUDES:

A. Concrete masonry units.

B. Mortar and grout.

C. Ties and anchors.

D. Miscellaneous masonry accessories.

E. Installation of stone veneer at cavity and composite walls and concrete.

1.04 SUBMITTALS:

A. See administrative requirements given by the architect, for submittal procedures.

B. Product Data: Submit manufacturer's technical data and installation instructions for insulation material.

C. Shop Drawings: Submit expansion and control joint layout.

D. Samples: Submit samples of brick units proposed for use for verification and approval.

1.05 QUALITY ASSURANCE:

A. Codes and Standards: Provide material and work complying with referenced codes, regulations, and standards.

B. Manufacturer: Obtain each type of unit from one manufacturer, cured by one process, and of uniform texture and color.

C. Fire-Rated Masonry: Wherever a fire-resistance classification is indicated or scheduled, comply with applicable requirements for materials and installation established by governing authorities.

D. Field Construction Mock-Ups: Prior to installation of masonry work, erect sample wall panels to verify selections made for color and textural characteristics, under sample submittals of masonry units and mortar, and to represent completed masonry work for qualities of appearance, materials and construction; build mock-ups to comply with the following requirements:

1. Locate mock-ups as directed.
2. Build mock-ups for each type of exposed unit masonry work, in sizes of approximately 6' long by 6' high by full thickness, including face and back-up wythes as well as accessories.
3. Obtain acceptance of visual qualities of mock-up before start of masonry work. Retain mock-up and use as quality standard until work is completed. When directed, demolish mock-ups and remove from site.
4. Use sample panels to test proposed cleaning procedures.
5. Use sample panels to test water repellent coating.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion and other causes.

C. Store cementitious materials off ground, under cover and in dry location.

D. Store aggregates when grading and other required characteristics can be maintained.

E. Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.07 PROJECT CONDITIONS:

A. Protect masonry materials during storage and construction from wetting by rain, snow or ground water and from soilage or intermixture with earth or other materials. Do not use metal reinforcing or ties having loose rust or other coatings, including ice, which will reduce or destroy bond.

B. During erection, cover top of wall with heavy waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24 inches (609.6 mm) down both sides and hold cover securely in place.

C. Do not apply uniform floor or roof loading for at least 12 hours after building masonry walls or columns. Do not apply concentrated loads for at least 3 days after building masonry walls or columns.

D. Prevent grout or mortar from staining the face of masonry to be left exposed or painted. Immediately remove grout or mortar in contact with masonry. Protect sills, ledges and projections from droppings of mortar.

E. Do not lay masonry when the temperature of outside air is below 40ºF, unless means are provided to heat and maintain temperature of masonry materials and protect completed work from freezing. Protection shall consist of heating and maintaining temperature of masonry materials to at least 40°F and maintaining an air temperature above 40°F on both sides of masonry at least 48 hours.

PART 2 - PRODUCTS

2.01 CONCRETE MASONRY UNITS:

A. General:
   1. Comply with referenced standards and other specified requirements for each type of masonry unit required.
   2. Provide special shapes where required for lintels, corners, jambs, sash, control joints, headers, bonding, cap, cove, and other special conditions.

B. Concrete Block: Provide units complying with characteristics specified below for grade, type, face size, exposed face, and weight classifications.
   1. Hollow Loadbearing Block: ASTM C90; lightweight, except use normal weight block for work below grade.
   2. Size: Manufacturer's standard units with nominal face dimensions of 16" long X 8" high X thicknesses indicated.
   3. Type I, moisture-controlled units; cure units to meet specified requirements, including average dry shrinkage of 0.03% when tested in compliance with ASTM C426.
   4. Exposed Faces: Manufacturer's standard color and texture.
   5. Fire-Rated Units: Approved for fire rating indicated.

2.02 MORTAR AND GROUT MATERIALS:

A. See Structural Drawings.

2.03 MASONRY ACCESSORIES:

A. Hohmann & Barnard is specified. Equivalents products from Dur-O-Wal and AA Wire Products are acceptable or approved equal.

B. Continuous Masonry Wire Reinforcing:
   1. Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner and tee units. Fabricate from cold-drawn steel wire complying with ASTM A82, with deformed continuous side rods and plain cross rods, and a unit width of 1 1/2" to 2" less than thickness of wall or partition. Provide manufacturer's standard hot dipped galvanized finish.
   2. Use truss type fabricated with single pair of 9 gage side rods, and 9 gage continuous diagonal cross rods spaced not more than 16" o.c. above grade and 8”o.c. below grade.

C. Wall Ties And Anchors:
   1. At Concrete: 1" wide X 1" deep X 3/4" throat, 24 gage hot dipped galvanized dovetail anchor slot, and dovetail triangle with 1/4" wire and 12 gage hot dipped galvanized dovetail.
   2. At Metal Framing: Hohmann & Barnard X-Seal, hot dipped galvanized, 12 gage, with vee-tie, hot dipped galvanized, 1/4" diameter. Attach anchors to metal framing with #10 self-tapping corrosion-resistant screws.
   3. At Steel: 9" long X 3/4" wide, 12 gage, flat continuous adjustable weld-on anchor, hot dipped galvanized, and 3/16" gage square nosed beam tie, hot dipped galvanized.
   4. At Cavity/Composite Walls With Irregular Coursing: Double eye adjustable truss, with eye sections spaced 16" o.c., hot dipped galvanized; eye and pintle length as required by wall conditions.
   5. At Intersecting Walls: 1/2" X 1/2" mesh, 16 gage hot-dipped galvanized wire mesh ties.

2.04 MASONRY CLEANER:

A. Manufacturer's standard strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

B. Available Products: Subject to compliance with requirements, products that may be used to clean unit masonry surfaces, provide one of the following:
   1. Cleaners Not Subject to Metallic Staining with Mortar Not Subject to Bleaching:
      a. Diedrich Technologies, Inc. "202 New Masonry Detergent".
      b. ProSoCo, Inc. "Sure Klean No. 600 Detergent".
      c. Approved equal.
   2. Cleaners Subject to Metallic Staining:
      a. Diedrich Technologies, Inc. "202V Vana-Stop".
      b. ProSoCo, Inc. "Sure Klean Vana Trol".
      c. Approved equal.

2.05 MORTAR AND GROUT MIXTURES:

A. Mortar Mix: ASTM C270, Type S; at exterior use integral waterproofing admixture.
   1. Use white Portland, white aggregate and mortar pigment as required to produce mortar color selected by Architect
   2. At exterior use integral waterproofing admixture.
   3. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.

B. Grout Mix: ASTM C476.

C. Measure and batch materials either by volume or weight, such that required proportions can be accurately controlled and maintained. Measurement of sand exclusively by shovel will not be permitted. Mix mortars with the maximum amount of water consistent with workability to provide maximum tensile bond strength within the capacity of mortar. Mix ingredients for a minimum of

5 minutes in a mechanical mixer. Do not use mortar or grout which has begun to set, or if more than 2 1/2 hours has elapsed since initial mixing. Retemper mortar during 2-1/2 hour period as required to restore workability. Do not add air-entraining agents or other admixtures to mortar or grout materials.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Examine the areas and conditions under which masonry is to be installed. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 PREPARATION:

A. Brick: Wet clay brick having ASTM C67 absorption rates greater than 0.025 oz. per sq. in./minute.

B. CMU: Do not wet concrete masonry units.

C. Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.

3.03 CONSTRUCTION TOLERANCES:

A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arrises do not exceed 1/4" in 10', or 3/8" in a story height not to exceed 20', nor 1/2" in 40' or more. For external corner, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story of 20' maximum, nor 1/2" in 40' or more.

B. Variation from Level: For lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum, nor 3/4" in 40' or more.

C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2" in any bay or 20' maximum, nor 3/4" in 40' or more.

D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".

3.04 INSTALLATION, GENERAL:

A. Thickness: Build cavity/composite wythe walls to full thickness shown. Build single wythe walls to actual thickness of masonry units, using units of nominal thickness indicated.

B. Build chases and recesses as indicated and required for work of other trades. Provide not less than 8" of masonry between chases or recess and jamb openings, and between adjacent chases and recessed.

C. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

D. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to fit adjoining work neatly. Use full-side units without cutting wherever possible.

E. Keep cavities clean of mortar droppings and other materials during wall construction. Strike joints flush facing cavity.

F. Provide weepholes in exterior wythes of walls located immediately above ledges and flashing, spaced 24" o.c., unless otherwise indicated.

G. Insulation: Install insulation in strict accordance with manufacturer's recommendations.

H. Flashing: Comply with the manufacturer's instructions for handling and installation of flashing to provide a complete membrane over area to be flashed. Seal projections through sheet and lap and seal seams.

I. Coordinate work with work of other trades.

3.05 LAYING MASONRY WALLS:

A. Lay walls plumb and true to comply with specified tolerances, with courses level, accurately spaced and coordinated with other work.

B. BLay brick with completely filled bed, head and collar joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints. Lay in running bond with vertical joint in each course centered on units in course above and below, except where other coursing is indicated.

C. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or to be filled with grout. Lay CMU in running bond with vertical joint in each course centered on units above and below. Where indicated, fill cells with grout.

D. Build-in items specified under this and other sections of this specification. Fill in solidly with masonry around built-in items. Fill space between hollow metal frames and masonry solidly with mortar.

E. Joints: Lay walls with 3/8" joints. Use as dry a mortar mix as practicable and compress joints as much as possible to produce a dense tight joint.
   1. Concealed joints and joints to receive coatings: Strike flush.
   2. Exposed brick joints: Tooled.
   3. Exposed CMU joints: Tooled.

3.06 HORIZONTAL JOINT REINFORCING:

A. Reinforce walls with continuous horizontal reinforcing. Fully embed longitudinal side rods in mortar for their entire length. Lap reinforcement a minimum of 6" at ends of units. Do not bridge control joints with reinforcing. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcing as directed by manufacturer for special conditions. Space reinforcing 16" o.c. vertically.

B. Reinforce masonry openings greater than 12' wide with horizontal joint reinforcing placed in 2 horizontal joints approximately 8" apart, both immediately above the lintel and below the sill. Extend reinforcing a minimum of 2' beyond jambs of opening bridging control joints where provided.

3.07 ANCHORING MASONRY WORK:

A. At Concrete: Anchor single wythe masonry veneer to concrete with specified dovetail anchors and triangles spaced 16" o.c. vertically and horizontally.

B. At Metal Framing: Anchor single wythe masonry veneer to metal studs backup with specified anchors spaced 16" o.c. vertically and 16" o.c. horizontally.

C. At Cavity/Composite Wall: Place double eye truss in wall spaced 16" o.c. vertically.

D. At Steel: Place adjustable weld-on anchor attachment of beam tie at 16" o.c.

E. At Intersecting Walls: Place wire mesh tie in intersecting walls every other course.

3.08 CONTROL AND EXPANSION JOINTS:

A. Install vertical expansion control and isolation joints as indicated, at maximum 30' o.c. at long wall runs, and at large openings in wall. Build-in related items as masonry work progresses.

B. Refer to Section 07 900 for sealants.

3.09 REPAIR, POINTING AND CLEANING:

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of placement.

B. Pointing: During the tooling of joints, enlarge and voids or holes, except weep holes, and completely fill with mortar. Point-up joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared for application of caulking or sealant compounds.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
   1. Clean masonry with specified masonry cleaner applied according to manufacturer's written instructions.
   2. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

END OF SECTION 04 20 00

SECTION 04 21 00
CLAY UNIT MASONRY

PART 1 – GENERAL

1.01 SUMMARY

A. Extent of each type of masonry work is indicated on Drawings and Schedules.
   1. Face Brick, in standard size units as indicated.
   2. Colored mortar
   3. Anchors, ties, reinforcing, masonry accessories, and concealed flashings.
   4. Other items as specified herein or indicated on the Drawings.

1.02 REFERENCE STANDARDS

A. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2026.

B. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2024.

C. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale); 2026a.

D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2026.

E. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2022.

F. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials; 2025.

G. ASTM D1781 - Standard Test Method for Climbing Drum Peel for Adhesives; 1998 (Reapproved 2021).

H. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Material Certificates: For each type and size of product indicated. For masonry units include data on material properties.

C. Shop Drawings:
   1. Control/Expansion Joints: provide layout of all control joints to be provided in brick walls.
   2. Flashing: show layout of flashing, including preformed corners and end dam locations.

D. Samples: For verification purposes submit the following:
   1. Manufacturer’s complete and current product data for each different masonry unit, accessory, and other manufactured product indicated, including certifications that each item and type complies with specified requirements.
      a. Include instructions for handling, storage, installation, and protection.
   2. Provide samples for initial selection purposes of the following:
      a. Exposed masonry, showing full extent of colors and variations anticipated, for each standard and special shape unit.

1.04 QUALITY ASSURANCE

A. All work shall comply with the 2024 International Building Code (IBC 2024) and ACI 530.

B. Mockups: Prior to any permanent work or pre-installation conference, construct full sized mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Mockup to be representative of the finished work in all respects including brick units, all anchors, connections, flashings, and sealants as accepted on the final shop drawings. Build mockups to comply with the following requirements, using materials indicated for the completed work:
   1. Typical exterior cavity wall composed of all types of facing brick and CMU backup, typical window and storefront unit, EIFS banding above.

a. See mock up elevation and detail on Drawings for additional information.

2. Include all accessories as specified herein including but not limited to thru wall flashing with stainless steel drip, and mortar drip collector (and spray insulation specified elsewhere).
3. Use sample panel to test proposed cleaning procedures.
4. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
5. Obtain Architect's approval of mockups at the pre-installation meeting before starting any permanent work, including layout.

C. Pre-installation Meeting:

1. Prior to installation of any permanent work, but after the installation of the mock-up, a pre-installation meeting with the Architect, mason, and manufacturer's representatives (brick, mortar, accessories) shall convene to review at a minimum the following:
   a. Project Manual, Detail Drawings, Manufacturer's Specifications and warranty requirements
   b. Job and surface readiness, material storage and protection.
   c. Review installation procedures and coordination required with related work.
   d. Review of mock up as specified herein.
   e. Review materials, preparation, installation, tolerances, protection, and coordination with other work.
   f. Note deviations, differences or discrepancies.
   g. Site conditions, project specific details, and other adverse conditions
2. Minutes shall be taken at the conference by the Contractor and distributed to all parties present. All outstanding issues shall be noted in writing designating the responsible party for follow-up action and the timetable for completion.
   a. Installation of permanent brick work shall not proceed until all outstanding issues are completed and the mock up is approved fully in writing.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units palleted, off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.

C. Store cementitious materials off the ground, under cover, and in dry location.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.

1.06 PROJECT CONDITIONS

A. **Protection of Masonry:**

1. During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
2. Extend cover a minimum of 24 inches (609.6 mm) down both sides and hold cover securely in place.
3. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (609.6 mm) down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after constructing brick masonry walls or columns.

C. **Stain Prevention:**
   1. Prevent grout or mortar from staining the face of masonry to be left exposed. Remove immediately grout or mortar in contact with such masonry.
   2. Protect installed face brick and cast stone at ground level from clay staining by maintaining a perimeter 6'-0" wide of sod as specified (this shall not be the final sod indicated on Drawings, only a temporary barrier to clay and other materials to keep them from staining brick and/or mortar), until final landscaping or other improvements indicated adjacent to completed masonry work are in place. Sod shall extend around the entire perimeter of the building, whether brick exists or not.
   3. Protect sills, ledges and projections from droppings of mortar.
   4. Protect cast stone below brick by placing polyethylene over laid product to project from droppings of mortar and other items that could stain.
   5. Protect surfaces of window and door frames as well as similar products with painted and integral finished from mortar droppings, and other damage.

D. Clean Air Space: Prevent grout and mortar from occurring in, bridging, forming ledges, and/or filling air space between masonry and back up walls.

E. Cold-Weather Construction: When the ambient temperature falls below 40 degrees (4 degrees Celsius) comply with provisions of ACI 530, Specification for Masonry, for cold-weather construction and the following:
   1. Do not lay masonry units that are wet or frozen.
   2. Remove masonry damaged by freezing conditions.

F. Hot-Weather Construction: When the ambient temperature exceeds 90 degrees (32 degrees Celsius) comply with provisions of ACI 530, Specification for Masonry, for hot-weather construction.

PART 2 – PRODUCTS

2.01 FACE BRICK MATERIALS

A. Face Brick General:
   1. Obtain masonry units of each type from one manufacturer, of uniform texture and color.
   2. Size: Standard Modular – 3 5/8 inches (15.88 mm) x 2 1/4 inches (6.35 mm) x 7 5/8 inches unless otherwise indicated
      a. Provide modular and as follows:
         1) For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
         2) Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
         3) Provide solid, uncored brick for all corbelled areas, brick reveal areas, above steel lintels, and other areas indicated to receive "solid" brick.
   3. Characteristics: Comply with ASTM C216, Grade SW, Type FBS

B. Face Brick Schedule:
   1. Brick Type: Brick to match Existing Athletic Performing Facility
      a. Size: Modular for 3/8" mortar joint, 3-5/8" x 2-1/4" x 7-5/8"
      b. Basis of Design: Acme Brick Company
         1) PEP 250 Royal Oak
         2) Modular Size/Velour Texture
      c. or Equal:
         1) Magnolia Clay Products
         2) Endicott Light Sandstone
         3) Modular Size/Velour Texture
      d. Color as selected by Architect to match campus stardard (custom color if required)
   2. Solid bricks required at mech yard and rowlock sill

3. Mortar:
    a. Manufacturer: Holcim
    b. Color: Frosty

2.02 CONCRETE MASONRY UNITS

A. Provide under Division 4 Section 04 20 00 “Reinforced Unit Masonry”.

2.03 LINTELS

A. Concrete/Masonry Lintels: Provide under Division 4 04 20 00 Section “Reinforced Unit Masonry”.

B. Provide and install lintels of steel and other materials where indicated.
    1. Steel lintels are specified in Division 5 Section “Metal Fabrications” and/or “Structural Steel”.

2.04 MORTAR MATERIALS

A. Portland Cement: ASTM C 150, Type I, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S.

C. Aggregate for Mortar: ASTM C144.

D. Water: Potable. All water should be clean and free from organic material and deleterious amounts of dissolved acids, alkalies and salts.

2.05 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
    1. Do not use calcium chloride in mortar or grout.
    2. Use portland cement-lime or masonry cement mortar unless otherwise indicated.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
    1. All mortar to be dispensed in bulk bags using on-site silo systems to ensure consistent mixes.

C. Mortar and Grout for Concrete Masonry Units:
    1. Provide under Division 4 Section 04 20 00 “Reinforced Unit Masonry”.

D. Mortar for Brick: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
    1. For all face brick, use Type N.
    2. Mortar:Manufacturer: Holcim
        a. Color: Frosty

2.06 MASONRY ANCHORS AND TIES

A. Provide accessories from one of the following manufacturers:
    1. Hohmann & Barnard
    2. Wire-Bond
    3. Quality Steel and Wire

B. Materials:
    1. Anchors and Ties: Carbon Steel: To ASTM A366, hot-dip galvanized after fabrication to ASTM A153, Class B.
    2. Wire: Carbon Steel: To ASTM A82, with zinc coating hot-dip galvanized after fabrication to ASTM A153.
        a. Tensile Strength: Not less than 80,000 psi (551580.80 kPa).

b. Yield Point: Not less than 70,000 psi (482633.20 kPa).

3. Seismic Reinforcement Retaining Clip: Rigid polyvinyl chloride clip to ASTM D1781, ASTM D2240, ASTM D638, ASTM D790, with ridge to secure continuous wire in mortar and 3 additional ridges to secure masonry wire tie.
4. Anchor tape: Equal to Hohmann & Barnard's “X-Seal Transition Anchor Tape”.
   a. Provide at all locations where flexible anchors are secured thru to substrate using mechanical devices (screws).
   b. 3 inch (76.2 mm) wide tape consists of a reinforced polyolefin base, laminated to a polypropylene layer. Adhesive-backed with removable release liner.
   c. Manufactured from 45% post-industrial and/or post-consumer recycled material.
   d. Apply in continuous lengths only.
   e. Permeability:
      1) MVTR: ASTM E96 - B ???.075 Perms[1]
      2) Air permeability: TAPPI-460 >5000 Sec/100cc

C. General:
1. Tie length required to extend approximately 2 inches (50.8 mm) into masonry. Provide heavier gauge ties if required for depth of cavity.
2. Provide “Seismic Reinforcement Retaining Clips” at end of all pintles. Clip shall engage a 9 ga. continuous pencil rod.

D. Flexible Anchors: Where masonry is indicated to be anchored to structural framework with flexible anchors, provide 2-piece anchors which will permit horizontal and vertical movement of masonry, but will provide lateral restraint.
1. Anchored to Structural Steel:
   a. Equal to Hohmann & Barnard's “#359-FH Weld-on Ties” with “302W Column Web Tie” (to CMU) or “#VBT – Vee Byna-Tie” (to brick)
      1) Provide ties in lengths as required.
   b. Attach each anchor to structural steel by welding.
2. Anchored to CMU:
   a. Equal to Hohmann & Barnard's “DW-10HS Seismiclip® Interlock System” with “#VBT – Vee Byna-Tie”.
      1) Provide ties in lengths as required.
   b. Attach each anchor to wall with expansion anchor as recommended by the manufacturer.

E. Continuous Wire Reinforcing for Masonry (Joint Reinforcement): Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner units. Fabricate from cold-drawn steel wire complying with ASTM A82, with deformed continuous side rods and plain cross-rods, and a unit width of 1 1/2" to 2" less than thickness of wall or partition. Provide units fabricated as follows:
1. Single Wythe Joint Reinforcement:
   a. Provide under Division 4 Section “Reinforced Unit Masonry”.
2. Multi Wythe Adjustable Joint Reinforcement (Cavity Walls):
   a. Ladder type fabricated with 3/16” side rods and 9 ga. perpendicular cross-rods (extra heavy weight weight) with welded eyes on the side rods:
      1) Equal to Hohmann & Barnard's “#270 S.I.S. Ladder Eye-Wire with Seismiclip® Interlock System”
   b. Furnish with 3/16” adjustable pintles of lengths required for proper embedment in mortar joints, spaced 16" o.c.

F. Intersections of Masonry Walls:
1. Wire Mesh Ties:
   a. To be used at all intersections of exterior masonry walls with interior masonry partitions and where interior masonry partitions intersect with each other, except where noted to use joint stabilizing anchors below.

b. ½” mesh, 16 gage, hot-dip galvanized wire mesh, 12" long x 1" less than intersecting partition thickness.
1) Equal to Hohmann & Barnard's “MWT – Mesh Wall Tie”.

G. Finish for Masonry Anchors and Ties:
1. For interior locations, including devices which extend only into interior wythes of exterior masonry, fabricate from steel with mill galvanized finish complying with ASTM A641, Class 1 or 3; or hot-dip coating complying with ASTM A153, Class B-2.
2. For devices which extend into exterior wythe, fabricate from steel with hot-dip galvanized coating, ASTM A153, Class, B-2.

2.07 ACCESSORIES

A. Flashing for Masonry (Thru-Wall Flashing):
1. Provide flashing and accessories from one of the following manufacturers:
a. Sandell Construction Solutions
b. Advanced Building Products, Inc.
c. York Flashings
2. Provide concealed flashings, shown to be built into masonry, except that any noted as stainless steel or other metal are specified in Division 7.
3. Flashing shall consist of a full, single sheet of 5 oz. copper sheet bonded with a proprietary rubber based adhesive, between two layers of fiberglass fabric weighing not less than 0.3 oz/ft2/layer with a minimum of 10x20 threads per inch.
a. Equal to “Copper Fabric Flashing”; Sandell Construction Solutions
b. Provide preformed corner and end dam assemblies per manufacturer. No field assemblies will be allowed.
4. Mastic shall be used while splicing copper flashings and spotted to vertical surfaces. When splicing, material should be coated with a yield of 30 sq foot (0.03229 sq cm) per gallon coverage.
a. Equal to “Asphalt Trowel Mastic”; Sandell Construction Solutions
5. Drip Plate: 26 gauge, type 304 stainless steel with continuous 1/8 inch (3.18 mm) foam strip.
a. Equal to Hohmann & Barnard's “FTSA”
b. Provide manufacturer’s preformed corners.

B. Mortar Drip Collector:
1. A fluid conducting, non-absorbant, mold and mildew resistant polyment mesh designed to prevent weephole blockage. Trapezodial shaped, formed at unequal heights.
a. Equal to “Mortar Net with Insect Barrier” as manufactured by Mortar Net USA or approved equal.
b. Material to be 10" tall x 5'-0" long x as thick as the air space shown in which the drip collector is being installed.

C. Weephole Vents:
1. UV stable, 90% open recycled polyester mesh weephole vents between units in the weep course.
a. Equal to “Mortar Net Weep Vents” as manufactured by Mortar Net USA or approved equal.
b. Architect to select color from manufacturer’s full line of colors to match mortar color as specified herein.

D. Weephole Tubes:
1. Provide at all cast stone areas:
a. Hohmann & Barnard's “341 Round Plastic Weep Holes”
b. Refer to Division 4 Section “Cast Stone Masonry”.

E. Miscellaneous Masonry Accessories:
1. Brick Cleaner: Equal to Prosoco “Sure Klean 600”, EaCo Chem NMD 80, or equal. Cleaners containing muriatic acid will not be accepted.

a. Manufacturer to confirm in writing that cleaner will not affect texture or color of brick.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

A. Thickness: Build masonry construction to the actual thickness indicated. In most cases floor plan dimensions indicate nominal thickness and require deducting 3/8 inch (9.52 mm) to determine actual thickness.

B. Miter corners of soldier and rowlock courses and bond mitered pieces together with thin set mortar formulated for use with brick in exterior locations.

C. Layout walls in advance for accurate spacing of surface bond patterns, with uniform joint widths and to properly locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half size units at corners, jambs and wherever possible at other locations.
   1. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces concealed.

D. Stopping and Resuming Work: Rack back 1/2-masonry unit length in each course of running bond; do not tooth. Clean exposed surfaces of set masonry, wet units lightly, and remove loose masonry units and mortar prior to laying fresh masonry.

E. Remove masonry units disturbed after placement; clean and set in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar, and reset in fresh mortar.

F. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.
   1. Confirm wetting procedures with brick manufacturer prior to laying mock-up.

3.02 CONSTRUCTION TOLERANCES

A. Dimensions and Locations of Elements:
   1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12.7 mm) or minus 1/4 inch (6.35 mm).
   2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch (12.7 mm).
   3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch (6.35 mm) in a story height or 1/2 inch (12.7 mm) total.

B. Lines and Levels:
   1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch (6.35 mm) in 10 feet (304.8 cm), or 1/2 inch (12.7 mm) maximum.
   2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch (3.18 mm) in 10 feet (304.8 cm), 1/4 inch (6.35 mm) in 20 feet (609.6 cm), or 1/2 inch (12.7 mm) maximum.
   3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch (6.35 mm) in 10 feet (304.8 cm), 3/8 inch (9.52 mm) in 20 feet (609.6 cm), or 1/2 inch (12.7 mm) maximum.
   4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch (3.18 mm) in 10 feet (304.8 cm), 1/4 inch (6.35 mm) in 20 feet (609.6 cm), or 1/2 inch (12.7 mm) maximum.
   5. For lines and surfaces do not vary from straight by more than 1/4 inch (6.35 mm) in 10 feet (304.8 cm), 3/8 inch (9.52 mm) in 20 feet (609.6 cm), or 1/2 inch (12.7 mm) maximum.

C. Joints:
   1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.18 mm), with a maximum thickness limited to 1/2 inch (12.7 mm).
   2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9.52 mm) or minus 1/4 inch (6.35 mm).
   3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3.18 mm).

3.03 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

3.04 MORTAR BEDDING AND JOINTING

A. Mortar shall be dispensed in pre-blended (containing proportion mixture of Portland cement, hydrated lime, mortar/masonry cement, sand, and color depending on condition) 3000 lb bulk bags into an on-site silo system that charges the Masonry Contractor's mechanical batch mixer.
   1. No on-site batch control will be allowed – silos only.

B. Once batch is charged into the batch mixer from the silo, add water and mix mortar to ensure homogeneity and workability. Hand mixing of the mortar is not permitted.
   1. Observe mixing times of 4 - 5 minutes, consistent from batch to batch.
   2. Use clean, potable water, add the maximum amount consistent with optimum workability.
   3. Maintain a uniform water/cement ratio.

C. Rinse out mixer following each batch.
   1. At the end of the day, thoroughly rinse the mixer to avoid contamination of future mortar batches.

D. Do not use mortar which has begun to set, and discard if more than 2 1/2 hours has elapsed since initial mixing.
   1. Retemper mortar during this time by adding additional mixing water only to replace water lost due to evaporation.
   2. Do not retemper colored mortars.

E. Lay hollow brick as follows:
   1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
   3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
   4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

F. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

G. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

H. Collar Joints: Fill joints between wythes of faced (composite) and solid walls solidly with mortar by pargeting either the back of the facing, or the face of the backing, and shove units solidly into pargeting.

3.05 CAVITY WALLS

A. Coat cavity face of backup wythe to comply with Division 7 Section "Vapor Retarders" (openings) and Division 7 Section “Exposed Spray Applied Insulation” (walls).

B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

C. Bond wythes of cavity walls together using one of the following methods:
   1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, spaced not to exceed 16 inches (406.4 mm) o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches (304.8 mm) of openings and space not more than 24 inches (609.6 mm) apart around perimeter of openings.
   2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
      a. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties to allow for differential movement regardless of whether bed joints align.
      b. Refer to Division 4 Section “Reinforced Unit Masonry” for additional requirements.

3.06 MASONRY JOINT REINFORCEMENT

A. Refer to Division 4 Section 04 20 00 “Reinforced Unit Masonry” for additional requirements.

B. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (15.88 mm) on exterior side of walls, 1/2 inch (12.7 mm) elsewhere. Lap reinforcement a minimum of 6 inches (152.4 mm).
   1. Space reinforcement not more than 16 inches (406.4 mm) o.c.
   2. Space reinforcement not more than 8 inches (203.2 mm) o.c. in foundation walls, parapet walls and in all corner zones of the building. Corner zones are indicated on Structural Drawings.
   3. Provide reinforcement not more than 8 inches (203.2 mm) above and below wall openings and extending 12 inches (304.8 mm) beyond openings in addition to continuous reinforcement.

C. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

D. Provide continuity at corners by using prefabricated L-shaped units.

3.07 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Refer to Division 4 Section 04 20 00 “Reinforced Unit Masonry” for additional requirements.

B. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
   1. Provide an open space not less than 2 inches (50.8 mm) wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
   2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
   3. Space anchors as indicated, but not more than 16 inches (406.4 mm) o.c. vertically and 16 inches o.c. horizontally.

3.08 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Install flashing as follows unless otherwise indicated:
   1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

2. At lintels, extend flashing a minimum of 6 inches (152.4 mm) into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches (50.8 mm) to form end dams.
3. Install flashings with 6 inch (152.4 mm) minimum lap at splices. Bond to slab, and seal at penetrations and interruptions with mastic.
4. Thru wall flashings shall extend a minimum of 6” above the top of the Mortar Drip Collector Material.

C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
1. Use specified weep/vent products to form weep holes.
2. Space weep holes 24 inches (609.6 mm) o.c. unless otherwise indicated.
3. Install a minimum of two weep hole inserts above openings less than 5’-4” wide.
4. Provide at next to top course to ensure proper cavity ventilation.

D. Place cavity drainage material in cavities per the following:
1. To prevent mortar bridging between the outer wythe and inner wall, install flashing extending from the bottom of the drainage material to at least 6" above the top of the drainage material.
2. Lay the first one (1) or two (2) courses of brick at flashing level, then install drainage material continuously by placing it against the inside of the openings. No fasteners or adhesives are required.

3.09 CONTROL AND EXPANSION JOINTS

A. Provide vertical expansion, control and isolation joints in masonry where indicated on Drawings. Build in related masonry accessory items as the masonry work progresses.
1. See Division 7 Sections 07 92 00 “Joint Sealants”.

B. Provide compressible filler per Division 7 Section 07 92 00 “Joint Sealants” at the top of the brick walls and the underside of any fixed shelf angles.

3.10 PARGING

A. Use a steel-trowel finish to produce a smooth, flat, dense surface. Form a wash at top of parging and a cove at bottom.

B. Damp-cure parging for at least 24 hours and protect parging until cured.

3.11 FIELD QUALITY CONTROL

A. Coordinate the requirements of this section with Division 1 Section 01 45 00 “Testing Laboratory Services”. Engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports
1. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

B. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

3.12 REPAIR

A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints at corners, openings and adjacent work to provide a neat, uniform appearance, properly prepared for application of caulking or sealant compounds.

3.13 CLEANING OF BRICK

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. General:
   1. All cleaning methods are to be verified for compliance by the Architect prior to use. Do not start brick cleaning until all trades adjacent to area to be cleaned have signed off on preparation and protection of their surfaces.
   2. Apply with a standard water hose nozzle (jet nozzles not allowed). Apply using a circular application pattern and maintain an adequate and consistent distance. PRESSURE **WASHERS WILL NOT BE ALLOWED AS A MEANS OF APPLYING OR CLEANING.**
      a. Do not hold the spray nozzle closer than 8" to the wall.

C. Pre-Cleaning:
   1. Prior to cleaning brickwork, all large mortar droppings should be removed within 24 hours of laying with stiff bristled nylon or natural bristle brushes. Cleaning should begin 21 to 28 days with type N, after laying the brick.

D. Cleaning:
   1. Saturation: Thoroughly saturate all masonry with water before applying any cleaning product.
   2. Clean:
      a. Use a cleaning solution as specified herein and procedure recommended by the brick manufacturer.
      b. Apply the cleaning solution as recommended. The cleaning solution should remain on the brickwork 3 to 6 minutes before proceeding to the next step. Clean the brick starting at the top and working down, being sure to keep areas below the cleaning area saturated with water.
      c. Do not allow the cleaning chemicals to dry on the brickwork.
   3. Rinse:
      a. Thoroughly rinse all masonry with water to remove the cleaning compound. It is vital that all chemicals used in cleaning be rinsed out of the brickwork before they dry in place.
      b. Begin at the top of the brickwork and work down using two or three passes. Be certain all "dirty" water is flushed all the way to the ground and does not stay on the masonry.

END OF SECTION 04 21 00

SECTION 05 50 00
METAL FABRICATIONS

PART 1 – GENERAL

1.01 SUMMARY

A. Definition: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere. Among items included are:
   1. Steel lintels (Hot dipped galvanized)
   2. Steel weld plates and angles
   3. Miscellaneous steel
   4. Custom-fabricated stainless steel downspout boots with cleanout access.

B. Custom-fabricated, heavy-duty stainless steel downspout boots with integrated cleanout assemblies designed to transition from nominal 6-inch by 6-inch architectural downspouts to underground storm drainage piping.

C. Related Sections include the following:
   1. Division 3 Section "Cast-in-Place Concrete" Placement of anchors in concrete.
   2. Division 9 Section “Painting and Coating”

1.02 REFERENCE STANDARDS

A. 29 CFR 1910.27 - Scaffolds and Rope Descent Systems; Current Edition.

B. ANSI A14.3 - American National Standard for Ladders - Fixed - Safety Requirements; 2008 (Reaffirmed 2018).

C. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2026.

D. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing; 2026.

E. SSPC-PA 1 - Shop, Field, and Maintenance Coating of Metals; 2024, with Errata (2025).

F. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

G. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

H. SSPC-SP 2 - Hand Tool Cleaning; 2024.

I. SSPC-SP 3 - Power Tool Cleaning; 2024.

J. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

K. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2021.

L. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2024.

1.03 SUBMITTALS

A. Product Data: Submit manufacturers' product data of all manufactured items and products.

B. Shop Drawings:
   1. Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
      a. Detailing Requirements: Detail steel components and items to be galvanized in accordance with applicable requirements of ASTM A384 and ASTM A385. Detail and fabricate work with suitable drain and vent holes to provide positive drainage and to prevent trapping of moisture and stagnant air.
   2. Product Data: For downspout boots, including material thickness, alloy details, finishes, and cleanout configurations.

3. Shop Drawings: Show detailed profiles, dimensions, attachment tabs, and cleanout hardware locations.
    a. Detail profiles, exact dimensions of the 6”x6” top bell sleeve, bottom outlet configuration (straight, angular, or offset), wall anchor tab layouts, and cleanout door detail.

1.04 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrications where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitation. Clearly mark units for reassembly and coordinated installation.

C. Fabricator Qualifications: A firm experienced in producing custom stainless steel fabrications similar to those indicated for this Project.

D. Welding Standards: Qualify procedures and welding personnel in accordance with AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

PART 2 – PRODUCTS

2.01 MATERIALS

A. Metals:
    1. Metal surfaces, General: For Fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
    2. Steel Plates, Shapes and Bars: ASTM A36
    3. Steel Tubing: Cold formed, ASTM A500; Class A or B.
    4. Steel Pipe: ASTM A53; black finish, unless galvanizing is indicated; standard weight (Schedule 40), unless otherwise indicated.

B. Galvanizing:
    1. Steel and ferrous metal items on the exterior of buildings, items exposed to the weather and moisture, gratings, and items specifically indicated, shall be galvanized after fabrication by the hot-dip process in accordance with ASTM A123. Weight of the zinc coating shall conform with the requirements specified under "Weight of Coating" in ASTM A123. Provide high-quality galvanizing in conformance with ASTM A385.
    2. Seal-weld Overlapping Surfaces: Remove all weld flux. Plug vents provided in sealwelded overlapping surfaces to prevent entry of pickling acids. Remove such plugs before galvanizing.
    3. Safeguarding against steel embrittlement shall conform with the applicable requirements of ASTM A143.
    4. Safeguarding against warpage and distortion of steel members shall conform with the applicable requirements of ASTM A384.
    5. Shop galvanized metalwork necessitating field welding which in any manner removes original galvanizing shall be restored by field galvanizing repair in accordance with ASTM A780.
    6. Bolts and screws for attachment of galvanized items shall be galvanized in accordance with ASTM A153.

C. Paint:
    1. Metal Primer Paint:
        a. Free of lead and chromate and comply with State and Federal volatile organic compound (VOC) requirements.
        b. Primer selected must be compatible with finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Division 9.

c. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with Military Specifications MIL-P-21035 (Ships).

D. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, galvan ized to ASTM A153/A153M where connecting galvanized components.

E. Welding Materials: AWS D1.1; type required for materials being welded.

2.02 FABRICATION, GENERAL

A. Workmanship: Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise shown. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners, wherever possible. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.

E. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

F. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

G. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.03 METAL FABRICATIONS

A. Rough Hardware:
1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures.
2. Manufacture or fabricate items of sizes, shapes and dimensions required.
3. Use galvanized steel hardware for galvanized steel members.

B. Steel Lintels:
1. Provide structural steel lintels for openings and recesses in masonry walls and partitions as shown. Weld adjoining members together to form a single unit where indicated. Provide not less than 8" bearing at each side of openings, unless otherwise shown.
a. All Steel lintels in exterior walls shall be **hot dipped galvanized**.
b. All lintels to be mechanically fastened to vertical structure.
c. Paint in accordance with Division 9 Section “Painting and Coating”

C. Loose Bearing and Leveling Plates: Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts.

2.04 MISCELLANEOUS FRAMING AND SUPPORTS:

A. Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.

B. Fabricate miscellaneous units to sizes, shapes and profiles shown or, if not shown, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise shown, fabricate from structural steel shapes and plates and steel bars, of welded construction

using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.

2.05 DOWNSPOUT BOOTS

A. Stainless Steel Downspout Boots:Basis-of-Design Product: Subject to compliance with requirements, provide downspout boots manufactured by Piedmont Pipe Construction (or approved equal).
   1. Material: Type 304 Stainless Steel.
   2. Thickness: 12 Gauge (nominal 0.1054 inch / 2.67 mm).
   3. Configuration: Straight or offset transition with top bell dimensioned specifically to accept a 6-inch by 6-inch square nominal sheet metal downspout.
   4. Cleanout Access: Integrated removable or hinged front face panel providing access for debris removal, with secure fasteners or a watertight gasketed cleanout configuration.
      a. Integrated front-facing access mechanism consisting of a gasketed, tight-fitting removable or hinged debris evacuation panel with tool-secured mechanical fasteners.
   5. Joint Construction: Continuously welded, ground smooth and polished to match adjacent surfaces.
   6. Fabrication: Continuously welded joints, ground smooth and blended to eliminate sharp angles, seams, and internal choke points to maximize hydraulic conveyance.
   7. Finish: ASTM A480/A480M No. 4 directional satin finish.
   8. Mounting Integration: Pre-fabricated structural wall-mounting tabs or slotted side lugs to securely receive heavy-duty masonry anchors.

2.06 FINISHES

A. Shop Painting:
   1. Shop paint miscellaneous metal work, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded, and galvanized surfaces, unless otherwise specified.
   2. Remove scale, rust and other deleterious materials before applying shop coat. Clean off heavy rust and loose mill scale in accordance with SSPC-SP 2 "Hand Tool Cleaning", or SSPC-SP 3 "Power Tool Cleaning", or SSPC SP-7 "Brush-Off Blast Cleaning".
   3. Remove oil, grease and similar contaminants in accordance with SSPC-SP 1 "Solvent Cleaning".
   4. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of not less than 2.0 mils (0.0508 mm) for each coat. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
      a. Ensure shop primer compatibility with Division 9 Section “Painting and Coating”. Primer per this Section shall be applied in addition to the shop primer as specified herein.
      b. Apply one shop coat to fabricated metal items, except apply 2 coats of paint to surfaces inaccessible after assembly or erection.
   5. Finish paint per Division 9 Section “Painting and Coating”.

B. Galvanized Metalwork:
   1. Galvanized metal surfaces indicated to be painted shall be prepared for painting in accordance with ASTM D2092.
   2. Galvanized metal surfaces shall then be given a shop coat of galvanized primer in accordance with SSPC-PA 1. Materials and application shall conform with SSPC-Paint 20, Zinc-Rich Primers, Type I – Inorganic or Type II - Organic.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that substrate and site conditions are acceptable and ready to receive work.

B. Verify field dimensions of locations and areas to receive work.

C. Notify Architect immediately of conditions that would prevent satisfactory installation.

D. Do not proceed with work until detrimental conditions are corrected.

3.02 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

B. Review installation drawings before beginning installation. Coordinate diagrams, templates, instructions, and directions for installation of anchorages and fasteners.

C. Clean surfaces to receive railings. Remove materials and substances detrimental to installation.

3.03 INSTALLATION

A. General:

1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
2. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for item which are to be built into concrete, masonry or similar construction.
3. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
4. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and the methods used in correcting welding work.

B. Installation of S/S Downspout Boots:

1. Install downspout boots plumb, level, and securely anchored to building substrate.
2. Align top bell sleeve tightly to the 6x6 downspout profile. Seal joints appropriately where indicated to provide a weather-tight connection.
3. Connect lower outlet spigot or hub securely to the underground drainage collection piping system.
4. Verification: Prior to installation, verify that the 6”x6” structural downspout drop and the receiving underground drainage connection hub are aligned plumb and ready to receive the fabrication.
5. Attachment: Securely anchor the 12-gauge boot assembly to the wall substrate utilizing stainless steel expansion or masonry anchors through the provided mounting tabs. Ensure the unit sits completely level and plumb.
6. Joint Connections: Slide the 6"x6" sheet metal downspout clean into the top collar of the boot. Connect the lower discharge spigot to the underground piping system using a heavy-duty flexible coupling or mechanical joint suitable for the receiving pipe material.

C. Anchoring S/S to Substrates

1. Anchoring to Concrete
   a. Secure the unit using stainless steel mechanical expansion anchors or adhesive concrete anchors.
   b. Fasteners shall be minimum 1/4-inch diameter Type 304 stainless steel bolts, embedded to the minimum depth required to meet project-specific wind and structural load calculations.
2. Anchoring to Brick Masonry Substrates:

a. Fasten units to face brick using stainless steel sleeve anchors or heavy-duty masonry screws inserted into pre-drilled holes.
b. Avoid anchoring directly into mortar joints; all structural attachments must be made into solid masonry units.
c. Ensure all penetrations are sealed with an approved exterior-grade polyurethane sealant to prevent moisture infiltration.

3. Engineering Compliance: All structural fasteners, embedment depths, and spacing must conform to the manufacturer's written guidelines and comply with local building code requirements for design wind speeds and seismic criteria applicable to the project site.

D. Installing Bearing and Leveling Plates:
1. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
2. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
3. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.04 CLEANING

A. Touch-up Paint:
1. Immediately after erection, clean ground field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils (0.0508 mm).

B. Galvanized surfaces which have become damaged from welding, handling, or installation shall be repaired immediately after installation with galvanizing repair material in accordance with ASTM A780.

C. Finish paint all exposed steel per Division 9 Section “Painting and Coating”

3.05 ERECTION TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch (6.35 mm) per story, non-cumulative.

B. Maximum Offset from True Alignment: 1/4 inch (6.35 mm).

C. Maximum Out-of-Position: 1/4 inch (6.35 mm).

END OF SECTION 05 50 00

SECTION 05 52 13
PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

1.02 SUMMARY

A. Section Includes:
   1. Anodized or high-performance finished aluminum pipe and tube guardrails with removable panel sections.
   2. Heavy-duty engineered side-mounting bracket assemblies for structural attachment to a mezzanine wood floor framework.
   3. Aluminum exterior mechanical yard gate with frames, pickets, hinges, and pad-lockable latch hardware.

1.03 REFERENCES

A. ASTM International (ASTM):
   1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   2. ASTM B429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

B. American Welding Society (AWS):
   1. AWS D1.2 - Structural Welding Code - Aluminum.

1.04 PERFORMANCE REQUIREMENTS

A. Structural Performance: Railings and guardrails shall withstand structural loads required by applicable building codes without permanent deformation or failure.
   1. Handrail and Top Rail: Concentrated load of 200 lbf or uniform load of 50 lbf/ft applied in any direction.
   2. Infill Panels: Concentrated load of 50 lbf applied normal to a 1 sq. ft. area.
   3. Removable Latches: Fasteners must hold removable panels rigidly securely under maximum design loads to prevent unintended disengagement.
   4. Mechanical Gate Operations: Gate components, hinges, and latches must withstand repetitive cycle testing and environmental exposure without sag, alignment failure, or latching degradation.

B. Exterior Aluminum Mechanical Yard Gate: Hinged gate with hasp locking device. Constructed of 1-1/2" aluminum tube frame with 3/4" pickets at 4" o.c. Hinges and locking devives to be anchored to brick columns. Reference darwings for size, details, and location.

1.05 SUBMITTALS

A. Product Data: Manufacturer's technical data sheets, structural load ratings, and product specifications for railing systems, gates, and specialized hardware.

B. Shop Drawings: Detailed structural layouts including plans, elevations, sections, clear details of the side-mounting anchorage directly into the wood mezzanine headers/rim joists, and gate fabrication details.

C. Samples: Physical validation samples showing a mock-up of the rail-to-post joints, the selected surface finish, gate hinges, and the operational mechanism of the removable panel section.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers: Subject to compliance with requirements, provide products from a qualified manufacturer standard in the industry.

2.02 METALS

A. Aluminum Components: Alloy and temper recommended by the manufacturer/finisher for standard architectural applications and structural loads.
   1. Extruded Pipe and Tube: ASTM B221 or ASTM B429, Alloy 6063-T6.
   2. Mezzanine Railing Sizing: Nominal 1-1/2 inches (1.90-inch actual outer diameter) with a minimum thickness matching Schedule 40 parameters.

2.03 REMOVABLE INFILL PANEL SECTIONS

A. Material: Aluminum frames enclosing matching aluminum pickets or mesh panel assemblies designed to be completely removable from guardrail posts.

B. Removable Mechanism: Heavy-duty slide-lock, quick-release pins, or key-lockable latching fasteners that permit rapid manual removal without standard tool usage, while maintaining code-compliant rigid stability when locked.

2.04 EXTERIOR MECHANICAL YARD GATE

A. Configuration: Single swing heavy-duty aluminum pedestrian gate for exterior service yard access.

B. Dimensions: (reference drawing for location, size, and swing.
   1. Width: 36 inches.
   2. Height: 36 inches.

C. Gate Fabrication:
   1. Outer Gate Frame: 1.5-inch square or round aluminum extruded tubing, minimum 0.125-inch wall thickness, with fully welded mitered corners.
   2. Infill Pickets: 3/4-inch square or round aluminum extruded tubing vertical pickets, spaced uniformly to satisfy local code requirements (maximum 4 inches clear spacing).
   3. Construction: Fully welded fabrication in accordance with AWS D1.2. Grind exposed welds smooth and flush with adjacent surfaces prior to finishing.

D. Gate Hardware:
   1. Hinges: Heavy-duty exterior grade aluminum or stainless steel hinges, surface or post-mounted, sized to support gate weight without sagging. Provide non-removable pins for security.
   2. Latch with Hasp Locking Device: Industrial gravity or slide-bolt latch assembly integrated with a heavy-gauge padlock hasp locking device, allowing the gate to be securely locked from the exterior with a standard commercial padlock.

2.05 FASTENERS AND HARDWARE

A. Mechanical Fasteners: All assembly, mounting screws, bolts, or lockpins shall be manufactured from Type 304 or 316 stainless steel to eliminate risk of galvanic corrosion.

B. Mezzanine Side-Mounting Brackets: Heavy-duty thick-walled extruded aluminum wall/side mount bracket flanges engineered explicitly for anchoring onto structural wood mezzanine joists. Provide structural hot-dip galvanized thru-bolts or structural heavy-duty wood lag screws.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Structural Review: Verify that the structural wood mezzanine floor framework and exterior yard gate post foundations/structural attachments are complete, properly reinforced, and capable of supporting design and functional operational loads.

B. Verify that structural wood mezzanine framing is complete, properly reinforced, and ready to receive side-mounted guardrails.

3.02 INSTALLATION

A. Alignment: Install guardrail and gate assemblies plumb, level, rigid, and in true aligned coordinates. Field joints must be matched flush and clean.

B. Side-Mounting to Wood Joists: Secure structural mounting flanges tightly to the wood substrate using specified engineered fasteners. Maintain spacing requirements dictated by code and architectural plans.

C. Removable Panels: Fit and adjust locking/latching hardware to ensure smooth manual operation, seamless panel swapping, and completely rigid securement when elements are clicked in place.

D. Exterior Gate Installation:
   1. Hang gate plumb, level, and true, maintaining uniform clearances around the frame (maximum 1/4 inch at jambs and header, and code-compliant clearance at the threshold/grade).
   2. Adjust hinges to eliminate binding and ensure smooth, free-swinging operation throughout the full path of travel.
   3. Set latch and padlock hasp device to align perfectly with the catch component, ensuring positive locking and latching engagement without forcing or dragging.

3.03 CLEANING AND PROTECTION

A. Cleaning: Clean all aluminum profiles with mild soap and warm water. Strictly avoid abrasive tools or harsh solvent-based chemical treatments.

B. Field Protection: Protect finished work against damage from ongoing nearby construction activities until substantial completion.

END OF SECTION 05 52 13

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes the following:
   1. Wood blocking
   2. Wood nailers, furring and grounds.
   3. Construction Plywood backing panels.
   4. Underlayment materials.

1.02 REFERENCE STANDARDS

A. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

B. PS 1 - Structural Plywood; 2023.

C. PS 20 - American Softwood Lumber Standard; 2025.

D. APA E30 - Engineered Wood Construction Guide; 2019.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

F. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel; 2021.

G. AWPA M4 - Standard for the Handling, Storage, Field Fabrication and Field Treatment of Preservative-Treated Wood Products; 2023.

H. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.

I. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. ITS (DIR) - Directory of Listed Products; Current Edition.

K. SPIB (GR) - Standard Grading Rules; 2021.

L. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 RELATED WORK

A. Related Sections Include:
   1. See structural drawings for specific framing materials and accessories not specified herein.

1.04 SUBMITTALS

A. See Section 01 33 23 - Shop Drawings, Product Data, and Samples for submittal procedures.

B. Product Data: For each type of process and factory-fabricated product indicated.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that materials comply with requirements.
      a. Fire -retardant treatment
      b. Pressure-preservative treatment.
      c. Field-applied preservative treatment product data and application instructions.

PART 2 PRODUCTS

2.01 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Provide dressed lumber, S4S, unless otherwise indicated.

3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
4. Species: Southern Pine, unless otherwise indicated.
5. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org), and that provides grading service for species and grade specified. Provide lumber stamped with grade mark unless otherwise indicated.
6. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
   1. Preservative treatment material shall be compatible with zinc coated fasteners and framing connectors.

B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.

C. Mark each treated item with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

D. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
   3. Wood framing members less than 18 inches (457.2 mm) above grade.
   4. Wood floor plates that are installed over concrete slabs directly in contact with earth.

2.03 DIMENSION LUMBER

A. General: Of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.

B. Non-Load-Bearing Interior Partitions: Construction, Stud, or No. 2 grade and any of the following species:
   1. Mixed southern pine; SPIB.
   2. Eastern softwoods; NELMA.
   3. Northern species; NLGA.
   4. Western woods; WCLIB or WWPA.

C. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

D. Sizes: Nominal sizes as indicated on drawings, S4S.

E. Moisture Content: S-dry or MC19.

F. Framing Other Than Non Load-Bearing Framing: See structural plans.

2.04 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Nailers.
   3. Furring.
   4. Grounds.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
   1. Mixed southern pine, No. 2 grade; SPIB.
   2. Eastern softwoods, No. 2 Common grade; NELMA.
   3. Northern species, No. 2 Common grade; NLGA.
   4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.05 CONSTRUCTION PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4 inch (12.7 mm) thick.
   1. General: Install in accordance with APA E30.
   2. Communications and Electrical Room Mounting Boards: Secure with screws to studs; space fasteners at maximum 24 inches on center.
      a. At fire-rated walls, install board over wallboard indicated as part of fire-rated assembly.
      b. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
      c. Install adjacent boards without gaps.

2.06 UNDERLAYMENT MATERIALS

A. Roofing Felt: Asphalt—saturated organic felt complying with ASTM D226, 30 lb. Asphalt saturated felt, unperforated.
   1. Installed in the following locations:
      a. Install at time roof sheathing is placed.

2.07 MISCELLANEOUS MATERIALS

A. Fasteners:
   1. Power-Driven Fasteners: CABO NER-272.
   2. Bolts: Steel bolts complying with ASTM A307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

2.08 FIRE-RETARDANT TREATMENT (FRT)

A. Provide factory-treated wood members in accordance with AWPA U1 and use category indicated.

B. Fire-Retardant Treatment: Interior Type A, Use Category UCFA (LT), Low-Temperature (low hygroscopic).
   1. Treat electrical and communications panel backer boards.

C. Kiln-dry after treatment (KDAT) to maximum moisture content of 19 percent for sawn material and 15 percent for plywood.

D. Fabrication of FRT Wood:
   1. Ripping or milling of boards, lumber, and timber after treatment is not permitted.
   2. Field cutting to length and drilling of holes in boards, lumber, and timber are permitted without additional treatment.
   3. Field cutting and drilling of holes in plywood are permitted.

E. Label or brand FRT wood with classification mark of UL (DIR) or ITS (DIR) or other approved inspection agency, the treatment plant, name of treatment, species of wood, flame spread and smoke-developed indexes, method of drying after treatment, and treating standard.

2.09 PRESSURE-PRESERVATIVE TREATMENT (PPT)

A. Provide factory-treated wood members in accordance with AWPA U1 and use category indicated.

B. Kiln-dry wood after treatment with waterborne preservative to maximum moisture content of 19 percent for lumber and 15 percent for plywood.

C. Perform fabrication such as cutting, boring, milling, and surfacing to maximum extent practicable before treatment.

D. Label preservative-treated wood with marking as required by AWPA U1 and ICC (IBC). Unless otherwise permitted by standard U1 and the building code, include the following markings: AWPA U1, accredited inspection agency's mark, treating plant identification, type of preservative, retention, and end use.

E. Field Treatment for Cuts and Holes in Preservative-Treated Wood: Comply with AWPA M4.

2.10 ACCESSORIES

A. Metal and Finish of Fasteners:
   1. Fire-Retardant-Treated Wood:
      a. Comply with manufacturer's recommendations.
      b. Nails, timber rivets, wood screws, and lag screws: Hot-dip galvanized steel complying with ASTM A153/A153M Class D.
      c. Staples: Type 304 stainless steel.
      d. Fasteners other than staples, nails, timber rivets, wood screws, and lag screws: Mechanically deposited zinc-coated steel, ASTM B695 Class 55 or better.
   2. Preservative-Treated Wood:
      a. Nails, timber rivets, wood screws, and lag screws - general use: Hot-dip galvanized steel complying with ASTM A153/A153M Class D.
      b. Staples: Type 304 stainless steel.
   3. Untreated Wood: Unfinished steel.
   4. Metal and Finish: Hot-dip galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
   1. Select material sizes to minimize waste.
   2. Reuse scrap to greatest extent possible; clearly separate scrap for use on-site as accessory components, including shims, bracing, and blocking.

B. Construction Plywood Backing Panels - Install in accordance with APA E30.
   1. Communications and Electrical Room Mounting Boards: Secure with screws to studs; space fasteners at maximum 24 inches on center.
   2. At fire-rated walls, install board over wallboard indicated as part of fire-rated assembly.
   3. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   4. Install adjacent boards without gaps.

C. Blocking, Nailers, and Supports:
   1. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
      a. CABO NER-272 for power-driven fasteners.
      b. Published requirements of metal framing anchor manufacturer.
      c. Table 2304.9.1, “Fastening Schedule,” in the International Building Code.
      d. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

D. Fastening Methods:
   1. Wall and Roof Sheathing: See structural drawings.
   2. Decking: Use finishing nails. Countersink nail heads and fill holes with wood filler.

E. Site-Applied Wood Treatment
   1. Apply preservative treatment to field-cut surfaces in accordance with manufacturer's instructions wherever cuts, holes, sawing, or other fabrication of wood members is required after pressure-preservative treatment.
   2. Apply preservative treatment in accordance with manufacturer's instructions.
   3. Allow preservative to dry prior to erecting members.

END OF SECTION 06 10 00

SECTION 06 40 23
INTERIOR ARCHITECTURAL WOODWORK

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes the following:
   1. High-Pressure Decorative Plastic-laminate cabinets and shelving
   2. Thermoset Decorative Panels (Melamine), Interiors of cabinets & drawers.
   3. Cabinet Accessories: hinges, pulls, drawerslides, support brackets & grommments
   4. Solid surface countertops (with undermount stainless steel & china sinks, refer to plumbing specifications and drawings)
   5. Solid surface countertops (with drop-in sinks)

B. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips unless concealed within other construction before woodwork installation.

C. Related Section include the following:
   1. Division 6 Section “Rough Carpentry”.
   2. Division 6 Section “Solid Surface Fabrications”
   3. Division 8 Section “Glazing”
   4. Division 22 Sections for Plumbing Fixtures

1.02 REFERENCE STANDARDS

A. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications; 2022.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

C. BHMA A156.9 - Cabinet Hardware; 2020.

D. BHMA A156.11 - American National Standard for Cabinet Locks; 2024.

E. BHMA A156.16 - Standard for Auxiliary Hardware; 2023.

F. BHMA A156.18 - Standard for Materials and Finishes; 2020.

G. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

H. PS 1 - Structural Plywood; 2023.

1.03 SUBMITTALS

A. Product Data: For cabinet hardware and accessories.
   1. Plastic laminate: Exposed, semi-exposed, and concealed surface materials. Indicate thickness, panel core type and thickness, and edgebanding material and thickness.
   2. Solid surface
   3. All adhesive types being used in field.
   4. All cabinet hardware (except fasteners).
   5. Finishing requirements.

B. Shop Drawings:
   1. General
      a. The Contractor shall submit detail drawings showing fabricated items and special mill and woodwork items.
      b. Drawings shall indicate materials and details of construction, methods of fastening, erection, and installation. Include dimensioned plans and elevations, large-scale details, attachment devices, and other components.
      c. Drawings shall show each component of product in plan, elevation, and section view as needed to clearly indicate the product being provided, its location, and its method of construction and attachment.
      d. Illustrate wall or ceiling-applied surfacing and/or standing and running trim, wall mounted shelf standards, door and window frames, and the attachment methods.

2. Millwork:
    a. Trim and/or scribe shown in full-sized profile; casework shown in plan, elevation, and section view; dimensions necessary to construct cabinets; dimensions and attachment method of face frame members.
    b. Type and thickness of drawer members (including heights and depths), type and thickness of cabinet doors, and section of each cabinet type or configuration.
    c. Details of all joinery and connections, specification and location of special metal work and/or specialty items, and provision for field dimensions.
    d. Details showing method of cabinet attachment to walls and floors.
    e. Blocking or strapping requirements and their locations (blocking to be furnished by others) shown on cabinet elevations with dimensions above finished floor.
    f. Details need not be drawn if properly referenced to a supplementary document.
3. Standing and Running Trim
    a. Trim in detail with elevations as necessary for coordination with other trades.
    b. Column, pilaster, cornice, finial, and/or pediment construction details, sufficient in scale to clearly indicate unique features in construction.
    c. Sections for corners (inside and outside), joints (within the Product and between Product and other trim), relationship to features provided by other trades, attachment, and relationship to adjacent trim members or features.
4. Countertops, etc.
    a. Each countertop in plan view, including indication of field joints and type, quantity, and layout of joint fasteners.
    b. Sink size, type, mounting, and location if provided to manufacturer/supplier prior to shop drawing submittal.
    c. Attachment of casework (including fastener type, quantity, and layout).
    d. For wall-mounted tops without cabinets below, plan view indicating build up locations and support bracket locations.
    e. Method of attachment to supports for wall mounted tops (including fastener type and quantity).
    f. Elevation view and interface to casework and support brackets.
    g. Detail showing front and/or end overhang, front and/or end edge types, splash type and height, drip groove, and end splash return.

C. Samples:
1. Plastic Laminate, Solid Surface, for each type, color, pattern, and surface finish.
2. Thermoset decorative panels, for each type, color, pattern, and surface finish.
3. Cabinet hardware including all pulls, hinges, door locks, counter support brackets, grommets.

1.04 QUALITY ASSURANCE

A. **Where conflicts exist within this specification with the Drawings, the most stringent requirement shall prevail.**

B. Design changes / substitutions during submittal phase:
1. The manufacturer/supplier is encouraged to make technical suggestions and raise questions with the Architect. Changes and/or substitutions incorporated into shop drawings do not constitute a request for approval. Changes to material and/or design must be specifically identified within the submittal package. The manufacturer/ supplier must then request approval of the suggested changes by submitting a formal request for approval. Means and methods of manufacturing, such as joinery details, are not considered material changes unless otherwise detailed in the specifications.
2. Descriptions of substitutions and/or change requests from Contract Documents shall be itemized separately from the shop drawings and shall be submitted no later than the time of shop drawing submittal. Descriptions of substitutions shall include notation of the reason for the change request and a statement of the anticipated impact to schedule, cost, and possible impact to other trades.

C. Quality standards – except as otherwise shown or specified, comply with AWI's Architectural Woodwork Quality Standards for grades of architectural wood casdework, construction, finishes and other requirements.

1.05 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Wood Products:
   1. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
      a. Moisture resistant MDF is required within 2'-0" of a sink.
   2. Softwood Plywood: DOC PS 1, Medium Density Overlay.

B. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Wilsonart International (Basis of Design)
      b. Formica Corporation
      c. Abet Laminati
      d. Pionite

C. Wall Panels:
   1. Basis of Design: Wilsonart Standard Laminate
   2. Panel Core Material: Treated fiberglass core. Class A Fire-rated.
   3. Laminate Grade: Grade H1, 0.0677 Inches - 0.0827 Inches (1.72mm-2.1mm).
   4. Laminate Color: Manitoba Maple, 60 Matte.

D. Shelves w/ Shelf Support Bracket: refer to Accessories
   1. PLAM-1
      a. Wilsonart International (Basis of Design)
      b. Formica Corporation
      c. Abet Laminati
      d. Pionite
   2. Adhesives:
      a. Bonding Laminate: Franklin Advanced Polymer adhesive recommended. See Formica technical guide for recommended adhesive by substrate type.
   3. Sealant:
      a. Color Coordinated Sealant: 100% silicone caulk material by Color-Rite Incorporated as recommended by Formica Corporation.

E. Thermoset Decorative Panels (Melamine): medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
   1. Provide at interior locations of cabinets and drawers only. All other surfaces to be plastic laminate whether called out on the drawings or not.

F. Solid Surfacing: Durasein (Basis of Design)
   1. Acceptable Products:
      a. Corian
      b. Wilsonart Solid Surfacing
      c. Formica Solid Surfacing
   2. Product Description: Homogenous sheet material composed of acrylic resins, fire-retardant filler materials, and coloring agents.

a. Nominal sheet thickness: 0.50 inch (12.7 mm)
b. Color: Silver Falls
c. Surface burning characteristics in accordance with ASTM E84:
    1) Flame spread less than 25
    2) Smoke developed less than 25.

2.02 ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural woodwork.

B. Hinges:
    1. All locations: Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, self-closing, 110 degree.

C. Metal Pulls
    1. All Locations: 4" Finger Pulls FUNCTIONAL STEEL PULL (Basis of Design), Back Mounted - Vertical on Doors, Horizontal on Drawer Pulls; 332 Brushed Nickel Finish.

D. Drawer Slides: Side mounted; full-extension type; zinc-plated steel ball-bearing slides, 100lb rated.

E. Trash Drawer Pull out Slides: Bottom mounted; full-extension type; zinc-plated steel ball-bearing slides, 100lb rated, slides at base attached to door

F. Counter Support Bracket:
    1. Counter Support (Surface Mount): Heavy Duty Aluminum Counter support Bracket equal to RAKKS “EH-1818”- Anodized Aluminum Finish. Only at Lobby Receptrion Desk.
    2. Vanity Bracket (Surface Mounted) - Vanity Bracket Equal to RAKKS Vanity Counter Bracket.

G. Gromment:
    1. Desk Gromment: Equal to Square Desk Grommet Mockett Max12/A Square Gromment with Hinged Flip Top and Brushed Liner

H. Shelf Support Brackets:
    1. Pre-Finish Shelf Bracket Equal to "Richelieu" @12" o.c., color White

I. Round Grommets: “TG Flip Top Series, 2" hole”, by Doug Mockett & Company. Color to be selected by Architect.
    1. Provide 1 per 30” of desk area in final locations as directed by Architect.

J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
    1. Satin Stainless Steel: BHMA 630.

K. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

L. Concealed Mounting Clips: Equal to Fastmount standard range (rated for 30 lbs)

2.03 FABRICATION

A. General: Complete fabrication to maximum extent possible before shipment to Project site. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
    1. Interior Woodwork Grade: Custom
    2. Shop cut openings to maximum extent possible. Sand edges of cutouts to remove splinters and burrs. Seal edges of openings in countertops with a coat of varnish.

B. Plastic-Laminate Cabinets: PLAM-1
    1. AWI Type of Cabinet Construction: Flush overlay.
    2. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate as follows:
        a. Horizontal Surfaces Other Than Tops: Grade HGS.
        b. Vertical Surfaces: Grade HGS.
        c. Edges: PVC edge banding, 0.12 inch (3.05 mm) thick, matching laminate in color, pattern, and finish.

3. Materials for Semiexposed Surfaces Other Than Drawer Bodies: See Drawings for locations of finished Laminate Panels and Melamine.
4. Drawer Sides and Backs: Thermoset decorative panels (melamine). White
5. Drawer Bottoms: Thermoset decorative panels (melamine). White
6. Colors, Patterns, and Finishes: PLAM-1 - Wilsonart Standard Laminate - Manitoba Maple

C. Solid Surfacing:
1. General: Except as otherwise, provide separate solid surface aprons and countertops.
2. SSM-1 Solid surface colors: Durasein Silver Falls
3. Accessories:
a. Adhesive: manufacturer's seam kit adhesive, color-matched to panels to be seamed.
b. Caulk/Sealant: manufacturer's color-matched silicone sealant.
4. Refer to Division 6, Section 06 65 00 "Solid Surface Fabrications" for shower pans and surrounds.

2.04 FINISHING

A. Finish woodwork per Division 6 Section "Architectural Wood Casework".

PART 3 – EXECUTION

3.01 INSTALLATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

B. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

C. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch (3.18 mm) in 96 inches (2438.4 mm). Shim as required with concealed shims.

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
1. Touch-up shop finishes at field cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.

G. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (406.4 mm) o.c.

H. Provide cutouts for electrical panels and grommet holes. Verify locations of cutouts from on-site dimensions. Prime paint cut edges on openings; provide grommet covers per Architect's selection for exposed surfaces.

I. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
1. Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."
2. Install countertops with no more than 1/8 inch (3.18 mm) in 96-inch sag, bow, or other variation from a straight line.
3. All counter heights shall be maximum 34" above finish floor to comply with ADA requirements unless indicated otherwise on Drawings.
a. NOTE: If a sink is present in the countertop, the maximum measurement is to the highest surface of the sink rim, NOT the countertop.
4. Countertops without base cabinets for support shall not violate ADA minimum knee clearances.

J. Repair damaged and defective woodwork to eliminate visual and functional defects; where repair is not possible, replace woodwork.

3.02 ADJUSTING

A. Test installed work for rigidity and ability to support loads.

B. Adjust moving or operating parts to function smoothly and correctly

3.03 CLEANING

A. Clean exposed and semi exposed surfaces, including debris in cabinets and drawers.

3.04 PROTECTION

A. Protect woodwork from damage and maintain design environmental conditions.

END OF SECTION 06 40 23

SECTION 06 65 00
SOLID SURFACE FABRICATIONS (SHOWER ENCLOSURE)

PART 1 – GENERAL

1.01 SUMMARY

A. Solid Surface material, as indicated and specified in this Section, includes the following
   1. Shower enclosure wall panels
   2. One-piece shower pans

B. Related Sections include the following:
   1. Division 6 Section 06 40 23 “Interior Architectural Woodwork” for solid surface countertops.
   2. Division 9 Section 09 30 00 “Tiling”
   3. Division 10 Section 10 28 00 “Toilet and Bath Accessories”
   4. Division 22 Plumbing

1.02 REFERENCE STANDARDS

A. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2026.

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics; 2022.

C. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials; 2025.

D. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 2020.

E. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor; 2025.

F. ASTM D2863 - Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index); 2023, with Editorial Revision (2025).

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

H. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

I. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

J. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Shop Drawings: Indicate dimensions, component sizes, installation details, attachment provisions and coordination requirements with adjacent work.

B. Samples: Submit minimum 6" square samples. Indicate full range of color and pattern variation. Samples shall be used to verify standard of work.

C. Product Data: Indicate product description, installation information and compliance with specified performance requirements.

D. Maintenance Data: Submit manufacturer’s care and maintenance recommendations, including recommended repair and cleaning instructions.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Solid Surface shall be installed by an industry certified fabricator/installer.

1.05 DELIVERY, STORAGE AND HANDLING

A. Transport and deliver all items in appropriate packaging to prevent damage. Handle materials to prevent damage to surfaces.

1.06 WARRANTY

A. Furnish the manufacturer’s limited warranty covering defects in material and workmanship.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Durasein (Basis of Design)

B. Tower Industries, Inc.

C. InPro Corporation

2.02 MATERIALS

A. Solid Polymer Fabrications

1. Solid surface material should be a homogeneous thermoset polymer compound, comprised of acrylic and polyester components filled with aluminum trihydrate. Materials are non-porous and homogenous, with uniform color and pattern throughout the entire thickness. Materials should be 100% repairable and contain a minimum of 12% Rapidly Renewable materials.
2. Material meets performance requirements listed below:

Test Type	Test Method	Test Results
Hardness	ASTM D-2583-95	58- 60
Work to Break	8.56	
Flex. Strenght	ASTM D- 790	9,870
Mod.		1,330,000
Gloss	NEMA LD 3-3 1513.2	5- 20
Wear and Clean	ANSI Z124.3	Passes
Abrasion Resistance	CS 221-66	No Loss of Pattern
Cigarette Resistance	NEMA LD3-3.07	No Effect
Boiled Water Resistance	NEMA LD3- 3.05/3.5	See Below*
Slip Resistance	ASTM F-462	0.24
High Temperature Resistance	NEMA LD 3- 3.06/3.5	No Effect
Chemical Resistance	ANSI Z124.3	No Effect
Color Stability	ASTM D-792	Slight Effect at 200 Hours
Conductive Heat	NEMA LD 3- 3.08/3.8N	Slight Effect
Unnotched Impact	ASTM D- 256- 96a	1.3
Notch Impact	ASTM D- 256- 96a	0.33 Ft- Lb/In
Stain	ANSI Z124.3	Passes- 43
Sp. Gr.	ASTM D- 729- 91	1.71
Water Absorption	ASTM D- 570- 95	0.022
Flammability	ASTM E- 84	Class 1
Oxygen Index	ASTM D - 2863	0.33
% Cure by DSC	Analytical	97%
GC Head Space .	Analytical	1030 PPM

** Boiling water and high temperature resistance tests may have an effect on the surface; however, the surface can be renewed to 'No Effect"*

B. Fire Test Data

1. Solid Surface materials shall be classified by Underwriters Laboratories under UL File Number R14436 for surface burning characteristics. Test data for Solid Surface panels

shall be generated according to ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials. This procedure is catalogued by Underwriters Laboratories, Inc. as UL 723. For panels with a thickness of one-half inch 0.51 inch (13 mm), the Flame Spread Index is less than or equal to 25.

C. Materials shall comply with the following Codes and Certifications:
   1. ASTM G-22 bacterial resistance
   2. ASTM G21 fungal resistance

2.03 FABRICATION

A. General:
   1. Solid Surface components shall be fabricated by an industry certified fabricator/installer.
   2. Fabricate to field measurements and in accordance with manufacturer's recommendations. Field or shop seaming as required. Seamed panels shall be waterproof and seams inconspicuous.

B. Shower Walls:
   1. Wall panels shall be minimum ¼" thick full width and height of wall sections.
   2. Interior Corners: provide cove corner trim pieces to match.
   3. Wall termination: provide rabbeted trim pieces to match.

C. Shower Pans:
   1. Shower pan are to be made from solid cast polyester / acrylic blend resin and have adjustable drain locations, coved side walls, at least a 1" panel platform with a 5 degree slope and a 1" minimum water dam. It should have a non-skid floor with water channels directing water to the drain at a 2 degree slope (1/4" per foot)
   2. Pans shall carry a materials and workmanship warranty against cracks, breakage, and leaks.
   3. Shower pans shall meet the minimum ANSI Z124.2 certification.
   4. Shower pans shall have a non-slip co-efficient rating of .20 or greater as registered by the ASTM F462 slip resistance test method.

2.04 ACCESSORIES

A. Accessories, in matching materials, shall include inside coved and outside corner moldings and ceiling and wall molding designed to protect and conceal the waterproofing silicone sealant. The waterproof nature of the shower wall panels and pans shall not rely on surface caulking.
   1. Matching solid surface soap dishes shall be provided at each shower (minimum 2 at each shower location).

B. Other accessories as indicated on Drawings per Division 10 Section "Toilet and Bath Accessories"

2.05 FINISHES

A. Provide in finish and color as indicated on Drawings or as selected by Architect.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates to receive solid surfacing. Correct any conditions that are substandard or will interfere with installation. Verify that all supports are suitable for installation per drawings.

B. Start of installation is acceptance of conditions.

3.02 INSTALLATION

A. Install products plumb and level in locations indicated, in accordance with manufacturer's recommended installation procedures.

B. Coordinate waterproofing with Division 9 Section "Tiling".

C. Coordinate accessory installation per Division 10 Section "Toilet and Bath Accessories"

D. Coordinate plumbing installation with drawings and Division 22 Sections.

3.03 CLEANING

A. After installation is complete, remove all excess adhesive, dirt and debris from the installation.

3.04 PROTECTION

A. Protect surfaces from damage until project is completed. Repair or replace damaged components.

END OF SECTION 06 65 00

SECTION 07 21 00
THERMAL INSULATION

PART 1 – GENERAL

1.01 SUMMARY

A. Extent of insulation work is shown on Drawings, by generic names or by abbreviations.

B. Applications of insulation specified in this section include:
   1. Thermal blanket-type building insulation.
   2. Rigid Insulation

C. Related Sections include the following:
   1. Division 4 Section 04 21 00 “Clay Unit Masonry”.
   2. Division 7 Section 07 26 00 “Vapor Retarders”

1.02 SUBMITTALS

A. Product Data: Product literature, samples and installation instructions for specified insulation.

1.03 QUALITY ASSURANCE

A. Use insulation of thickness required to provide specified Resistance "R" value.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Insulation shall be protected in the transit by plastic covers and by truck tarps. When material is stored at the jobsite, a reasonably level, drained storage area shall be provided. The insulation shall rest on firm blocking and shall be covered with tarps.

B. Do not allow insulation materials to become wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Fiberglass Batts:
   1. Johns Manville
   2. Knauf (EcoBatt)
   3. CertainTeed (Sustainable Insulation)
   4. or equal

B. Rigid Extruded Polystyrene:
   1. Dow Chemical Co.
   2. Owens Corning (Foamular 150)
   3. Equal as approved.

2.02 MATERIALS

A. Thermal Batt Insulation:
   1. Unfaced fiberglass batt insulation, Johns Manville Unfaced Formaldehyde-free Thermal and Acoustical Fiber Glass Insulation:
      a. ASTM Standard C665, Type 1
      b. Surface burning Characteristics (ASTM E84)
         1) Flame Spread 25 or less
         2) Smoke Developed 50 or less
      c. Minimum 20% recycled content
      d. Size:
         1) Thickness: Unless otherwise noted provide same thickness as that of wall.
         2) Width: Unless otherwise noted provide same as framing spacing indicated.
   2. Minimum R-Values:
      a. 3-5/8” – R13
      b. 5-1/2” – R21

c. 7-1/2" – R22

B. Rigid Insulation:
1. Provide equal to "Foamular CW25 XPS Insulation" as manufactured by Owens Corning or equal.
2. Extruded Polystyrene Board Insulation: Comply with ASTM C 578, Type IV, 25 psi minimum compressive strength, 1.55 lb/cu. ft.
a. Size: 16" wide x 96 inches long x thickness as indicated on Drawings.
b. Thermal Resistance: (180 day real-time aging as mandated by ASTM C578, measured per ASTM C 518 at mean temperature of 75F): R-5.0 per inch of thickness, with 90% lifetime limited warranty on thermal resistance.
c. Edge Condition: Square.
d. Surface Burning Characteristics (ASTM E 84): Flame spread less than 25, smoke developed less than 450, certified by independent third party such as Underwriters Laboratories (UL).
e. Insulation tape for ALL joints shall be as recommended by the manufacturer for a complete system.

C. Accessories:
1. Low expansion foam: provide "Quad Foam" as manufactured by OSI (www.ositough.com)

PART 3 – EXECUTION

3.01 EXAMINATION

A. Installer must examine substrate and conditions under which insulation work is to be performed and must notify Architect in writing of unsatisfactory conditions. Do not proceed with insulation work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.02 INSTALLATION

A. General

3.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2025.
1. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
a. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation.
b. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

C. Thermal Batt Insulation:
1. Fill all cracks around doors and windows with expanding spray foam insulation.
2. Position to fit snugly between studs.
3. Install low expansion foam at all cracks around doors in lieu of batts..
4. Place insulation around pipes to prevent freezing and fit neatly around and behind electrical boxes. Leave no gaps.

D. Rigid Insulation:
1. Place small dabs of adhesive, spaced approximately 12 inches (304.8 mm) o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose.
2. Fit courses of insulation between confining obstructions in cavity, with edges butted tightly both ways.
3. Press units firmly against construction as shown. Tape all joints.

E. Accessories:
    1. Low expansion foam:
        a. Cover surfaces not intended to be foamed.
        b. Perimeter seal all openings. Fill to only 30% of area
        c. Cured foam can be trimmed with a sharp knife or sanded.

END OF SECTION 07 21 00

SECTION 07 26 00
VAPOR RETARDERS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide total air/vapor barrier systems to complete the Work as shown on the Drawings and as specified herein to bridge and seal air leakage pathways and gaps:
   1. Under Slab Vapor Barrier
   2. Liquid Applied Waterproofing Membrane System
      a. Joint and seam filler around windows and other openings
      b. Liquid flashing (liquid applied detailing compound)
   3. Self-adhering Flashing Membrane

B. Related Sections include the following:
   1. Division 3 Section 03 3000 “Cast-in Place Concrete”
   2. Division 4 Section 04 21 00 “Clay Unit Masonry” for copper thru wall flashing at base of brick walls where weep holes occur.
   3. Division 6 Section 06 10 00 “Rough Carpentry”

1.02 REFERENCE STANDARDS

A. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

B. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

C. ASTM D751 - Standard Test Methods for Coated Fabrics; 2026.

D. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2023.

E. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2024.

F. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

1.03 SUBMITTALS

A. Product Data:
   1. Submit Spec-Data, details and installation procedures.
   2. Manufacturer’s installation instructions for placement, seaming and penetration repair instructions.

B. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

C. Include details of interfaces with other materials that form part of air barrier.

D. Test Reports: Indicating compliance with the performance requirements of this section.

E. Samples: Submit representative samples of all components as specified herein for approval.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with manufacturer’s written instructions and this specification.

B. Maintain one copy of manufacturer’s written instructions on site.

C. Systems used shall contain components from one manufacturer only (example: sheet membrane, air barrier sealants, primers, mastics, and adhesives). NOTE: Different manufacturers may be used for different systems.

D. Provide products which comply with all federal, state and local regulations controlling use of volatile organic compounds (VOCs).

E. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Preinstallation conference shall include the Installer, Architect, and system manufacturer's field representative. Agenda for meeting shall include but not be limited to the following:
   1. Detailed review of all submittals.
   2. Review of surface preparation including primer applications, minimum curing period and installation procedures.
   3. Review of special details and flashings.
   4. Sequence of construction, responsibilities and schedule for subsequent operations.
   5. Review of inspection, testing, protection and repair procedures.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's recommendations for storage and handling of each product.

B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.

C. Store roll materials on end in original packaging. Protect rolls from direct sunlight until ready for use.

D. Store air barrier membranes, adhesives and primers at temperatures of 40 degrees Fahrenheit (4.44 degrees Celsius) and rising.

E. Keep solvent away from open flame or excessive heat.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Apply vapor and air barriers within the range of ambient and substrate temperatures recommended by manufacturer. Protect substrates from environmental conditions that affect performance.

B. Liquid Applied Waterproofing Membrane System (openings)
   1. If air or surface temperatures exceed 95 degrees Fahrenheit (35 degrees Celsius), apply to shaded surfaces and before daytime air and surface temperatures reach their peak.

1.07 WARRANTY

A. Installer Warranty:
   1. At completion of project and prior to final acceptance, the installing contractor for all Vapor Retarder systems (if multiple contractors, provide separate for each contract), shall furnish in writing and notarized, a material and workmanship warranty for a period of two (2) years from Substantial Completion.
   2. During this two (2) year period, agree to remove, repair and replace all defects, non-conforming installations, and generally to maintain weathertight and watertight condition (in regards to the Vapor Retarder systems), all without cost to Owner.

B. Material Warranty:
   1. Manufacturer's standard form in which manufacturer agrees to replace membrane materials that fail within specified warranty period when installed and used in strict conformance with written manufacturer's instructions.
      a. Minimum 10 year product warranty required.

PART 2 – PRODUCTS

2.01 UNDER SLAB VAPOR BARRIER

A. Products:
   1. Basis of Design:
      a. Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC., (877) 464-7834 www.stegoindustries.com.
   2. Approved products:
      a. Vaporguard by Reef Industries, 713-507-4250. www.reefindustries.com.

b. PMPC by WR Meadows, 800-342-5976. http://www.wrmeadows.com/pmpc/
c. Equal as approved

B. Vapor Barrier System
1. Vapor Barrier must have the following qualities:
a. Permeance of less than 0.01 Perms as tested in accordance with ASTM E1745 Section 7.
b. Other performance criteria:
1) Strength: ASTM E1745 Class A.
2) Thickness: 15 mils (0.381 mm) minimum
3) Warranty: (a) compliance with the designated ASTM E1745 classification, and (b) no manufacturing defects in the product for, at least, the Life of the Building.

C. Accessories:
1. Provide all accessories under the system for a complete, seamless, vapor-proof installation:
a. Seam Tape (at all sheet seams):
1) Basis of Design: “Stego Tape”
2) Thickness: 6 mil (0.1524 mm)
3) Permeance: 0.03 perms
4) Tensile strength: >12 lbf/in
b. Vapor Proofing Mastic (required at all penetration locations):
1) Basis of Design: “Stego Mastic”
2) Tensile/Elongation, ASTM D412: 32 psi (220.63 kPa), 3860%
3) Permeance, ASTM E96: 0.17 perms
4) Hydostatic Water Pressure, ASTM D751: 28 psi (193.05 kPa)
c. Perimeter/terminated edge seal:
1) Basis of Design: “Stego Crete Claw” (textured tape)
2) Thickness: 26 mil (0.6604 mm)
3) Permeance: 0.03 perms

2.02 LIQUID APPLIED WATERPROOFING MEMBRANE SYSTEM

A. Waterproofing and air and water barrier membrane.
1. “R-Guard” opening system as manufactured by Prosoco (Basis of Design). System to include all components to ensure a complete, monolithic, watertight building envelope. Equal systems include the following:
a. W.R. Meadows (Air Shield TMP all liquid system)
b. Soprema, Inc. (Sopraseal 202VP all liquid system)
c. Sto Corp (Gold Coat w/ RapidGuard)
2. Note: vapor barrier at exterior walls to be closed cell spray insulation per Division 7 Section “Exposed Spray Applied Insulation”.

B. Basis of Design Membrane System Components (system shall be a monolithic air barrier system):
1. Joint and Seam Filler:
a. “R-Guard Joint & Seam Filler” as manufactured by Prosoco or equal.
b. Use to fill openings and create transitions where flexible reinforcement is required (including but not limited to all surface defects and over driven fasteners (seams and cracks measuring up to ½ inch), all inside and outside corners, and open joints) to bridge gaps and provide continuous support of fluid-applied flashing membrane, waterproofing or air barrier components.
c. Single component, fiber-reinforced Silyl-Terminated-Polymer (STP) gun-grade detailing compound.
2. Liquid Flashing (liquid applied detailing compound)
a. “R-Guard Fast Flash” as manufactured by Prosoco or equal.

b. Provide at inside of all rough openings, and at locations where a liquid flashing membrane is indicated.
c. Single component, fiber-reinforced Silyl-Terminated-Polymer (STP) gun-grade detailing compound.

2.03 SELF ADHERING ROOF MEMBRANE

A. Furnish a 40 mil (1.016 mm) minimum, cold-applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of rubberized asphalt adhesive. An embossed, slip resistant surface to be provided on the polyethylene. Material to be interwound with a disposable silicone-coated release sheet. Provide one of the following manufacturer's:
1. "Ice and water shield"; Grace Construction Products
2. "Lastobond Shield HT"; Soprema
3. "DryDek"; Imetco

B. Provide under all roofing areas and other areas indicated.

2.04 THRU WALL FLASHING

A. Refer to Division 4 Section "Clay Unit Masonry" for copper thru wall flashing located at weep hole locations.

2.05 BELOW GRADE WATERPROOFING

A. Refer to Division 7 Section "Sheet Waterproofing" for waterproofing located at below grade locations.

2.06 SELF ADHERING FLASHING MEMBRANE

A. Location: Provide at locations as indicated on Drawings to receive "self-adhering flashing membrane".
1. Provide "Lastobond Shield HT" as manufactured by Soprema or equal.

B. Accessories: manufacturer's recommended primers, termination mastic, sealants, and other accessories for a complete installation.

2.07 ACCESSORIES

A. Provide all accessories for a complete system application.

B. Provide stainless steel termination bars per Division 7 Section "Flashing and Sheet Metal" where sheet goods terminate.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that substrates and conditions are ready to accept the Work of this section. Notify architect in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.

B. All surfaces must be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the membranes. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints full-flush.

3.02 PREPARATION

A. Refer to manufacturer's literature for requirements for preparation of substrates. Surfaces shall be sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods that are acceptable to manufacturer of the system.

B. Exterior sheathing panels:
1. Ensure that the boards are sufficiently stabilized with corners and edges fastened with appropriate screws. Fill joints and other surface defects with joint and seam filler, allowing sufficient time to fully cure before application of the air barrier system.

C. Concrete/Masonry Substrates:
   1. Apply air and vapor barrier over concrete block with smooth trowel-cut mortar joints, struck full and flush. Fill all voids and holes, particularly in the mortar joints, with a lean mortar mix, non-shrinking grout or parge coat.
   2. New concrete should be cured for a minimum of 14 days and must be dry before air/vapor barrier membranes are applied.
   3. Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C1193 and air barrier manufacturer's written instructions. Remove dust and dirt from joints and cracks complying with ASTM D4258 before coating surfaces.
   4. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate patching membrane.
   5. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

D. At changes in substrate plane, apply joint and seam filler or liquid flashing membrane at sharp corners and edges to form a smooth transition from one plane to another.

E. Cover gaps greater than 1 inch (25.4 mm) and form a smooth transition from one substrate plane to another with min 22 gauge stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

F. Apply primer at rate recommended by manufacturer to all areas to receive self-adhering sheet air/vapor barrier membrane as indicated on drawings by roller and allow minimum 30 minute open time. Primed surfaces not covered by self-adhering membrane during the same working day must be re-primed.

3.03 INSTALLATION

A. General: Install air & vapor barrier to dry surfaces at air and surface temperatures of -25°F and above in accordance with manufacturer's recommendations, at locations indicated on Drawings.
   1. Do not allow rubberized asphalt surfaces to come in contact with polysulfide sealants, creosote, uncured coal tar products or EPDM.

B. Under Slab Vapor Barrier:
   1. Installation shall be in accordance with manufacturer’s instructions and ASTM E1643.
      a. Apply seam tape/textured tape/mastic to a clean and dry vapor barrier.
   2. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
   3. Extend vapor barrier to the perimeter of the slab. Seal vapor barrier to the entire slab perimeter using textured tape (basis of design Stego Crete Claw) with a surface that creates a mechanical seal to freshly-placed concrete, per manufacturer's instructions.
   4. Overlap joints 6 inches (152.4 mm) and seal with manufacturer’s seam tape.
   5. Seal all penetrations (including pipes) using mastic per manufacturer’s instructions.
      a. No penetration of the Vapor Barrier is allowed except for reinforcing steel and permanent utilities.
   6. Repair damaged areas by cutting patches of Vapor Barrier, overlapping damaged area 6 inches (152.4 mm) and taping all four sides with tape.
   7. Do not schedule concrete pour until approval of vapor barrier has been obtained by the Architect.
      a. Schedule observation no less than 48 hours prior to concrete pour.

C. Liquid Applied Waterproofing Membrane System:
   1. Apply air barrier membrane system within manufacturer's recommended application temperature ranges.
   2. Liquid Flashing – Openings:
      a. Apply a bead of liquid flashing in each corner of the rough opening and at the sheathing-to-stud transition, then strike smooth with a DRY tool and allow to skin.

b. Apply liquid flashing over the exterior inside framing of the rough opening and onto the exterior vertical wall surface 4 to 6 inches to create a 12 to 15 mil (0.381 mm) thick monolithic, pinhole-free flashing surface.
c. Apply treated surfaces to skin over before installing windows, doors and other wall assembly components.

D. Self-adhering Flashing Membrane:
1. Installation: All surfaces to receive the flashing shall be reasonably smooth, free from irregularities and deleterious materials.
2. Prime all surfaces to receive the flashing membrane.
3. On all horizontal surfaces the flashing shall be laid in a fresh trowel coat of mastic. Vertical surfaces shall be pressed firmly in place by hand roller.
4. Coping: overlap flashing a minimum of 3 inches (76.2 mm) down the side of each wall.
5. Joints: The material shall be lapped at least 2" and rolled with a steel hand roller.

3.04 PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
1. Flashing membrane: Repair holes, fishmouths, tears, and damage to sheet membrane with a round patch of membrane extending past the damaged area 6 inches (152.4 mm) in all directions. If fasteners are removed leaving holes in the membrane, they must be patched.
2. Liquid applied waterproofing membrane system: Repair any deep gouges, punctures, or damaged areas with liquid flashing or joint and seam filler. Overlap repairs, penetration treatments, transitions, rigid flashing and other air barrier components to ensure positive drainage and continuity of the air and water-resistive barrier.

B. Protect products from exposure to UV light and harmful weather exposure as required by manufacturer.
1. Remove and replace self-adhering flashing membrane material exposed for more than 30 days, liquid applied waterproofing membrane system 180 days.

C. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

D. Remove any masking materials after installation.

END OF SECTION 07 26 00

SECTION 07 92 00
JOINT SEALANTS

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes sealants as indicated on the drawings and for the following applications, including those specified by reference to this Section:
   1. Exterior joints in the following vertical surfaces and non-traffic horizontal surfaces:
      a. Control and expansion joints in cast-in-place concrete, except pavement, walkway and curbing that are covered in other specification sections.
      b. Control and expansion joints in unit masonry.
      c. Joints between different materials indicated.
      d. Perimeter joints between materials and frames of doors and windows.
      e. Control and expansion joints in ceiling and overhead surfaces.
      f. Other locations indicated or required to properly seal buildings.
   2. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
      a. Perimeter joints of exterior openings where indicated.
      b. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
      c. Perimeter joints between interior wall surfaces and frames of interior/exterior doors, windows, and entrances.
      d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
      e. Acoustical sealant
      f. Other joints as indicated.
   3. Interior joints in the following horizontal traffic surfaces:
      a. Control and expansion joints as indicated.

B. Field Adhesion Testing is required prior to application of any final sealant work.

C. Related Sections include the following:
   1. Division 1 Section 01 45 29 “Testing Laboratory Services”

1.02 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

C. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

E. ASTM C1247 - Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids; 2020.

F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

1.03 PERFORMANCE REQUIREMENTS

A. Provide joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.04 SUBMITTALS

A. Product Literature
   1. Submit product data sheets and the manufacturer's installation instructions. If two or more different sealants are to be in physical contact with each other, obtain from each manufacturer confirmation that its product is compatible with the proposed and adjacent products, including any other products which may be used by other sub-contractors.

a. Include primer literature with the submittal document unless the manufacturer's sealant submittal specifically eliminates the need for a primer.
b. If a stain type primer is required for the sealant selected, such information shall be specifically included on submittal documents calling attention to the need for such staining type primer and noting the planned precautions to prevent exposed stain residue.

2. Include Safety Data Sheets for sealants.
3. Preparation instructions and recommendations.
4. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.

B. Color Samples: Submit manufacturer's standard color chart. Submit actual cured samples of each chosen color for verification of actual color to be installed. Multiple cured samples may be required for selection.

C. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Preconstruction compatibility and adhesion test reports.

E. Preconstruction field-adhesion test reports.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Experienced Installer equipped and trained for application of joint sealants required for this Project with record of successful completion of projects of similar scope.

B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.

C. Preconstruction Manufacturer Laboratory Compatibility, Staining, and Adhesion Testing: Submit four samples of each material that will be in contact with or affect joint sealants. Test sealants with substrate materials using either ASTM C1087 or manufacturer's standard test methods to determine requirements for joint preparation, including cleaning and priming. Test sealants with related materials to verify compatibility.

D. Preconstruction Field-Adhesion Testing: Prior to installing joint sealants, field test adhesion to joint substrates using ASTM C1193 Method A or method recommended by manufacturer. Verify adhesion is adequate. Modify joint preparation recommendations for failed joints and retest. Submit written report to Architect.

E. Mockups: Provide joint sealant application within mockups required in other Sections identical to specified joint sealants and installation methods.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver in manufacturer's original unopened container, clearly identifying each product specified, relating it to the product literature submitted.

B. Store in accordance with manufacturer's recommendation, with proper precautions concerning shelf life, temperature, humidity, and similar storage factors to ensure the fitness of the material when installed.

1.07 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.

2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F.
3. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.08 WARRANTY

A. Special Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.
1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or failure under normal use within warranty period specified.
1. Warranty Period for exterior Silicone Sealants: 20 years date of Substantial Completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Dow Corning Corp

B. BASF Construction Chemicals

C. Tremco Sealants and Waterproofing

D. Pecora Corporation

E. Or equal.

2.02 MATERIALS

A. General:
1. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Colors of Exposed Joint Sealants: Manufacturer’s standard color that is the closest to the lightest adjacent substrate.
3. Continuous-Immersion-Test-Response Characteristics: Where elastomeric sealants will be immersed continuously in water, provide products that have undergone testing according to ASTM C1247, including initial six-week immersion period and additional immersion periods specified below, and have not failed in adhesion or cohesion when tested with substrates indicated for Project.
a. Three additional four-week immersion periods.
4. Do not block weep holes or interfere with concealed drainage path when using sealant.

B. Exterior General Use: single-component, nonsag, neutral-curing silicone joint sealant, non-staining, with Class 100/50.
1. Provide equal to Dow Corning 790 Silicone Building Sealant.

C. Exterior Concealed Joints and Under Thresholds: One-part butyl rubber caulk conforming to FS TT-S-001657, Type I

D. Exterior Concealed Joints between two assembled rigid surfaces in compression: Polyisobutylene sealant tape conforming to AAMA 804.1

E. Exterior and Interior Horizontal Joints subject to pedestrian traffic: Two-part polyurethane conforming to ASTM C920, Class 25, Type M; self-leveling.

F. Interior Non-wet Areas: One-component acrylic latex water-based sealant conforming to ASTM C834.

G. Interior Wet Areas: One-part, mildew-resistant silicone rubber conforming to ASTM C920, Type S, Class 25, Grade NS.

H. Acoustical Sealant:
   1. Acoustical sealant shall be a non-hardening, non-skinning, non-staining sealant that maintains the specified STC rating of the partition, floor/ceiling assembly, door, or window to which it is applied.
   2. Acoustical Sealant shall be one of the following, or approved equal:
      a. For non-fire rated assemblies:
         1) AIS-919 Acoustical Sealant from Pecora Corporation, www.pecora.com
         2) Acoustical Sealant from The Tremco Manufacturing Company, www.tremcosealants.com
         3) Or equal

I. Foam Sealants: Blown with hydrocarbon or HFC-134a.

2.03 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Type C: Closed-cell material with a surface skin.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.04 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints. Leave no residue.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Inspect substrate surface to assure that no bond breaker materials contaminate the surface to which the sealant is to adhere and to ensure that unsound substrates are repaired. Installation of sealant shall be evidence of acceptance of the substrate.

B. Verify joint dimensions prior to installation of the sealant to ensure that all dimensions are within tolerance established in the manufacturer's literature. Unacceptable variations shall be called to the Architects attention for resolution prior to installing any material.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and

approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
   a. Concrete.
   b. Masonry.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
   a. Metal.
   b. Glass.
   c. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses provided for each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealants from surfaces adjacent to joint.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint configuration per Figure 5A in ASTM C1193, unless otherwise indicated.

G. Curing: Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.

3.04 FIELD QUALITY CONTROL

A. Inspecting Agency: the Contractor will engage a qualified testing agency to perform tests and inspections.
   1. No sealant work is to be completed without prior written authorization from the Architect that the field adhesion test has been completed.

B. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C1193, Method A.
   1. Perform 5 tests for the first 1000 feet (30480 cm) of joint length for each kind of sealant and joint substrate, and one test for each 1000 feet of joint length thereafter or 1 test per each floor per building elevation, minimum.
   2. For sealant applied between dissimilar materials, test both sides of joint.

C. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.

D. Submit report of field adhesion testing to Architect indicating tests, locations, dates, results, and remedial actions taken.

3.05 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.06 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 07 92 00

SECTION 07 95 13
EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior wall and floor expansion joint cover assemblies, surface-mounted gasketed systems.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-In-Place Concrete.

B. Section 04 20 00 - Reinforced Unit Masonry.

1.03 REFERENCES

A. ASTM E1399/E1399M - Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Openings of Architectural Joint System Expansion Joint Covers.

B. Aluminum Association (AA) - Aluminum Standards and Data.

1.04 SUBMITTALS

A. Product Data: Manufacturer's specifications, technical data, and installation instructions.

B. Shop Drawings: Layout plans, elevations, sections, details of anchors, transitions, and relationship to adjacent construction.

C. Samples: 6-inch long samples of specified joint covers showing finishes and colors.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of 5 years of documented experience.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Construction Specialties, Inc., 6696 Route 405 Highway, Muncy, PA 17756. Phone: (800) 233-8493. Website: www.c-sgroup.com.

B. Substitutions: Refer to Division 01, Section 01 60 00 "Product Requirements" for Substitution Request.

2.02 ARCHITECTURAL JOINT SYSTEMS FOR BUILDING INTERIORS

A. Interior Wall/Corner Expansion Joint Systems: Surface-mounted gasketed system.
   1. Series / Model: Construction Specialties Model GFS-200WL.
   2. Joint Width: 2.00" 2.01 inch (51 mm).
   3. Minimum Opening: 1.50" 1.5 inch (38 mm).
   4. Maximum Opening: 2.50" 2.52 inch (64 mm).
   5. Exposed Surface: 5.13" 5.12 inch (130 mm).
   6. Framing/Extrusions: Continuous extruded aluminum frames 6063-T5 alloy.
   7. Flexible Gasket Seal: Dual-elastomeric thermoplastic rubber (TPR) seals.
   8. Gasket Color: 108 Black.
   9. Fasteners: Manufacturer's standard mechanical wall anchors (e.g., 1/4"x1-1/4" Wall Dog anchor or equivalent spaced at 18 inches (457.2 mm) O.C.).
   10. Fire-Resistance Rating: Provide optional RFX-2W multi-hour fire barrier where required to match ratings of adjacent wall assemblies.

PART 3 - EXECUTION

3.01 EXAMINATION

A. A. Verify that joint structure dimensions and tolerances are correct and ready to receive expansion joint cover assemblies.

B. B. Report any defects or unacceptable conditions to the General Contractor; do not proceed until corrected.

3.02 3.02 INSTALLATION

A. A. Install expansion joint cover assemblies in accordance with manufacturer's written instructions and approved shop drawings.

B. B. Align work plumb, level, and square with adjacent construction.

C. C. Anchor securely to substrates at specified intervals (18" O.C. maximum).

3.03 3.03 PROTECTION

A. A. Protect finished work from damage during remainder of construction period.

END OF SECTION 07 95 13

SECTION 08 12 13
HOLLOW METAL FRAMES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Standard and custom hollow metal frames.
   2. Steel sidelight, borrowed lite and transom frames.

B. Related Sections:
   1. Division 00 Section 00 72 13 "General Conditions”.
   2. Division 04 Section 04 20 00 "Reinforced Unit Masonry".
   3. Division 06 Section 06 10 00 “Rough Carpentry”.
   4. Division 06 Section 06 40 23 “Interior Architectural Woodwork”.
   5. Division 08 Section 08 14 16 “Flush Wood Doors”.
   6. Division 08 Section 08 41 13 “Aluminum-Framed Entrances and Storefronts”.
   7. Division 08 Section 08 80 00 "Glazing".
   8. Division 09 Sections 09 91 23 "Interior Painting".

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
   2. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   3. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   4. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   5. SDI-113 Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door & Frame Assemblies.
   6. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.

1.02 REFERENCE STANDARDS

A. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2026.

B. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames; 2024.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.

E. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames; 2026.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2026.

H. ASTM C1199 - Standard Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods; 2022.

I. ASTM C1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus; 2024.

J. ASTM E1423 - Standard Practice for Determining Steady State Thermal Transmittance of Fenestration Systems; 2021.

K. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

L. NAAMM HMMA 867 - Guide Specifications for Laminated Core Hollow Metal Doors and Frames; 2016.

M. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2025, with Amendment (2024).

N. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2025.

O. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

P. NFPA 257 - Standard on Fire Test for Window and Glass Block Assemblies; 2022.

Q. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2026.

R. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

S. UL 1784 - Standard for Air Leakage Tests of Door Assemblies and Other Opening Protectives; Current Edition, Including All Revisions.

1.03 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.04 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

C. Shop Drawings: Include the following:
   1. Elevations of each door design.
   2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
   3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
   4. Locations of reinforcement and preparations for hardware.
   5. Details of anchorages, joints, field splices, and connections.
   6. Details of accessories.
   7. Details of moldings, removable stops, and glazing.
   8. Details of conduit and preparations for power, signal, and control systems.

D. Samples for Verification:
   1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.05 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal frames through one source from a single manufacturer wherever possible.

B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

C. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section 01 31 19 "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
   1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.07 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.08 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

B. Building Information Modeling (BIM) Support: Utilize designated BIM software tools and obtain training needed to successfully participate in the Project BIM processes. All technical disciplines are responsible for the product data integration and data reliability of their Work into the coordinated BIM applications.

1.09 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace door frames that fail in materials or workmanship within specified warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective door frames.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide steel frames from a SDI Certified manufacturer:
   1. CECO Door Products (C).
   2. Curries Company (CU).

2.02 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

C. Frame Anchors: ASTM A653/A653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.03 HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

B. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A1008/A1008M.
   1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
   2. Manufacturers Basis of Design:
      a. Curries Company (CU) - M Series.

C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.04 FRAME ANCHORS

A. Jamb Anchors:
   1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch (1.07 mm) thick, with corrugated or perforated straps not less than 2 inches (50.8 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches (1.07 mm) thick.

C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches (0.41 mm) thick.

2.05 LIGHT OPENINGS AND GLAZING

A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator’s shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (15.88 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.

D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.06 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inches (0.41 mm) thick.

2.07 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Frames:
   1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
   2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
      a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
   3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

4. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.
5. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
6. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
7. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
8. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
9. Jamb Anchors: Provide number and spacing of anchors as follows:
    a. Masonry Type: Locate anchors not more than 18 inches (457.2 mm) from top and bottom of frame. Space anchors not more than 32 inches (812.8 mm) on-center and as follows:
        1) Two anchors per jamb up to 60 inches (1524 mm) high.
        2) Three anchors per jamb from 60 to 90 inches (2286 mm) high.
        3) Four anchors per jamb from 90 to 120 inches (3048 mm) high.
        4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches (609.6 mm) or fraction thereof above 120 inches (3048 mm) high.
10. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
11. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils (0.0762 mm) DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.

D. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.08 STEEL FINISHES

A. Prime Finishes: Door Frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. General Contractor to verify the accuracy of dimensions given to the steel door frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

C. Tolerances shall comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."

D. Drill and tap door frames to receive non-template, mortised, and surface-mounted door hardware.

E. Verify tolerances against manufacturers installations instructions for tornado and hurricane storm shelter openings.

3.03 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.

1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

C. Field Glazing: Comply with installation requirements in Division 08 Section 08 80 00 "Glazing" and with hollow metal manufacturer's written instructions.

3.04 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

3.05 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections 01 77 00 “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

END OF SECTION 08 12 13

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 – GENERAL

1.01 SUMMARY

A. Extent and location of each type of wood door is shown on Drawings and in schedule.

B. Types of doors required include the following:
   1. Interior prefinished solid core flush wood doors and veneer faces.

C. Related Sections include the following:
   1. Division 8 Section 08 12 13 “Hollow Metal Door Frames”
   2. Division 8 Section 08 87 00 “Door Hardware”
   3. Division 8 Section 08 80 00 “Glazing”

1.02 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

C. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2025, with Amendment (2024).

D. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2025.

E. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2021, with Errata (2022).

1.03 SUBMITTALS

A. Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door. Include details of core and edge construction, trim for openings and louvers (if any) and similar components.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
   1. Indicated blocking locations for hardware locations.
   2. Indicate dimensions and locations of mortises and holes for hardware.
   3. Indicate dimensions and locations of cutouts.
   4. Indicate fire-protection ratings for fire-rated doors.
   5. Requirements for veneer matching Doors to be factory finished and finish requirements.

C. Product Warranty: Provide manufacturer's standard extended warranty for review.

1.04 QUALITY ASSURANCE

A. General: Comply with requirements of the following standards unless otherwise indicated.
   1. WDMA I.S. 1A-11, "Architectural Wood Flush Doors."
   2. Fire-Rated Wood Doors: Where fire-resistance classifications are shown or scheduled for wood door assemblies, provide doors which comply with requirements of NFPA No. 80 "Standard for Fire Doors and Windows" and which have been tested and rated with single point hardware. Provide label of an approved nationally recognized independent testing laboratory on each door.

B. Allowable Tolerances for Fabrication:
   1. Size, overall dimensions - 1/16"
   2. Maximum warp and diagonal squareness - 1/8"

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect wood doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with the "Onsite Care" recommendations of NWMA pamphlet "Care and Finishing of Wood Doors" and with manufacturer's instructions.

B. Deliver doors to site **ONLY** after building has reached average prevailing humidity of this area. Refer to Project Conditions as specified herein.

C. Store doors in area where no excessive variations of heat, dryness or humidity are to be encountered.

1.06 PROJECT/SITE CONDITIONS

A. Environmental Limitations: **Do not deliver or install doors** until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period.

1.07 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Warping (bow, cup, or twist) more than 1/4 inch (6.35 mm) in a 42-by-84-inch section.
      b. Telegraphing of core construction in face veneers exceeding 0.01 inch (0.25 mm) in a 3-inch span.
   2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
   3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Forte Opening Solutions, (Basis-of-Design)

B. Eggers Industries

C. Oshkosh Door Company

D. Or equal

2.02 DOOR CONSTRUCTION, GENERAL

A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

B. WDMA I.S. 1A-11 Performance Grade: Extra heavy duty.
   1. All doors must meet specified WDMA Performance Duty Level, including face screw holding requirement. Surface applied hardware shall be installed with screws; through bolts are not acceptable.

C. Particleboard-Core Doors:
   1. Particleboard: ANSI A208.1, Grade LD-2 only, made with binder containing **no urea-formaldehyde resin.**
   2. Provide doors with structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices and other screw applied hardware.

D. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
   1. Mineral-Core Doors:
      a. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
      b. Blocking: Provide blocking with screw-holding capability approved for use in doors of fire-protection ratings indicated to eliminate through-bolting hardware.
         1) Indicate blocking locations on shop drawings.
      c. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

2.03 INTERIOR SOLID CORE DOORS; FORTE OPENING SOLUTIONS (BASIS OF DESIGN)

A. Grade: Custom with Grade "A" Faces.

B. Stain:Color to match Existing Doors

C. Species: White Birch

D. Cut: Plain Sliced

E. Match between veneer leaves: Book Match

F. Panel Match: Running Match.

G. Pair and Match: Provide for doors hung in same opening

H. Core: Particle Board (LD-2) or mineral core (based on fire requirements)

I. Exposed Vertical Edges: Hardwood, of same or compatible species as face, minimum thickness of 1/2 inch.

J. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.

2.04 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
   1. Comply with requirements in NFPA 80 for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
   1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
   2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

2.05 FINISHES

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

B. Transparent Finish:
   1. Grade: AWI Premium Grade
   2. Finish: Manufacturer's standard UV cured polyurethane, equal to WDMA TR-6 catalyzed polyurethane.
   3. Staining: As selected by Architect from manufacturer's standard.
      a. Final color, build, and sheen to be approved by Architect based on actual review samples.
   4. Factory pre-finished doors to be individually protected with transparent poly-wrap at the factory.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.
   1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs. Any deficiencies must be corrected prior to door installation.
   2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Condition doors to average prevailing humidity in installation area prior to hanging. Building shall be fully enclosed and permanent climate control system operating.

B. Hardware: Coordinate installation with Division 8 Section “Door Hardware”.

C. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

D. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer. Machine doors for hardware. Seal edges of cutouts and mortises after fitting and machining.
   1. Clearances: Provide 1/8 inch (3.18 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.35 mm) from bottom of door to top of threshold unless otherwise indicated.
   2. Bevel non-fire-rated doors 1/8 inch (3.18 mm) in 2 inches (50.8 mm) at lock and hinge edges.
   3. Trim bottom rail only to extent permitted by labeling agency.

E. Factory-Finished Doors: Do not trim factory finished doors for width.

3.03 ADJUST AND CLEAN

A. Operation: Correct any deficiency that prohibits the door from swinging or operating freely. Do not remove hinge screws after initial insertion. Shims used for alignment purposes must be inserted between hinge and frame. Do not insert shims between hinge and door.

B. To prevent stile failure, insure that door closers are properly adjusted and do not limit the door opening swing. Limit door opening swing only with a properly located stop.

C. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

3.04 PROTECTION

A. Do not “prop” doors open with any devices during construction at the base of the door. If this occurs, doors will be rejected and replaced at no cost to the Owner.

B. Protection of Completed Work: Advise Architect of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of work.

C. One month prior to expiration of Contractor’s 1-year warranty, the Contractor and supplier of this Section shall perform a walk-thru, with the Architect and hardware supplier present, of all wood door openings and adjust hardware as necessary for proper operation of doors to fully satisfy door manufacturer’s warranty.

END OF SECTION 08 14 16

SECTION 08 31 00
ACCESS DOORS AND PANELS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide the following Metal Access Panels as specified herein in locations indicated on Drawings:
   1. Ceiling mounted, non rated, recessed with layin ceiling grid.

B. Related Sections include the following:
   1. Division 8 Section 08 71 00
   2. "Door Hardware" for cylinder and interchangeable core

1.02 REFERENCE STANDARDS

A. 29 CFR 1910.28 - Duty to have Fall Protection and Falling Object Protection; Current Edition.

1.03 SUBMITTALS

A. Product Data:
   1. Manufacturer's technical data for each type of access door and panel assembly, including setting drawings, templates, fire-resistive characteristics, finish requirements, and details of anchorage devices.
   2. Include complete schedule, types, locations, construction details, finishes, latching or locking provisions, and other pertinent data.

B. Shop drawings:
   1. Door and panel units: Show types, elevations, thickness of metals, full size profiles of door members.
   2. Hardware: Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.
   3. General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of door and panel units.

C. Manufacturer's Installation Instructions: Indicate installation requirements and rough-in dimensions.

1.04 QUALITY ASSURANCE

A. Coordination
   1. Furnish inserts and anchoring devices which must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Best Access Doors, 646.681.2952, www.BestAccessDoors.com (Basis-of-Design)

B. Nystrom Building Products

C. Babcock Davis

D. J.L. Industries

2.02 MANUFACTURED UNITS

A. Ceiling Mounted, Flush, Upward Opening Access Door with Concealed Flanges:
   1. Best Access Doors, 646.681.2952, www.BestAccessDoors.com (Basis-of-Design)
   2. Description: Door face flush with frame, with a core of mineral-fiber insulation enclosed in sheet metal; self-closing door, and concealed hinge.
   3. Locations: Layin Ceiling
   4. Door Size: as indicated on Drawings (minimum 30" X 30")
   5. Cold-Rolled Steel Sheet:
      a. Door Material: Nominal 0.036 inch (0.91 mm), 20 gauge.

b. Frame Material: Nominal 0.062 inch (1.57 mm), 16 gauge.
c. Finish: Paintable white, powder-coat.

6. Latch and Lock: Self-closing, self-latching door hardware, prepared for mortise cylinder, with interior release (provide cylinder and core per Division 8 Section “Door Hardware”).
7. Options: Gasketing.

2.03 FABRICATION

A. Manufacture each access panel assembly as an integral unit ready for installation.

B. Welded construction: Furnish with a sufficient quantity of 1/4 inch (6.35 mm) mounting holes to secure access panels to types of supports indicated.

C. Recessed panel: Form face of panel to provide specified recess for application of finish material. Reinforce panel as required to prevent buckling.

2.04 FINISHES

A. Phosphate dipped with factory applied prime coat. Finish coat to be applied per Division 9 Section “Painting and Coating”.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine opening to receive the work. Verify that openings are correctly dimensioned to receive doors. Do not proceed until any unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install access door and frame units per manufacturer's written instructions.

B. Install frames plumb and level in opening. Secure rigidly in place.

C. Position units to provide convenient access to concealed Work requiring access.

3.03 ADJUSTING

A. Adjust latching mechanism to operate smoothly.

B. Remove and replace panels or frames which are bowed, warped or damaged.

3.04 ADJUSTING

A. Leave work area clean and free of debris.

END OF SECTION 08 31 00

SECTION 08 41 13
ALUMINUM FRAMED ENTRANCES AND STOREFRONTS

PART 1 – GENERAL

1.01 SUMMARY

A. Extent of entrance and curtainwall work is indicated on the Drawings

B. Work includes, but is not limited to the following:
   1. Aluminum storefront system – thermally broken
   2. Aluminum entrance system
   3. Door hardware for all aluminum entrances
   4. Frame, transoms and sidelights where indicated.
   5. Breakmetal closures at heads, jambs, and sills as indicated on Drawings.
   6. Accessories including perimeter trims, stools, accessories, shims, anchors and perimeter sealing of framing units to create an air and weathertight seal.
   7. Coordination of door hardware with Division 8 Section 08 71 00 “Door Hardware” to ensure compatibility of all system components.

C. Related Sections include the following:
   1. Division 1 Section 01 45 29 “Testing Laboratory Services”
   2. Division 7 Section 07 92 00 “Joint Sealants”
   3. Division 8 Section 08 71 00 “Door Hardware”
   4. Division 8 Section 08 80 00 “Glazing”

1.02 REFERENCE STANDARDS

A. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.

B. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2024.

C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2026.

D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

E. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2017 (Reapproved 2022).

F. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

G. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2026).

H. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

I. ASTM C1184 - Standard Specification for Structural Silicone Sealants; 2023.

J. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

K. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2023).

L. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

M. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015 (Reapproved 2023).

N. FS TT-P-645 - Paint, Alkyd Type, Formula Number 84; 2013c (Validated 2021).

1.03 PERFORMANCE REQUIREMENTS

A. Wind Design Data:
   1. Refer to Structural Drawings for additional design data.
   2. Design pressure: refer to Structural Drawings.

B. Curtainwall Performance Requirements:
   1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 6.24 psf (300 Pa).
   2. Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E331. There shall be no leakage at a static air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.
   3. Water Resistance, (dynamic): The test specimen shall be tested in accordance with AAMA 501.1. There shall be no leakage at an air pressure differential of 12 psf (575 Pa) as defined in AAMA 501.
   4. Uniform Load: A static air design load of 40 psf (1915 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
   5. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than: 0.66 (clear).
   6. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 66frame and 60glass (clear)

C. Sealants: Provide elastomeric joint sealants as specified in Division 7 Section “Joints Sealants” that have been produced and installed to establish and maintain weathertight and airtight continuous seals without causing staining or deterioration of joint substrates.
   1. Sealants used for weather seals shall not experience adhesive or cohesive failure.
   2. Sealants shall withstand movements up to the limits prescribed by the manufacturer.
   3. Exposed sealant surface shall not crack, bubble or stain adjacent materials.
   4. Perform adhesion testing on aluminum and substrate members prior to installation.

D. Movable joints: Provide to accommodate the full range of manufacturing tolerance, field tolerance, thermal movement, seismic movement, floor sag, beam sag and column settlement. Joints shall accommodate the worst possible combination of effects so as to prevent internal stress, failure, deterioration, or failure of weather seals.

E. Not permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening or fracturing of attachments or components of system.

1.04 SUBMITTALS

A. Product Data:
   1. Submit manufacturer's descriptive literature and product specifications.
   2. Submit component dimensions; describe components within assembly, anchorage and fasteners, glass, internal drainage details and water flow drainage diagrams.
   3. Include information for factory finishes, hardware, accessories, and other required components.
   4. Calculations: Submit calculations and loads, signed by a Structural Engineer registered in the State of Mississippi, where such impacts the primary or secondary building structural systems.

B. Shop Drawings:
   1. Indicate system dimensions, framed opening requirements and tolerances, anticipated deflection under load, affected related work, weep drainage network, expansion and contraction joint location and details, and field welding required.
   2. Provide full elevations at a minimum scale of 1/4 inch (6.35 mm) to 1 foot (30.48 cm).

3. Provide full-size joint details illustrating details, including flashing.
4. Indicate means of adjustment to accommodate field conditions.
5. Indicate locations and details for attachment of components to building structure including primary and secondary steel.
6. Show locations of all fasteners, including size and spacing of such fasteners.

C. Samples for verification:
1. Submit manufactures samples indicating quality of finish in required colors.
2. Where normal texture or color variations are expected, include additional samples illustrating range of variation.

D. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 18" lengths of full-size components and showing details of the following:
1. Joinery.
2. Anchorage.
3. Expansion provisions.
4. Glazing.
5. Flashing and drainage.
6. Joint sealant locations

E. Test reports: Indicate substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.

F. Manufacturer’s field reports

1.05 QUALITY ASSURANCE

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications: A manufacturer capable of providing aluminum-framed system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.

C. Engineer Qualifications: Professional Structural Engineer registered in State of Mississippi.

D. Source Limitations: Obtain aluminum-framed system through one source from a single manufacturer.

E. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed system and are based on the specific system indicated. Do not modify size and dimensional requirements.

F. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

G. Mockups: Build full size mockup on-site to verify selections made under “fabrication sample” submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

H. Pre-installation Conference:
1. Arrange with Architect, and representatives of curtainwall, glazing, and sealant manufacturer to visit Project site before beginning to analyze site conditions, and inspect surfaces and joints to be sealed in order that recommendations may be made should adverse conditions exist.
2. Discuss following items:
a. Detailed review of Contract Documents and approved shop drawings.
b. Weather conditions under which work will be done.
c. Anticipated frequency and extent of joint movement.
d. Joint design.
e. Glazing procedures.

3. Sign off from the manufacturer that site conditions are acceptable is required in writing prior to start of Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle Work of this Section in accordance with AAMA - Curtain Wall Manual #10. In addition, store in a dry location and protect from exposure to contaminants and temperature extremes.

B. Protect pre-finished aluminum surfaces with wrapping or strippable coating and store in a dry location. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

C. Immediately replace materials that become damaged or are otherwise unsuitable for installation, and replace with new materials.

1.07 PROJECT CONDITIONS

A. Inspect substrates to which work of this section adjoins. Field check all dimensions and elevations on the connecting work affecting the work of this section to insure a proper fit and weathertight construction.

1.08 WARRANTY

A. Manufacturer's 10 year finish warranty covering checking, crazing, peeling, chalking, fading, or adhesion of clear anodized finish.

B. General: warranty period 5 years. Longer warranties apply as noted below and in other sections of these specifications where components are specified which are part of the assemblies. Replace components with deficiencies such as:
   1. Discoloration, fading, chalking, staining, pitting, corrosion or other deterioration or inconsistency in surface finish.
   2. Aging or weathering that does not match extra materials in storage.
   3. Penetration of water into the building exceeding specified limits.
   4. Air infiltration exceeding specified limits.
   5. Structural failure of components resulting from forces within specified limits.
   6. Failure of operating parts to function normally.

1.09 MAINTENANCE

A. Storefront Contractor shall furnish maintenance service for a period of 12 months from date of Substantial Completion during normal working hours at no cost to the Owner. Service shall consist of examination of the equipment, adjustment, lubrication, supplies and parts to keep all storefront doors and hardware in proper operation.

B. 1 month prior to expiration of maintenance agreement during warranty “walk-thru”, survey all storefront doors and hardware and perform any adjustments if necessary

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Kawneer North America (Basis of Design)

B. The following manufacturers are considered equal systems. If the following are used, any changes to the building design or construction (including hardware changes) shall be at no cost to the Owner.
   1. Oldcastle Building Envelope
   2. EFCO Corporation
   3. YKK AP America, Inc.
   4. Arcadia, Inc.

2.02 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by aluminum manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" wall thickness at any location for the main frame and complying with ASTM B221: 6063-T6 alloy and temper.

B. Fasteners: aluminum or 304 stainless steel, to be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled-in, expansion bolt anchors.

F. Shims: Non-staining, non-ferrous, type as recommended by system manufacturer.

G. Protective Coatings: Cold applied asphalt mastic complying with SSPC-Paint 12, compounded for 30 mil (0.762 mm) thickness for each coat; or alkyd type zinc chromate primer complying with FS TT-P-645.

H. Glass: Provide glazing as specified in Division 8 Section “Glazing”.

I. Gaskets: Glazing gaskets shall comply with ASTM C864 and be extruded of a silicone compatible EPDM rubber that provides for silicone adhesion.

J. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type for a complete system warranty, and as follows:
   1. Structural Sealant: ASTM C1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.
   2. Weatherseal Sealant: ASTM C920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
   3. Refer to Division 7 Section “Joint Sealants” for adhesion testing prior to installation.

2.03 EXTERIOR STOREFRONT

A. Thermally Broken Storefront (Center Plane, Screw Spline):
   1. “Trifab VersaGlaze 451T”; Kawneer

B. Framing Member Profile: 2" x 4-1/2" nominal dimension.
   1. Provide high performance aluminum subsill at all openings.

C. Provide all necessary components for complete installation including glazing gaskets for flush glazing and adapters as required to accommodate the following:
   1. 1” glazing as specified in Division 8 Section “Glazing”.

2.04 ENTRANCE COMPONENTS – HEAVY DUTY

A. Heavy Duty Entrances (all doors):
   1. “500 Heavywall”; Kawneer

B. All door sections shall be of extruded aluminum alloy and temper to meet or exceed finishing and structural criteria as specified.

C. Doors shall be 2 inches (50.8 mm) thick. Door stiles and rails, excluding glass stops, shall be tubular and have 3/16” wall thickness. All weathering shall be a hardbacked silicone treated polypropylene.

D. Door frames are to also have 3/16” wall thickness.

E. Fasteners: Aluminum alloys or stainless steel. Exposed fasteners, if any, shall be finished to match door and frame sections.

F. Provide all necessary components for complete installation including glazing gaskets for flush glazing and adapters as required to accommodate the following:
   1. Exterior: 1” glazing as specified in Division 8 Section “Glazing”.
   2. Interior: 1/4” glazing as specified in division 8 section “Glazing”.

G. Hardware:
   1. Refer to hardware sets at the end of this Section.
      a. Where electromechanical hardware is to be provided in lieu of mechanical hardware, coordinate with Door Hardware Contractor and Electrical Contractor for all necessary rough-ins, components, and wiring for a complete working installation.
      b. Cylinders / cores / keying to be provided per Division 8 Section “Door Hardware”.

2.05 FABRICATION

A. Aluminum framing:
   1. Provide members of size, shape and profile indicated, designed to provide for glazing from exterior.
   2. Fabricate frame assemblies with joints straight and tight fitting.
   3. Reinforce internally with structural members as necessary to support design loads.
   4. Maintain accurate relation of planes and angles, with hairline fit of contacting members.
   5. Seal horizontals and direct moisture accumulation to exterior.
   6. Provide flashings and other materials used internally or externally that are corrosive resistant, non-staining, non-bleeding and compatible with adjoining materials.
   7. Provide manufacturer's extrusions and accessories to accommodate expansion and contraction due to temperature changes without detrimental to appearance or performance.
   8. Make provisions in framing for minimum edge clearance, nominal edge cover and nominal pocket width for thickness and type of glazing or infill used in accordance with recommendations of manufacturer and FGMA glazing manual.

B. Welding:
   1. Comply with recommendations of the American Welding Society.
   2. Use recommended electrodes and methods to avoid distortion and discoloration.
   3. Grind exposed welds smooth and flush with adjacent surfaces; restore mechanical finish.

C. Flashings: form from sheet aluminum with same finish as extruded sections. Material thickness as required to suit condition without deflection or "oil canning".

D. Entrance System Fabrication:
   1. Door corner construction shall consist of mechanical clip fastening, SIGMA deep penetration plug welds and 1-1/8" long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with EPDM glazing gaskets reinforced with non-stretchable cord.
   2. Accurately fit and secure joints and corners. Make joints hairline in appearance.
   3. Prepare components with internal reinforcement for door hardware.
   4. Arrange fasteners and attachments to conceal from view.
   5. All glazing shall be flush, including the horizontal muntins and sills. Glass shall be held in place by EPDM glazing gaskets on both sides. No applied stops shall be permitted.
   6. All door frames shall have door stops at jambs and head with continuous weathering.

2.06 FINISHES

A. All exposed surfaces shall be free of unsightly scratches and blemishes.

B. Organic Coating (high performance fluorocarbon):
   1. Comply with requirements of AAMA 2605 - 70% PVDF.
   2. Color to be equal to Kawneer “Bone White”.

PART 3 – EXECUTION

3.01 PREPARATION

A. Install sill flashings: Turn up ends and edges; seal with joint sealant to adjacent Work to form water tight dam. Provide joints between flashing pieces as required to accommodate the thermal movement of the flashing material while maintaining a weathertight seal.
   1. Refer to Division 7 Section “Sheet Metal Flashing and Trim”.
   2. NOTE: this is not a “subsill” and is to be provided in addition to the high performance aluminum subsill per the manufacturer.

3.02 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight aluminum-framed installation.
   1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
   2. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.03 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed system, accessories, and other components.

B. Framing Installation:
   1. Install aluminum-framed system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
   2. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.
   3. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

C. Entrance Door Installation:
   1. Doors shall be hung plumb, level and square, and properly secured in accordance with manufacturer's approved shop drawings.
   2. Hardware shall be properly installed and adjusted. Final adjustment shall be made for proper and easy operation of the doors after glazing and after air conditioning is in operation.

D. Sealant Installation:
   1. Refer to Division 7 Section “Joint Sealants” for adhesion testing requirements prior to start of any sealant work.
   2. Sealant installation standard: Comply with recommendations of ASTM C1193 for use of joint sealant as applicable to materials, applications, and conditions indicated.
   3. Installation of sealant backings: Install sealant backings to comply with the following requirements:
      a. Install joint backers to provide support of sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
         1) Do not leave gaps between ends of joint backer.
         2) Do not stretch, twist, puncture or tear joint backer.
         3) Remove absorbent joint backer that have become wet prior to sealant application and replace with dry material

4) Install bond breaker tape between sealants where backer rods are not used between sealants and joint backer or back of joints.

4. Installation of sealants: Install all sealants by proven techniques that result in sealants directly contacting and fully wetting the joint substrates, completely filling recess provided for each joint configuration, and providing uniform cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability:
   a. Fill the sealant rabbet to a slightly concave surface. Tool joints as necessary to assure continuous bonding, obtain a uniform appearance free from defects.
   b. Install sealants to depths as recommended by sealant manufacturer.
   c. Use sealing materials in strict accordance with sealant manufacturer's printed instructions.
5. Sealant curing and protection:
   a. Cure sealants in compliance with manufacturer's recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.
   b. Ensure procedures required for cure and protection of joint sealants are followed during construction period, so that they will be without deterioration or damage.
   c. Cure and protect sealants in a manner which will minimize increases in modulus of elasticity and other accelerated aging effect. Replace or restore sealants which are damaged or deteriorated during construction period.

E. Glazing: Comply with "Glazing Manual" by Glass Association of North America except as shown and specified otherwise, and except as specifically recommended otherwise by the manufacturer of the glass and the manufacturer of the glazing materials.
1. Comply with Division 8 Section "Glazing".
2. Do not mark on installed glass.
3. Comply with glass manufacturer's instructions and recommendations for possible use of setting blocks.
4. Before installing glass, check the setting to verify that it is plumb with no edge damage and in a perfect plane suitable for installing.
5. Do not proceed unless glazing surfaces are dry and free of frost.
6. Do not attempt to cut, seam, nip, or abrade any fully tempered, heat- strengthened, or coated glass.
7. Unify appearance of each series of lights by setting each glass piece to match others as nearly as possible. Inspect each glass piece and set with the pattern, draw and bow oriented in the same direction as other pieces.

3.04 TOLERANCES

A. Maximum variation from plumb: 0.06 inches (1.52 mm) every 3 feet (91.44 cm) non-cumulative or 0.5 inches (12.7 mm) per 100 feet (3048 cm), whichever is less. Maximum misalignment of two adjoining members abutting in plane: 1/32 inch (0.79 mm).

B. Work shall have sharp, clean profiles, be straight and free from defects, dents, marks, waves or flaws.

C. Glazing rabbets shall be aligned between horizontal and vertical mullions to a tolerance of 1/32 inch (0.79 mm) total misalignment.

D. Removable glass stops shall be centered in openings with no more than 1/32 inch (0.79 mm) gap on each side.

3.05 FIELD QUALITY CONTROL

A. Field Tests: schedule exterior curtainwall units to be tested once 1 unit of curtainwall and 1 unit of storefront have been installed, glazed, perimeter caulked and fully cured. No other work shall be performed until the testing is completed and results sent to the Architect for review. If any other aluminum framing work is completed, it will be removed and replaced at no cost to the Owner.

1. Testing shall be performed prior to the installation of the interior finishes. If interior finishes have been installed, they must be removed at the area of the test chamber to allow visual access to verify testing performance.

B. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected, and retested until all tests pass.
   1. Corrective work shall be approved by Architect and manufacturer's representative before retesting. Corrective work and re-testing shall be paid by Aluminum Framing Contractor (including testing fees and additional service fees of Architect and manufacturer's representative if any).

C. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E783 for Air Infiltration Test and ASTM E1105 Water Infiltration Test.
   1. Test exterior curtainwall assembly in minimum 3 locations per substrate condition, with repeat tests when failures occur.
   2. Test flashings and perimeter sealant joints at interface to adjacent components or systems.
   3. Air Infiltration Tests: Conduct tests in accordance with ASTM E783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft2, whichever is greater.
   4. Water Infiltration Tests: Conduct tests in accordance with ASTM E1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf.

D. Report to include results of air and water tests, photographs of the test itself, and any other information pertinent to the outcome of the testing (site conditions, etc.).

3.06 MANUFACTURERS FIELD SERVICES

A. Manufacturer to provide field surveillance of the installation of their products. Provide site surveillance at start-up, 20% completion and 60% completion of the Work. Monitor installation procedures and submit written report in writing to the Architect.
   1. Payment will not be process without written report.

3.07 ADJUSTING

A. Test door operating functions. Adjust closing and latching speeds and other hardware in accordance with manufacturer's instructions to ensure smooth operation. Adjusting wrenches and small tools furnished with operating hardware shall be turned over the Owner, properly tagged and identified.

3.08 CLEANING

A. Clean aluminum surfaces immediately after installing aluminum-framed system. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
   1. Remove protective material from pre-finished aluminum surfaces if present.

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

3.09 PROTECTION

A. Protect doors and frames from damage during subsequent construction activities. Replace damaged materials at no additional cost to the Owner.

B. Maintain glass units in a reasonably clean condition during construction to prevent damage by corrosive action.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.10 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. Quantities listed are for each pair of doors, or for each single door.

C. The supplier is responsible for handing and sizing all products.

D. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

E. Weatherstripping: manufacturer's standard in addition to specified below in hardware sets.

F. Coordinate with Division 8 Section "Door Hardware" (under separate Bid Package Contract) for detailed descriptions of hardware components (located in Part 2).

G. Coordinate with Division 8 Section 08 71 00 "Door Hardware" for detailed descriptions of hardware components.

MANUFACTURER LIST

CODE NAME

1. BE Best Access Systems
2. HG Hager
3. LC LCN Closers
4. PE Pemko
5. PR Precision

HARDWARE SETS

SET: 1.0

END OF SECTION 08 41 13

SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. BHMA A156.1 - Standard for Butts and Hinges; 2025.

B. BHMA A156.2 - Bored and Preassembled Locks and Latches; 2022.

C. BHMA A156.3 - Exit Devices; 2025.

D. BHMA A156.4 - Door Closers and Pivots; 2024.

E. BHMA A156.6 - Standard for Architectural Door Trim; 2021.

F. BHMA A156.13 - Mortise Locks and Latches; 2022.

G. BHMA A156.16 - Standard for Auxiliary Hardware; 2023.

H. BHMA A156.18 - Standard for Materials and Finishes; 2020.

I. BHMA A156.26 - Standard for Continuous Hinges; 2025.

J. BHMA A156.31 - Electric Strikes and Frame Mounted Actuators; 2024.

K. BHMA A156.36 - Auxiliary Locks; 2020.

L. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

M. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

N. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

O. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2025, with Amendment (2024).

P. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Q. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2025.

R. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

S. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

T. UL 294 - Access Control System Units; Current Edition, Including All Revisions.

U. UL 305 - Standard for Panic Hardware; Current Edition, Including All Revisions.

V. UL 437 - Standard for Key Locks; Current Edition, Including All Revisions.

W. UL 1784 - Standard for Air Leakage Tests of Door Assemblies and Other Opening Protectives; Current Edition, Including All Revisions.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.03 SUMMARY **(REFER TO SECTION 01 21 00 ALLOWANCE FOR HARDWARE ALLOWANCE)**

A. Contractor shall include installation cost in **BASE BID.** Refer to Allowance for Door Hardware Sets.

B. This Section includes commercial door hardware for the following:
   1. Swinging doors.
   2. Other doors to the extent indicated.

C. Door hardware includes, but is not necessarily limited to, the following:
   1. Cylinders specified for doors in other sections.

2. Refer to Section 01 21 00 Allowances, for hareware

D. Related Sections:
1. Division 00 Section "General Conditions”.
2. Division 06 Section “Rough Carpentry”.
3. Division 06 Section “Interior Architectural Woodwork”.
4. Division 08 Section “Hollow Metal Doors and Frames”.
5. Division 08 Section “Flush Wood Doors”.
6. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.

E. Codes and References: Comply with the version adopted by the Authority Having Jurisdiction.
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC (IBC) International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

F. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.04 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
a. Type, style, function, size, label, hand, and finish of each door hardware item.
b. Manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data,

Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:
   1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.05 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.06 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning standard door hardware and keying.

E. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors.

Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

2. Review and finalize construction schedule and verify availability of materials.
3. Review the required inspecting, testing, commissioning, and demonstration procedures

H. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.07 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.08 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

1.09 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

A. Hardware shall not have any visible manufacturer names on exposed materials, except cylinders, when the door is in a closed position.

2.02 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
   a. Two Hinges: For doors with heights up to 60 inches (1524 mm).
   b. Three Hinges: For doors with heights 61 to 90 inches (2286 mm).
   c. Four Hinges: For doors with heights 91 to 120 inches (3048 mm).
   d. For doors with heights more than 120 inches (3048 mm), provide 4 hinges, plus 1 hinge for every 30 inches (762 mm) of door height greater than 120 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for all out-swinging lockable doors.
5. Manufacturers:
   a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.03 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches (101.6 mm). Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
   1. Manufacturers:.
      a. Pemko (PE).

2.04 DOOR OPERATING TRIM

A. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
   1. Push/Pull Plates: Minimum .050 inch (1.27 mm) thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
   2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
   3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
   4. Pulls shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
   5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
   6. Manufacturers:
      a. Rockwood (RO).

2.05 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
   1. Threaded mortise cylinders with rings and cams to suit hardware application.
   2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
   4. Tubular deadlocks and other auxiliary locks.
   5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
   6. Keyway: Match Facility Standard.

C. Keying System: Each type of lock and cylinders to be factory keyed.
   1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
   2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
   3. Existing System: Field verify and key cylinders to match Owner's existing system.

D. Key Quantity: Provide the following minimum number of keys:
   1. Change Keys per Cylinder: Two (2)
   2. Master Keys (per Master Key Level/Group): Five (5).
   3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):
   1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
   2. Provide transcript list in writing or electronic file as directed by the Owner.

2.06 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
   1. Manufacturers:
      a. Lund Equipment (LU).
      b. MMF Industries (MM).
      c. Telkee (TK).

2.07 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.
   1. Manufacturers:
      a. ASSA ABLOY ACCENTRA (YA) - 8800FL Series.
      b. Corbin Russwin Hardware (RU) - ML2000 Series.
      c. Sargent Manufacturing (SA) - 8200 Series.

2.08 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
   3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
   4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
   1. Strikes for Mortise Locks and Latches: BHMA A156.13.
   2. Strikes for Bored Locks and Latches: BHMA A156.2.
   3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
   4. Dustproof Strikes: BHMA A156.16.

2.09 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
   1. Exit devices shall have a five-year warranty.
   2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL 305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
   3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
   4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
   5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
   6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
      a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
      b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
   7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
   8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
   9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
   10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
   11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.
   1. Manufacturers:
      a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
      b. Sargent Manufacturing (SA) - 80 Series.

2.10 SURFACE DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
   1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
   2. Standards: Closers to comply with UL 10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
   3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC A117.1.
   4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
   5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
   1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
   2. Manufacturers:
      a. Corbin Russwin Hardware (RU) - DC8000 Series.
      b. Norton Rixson (NO) - 9500 Series.
      c. Sargent Manufacturing (SA) - 281 Series.

C. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard..
   1. Manufacturers:
      a. Corbin Russwin Hardware (RU) - DC6000 Series.
      b. Corbin Russwin Hardware (RU) - DC8000 Series.
      c. Norton Rixson (NO) - 7500 Series.
      d. Sargent Manufacturing (SA) - 1431 Series
      e. Sargent Manufacturing (SA) - 351 Series.

2.11 ARCHITECTURAL TRIM AND ACCESSORIES

A. Door, Frame and Wall Protective Trim: ANSI/BHMA A156.6, protective products as specified in the hardware sets. Door protection plates shall be not more than 2" less than door width on stop side and 1” less door width on the pull side or on stop side of pairs of doors. Listed manufacturers shall meet all functions and features as specified herein.
   1. Provide protective trim with functions and features as follows:
      a. Meets ADA requirements for smooth bottom door surfaces.
      b. UL Classified options for use on fire-rated doors up to 3 hours.
      c. Fabricated from stainless steel, brass, bronze, aluminum, or high-impact plastic.
      d. Available in a variety of sizes, finishes, and profiles to suit aesthetic and functional requirements.
      e. Designed to protect doors, frames, and adjacent walls from damage due to impact, abrasion, or traffic.
      f. Fasteners included; adhesive-backed options available for select models.
      g. Ten-year limited warranty.
   2. Manufacturers:
      a. Rockwood (RO).

2.12 DOOR STOPS AND HOLDERS

A. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
   1. Manufacturers:
      a. Rockwood (RO).

2.13 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

C. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

D. Manufacturers:
   1. Pemko (PE).

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.02 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.03 INSTALLATION

A. Paint prime coated mullions to match frames.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into

surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.04 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

3.05 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.06 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.07 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.08 **DOOR HARDWARE SETS: REFER TO SECTION 01 21 00 ALLOWANCE FOR HARDWARE SET ALLOWANCE.**

END OF SECTION 08 71 00

SECTION 08 80 00
GLAZING

PART 1 – GENERAL

1.01 SUMMARY

A. Types of work in this section includes:
   1. Glass and glazing for Fixed Glass Units
   2. Sheet Mirror at Weight Rooms areas
   3. Mirrors vanities at Women's and Men's (Alternate #1)

B. Related Sections include the following:
   1. Division 01 Section 01 23 00 "Alternates"
   2. Division 7 Section 07 92 00 “Joint Sealants”
   3. Division 8 Section 08 14 16 “Flush Wood Doors” .
   4. Division 8 Section 08 41 13 “Aluminum Framed Entrances and Storefronts”
   5. Division 8 Section “Door Hardware” 08 71 00
   6. Division 10 Section 10 28 13 “Toilet and Bath Accessories” for other individual mirrors.

1.02 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

C. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2026.

D. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

E. ASTM C1184 - Standard Specification for Structural Silicone Sealants; 2023.

F. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2024.

G. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

H. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Product data for all glass components, including sample warranty. Include performance for all exterior glazing.

B. Product test reports: based on evaluation of comprehensive tests performed by a qualified testing agency, for glazing sealants
   1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

C. Samples: Submit 12-inch square samples of each type of glass indicated, and 12-inch long samples of each color required (except black) for each type of sealant or gasket exposed to view.

D. Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants and other glazing materials.

1.04 QUALITY ASSURANCE

A. Clear Safety glass products are to comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.

1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

B. Insulating glass products are to be permanently marked either on spacers or at least one component lite of units with appropriate certification label of inspecting and testing agency indicated below:
   1. Insulating Glass Certification Council (IGCC).

C. Single Source fabrication responsibility: Fabrication processes, including Low E and reflective coatings, insulating, laminating, silkscreen, and tempering, shall be fabricated by a single Fabricator.

D. Protect glass from edge damage during handling and installation, and subsequent operation of glazing components of the work. During installation, discard units with significant edge damage or other imperfections.

E. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Marketing Association "Glazing Manual", except where more stringent requirements are indicated.

F. Pre-installation Conference: conduct conference at the Project site.
   1. Review and finalize construction schedule and verify availability of materials, installers personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Review temporary protection requirements for glazing during and after installation.

1.05 WARRANTY

A. Warranty on Hermetic Seals: Provide insulating glass manufacturer's written warranty, agreeing to, within specified warranty period, furnish FOB project site, replacement units for insulating glass units which have defective hermetic seals (excluding that due to glass breakage); defined to include intrusion of moisture or dirt, internal condensation at temperatures above -20 degrees Fahrenheit (-6.67 degrees Celsius), deterioration of internal glass coatings, and other visual evidence of seal failure or performance failure.
   1. Warranty period is 10 years after seal date permanently imprinted on unit.

B. Any leaks or defective work shall be immediately corrected by the manufacturer and Contractor, at no expense to the Owner.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. PPG (Basis of Design)

B. Guardian Industries

C. Trulite Glass & Aluminum Solutions

D. Vitro Architectural Glass

E. Pilkington North America / NSG Group

F. Or equal

2.02 MATERIALS

A. Tinted Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E2190, Class CBA.
   1. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.

B. Typical Insulating Glass Unit:
   1. Equal to PPG "Solarban R100 (2) + Clear
   2. Performance Values (based on 1” insulated glass):

a. Visible Light Transmission %: 32
b. Shading Coefficient: 0.27
c. Solar Heat Gain Coefficient: 0.23
d. U-Value Summer Daytime: 0.27
e. U-Value Winter Nighttime: 0.29
f. Light-to-Solar Gain: 1.83
g. Reflectance – Visible Light Out / In: 10 / 13 - 32%

3. Glass Locations:
   a. Clear safety glazing (interior sidelights)
   b. Tinted insulated impact-resistant (exterior alum storefront)
   c. Tinted impact-resistant (ext alum doors)
   d. 1/4” Mirror w/ j-mould (base & alternate 1)

2.03 FABRICATION

A. General:
   1. Provide in overall sizes indicated on Drawings and as specified herein.
   2. SSG (“butt-glazing”) must be glazed with Dow 995 structural silicone (or equal) applied per manufacturer’s instructions. Provide primer if determined by preconstruction testing per Division 7 Section 07 92 00 “Joint Sealants”.
      a. Cure time of 21 days is required.
   3. No exposed fasteners in the glazing stops will be acceptable.

B. GL1 - Clear Safety Glazing:
   1. 1/4 inch (6.35 mm) thick clear tempered glass.
   2. Refer to drawings for locations.

C. GL2 - Tinted Impact-Resistant, Insulated Glazing:
   1. 1/4" tempered tinted (low-e) Outboard/Exterior Lite
   2. 1/2" Air Space
   3. 1/4" tempered Inboard Lite
   4. Refer to drawings for locations.

D. GL3 Tinted Impact-Resistant Glazing: (Entry Doors)
   1. 1/4" tempered tinted (low-e) clear Glazing
   2. Refer to drawings for locations.

E. Sheet Mirror:
   1. 1/4” thick silvered glass
   2. Comply with ASTM C1503 Standard Specification for Silvered Flat Glass Mirror
   3. Refer to drawings for size & locations.
      a. Women's and Men's Toilets (refer to ID drawings for locations) Alt. #1
         1) Women's Toliet E106 (2) 18"x36"
         2) Men's Toliet E102 (2) 18"x36"
      b. Weight Rooms (refer to ID drawings for locations) Base Bid
         1) Weight Room E100 (1) 4'x6'
         2) Weight Room 100 (2) 4'x6', (1) 10'x6', & (1) 8'x6'

2.04 COMPONENTS

A. General: Provide color of exposed sealant/compound indicated or if not otherwise indicated, as selected by Architect from manufacturer's standard colors, or black if no color is so selected. Comply with manufacturer's recommendations for selection of hardness, depending upon the location of each application, conditions at time of installation, and performance requirements as indicated. Select materials and variations or modifications carefully for compatibility with surfaces contacted in the installation. Sealants shall contain no asbestos.

B. 2-part Polysulfide Glazing Sealant: Elastomeric polysulfide sealant complying with FS TT-S-227, Class A, Type 2; specially compounded and tested to show a minimum of 20 years

resistance to deterioration in normal glazing applications. Use for all exterior locations. Verify compatibility with insulating glass and substitute if necessary.

C. Oleo-resinous Glazing Compound: Oil-based glazing compound; non-staining and non-bleeding; provide proper type as required for channel. Use for interior locations.

2.05 ACCESSORIES

A. Miscellaneous Materials:
   1. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
   2. Setting Blocks: Neoprene or EPDM, 79-90 durometer hardness, with proven compatibility with sealants used.
   3. Spacers: Neoprene or EPDM, 40-50 durometer hardness with proven compatibility with sealants used.
   4. Compressible Filler (Rod): Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with sealants used; flexible and resilient, with 5-10 psi (68.95 kPa) compressive strength for 25% deflection.

B. Structural Sealant:
   1. Structural Sealant: ASTM C1184, chemically curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant.
      a. Provide sealants for use inside that have a VOC content of 100 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
      b. Color: Black.

PART 3 – EXECUTION

3.01 PREPARATION

A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate. Remove lacquer from metal surfaces where elastomeric sealants are used.

B. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

3.02 INSTALLATION

A. General:
   1. Watertight and airtight installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, and impact loading (for doors), without failure, including loss or breakage of glass, failure of sealants to remain watertight and airtight, deterioration of glazing materials and other defects in the work.
   2. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers' Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

B. Glazing
   1. Install setting blocks of proper size in sill rabbet located in 1/4 of glass width from each corner. Set blocks in thin course of heel-bead compound, if any.
   2. Provide spacers inside and out, of proper size and spacing, for glass sizes larger than 50 united inches, except where preshimmed tapes are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width.
   3. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
   4. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in channel at heel of jambs and head (do not leave voids in sill channels), except as otherwise indicated and depending on light size, thickness and type of glass and complying with manufacturer's recommendations.
   5. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing per Division 7 Section “Joint Sealants”.

6. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
7. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass.
8. Clean and trim excess glazing materials from glass and stops or frames promptly after installation, and eliminate stains and discolorations.
9. Factory glazing may deviate from these specifications as necessary to accommodate manufacturer's standard glazing procedures which will result in a watertight, rattle free installation.

3.03 CLEANING

A. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of Substantial Completion of project. Comply with glass product manufacturer's recommendations for final cleaning.

3.04 PROTECTION

A. Protect exterior glass from breakage. Do not apply markers to surfaces of glass. Remove non-permanent labels and clean surfaces. Cure sealant for high early strength and durability.

B. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.

END OF SECTION 08 80 00

SECTION 09 22 16
NON-STRUCTURAL METAL FRAMING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019 (Reapproved 2025).

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

C. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2024.

D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

E. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

1.02 SUMMARY

A. This Section includes the following:
   1. Interior framing systems (includes but is not limited to supports for partition walls, framed furring).

B. Engineering data is not required for interior studs.

C. Related Sections include the following:
   1. Division 6 Section 06 10 00 “Rough Carpentry”
   2. Division 9 Section 09 29 00 “Gypsum Board Assembly”

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

1.04 QUALITY ASSURANCE

A. Direct Suspension Systems: ASTM C635

B. Metal Support System Installation: ASTM C754

C. Allowable Tolerances: 1/8" in 8' - 0" variation in finish surface

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside under cover and in a manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.

PART 2 – PRODUCTS

2.01 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
   1. Steel Sheet Components: Comply with ASTM C645 requirements for metal, unless otherwise indicated.
   2. Protective Coating: ASTM A653/A653M, G60, hot-dip galvanized zinc coating, unless otherwise indicated.

2.02 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C645.
   1. Double 20 gage stud framing at all openings including door and view panels.
   2. 20 gauge at 16” o.c. for tile backer board locations
   3. 25 gauge at 16" o.c. for other locations.
   4. Use 20 gauge for all runners.

B. Slip-Type Head Joints: Where indicated or at a minimum where required by the Steel Stud Manufacturers Association (SSMA), provide the following:

1. Double-Runner System: ASTM C645 top runners, inside runner with 2-inch deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
2. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

2.03 STEEL FRAMING ACCESSORIES

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Provide stud manufacturer's standard clips, shoes, ties, reinforcement, and other accessories as needed for a complete partition framing system.

2.04 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C1002, unless otherwise indicated.
1. For fire rated construction use same fasteners as used in applicable fire test.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Metal Support Systems:
1. Wall/Partition Support System: Support systems shall extend from floor to heights indicated on partition types/schedule or Details on drawings.
a. Install runner tracks at floors and bottom of roof or floor framing members and where stud system abuts other construction. Where partitions parallel, but are not directly beneath framing members, where there is no floor above, provide runner, or stud, headers between beams, spaced 4 feet (121.92 cm) on center, attached at each end, and secure top runner of partition thereto.
b. Space studs 16 inches (406.4 mm) on center, unless otherwise indicated.
c. Frame door openings with 20 gage vertical studs. Provide runner track header of same gage as jamb studs, and jack studs same as partition studs across head of opening.
d. Frame other openings same as door openings and frame above and below openings same as above door head.
e. Install supplementary framing, runners, blocking and bracing at openings and terminations in the work, and at locations required to support fixtures, equipment, services, heavy trim and similar work which cannot be adequately supported on gypsum board alone.
f. Secure perimeter framing to structural elements with suitable fasteners located 2 inches (50.8 mm) from each end and 24 inches (609.6 mm) apart between, except top runner parallel to, but not directly under, framing members will be attached with 2 screws to headers provided at 48 inches (1219.2 mm) on center. Anchor studs adjacent to door and fixed light openings, partition intersections, and corners to top and bottom runner flanges. Make web-flange bend at each end of runner over openings and screw to jamb studs with 2 screws each end.
2. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

END OF SECTION 09 22 16

SECTION 09 30 00
TILING

PART 1 – GENERAL

1.01 SUMMARY

A. Definitions - Tile includes ceramic surfacing units made from clay or other ceramic materials. The types of work of this section include:
   1. Porcelain mosaic floor tile installations.
   2. TB-1: Tile Wall Base (Alternate #1)
   3. Crack suppression membrane over existing concrete slabs.
   4. Polymer-modified thin-set mortar setting bed.
   5. High-performance grout materials.
   6. Tile Trim and Accessories to achieve a complete installation.

B. Related Sections include the following:
   1. Division 3 Section 03 30 00 “Cast-in-Place Concrete”
   2. Division 9 Section 09 29 00 “Gypsum Board Assembly” for tile backer board

1.02 REFERENCE STANDARDS

A. ANSI A108.01 - General Requirements: Structures, Substrates, and Preparation of Tile; 2026.

B. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.

C. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2021 (Reaffirmed 2025).

D. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.

E. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014 (Reaffirmed 2024).

F. ANSI A108/A118/A136.1 - American National Specifications for the Installation of Ceramic Tile.

G. ANSI A108.17 - Installation of Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone.

H. ANSI A136.1 - American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile; 2020.

I. TCNA (Handbook) - Tile Council of North America Handbook for Ceramic, Glass, and Stone Tile Installation (Details F125 / F125A).

J. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.

K. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).

L. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

1.03 SUBMITTALS

A. Manufacturer's product data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Samples - Submit manufacturer's color charts consisting of actual tiles or sections of tiles showing full range of colors available for each type of tile specified.
   1. Physical samples of grout for product selection – paper copies will not be accepted.

C. Shop Drawings: Submit shop drawings including tile and their specific locations as indicated on the drawings. Show control joints to be moved, expansion joint locations, and other specialty areas for approval.
   1. Indicate tile layouts, patterns, control joints, expansion joints, and coordination details with existing concrete substrate.

1.04 QUALITY ASSURANCE

A. Tile Manufacturing Standard: ANSI A137.1. Furnish tile complying with standard grade requirements unless indicated otherwise.

B. Obtain all installation products from a single source manufacturer to assure compatibility and to be in compliance with manufacturers Full System Warranty.
   1. Single-Source Responsibility: Obtain crack suppression membrane, thin-set mortar, and grout from a single manufacturer to ensure system compatibility and warranty validity.

C. Tile Council of North America, Inc. (TCNA):
   1. Handbook No. F113-18 at all on-grade concrete (in field) areas.
   2. Handbook No. F125-Partial-18 at all on-grade concrete areas to relocate all control joints to the next nearest grout joint (or joints).
   3. Handbook No. F113A-18 at all above ground concrete areas.
   4. Expansion joints, control joints, etc., must be located in compliance with TCNA EJ171 and filled with appropriate materials.

1.05 FIELD CONDITIONS

A. Environmental Limitations: Maintain ambient and substrate temperatures between 50 deg F (10 deg C) and 95 deg F (35 deg C) during installation and for 72 hours after completion.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver packaged materials and store in original containers with seals unbroken and labels intact until time of use, in accordance with manufacturer's instruction. All cartons must be from same Lot.

1.07 PROJECT CONDITIONS

A. Maintain environmental conditions and protect work during and after installation in accordance with referenced standards and manufacturer's printed recommendations. All cartons must be from the same lot.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Tile Manufacturers: Subject to compliance with requirements, provide full system assemblies by one of the following:
   1. DALTILE (Basis of Design) Floor Tile
   2. AMERICAN OLEAN (Basis of Design) Tile Wall Base
   3. AFFINITY
   4. SATORI

B. Acceptable Systems Manufacturers: Subject to compliance with requirements, provide full system assemblies (membrane, mortar, grout) by one of the following:
   1. SCHLUTER Systems - Basis of Design
   2. CUSTOM Building Products.
   3. BOSTIK USA
   4. LATICRETE International, Inc. - (Basis of Design)
   5. MAPEI Corporation.
   6. Or equal. Refer to Section 01 6000 Product Requirements.

2.02 TILE MATERIALS

A. General:

1. Colors, patterns, and locations of all tile types are as indicated on the Drawings. Other manufacturers' must submit samples prior to bid matching color and finish in order to be considered "equal".

B. Mosaic Floor Tile: Factory-blended, mesh-mounted or back-paddled sheet assemblies complying with ANSI A137.1.
   1. MOS-1: Mosaic Floor Tile **(Alternate #1)** (Basis of Design:Daltile)
   2. Size: 2x2 inch nominal face dimensions.
   3. Thickness: 1/4 inch.
   4. Moisture Absorption: 0 to 0.5 percent (impervious) per ASTM C373.
   5. Finish/Texture: Slip-resistant, matte finish suitable for commercial floor traffic.
   6. Style: Keystone

C. Wall Tile: TB- Wall Base/ Flat Top **(Alternate #1)** (Basis of Design) American Olean
   1. Size:Floor Bullnose Base 3" high x 24" long
   2. Thickness: 1/4 inch
   3. Style/Color: Neocrete-Medium Gray NE13 (Matte

2.03 CRACK SUPPRESSION MEMBRANE

A. Elastomeric Membrane: Liquid-applied or self-bonding sheet system complying with ANSI A118.12 high-performance standards.
   1. System Type: Premium liquid-applied crack-isolation system capable of bridging in-plane substrate cracks up to 1/8 inch wide.

2.04 SETTING MATERIALS

A. Polymer-Modified Thin-Set Mortar: High-performance, multi-purpose thin-set mortar complying with ANSI A118.4 and ANSI A118.11 requirements.

B. Cementitious Tile Adhesives:
   1. ANSI A118.4: Polymer-Enhanced Mortar: provide at all locations as required for setting tile as specified by ANSI A108.5 or A108.12, Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar, over substrates prepared accordingly.
      a. For installing ALL floor tile under 15" in either direction:
         1) Basis of Design: Schluter " ALL-SET" (no admixtures required)

2.05 GROUT MATERIALS

A. High-Performance Grout: Polymer-modified unsanded cement grout or high-performance aggregate grout complying with ANSI A118.7, color as selected by Architect.

B. Tile Grout:
   1. All areas: "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/, 100% Solids Commercial Epoxy Grout" (or equal). Refer to Section 01 6000 Substitutions and Product Options.
      a. ANSI A118.3 (100% epoxy) performance requirements
      b. Color as indicated on Drawings.

2.06 ACCESSORIES

A. Provide accessories in locations as indicated on Drawings and as specified herein

B. Termination Strips:
   1. Provide transitions where indicated on Drawings by Schlüter (Basis of Design) or equal.
      a. TS-3, Transition Profile - LVT to Porch - equal to DalTile - Marble Treshold, Hollywood Double Bevel
      b. TS-4, Transition Profile - Tile Termination - Schluter Systems - Scheine - Texture Coated Aluminum

C. Elastomeric Joint Caulk:
   1. Provide where indicated on the Drawings, and elsewhere as required at expansion joints, control joints, and at joints between tile and dissimilar materials.

a. "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/, (or equal). Color to match grout.
1) Provide at all tile areas unless noted otherwise to receive acrylic caulk below.
b. "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/, (or equal).“Commercial 100 % Acrylic Caulk” (or equal).

D. Liquid Applied Waterproofing Membrane (liquid applied):
1. Basis of Design "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/.
2. Complying with ANSI A118.12
3. Provide under ALL floor tile and shower inserts for isolating the installation from cracking due to minor substrate movement and normal structural deflections as specified in ANSI A108.17.

E. Self-Leveling Underlayment:
1. Basis of Design "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/
2. Provide where required to provide a flat, level surface for direct receipt of tile on interior installations (due to concrete not within tolerance).
3. "Laticrete International, Inc.", 1710 111th St., (800) 243-4788 Grand Prairie, Texas 75050, https://www.bing.com/. Rapid Setting Self-Leveling Underlayment” for fills up to 1 inch (25.4 mm) thick.
a. Provide primer and other components for a complete installation.
b. Include in Base Bid for up to 1/8 inch (3.175 mm) irregularities.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Substrate Verification: Verify that the existing concrete slab is structurally sound, dimensionally stable, and dry.

B. Flatness Tolerances: Measure existing slab for flatness variance. Substrate surface variation must not exceed 1/4 inch in 10 feet, and no more than 1/16 inch variation in 1 foot for tiles under 15 inches.

C. Defect Identification: Do not proceed with installation until all bond-breaking curing compounds, sealers, oils, waxes, or old adhesives are mechanically removed.

3.02 PREPARATION

A. General:
1. All supporting surfaces shall be structurally sound, solid, stable, level, plumb, and true to a tolerance in plane of 1/4 inch (6.35 mm) in 10 feet (304.8 cm) for floors when specified for thin-set method. When installing large format tile (one side greater than 15 inches (381 mm)) the tolerance is reduced to 1/8 inch (3.18 mm) in 10 feet. ANSI A108.01 Section 2.6.2
2. They shall be clean and free of dust, oil, grease paint, tar, wax, curing compound, primer, sealer, form release agent, laitance, loosely bonded topping, loose particles or any deleterious substance and debris which may prevent or reduce adhesion.
a. Mechanically sand and scarify the substrate to completely remove all paint, loosely bonded topping, loose particles and construction debris.
b. Broom clean, vacuum, then wet mop all areas to receive tile prior to installation.
c. Surface Cleaning: Blast, scarify, or mechanically grind the concrete slab to remove all surface contaminants.
3. Neutralize any trace of strong acid or alkali.
4. All substrates shall be dry. The moisture content shall not exceed 50 percent.
5. Turn off all forced ventilation and any radiant heating systems and protect work against drafts during installation and for a period of at least 72 hours after completion. Use indirect

auxiliary heaters to maintain the temperatures in the area at the recommended workable level. Vent temporary heater to exterior to prevent damage to tile work from carbon dioxide build-up.

6. Before work commences examine the areas to be covered and report any flaw or adverse condition in writing to the architect and to the general contractor. Do not proceed with work until surfaces and conditions comply with the requirements indicated in ANSI A108 standard.
7. Levelling and Patching: Fill low spots, depressions, non-structural shrinkage cracks, and holes using a trowelable, polymer-modified patch or leveling compound approved by the primary tile-setting manufacturer.

B. Concrete:
   1. Concrete and Masonry surfaces must comply with ANSI A108.01 Section 3.2
   2. All concrete substrates shall be at least 28 days old, completely cured and free of hydrostatic conditions, and/or moisture problems.
   3. Coordinate locations of control and expansion joints with Division 3 Section “Cast-in Place Concrete”

C. Gypsum Board shall be installed per the guidelines of ANSI A108.01 Section 3.5 and per Division 9 Section 09 29 00 "Gypsum Board Assembly"

3.03 INSTALLATION

A. CRACK SUPPRESSION MEMBRANE
   1. Application Method: Apply elastomeric membrane over the concrete substrate in strict compliance with ANSI A108.17 and manufacturer's written application manuals.
   2. Coverage: Apply membrane continuously over the entire floor slab layout or treat localized cracks by extending membrane 3 times the width of the largest tile layout on each side of the crack line. Allow membrane to cure completely prior to tile setting.

B. MOSAIC TILE
   1. Thinset Mortar Application: Comply with ANSI A108.5. Knock down thin-set ridges using the flat side of a trowel, then comb with an appropriate notched trowel to ensure 100% mortar coverage on the back of mosaic sheets.
   2. Placement: Press mosaic sheets firmly into the wet mortar bed. Beating-in blocks must be utilized to flush the mosaic tiles evenly into a flat uniform plane across joint lines.
   3. Joint Alignment: Adjust sheets prior to initial set to ensure uniform joint widths matching the spacing inside the pre-mounted sheets.

C. TILEWORK:
   1. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
   2. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations, so that plates, collars or covers overlap tile.
   3. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Layout tile work and center tile fields in both directions in each space. Adjust to minimize tile cutting. Provide uniform joint widths. See Architectural Drawings for tile patterns.
   4. Grout: Install in accordance with applicable ANSI standard as specified herein.

D. GROUTING
   1. Preparation: Remove temporary paper facings, spacers, strings, and excess setting mortar from joints before grouting begins.
   2. Application: Force grout paste deeply into joints using a hard rubber float held at a 45-degree angle. Clear excess grout diagonally from the face of the tiles using a damp sponge after the grout has taken its initial set.

3. Grout Sealer: Provide one coat of grout sealer to all grout joints using foam rubber paint brushes. Care shall be taken to avoid excessive drippage and runs onto tile.
4. Sealer shall be applied 48-72 hours after grout application.

3.04 CLEANING

A. Upon completion of placement and grouting, clean all tile surfaces so they are free of foreign matter. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B. Finished Tile Work: Leave finished installation clean and free of non-uniform joints, cracked, chipped, broken, unbonded, or otherwise defective tile work.

C. Final Wipe Down: Clean tile surfaces using clean water and a white nylon scrub pad to remove residual grout haze. Do not use acid cleaners on modified grouts or cement tiles.

3.05 PROTECTION

A. Protect installed tile work with Kraft paper or other heavy covering prior to any work following tile installation during construction period to prevent damage, wear and staining of finished grout/caulking. Tile must be covered prior to foot and wheel traffic.
1. Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting and sealing is completed.
a. Curing Window: Protect the completed installation from pedestrian traffic for a minimum of 24 to 48 hours following grout completion.
b. Stains and/or damage to the grout; as well as grout haze on the tile will be removed and replaced at no cost to the Owner.
2. Before final inspection, protective coverings must be removed and tile and grout cleaned for final inspection. If tiles are cracked or broken and damaged, contractor is to remove and replace the tiles to satisfaction of the Owner and Architect at no cost to the Owner.

END OF SECTION 09 30 00

SECTION 09 51 13
ACOUSTICAL PANEL CEILINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Extent of each type of acoustical ceiling is shown and scheduled on drawings.

B. Types of acoustical ceilings specified in this section include the following:
   1. Acoustical panel ceilings, exposed suspension.

C. Related Sections include the following:
   1. Division 26 Section “Electrical and Lighting”.

1.02 SUBMITTALS

A. Product Data: Manufacturer’s product specifications and installation instructions for materials and suspension system, including certified laboratory test reports and other data as required showing compliance with these specifications.

B. Samples: Set of samples for acoustical unit, showing full range of exposed color and texture, and set of 8” long samples of suspension system.

C. Installation Instructions: Submit manufacturer's installation instructions.

1.03 QUALITY ASSURANCE

A. Installer: Firm with not less than FIVE years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units.

B. Single-Source Responsibility: Provide all ceiling panel units and grid components by a single manufacturer.

C. Coordination of Work: Coordinate ceiling work with installers of related work including, but not limited to building insulation, wet work i.e. gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.

B. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way. Minor damages may be repaired, provide finish items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

1.05 PROJECT CONDITIONS

A. Space enclosure - Do not install interior acoustical ceilings until space is enclosed and weather-proof, until wet work in space is completed and nominally dry, until work above ceilings is completed, and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy (between 50 degrees Fahrenheit (10 degrees Celsius) and 86 degrees Fahrenheit (30 degrees Celsius); relative humidity should not fall below 25 percent or exceed 55 percent.)
   1. Gridwork is acceptable to be installed, however, no tile is to be installed until the above conditions are met.

B. Before installing acoustical ceiling units, permit them to reach room temperature and stabilized moisture content.

1.06 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Panels: Sagging and warping
2. Grid System: Rusting and manufacturer's defects

B. Warranty Period:
1. Acoustical panels: minimum ten (30) years from date of substantial completion.
2. Grid: minimum ten (10) years from date of substantial completion.

1.07 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Acoustical Ceiling Units: Full size tiles in sealed boxes – furnish in the following quantities:
a. All types: 3% of overall or minimum 2 cartons, whichever is greater
2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component system equal to 1.0 percent of quantity installed.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acoustical Ceiling Tile
1. Armstrong World Industries (Basis of Design)
2. USG Corporation
3. CertainTeed Ceilings
4. Donn

2.02 ACOUSTICAL PANELS

A. Type : ACT-1, 15/16”, Square tegular edge, White:
1. NRC – 0.51; CAC – 35, Light Reflectance – 0.81
a. 24” x 24” x 5/8” Fine Fissured 1728 Square Lay-in by Armstrong (Basis of Design).
1) Provide Dune (1776) where cut 24x48 is required for complete installation. See Architectural Drawings for locations as indicated.
2) If contractor is required to field cut ceiling tiles, any visible field-cut edges of tegular tiles must receive touch-up paint, equal to Armstrong Ceilings Super Coat Ceiling Panel Touch-Up Paint #5761.
3) Install Tile with GT-1
b. Or equal as manufactured by Donn, USG or Certainteed, refer to section 01 60 00 Product Requirements.

B.

2.03 CEILING SUSPENSION MATERIALS

A. General: Comply with ASTM C635, as applicable to type of suspension system required for type of ceiling units indicated. Coordinate with other work supported by or penetrating through ceilings, including light fixtures and HVAC equipment.
1. Structural Class: Intermediate-duty.

B. Attachment Devices: Size for 5 times design load indicated in ASTM C635, Table 1 Direct Hung. Hanger Wires-galvanized carbon steel, ASTM A641, soft temper, prestretched, yield-stress load of at least 3 times design load, but not less than 12 gage (0.106").

C. Edge Molding: provide manufacturer’s standard wall angle (7/8” hemmed angle molding – depending on grid) for edges of ceiling of material and finish to match exposed tee flanges in same space.

D. Exposed Suspension System: Manufacturer's standard exposed tees, cross tees and accessories of types indicated, with exposed cross tees coped to lay flush with main runners.
1. Hot dipped galvanized steel on all surfaces of ceiling suspension system, including mouldings, trim and accessories unless noted otherwise.

E. Suspension System:
1. For ACT-1 Ceilings (15/16” grid), white:

a. Prelude XL 15/16” Exposed Tee Grid System by Armstrong.
b. Donn, USG, Certainteed or equal, refer to section 01 60 00 Product Requirements.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Installer must examine conditions under which acoustical ceiling work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.02 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling – in accordance with approved coordination layout drawing.

3.03 INSTALLATION

A. General: Install materials in accordance with manufacturer's printed instructions and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standard applicable to work.

B. Install suspension system and panels in compliance with ASTM C636; CISCA Seismic Guidelines; approved construction drawings; with the authorities having jurisdiction; and in accordance with the manufacturer's installation instructions.

C. Locate hangers near each end and spaced maximum 4' - 0" along each main tee and as required by UL assembly unless otherwise indicated, leveling to tolerance of 1/8" in 12' - 0". Provide extra hangers and carrying channels as required to support weight at lighting fixtures, duct outlets, and other ceiling mounted items.
   1. Install hanger wires plumb and straight.

D. Install edge mouldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units. Attach mouldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12' -0". Miter corners accurately and connect securely.

E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.04 CLEANING

A. Clean exposed surfaces of acoustical ceilings, including trim, edge mouldings and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage.
   1. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage at no cost to the Owner.

END OF SECTION 09 51 13

SECTION 09 65 10
RESILIENT TILE FLOORING

PART 1 – GENERAL

1.01 SUMMARY

A. Extent of resilient flooring and accessories is shown on Drawings and in schedules. Work includes the following:
   1. Luxury vinyl tile (LVT-1) Basis of Design Mannington Commercial
   2. Accessories including traditional rubber base.
   3. Patterns and locations of all flooring and accessories are as indicated on the Drawings. Colors shall be selected by the Architect.

1.02 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2025a.

B. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials; 2021a, with Editorial Revision.

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.

D. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021 (Reapproved 2025).

E. ASTM F2169 - Standard Specification for Resilient Stair Treads; 2015 (Reapproved 2025).

F. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

1.03 SUBMITTALS

A. Product Data: Provide Safety Data Sheets for floor tile and adhesives.

B. Samples: Submit sample of each type, color and finish of resilient flooring and accessory required, indicating full range of color and pattern variation. Provide full-size tile units for LVT and 6" long sample of accessories.

C. Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

1.04 QUALITY ASSURANCE

A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives and sealants.

B. Tile shall meet size, thickness, indentation, impact, deflection, deminsional stability, resistance to heatrequirements of ASTM F 1066 Standard Specification for Vinyl Composition Title, Class 2, thorugh pattern.

C. Provide resilient flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
   1. ASTM E648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
   2. ASTM E662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

1.05 PROJECT CONDITIONS

A. Maintain minimum temperature of 65 degrees (18 Celsius) in spaces to receive resilient flooring for at least 40 hours prior to installation, and during installation. Subsequently, maintain minimum temperature 55 degrees (13 Celsius) in areas where work is completed.

B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Moisture content of concrete slabs and environmental conditions must be within limits recommended by manufacturer of products being installed. Moisture that results must be submitted in writing to the Owner prior to installation.

1.06 WARRANTY

A. Provide manufacturer's standard finish and wear warranties for all products.

1.07 MAINTENANCE

A. Extra Stock:
   1. After completion of work, deliver to project site replacement materials from manufactured lot as materials installed.
   2. Provide 3% or one box of tile flooring for each type, size, and color installed (whichever is greater).

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. LVT:
   1. Mannington (Basis of Design)
   2. Mohawk
   3. Interface
   4. Shaw Contract

B. Accessories:
   1. Johnsonite/Tarkett, Inc.
   2. Mannington Commercial

C. Substitutions:
   1. Subject to compliance with requirements, products of other manufacturers may be substituted upon matching Architect's control sample in color, texture, and size. **During Bidding Only.**Refer to Section 01 6000 Substitutions and Product Options.

2.02 MATERIALS

A. (LVT1) Luxury Vinyl Tile:
   1. LVT1 shall be heterogeneous, resilient flooring
      a. Color: No Reservations-Rebellious NR202
      b. Size: 12"x24"
      c. Pattern: (as indicated on drawings)
      d. Overall thickness: overall gauge 0.1575 inch (4 mm) nominal
      e. Wearlayer Thickness: overall gauge 0.020 inch (0.508 mm) wearlayer
      f. Provide "Luxury Vinyl Tile" as manufactured by Mannington Commerial (Basis of Design).

2.03 ACCESSORIES

A. Resilient Base:
   1. References: The base shall conform to the requirements of ASTM F1861, Type TS, Group I (solid).
   2. Product Description:
      a. RB-1: "Traditional Base w/ Toe" wall base as manufactured by Johnsonite/Tarkett, Inc. (Basis of Design) or approved equal.
         1) Description: 1/8 inch (3.18 mm) thick standard.
         2) Base Color: Black
         3) Height: 6".
         4) Lengths: In coils / rolls to limit joints

B. Accessories: Transitions Strips
   1. TS-1; Transition Profile, 10 mm to Finish Floor, Johnsonite - Ramp - CTA-Q 40 Black
   2. TS-2; Transition Profile, 10 mm to 1/4", Johnsonite - Ramp - CTA-K 40 Black
   3. TS-3; Transition Profile, 10 mm to 4 mm, Johnsonite - Ramp - CTA-L 40 Black
   4. TS-4; Transition Profile, Same Height, Daltile, Marble Threshold, Black, Double bevel 5/8" thickness

C. Adhesives (Cements):
   1. Floor Adhesives:
      a. V-88 Transitional Full Spread Adhesive
      b. MoistureLoc Full Spread (One Component)
      c. V-95 Full Spread (2-part Epoxy)
      d. XpressStep for LVT & Sheet Vinyl Full Coverage Spray
      e. Provide adhesive for each flooring type indicated above with full manufacturer's warranty.
   2. Cove Base Adhesives (also used on treads and risers): provide Johnsonite 960 or Excelsior WB-600 Cove/Wall Base Adhesive.

D. Concrete Slab Primer:
   1. Provide primers as required by flooring type with Low-VOC non-staining type as recommended by flooring manufacturer.

E. Leveling and Patching Compounds:
   1. Latex-modified, Portland cement based or blended hydraulic-cement-based formulation as recommended by flooring manufacturer for application.
   2. Allow in Base Bid labor and material to ensure all concrete surfaces meet 1/8" per 6'-0"or 3/16” in 10 feet (304.8 cm) tolerance.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Installer must examine sub-floor surfaces to determine that they are satisfactory. A satisfactory sub-floor surface is defined as one that is smooth and free from cracks, holes, ridges, and coatings preventing adhesive bond, and other defects impairing performance or appearance.
   1. If Concrete Moisture Reduction Admixture (per Division 3 Section) is not accepted, then proceed with the following test procedures (no additional testing required if accepted):

B. Prepare **LVT Substrates** according to ASTM F710 including the following:
   1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacture. Do not use solvents.
   2. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
      a. ASTM F2170 (relative humidity (RH) test): Perform relative humidity test using in-situ probes, ASTM F2170. Moisture Vapor Emission Rate (MVER) results **must not exceed 99%.**
      b. Three test results for the first 1,000 sq. ft. are required, with 1 test result for every 5,000 sq. ft. thereafter. All test results must pass below the allowable limits for the product.

C. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.

3.02 PREPARATION

A. Prepare sub-floor surfaces as follows:
   1. Sand or grind substrate, if required to provide smooth surface and to remove foreign materials which could interfere with adhesion.
   2. Use leveling and patching compounds as recommended by resilient flooring manufacturer for filling small cracks, holes and depressions in sub-floors.
   3. Broom clean or vacuum surfaces to be covered, and inspect sub-floor.

B. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer’s directions.

C. Start of flooring installation indicates acceptance of sub-floor conditions and full responsibility for completed work.

3.03 INSTALLATION

A. General:
   1. Install resilient flooring using method indicated in strict compliance with manufacturer's current printed instructions and recommendations. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.
      a. Install resilient edge strips as resilient flooring work progresses.
   2. Scribe, cut, and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets, and permanent columns, walls, and partitions.
   3. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on sub-floor. Use chalk or other non-permanent marking device.
   4. Tightly cement resilient flooring to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

B. Installation of Tile Floors:
   1. Install tile floors according to color and pattern plans on Drawings.
   2. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area are of equal width. Adjust as necessary to avoid use of cut widths less than 2" tile at room perimeters. Lay tile square to room axis, unless otherwise indicated on Drawings.
   3. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable.
      a. Lay tile and plank with grain running in one direction.
   4. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

C. Accessories:
   1. Apply resilient base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with field formed outside corner units, and with mitered or coped inside corners. Tightly bond base to backing throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
      a. On irregular surfaces, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
      b. Treads w/ integrated risers shall be installed in one piece lengths (no joints). All nosings shall be packed with epoxy during installation.
   2. Apply edge strips where shown on drawings and at all exposed edges of resilient flooring. Secure units to substrate in compliance with manufacturer's recommendations.

3.04 CLEANING

A. Perform following operations immediately upon completion of resilient flooring:
   1. "Initial Cleaning Procedures" per written instructions from the manufacturer to ensure a residue free surface:
      a. On newly installed floors, wait a minimum of 5 days before wet mop or auto scrub.
      b. Inspect floor for adhesive residue and remove with mineral spirits and a rag. Then clean same area with neutral cleaner and water prior to proceeding to next step.
      c. Dry mop floor to remove dust and grit from the floor. Monitor the soil load on the pad during dust mopping and replace with a new pad as required. Do not shake out dust mop - the shaking process will release previously captured dust back into the air, back on to the floor and other surfaces.
      d. Final Step: Single Disc/Square Orbital Machine Cleaning; apply manufacturer's recommended cleaning solution to the floor in a small area. Scrub the floor in a north/south and east/west direction. Mop up or wet/dry vacuum up. Inspect the floor

when it is dry. If needed, adjust cleaning solution or pad and repeat until flooring is clear of soiling and scuff marks.

3.05 PROTECTION

A. Comply with resilient flooring manufacturer's current written directions and recommendations.

B. Protect resilient flooring against damage from rolling loads for initial period following installation by covering with plywood or hardboard in high traffic areas and heavy Kraft paper in others. Use dollies to move stationary equipment or furnishings across floors.

END OF SECTION 09 65 10

SECTION 09 65 66
RESILIENT ATHLETIC FLOORING

PART 1 – GENERAL

1.01 REFERENCE STANDARDS

A. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2024.

B. ASTM F2772 - Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems; 2024.

1.02 SUMMARY

A. Section Includes: Prefabricated multi-layer vulcanized rubber athletic flooring system designed for heavy weight room impact.

B. System Composition: Dual-layer vulcanized rubber surface field-assembled with a shock-absorbing honeycomb underlayment over concrete subfloors using polyurethane adhesive.

1.03 REFERENCES

A. ASTM F2772: Standard Specification for Athletic Performance Properties of Indoor Sports Systems (Meets Class 2 Performance).

B. ASTM E1643 / E1745: Standard Practice and Specification for Water Vapor Retarders used under Concrete Slabs.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer’s current printed technical data sheets, installation instructions, and maintenance guidelines.

B. Samples: Provide three samples of each color specified, minimum 6x6 inches.

C. Warranty: Submit documentation of manufacturer's standard warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 10 years experience manufacturing vulcanized rubber athletic flooring.

B. Installer Qualifications: Certified in writing by the flooring manufacturer for field assembly of dual-layer underlayment systems.

1.06 PROJECT CONDITIONS

A. Substrate Preparation: Concrete must be fully cured (minimum 28 days), structurally sound, and have a minimum compressive strength of 3,500 psi (24131.66 kPa).

B. Moisture Testing: Conduct relative humidity and alkalinity testing prior to installation.

C. Acclimatization: Store materials in the installation space at a controlled temperature between 65°F and 80°F for 48 hours prior to unrolling.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Mondo Sport Impact System (10 mm). https://www.mondoworldwide.com/na/en/products/rubber-sport-flooring/

B. Approved Equivalents: Must be submitted and approved by Addendum refer to Section 01 33 00 "Submittal Procedures"

C. List of accepted Manufactures
   1. Northwest Rubber Sports Flooring https://northwestrubber.com
   2. Ecore Commercial Rubber Flooring https://www.ecoreintl.com/
   3. Tarkett Rubber Sports Flooring https://commercial.tarkett.com/products/resilient/johnsonite-rubber-sports-multi-function-flooring

2.02 MATERIALS

A. Rubber Sports Floor - Basis of Design Mondo Resilient Sport Flooring, Refer to drawings for locations
   1. RSF -1 (Base Bid)
      a. Type: RSF-1
      b. Location: Field
      c. Thickness: 10 mm
      d. Color: Black 008
   2. RSF -2 (Alternate #2)
      a. Type: RSF-2
      b. Location: Field Area
      c. Thickness: 10 mm
      d. Color: Dark Grey 018
   3. RSF -3 (Alternate #2)
      a. Type: RSF-3
      b. Location: Accent Lettering
      c. Thickness: 10mm
      d. Color: Gold 154
   4. RSF -4 (Alternate #2)
      a. Type: RSF-4
      b. Location: Accent Logo
      c. Thickness: 10mm
      d. Color: Dark Blue 073
   5. RSF -5 (Alternate #2)
      a. Type: RSF-5
      b. Location: Accent Logo
      c. Thickness: 10mm
      d. Color: Medium Grey 011

2.03 PERFORMANCE & MATERIAL REQUIREMENTS

A. Performance Surface Layer (Sport Impact): Prefabricated resilient vulcanized rubber, 0.24 inch (6 mm) thick. Non-porous, calendered, and embossed sealskin texture.

B. Shock Absorbing Underlayment (Baselast EX): Prefabricated synthetic rubber honeycomb (elongated hexagon-shaped) base, 0.47 inch (12 mm) thick. Utilizes Air-Cell® technology for heavy impact resistance and biomechanical protection.

C. Total System Thickness: 0.71 inch (18 mm) nominal.

D. Format: Field-assembled multi-layer rolls. Roll width: 6 feet (182.88 cm) 1 inch (25.4 mm).

E. Color: as select by Owner and Architect from manufacturer's standard and custom color palette.

F. Impact Attributes: Dent, tear, and heavy equipment wear-resistant.

2.04 ACCESSORIES

A. Adhesive: PU 105 or PU 300 two-part polyurethane adhesive certified by the flooring manufacturer for full-spread adhesion of underlayment to concrete and surface to underlayment.

B. Patching Compound: High-strength moisture-resistant cementitious leveling compound as recommended by the flooring manufacturer.

PART 3 – EXECUTION

3.01 SUBSTRATE PREPARATION

A. Surface Defects: Mechanical abatement must be used to remove all contaminants, sealers, old adhesives, or curing compounds. Chemical abatement is strictly prohibited.

B. Levelness: Ensure concrete tolerance is within 1/8 inch (3.18 mm) in a 10-foot radius.

3.02 INSTALLATION

A. Underlayment: Full-spread polyurethane adhesive applied to the concrete substrate using the manufacturer's recommended notched trowel. Lay down the 0.47 inch (12 mm) Baselast EX underlayment without stretching. Roll with a 100 lb roller.

B. Surface Layer: Apply polyurethane adhesive uniformly across the cured underlayment layer. Install the 0.24 inch (6 mm) Sport Impact performance layer. Stagger seams relative to the underlayment layer. Roll immediately with a 100 lb roller to ensure full adhesive transfer and expel trapped air.

C. Curing: Keep all foot traffic off the flooring for 24 hours. Keep heavy rolling loads and weights off the floor for a minimum of 48 to 72 hours.

3.03 CLEANING

A. Initial Cleaning: Clean floor surface no sooner then 72 hours after installation using a manufacturer-approved neutral cleaner. No topical wax or protective coatings are required or permitted.

END OF SECTION 09 65 66

SECTION 09 68 00
CARPETING

PART 1 – GENERAL

1.01 SUMMARY

A. The extent of carpeting is indicated on the Drawings and the Specifications, and is defined to include carpet and accessories.
   1. Walk Off Modular Carpet Tiles (Basis of Design Mannington Commerial)

1.02 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2025a.

B. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials; 2021a, with Editorial Revision.

C. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

1.03 SUBMITTALS

A. Shop drawings showing layout of carpet, accessory type and location.

B. Written warranty as specified herein.

C. Manufacturer's descriptive data.

D. Flame Spread Test Reports or Radiant Panel Test to verify the meeting of the various requirements specified herein.

E. Samples: Submit 24 inch (609.6 mm) x 24 inch samples of each carpet required, and 6" lengths of exposed edge stripping.

F. Product Data: Provide Safety Data Sheets for carpet adhesives.

G. Manufacturer's certificate stating that carpet furnished, identified by register numbers was manufactured according to these specifications.

1.04 QUALITY ASSURANCE

A. Installer: Firm with not less than 5 years of carpeting experience, similar to work of this section.

B. Manufacturer: Major Firm (carpet mill) which has not less than 5 years of production experience with carpet similar to types specified in this section; and whose published product literature clearly indicates compliance of products with requirements of this section.

C. General Standard: "Carpet Specifier's Handbook" by the Carpet and Rug Institute; comply with recommendations which can be reasonably applied to types of carpeting work required.

D. Flammability: Flooring Radiant Panel ASTM E648 (Glue Down) – NFPA Class I and DOC-FF-1-70.

E. Flame Spread Rating: Carpeting shall have flame spread rating of 75 or less in accordance with ASTM Spec. E84-68, Standard Method of Test for Surface Burning Characteristics of Building Materials or pass the National Bureau of Standards Radiant Panel Test.

F. Smoke Density: ASTM E662, Less than 450

G. Static Propensity: AATC-134 Under 3.5 KV

H. Carpet Identification: Provide hang tag, or other suitable method, to identify carpet delivered as to manufacturer (or supplier), and style.

I. Maintenance Materials: Deliver 1 carton of each modular carpet

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver carpeting material in protective wrapping, and store inside, protected from weather, moisture and soiling.

1.06 WARRANTY

A. Provide manufacturer's standard lifetime commercial warranty.

B. Carpeting (all):
   1. Lifetime Limited Warranty, Including Face Wear, Colorfastness, Moisture Barrier, Delamination, Tuft Bind, Unraveling, and Static Protection

PART 2 – PRODUCTS

2.01 MATERIALS

A. CPT: At Entry to Weight Room E100 & 100 Weight Room
   1. Walk-Off Carpet Tile, as manufactured by Mannington Commercial. (Basis of Design)
      a. Collection: Frixtion
      b. Style: Fluid with Infinity
      c. Color:
      d. Product Size: 18 in x 36 in
      e. Refer to drawing for area size.
   2. Face of Construction
      a. Construction Type: Walk-Off Tile
      b. Dye Method: Solution Dyed
      c. Gauge: 1/12" (47.00 rows per 10 cm)
      d. Pile Height: N/A
      e. Pile Thickness: N/A
      f. Pile Weight: N/A
      g. Primary Backing: EcoFlex One
      h. Preservative protection: Intersept Antimicrobbial | Duracolor Tricor Premium Nylon | EcoSentry Soil Protection
      i. Recommended Adhesive: Enpress, M700 Plus, FlexLok+ Tabs, Total Bond
      j. Installation Method: as indicated on Drawings

2.02 ACCESSORIES

A. General: Provide accessories as indicated on Drawings and specified herein.

B. Transition Profile (TS):
   1. TS-1: Transition Profile, 10 mm to Finish Floor, Johnsonite - Ramp - CTA-Q 40 Black
   2. TS-2: Transition Profile, 10 mm to 1/4", Johnsonite - Ramp - CTA-K 40 Black
   3. TS-3: Transition Profile, 10 mm to 4 mm, Johnsonite - Ramp - CTA-L 40 Black
   4. TS-4 & TS-5: Transition Profile, Same Height, Daltile, Marble Threshold, Black, Double bevel 5/8" thickness

C. Installation Adhesive:
   1. General: Ensure compatibility with manufacturer for complete warranty.
   2. CPT 1:Equal to Mannington "Infinity 2 Adhesive", XL Brands RH95 primer (up to 95% RH / PH Between 7.0 and 12.0)

D. Miscellaneous Materials: As recommended by manufacturers of carpet, and other carpeting products; and selected by installer to meet project circumstance and requirements.

PART 3 – EXECUTION

3.01 INSTALLERS

A. Flooring Contractor must examine substrates for moisture content and other conditions under which carpeting is to be installed, and notify Architect in writing of conditions detrimental to proper completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

B. Verify that substrates are dry and free of curing compounds, sealers, and hardeners. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacture. Clear

away debris and remove any cementitious deposits, and other foreign matter which could interfere with adhesive bond, from surfaces to receive carpeting; vacuum clean immediately before installation. Do not use solvents.

C. Proceed with the following test procedures:
   1. Concrete Moisture Testing and pH Testing: Substrate surfaces must be tested for moisture emission. It is the responsibility of the Flooring Contractor to perform moisture testing prior to starting the installation.
   2. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
      a. Perform relative humidity test using in-situ probes, ASTM F2170. Moisture Vapor Emission Rate (MVER) results must not exceed the following:
         1) 95%.
      b. Three test results for the first 1,000 sq. ft. are required (per building, per carpet type), with 1 test result for every 1,000 sq. ft. thereafter (per building, per carpet type).
   3. A pH test for alkalinity must be conducted. Results shall be less than 11. If the test results are not within the acceptable range, the installation must not proceed until the problem has been corrected.
   4. If after 3 rounds of testing the test results are still not within applicable range, the Flooring Contractor is to propose a moisture remediation method acceptable to the Architect.
   5. Results must be submitted in writing to the Architect prior to start of installation.

D. Sequence carpeting with other work so as to minimize possibility of damage and soiling of carpet during remainder of construction period.

3.02 PREPARATION

A. Pre-ventilate carpet. Unroll roll goods, unpack all carpet tiles, and air out carpet in a well-ventilated, uninhabited space for a minimum of 5 hours prior to installation.

B. Provide maximum ventilation during installation.

C. Isolate area of installation from rest of building.

3.03 INSTALLATION

A. General:
   1. Comply with manufacturer's instructions and recommendations; maintain uniformity of direction and lay of pile.
   2. Extend carpet under open-bottomed obstructions and under removable flanges and furnishings, and into adjoining alcoves and closets of each space.
   3. Provide cut-outs where required, and bind cut edges properly where not protected by edge guards or overlapping flanges.
   4. Install carpet metal trim where edge of carpet is exposed; anchor guards to substrate.

B. Glue-down Installation:
   1. Fit sections of carpet into each space prior to application of adhesive.
   2. Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. Butt carpet edges tightly together to form cemented seams without gaps. Roll lightly to eliminate air pockets and ensure uniform bond. Remove adhesive promptly from face of carpet.

3.04 CLEANING

A. Remove debris, sorting pieces to be saved from scraps to discarded.

B. Clean new carpet thoroughly with a high-efficiency particulate air (HEPA) filtration vacuum.

C. Remove spots and replace carpet where spots cannot be removed.

3.05 PROTECTION

A. Contractor to use protection methods and materials needed to ensure that carpeting will be without deterioration or damage at time of substantial completion.

END OF SECTION 09 68 00

SECTION 09 91 23
INTERIOR PAINTING

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. SSPC-SP 2 - Hand Tool Cleaning; 2024.

B. SSPC-SP 3 - Power Tool Cleaning; 2024.

1.02 SUMMARY

A. Surface preparation and application of interior paint and coating systems on the following architectural substrates:
   1. Interior concrete masonry units (CMU).
   2. Interior hollow metal doors frames.
   3. Exposed structural steel elements (including columns, beams, braces, and framing), excluding metal roof and floor decking.

1.03 RELATED REQUIREMENTS

A. Section 05 12 00 "Structural Steel Framing" for shop priming of structural steel.

B. Section 08 11 13 "Hollow Metal Doors and Frames" for shop priming of hollow metal assemblies.

1.04 REFERENCES

A. Master Painters Institute (MPI): Architectural Painting Specification Manual.

B. USGBC LEED v4.1: Green Building Design and Construction Low-Emitting Materials Standards.

1.05 SUBMITTALS

A. Product Data: Technical data sheets for each coating component specified, detailing compliance with VOC limits and application parameters.

B. Samples: Physical drawdowns of each paint color and gloss level required, minimum 8x10 inches in size, executed on cardstock.

1.06 QUALITY ASSURANCE

A. Mockups: Apply benchmarks of each coating system and color selected to verify execution, coverage, gloss, and workmanship.

B. CMU: Minimum 100 sq. ft. of interior wall area.

C. Hollow Metal Frames: At least one fully prepped and painted frame assembly.

D. Exposed Structural Steel: Minimum 10 linear feet of structural steel column or beam.

1.07 FIELD CONDITIONS

A. Environmental Limitations: Maintain ambient and substrate temperatures between 50°F (10°C) and 90°F (32°C) during application and drying, unless manufacturer instructions dictate more restrictive limits.

B. Substrate Moisture Content: Do not apply coatings over CMU exhibiting moisture readings higher than 12% when checked with an electronic moisture meter.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Manufacturer: Sherwin-Williams Company. Subject to rigid compliance with the engineering performance and VOC requirements of this section, equal systems by Benjamin Moore or PPG Industries may be submitted for approval.

2.02 PERFORMANCE REQUIREMENTS

A. Low-VOC Volatile Organic Compound Content Limits: Formulate and supply all interior paints, primers, block fillers, and specialized coatings to conform with South Coast Air Quality Management District (SCAQMD) Rule 1113 limits or regional green building regulations, whichever is more restrictive.
   1. Interior Topcoats (Flat, Eggshell, Satin, Semi-Gloss): Maximum 50 g/L.
   2. Interior Masonry Block Fillers: Maximum 50 g/L.
   3. Rust-Inhibitive Ferrous Metal Primers: Maximum 100 g/L.

2.03 PAINT MATERIALS - GENERAL

A. Material Compatibility: Ensure all block fillers, anti-corrosive primers, intermediate coats, and finish coats are structurally compatible with one another and are sourced from the same primary paint manufacturer.

2.04 COATING SYSTEMS - INTERIOR ARCHITECTURAL SUBSTRATES

A. Concrete Masonry Units (CMU): High-Performance Low-VOC Latex System.
   1. Prime Coat (Block Filler): Sherwin-Williams PrepRite Latex Block Filler, B25W25 (applied at a dry film thickness to achieve a pinhole-free finish).
   2. Intermediate Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Eggshell, B20-2600 Series.
   3. Topcoat: Sherwin-Williams ProMar 200 Zero VOC Latex Eggshell, B20-2600 Series.
   4. Wall Colors: Symbol, Location, Manufacturer, Color
      a. PT-1: Field - Benjamin Moore: Manchester Tan
      b. PT-2: Accent - Sherwin-Williams: Equal to Pantone 282 Navy
      c. PT-3: Accent - Sherwin-Williams: Equal to Pantone 1235 Gold
      d. PT-4: Existing Guardrail - Sherwin-Williams: Aloof Gray SW 6197

B. Hollow Metal Frames: High-Performance Water-Based Acrylic-Alkyd Semi-Gloss System.
   1. Prime Coat (Shop-Primed or Field-Touchup): Sherwin-Williams Pro Industrial Pro-Cryl Universal Acrylic Primer, B66-1310 Series (Water-based rust-inhibitive primer).
   2. Intermediate Coat: Sherwin-Williams Pro Industrial Waterbased Acrylic-Alkyd Semi-Gloss, K74 Series.
   3. Topcoat: Sherwin-Williams Pro Industrial Waterbased Acrylic-Alkyd Semi-Gloss, K74 Series. Refer to drawings for colors.

C. Exposed Structural Steel (Excluding Decking): Commercial Low-VOC Water-Based Acrylic Semi-Gloss System.
   1. Prime Coat (Shop-Primed or Field-Touchup): Sherwin-Williams Pro Industrial Pro-Cryl Universal Acrylic Primer, B66-1310 Series (Water-based anti-corrosive primer, low VOC).
   2. Intermediate Coat: Sherwin-Williams Pro Industrial Waterbased Acrylic Semi-Gloss, B66-650 Series.
   3. Topcoat: Sherwin-Williams Pro Industrial Waterbased Acrylic Semi-Gloss, B66-650 Series.
   4. PT-5 Color: Exposed Ceiling & Structure - Sherwin-Williams: Ceiling Bright White SW7007

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all masonry joints are fully cured, and that structural steel surfaces are free of deep pitting, heavy scale, weld slag, or severe defects.

B. Coordinate with steel fabrication and installation trades to verify shop primer compatibility before applying field coatings.

3.02 SURFACE PREPARATION

A. General: Clean all surfaces thoroughly, removing all grease, oil, dust, mill scale, or temporary protective compounds.

B. CMU: Wipe clean mortar spatters and loose dust. Treat and completely neutralize any active efflorescence.

C. Hollow Metal Frames: Sand smooth any factory primer abrasions, clean thoroughly, and solvent wipe frame faces.

D. Exposed Structural Steel: Clean bare or damaged steel areas in strict accordance with SSPC-SP 2 (Hand Tool Cleaning) or SSPC-SP 3 (Power Tool Cleaning) to remove rust and loose mill scale. Touch up with specified metal primer prior to full intermediate coat application. Protect adjacent unpainted metal deck surfaces from overspray or brush drift.

3.03 APPLICATION

A. Apply all materials smoothly, evenly, and without sags, runs, holidays, or lap marks using professional brushes, rollers, or airless spray equipment.

B. Apply masonry block filler with a heavy nap roller or spray and back-roll technique to eliminate all surface pits and pinholes.

3.04 CLEANING AND PROTECTION

A. Clean all paint splatters off adjacent glass, finish flooring, hardware, and structural roof/floor decking surfaces immediately.

END OF SECTION 09 91 23

SECTION 10 14 00
SIGNAGE

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes but is not limited to the following identifying devices:
   1. Room identification
   2. Exterior signage (Allowance)
   3. Directional signage

B. Related Sections include the following:
   1. Division 26 Sections for electrical connections.

1.02 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

1.03 SUBMITTALS

A. Submit product data for all signs.

B. Submit schedule of all signs and shop drawings listing sign size, letterform, and letter heights. Include construction details, layouts, size, and mounting methods.

C. Provide a layout plan showing location of each type of sign.
   1. Installer to submit CAD generated location plan noting the location of all signage and cross referenced to message schedule for architect’s approval.
   2. Drawings must indicate finishes of takeform signs.

D. Provide one sample of EACH sign types for verification of materials, color, pattern, overall quality, and for adherence to drawings and requirements indicated.
   1. Need sample of that given to CA prior to approval.

E. Provide patterns as needed for installation.

1.04 QUALITY ASSURANCE

A. All identifying devices shall comply with requirements of 36 CFR 1191 "Americans with Disabilities Act Accessory Guidelines for Buildings and Facilities".

B. Manufacturer specializing in manufacturing the products specified in this section with minimum five years experience. Obtain signs from one source and a single manufacturer.

1.05 DELIVERY, STORAGE, AND PROTECTION

A. Package to prevent damage or deterioration during shipment, handling, storage and installation.

B. Products should remain in original packaging until removal is necessary. Store products in a dry, indoor location.

1.06 WARRANTY

A. Provide manufacturer’s warranty against defects in materials or workmanship for minimum 5 years.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Interior/Exterior Signage:
   1. Takeform Architectural Graphics
   2. GC – Graphic Communications
   3. Equal as approved.

2.02 SIGN STANDARDS

A. It is the intent of these specifications to establish a sign standard for the Owner including but not limited to primary directories, flag mounted directionals, primary room identification, restrooms, conference room, and all code compliant signage.

B. Typography
   1. Type style: ADA Trade Gothic. Copy shall be a true, clean, accurate reproduction of typeface specified. Upper and lower case shall be used. Letter spacing to be normal and interline spacing shall be set by manufacturer.
   2. Arrows, symbols and logo art: To be provided in style, sizes, colors and spacing per manufacturer's standard.
   3. Grade II Braille utilizing perfectly round, clear insertion beads.

2.03 SIGNS

A. Architectural Signage System
   1. The signage shall incorporate a decorative laminate face with applied graphics including all tactile requirements in adherence to ADA specifications.
   2. All signs, including work station and room ID's, overheads and flag mounts, directionals and directories shall have a matching appearance and constructed utilizing the same manufacturing process to assure a consistent look throughout.

B. Materials:
   1. Sign face shall be 0.035" (nominal) standard grade, high pressure surface laminate. A painted sign face shall not be acceptable.
   2. The substrate shall be Green 209, a natural fiber wood product with SFI certification. The sign shall incorporate balanced construction with the core sandwiched between laminates to prevent warping. An acrylic substrate shall not be acceptable. Laminate on the sign face only shall not be acceptable.
   3. Tactile lettering shall be precision machined, raised 1/32", matte PETG and subsurface colored for scratch resistance.
   4. Signs shall incorporate a metal accent bar. Bars shall be anodized with a brushed satin finish. Painted bars shall not be acceptable.
   5. Sign and backer edge shall be treated with a hot wax seal for moisture integrity.

C. Construction:
   1. The signage shall be capable of accepting paper or acetate inserts to allow changing and updating as required. Insert components shall have a 0.080" thickness non-glare acrylic window and shall be inlayed flush to sign face for a smooth, seamless appearance.
   2. The signage shall, with the exception of directories and directionals, be a uniform 8½" width to facilitate inserts printed on standard width paper.
   3. **The signage contractor shall provide and install all signage inserts.**
   4. Manufacturer shall provide a template containing layout, font, color, artwork and trim lines to allow Owner to produce inserts on laser or ink jet printer. The template shall be in an Microsoft Word format.
   5. The laminates (front and back) shall be pressure laminated and precision machined together to a 90-degree angle. Edges shall be smooth, void of chips, burrs, sharp edges and marks.
   6. The signage shall utilize an acrylic sphere for Grade II Braille inserted directly into a scratch resistant, high pressure laminate sign face. Braille dots are to be pressure fit in high tolerance drilled holes.
   7. Braille dots shall be half hemispherical domed and protruding a minimum 0.025".
   8. The signage shall utilize a water based adhesive. The adhesive shall be nonhazardous and shall allow for flexing and deflection of the adhered components due to changes in temperature and moisture without bond failure.
   9. All signs shall be provided with appropriate mounting hardware. Hardware shall be finished and architectural in appearance and suitable for the mounting surface.

a. **Where signage is to be mounted on glass surfaces, provide a decorative backer panel.**

2.04 MANUFACTURED UNITS

A. General:
   1. Provide Takeform Fusion- Breach for all interior sign types (unless noted to be ACM) as manufactured by Takeform Architectural Graphics or approved equal.
   2. ACM signs, provide “Signify – Quad” as manufactured by Takeform Architectural Graphics or approved equal.

B. Room identification:
   1. Room I.D.Single Line:
      a. Takeform Type: Breach A.1
      b. Size: 7.5” x 4.7”
   2. Room ID, Double Line:
      a. Takeform Type: Breach A.1
      b. Size: 7.5” x 4.7”
      c. **Quantity:** provide 1 at storage and janitor doors.
   3. Room ID, Office:
      a. Takeform Type: Breach C.1
      b. Size: 7.5” x 4.7”
   4. Directional ICON Graphic Restroom ID:
      a. Takeform Type: Flag Mounted Breach D.2
      b. Size: 7.5” x 4.7”
   5. Visual Graphic (Unisex Restroom)
      a. Takeform Type: Breach B.1
      b. Size: 5" x 9"
   6. Room ID, Double Line
      a. Takeform Type: Breach D.1
      b. Size: 9" x 12"
   7. Evacuation Map
      a. Takeform Type: Breach G.1
      b. Size: 11" x 21"

C. ACM Exterior Door Signage:
   1. Takeform “Signify Quad Wall Mount Panel” (non-ADA)
   2. Size: 9” x 12”
   3. Mounting: Masonry mount
   4. Materials: Aluminum Composite Material (ACM) with vinyl lettering
   5. Design: MGCCC logo at top, text at center to be determined during submittal phase.
   6. Quantity: provide 1 at each exterior opening

2.05 FINISHES

A. Face Material: Ferret Backer Plate: Tea Service
   1. Backer Plate: Tea Service

B. Text / Tactile Color: White

C. Finishes are to meet current Federal ADA and any State requirements.

D. Interior Finish Schedule:
   1. A minimum 2 color laminate selections – to be selected by the Architect
   2. Refer to drawings fdor mounting heights

PART 3 – EXECUTION

3.01 EXAMINATION

A. Installer shall examine signs for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. General: Installation locations shall be in accordance with ADA specifications. Locate signs where indicated by Architect on approved layout plan using mounting methods in compliance with manufacturer's written instructions.
   1. The signage contractor will coordinate installation schedules with the Owner and Architect.
   2. Installation shall be performed by manufacturer’s personnel trained and certified in manufacturer’s methods and procedures.
   3. Installer to conduct a pre-installation survey prior to manufacturing to verify message schedule copy and sign location. Each location shall be noted using low tack vinyl. Full scale renderings of directories and directionals shall also be provided. Any location discrepancy or message issues shall be submitted to architect for review.
   4. Signs shall be level, plumb, and at heights indicated with sign surfaces free from defects.
   5. Upon completion of the work, signage contractor shall remove unused or discarded materials, containers and debris from site.

3.03 FIELD QUALITY CONTROL

A. A minimum of 2 site visits shall be required by the sign contractor.
   1. Prior to submission of schedule for site assessment and evaluation.
   2. Final walk-through and punchlist.

3.04 CLEANING

A. Upon completion all identifying devices shall be undamaged, level, plumb, true to line and securely anchored.

B. Clean all exposed surfaces and protect to prevent damage during remainder of construction period.

END OF SECTION 10 14 00

SECTION 10 21 13.17
PHENOLIC TOILET COMPARTMENTS AND HDPE LOCKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Phenolic toilet compartments. (Alternate #1)

B. Urinal screens. (Alternate #1)

C. HDPE Lockers (Base Bid)

1.02 RELATED REQUIREMENTS

A. Section 05 50 00 - Metal Fabrications: Concealed steel support members.

B. Section 06 10 00 - Rough Carpentry: Blocking and supports.

C. Section 10 28 13 - Toilet Accessories

D. Section 01 23 00 - Alternates

1.03 REFERENCE STANDARDS

A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

1.05 SUBMITTALS

A. See Section 01 33 00 "Submittal Procedures" for submittal process.

B. Product Data: Provide data on panel construction, hardware, and accessories.

C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.

D. Samples: Submit two samples of partition panels, 6"x6" in size illustrating panel finish, color, and sheen.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Phenolic Toilet Compartments: **(Alternate #1)** Scranton Product (Basis of Design)
   1. Scranton Product (Basis of Design) www.totalrestroom.com
   2. All American Metal Corp - AAMCO: www.allamericanmetal.com/#sle.
   3. ASI Accurate Partitions: www.asi-accuratepartitions.com/#sle.
   4. ASI Global Partitions: www.asi-globalpartitions.com/#sle.
   5. Substitutions: Section 01 60 00 - Product Requirements.

2.02 PHENOLIC TOILET COMPARTMENTS - **(ALTERNATE #1)**

A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-mounted headrail-braced.
   1. Color: Single color as selected.
   2. Toilet and Urinal Partitions Type / Color / Texture: Hidey Hiders, StainlessHammered, Class B with S/S hardware.

B. Doors:
   1. Thickness: 3/4 inch (19 mm).
   2. Width: 24 inch (610 mm).
   3. Width for Handicapped Use: 36 inch (915 mm).
   4. Height: 58 inch (1473 mm).

C. Panels:

1. Thickness: 1/2 inch (13 mm).
2. Height: 58 inch (1473 mm).
3. Depth: As indicated on drawings.

D. Pilasters:
1. Thickness: 3/4 inch (19 mm).
2. Width: As required to fit space; minimum 3 inch (76 mm).

E. Screens: Without doors; to match compartments; mounted to wall with two panel brackets with vertical support/bracing same as compartments.

2.03 HDPE LOCKERS **(BASE BID)**

A. Manufacturer
1. Solid plastic "Tufftec" lockers to be manufactured by SCRANTON PRODUCTS (Santana/Comtec/Capitol), Scranton, PA, or approved equal. (Basis of Design)
2. These specifications will be regarded as minimum. Lockers constructed of other materials, including materials with a core and not of solid plastic, will not be acceptable.

B. Material
1. Tufftec Plastic lockers: High-impact HDPE (high-density polyethylene) solid plastic
2. Doors, Door Frames, Shelves, Sides, Back, Top, and Bottom components shall be made of HDPE material that is water resistant and non-absorbing. Doors only 1 /2”, all others 3/8”.
3. Locker Size: Single Tier, 15"x15"x60"H., Flat Top Locker
4. Latches shall be securely attached to the door, continuous in design and be capable of accepting various locking mechanisms.
5. Hooks: Zinc plated forged steel, ball ends.
6. Hooks: Zinc plated forged steel, ball ends.
7. Number Plates at quantity of one per opening will be supplied in polished aluminum with black numerals 1 /2” high.
8. Bases shall be fabricated from HDPE Polymer to form components with 1 ” nominal thickness.
9. Finish: Smooth “orange peel” texture on all HDPE components
10. Color: Doors and frames available in standard Tufftec colors
    a. Charcoal, Orange Peel, Class B

C. Fabrication
1. Locker units shall be manufactured for assembly of single unit construction.
2. Locker components to be square, rigid, and free of scratches.
3. Locker box enclosure shall be assembled by means of machined joints, pins and tamper resistant mechanical fasteners to discourage non-factory disassembly.
4. Locker door frame shall be CNC machined from a single piece of solid HDPE material for maximum rigidity and stiffness.
5. Locker doors shall be machined from solid HDPE sheets. Doors will contain CNC machined ventilation slots.
6. Door Handle shall be solidly mounted to internal latch mechanism.
7. Locker components shall be stored flat until assembly. All finishes shall be protected from soiling and damage during handling.

D. ADA Compliancy
1. Handicap lockers shall be single tier or the lower opening of a double tier locker. Locker bottom shall be a minimum of 1 5” off the floor, or an extra shelf placed 1 5” off the floor. Single tier lockers shall have a shelf 48” off the floor. Doors assigned for handicapped use shall have an appropriate symbol sign. Lockers shall be supplied with an ADA compliant single touch latch.

E. Quality Assurance

1. Manufacturer’s Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
2. Installer’s Qualifications: A Company or Individual, regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.

F. Warranty
1. SCRANTON PRODUCTS (Santana/Comtec/Capitol), guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer.
2. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

2.04 ACCESSORIES

A. Pilaster Shoes: Formed ASTM A666 Type 304 stainless steel with No. 4 finish, 3 inch (76 mm) high, concealing floor fastenings.
1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.

B. Head Rails: Hollow stainless steel, 1 inch by 1-1/2 inch (25 mm by 38 mm) size, with anti-grip profile and cast socket wall brackets.

C. Wall and Pilaster Brackets: Polished stainless steel; manufacturer's standard type for conditions indicated on drawings.

D. Attachments, Screws, and Bolts: Stainless steel , tamper proof type.

E. Hardware: Polished stainless steel:
1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
2. Nylon bearings.
3. Door Latch: Slide type with exterior emergency access feature.
4. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
5. Coat hook with rubber bumper; one per compartment, mounted on door.
6. Provide door pull for outswinging doors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify correct spacing of and between plumbing fixtures.

C. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8 inch to 1/2 inch (9 mm to 13 mm) space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

E. Field touch-up of scratches or damaged finish will not be permitted. Replace damaged or scratched materials with new materials.

3.03 TOLERANCES

A. Maximum Variation From True Position: 1/4 inch (6 mm).

B. Maximum Variation From Plumb: 1/8 inch (3 mm).

3.04 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch (5 mm).

B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

3.05 LOCKER INSTALLATION

A. Install lockers at the location(s) shown in accordance with the manufacturer's instructions for plumb, level, rigid, and flush installations.

B. Attach number plates after lockers are installed.

END OF SECTION 10 21 13.17

SECTION 10 28 00
TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Provide toilet and other accessory items in locations as indicated on the Drawings and as specified in the schedule herein.
   1. Refer to Toilet Accessory Schedule on Drawings for complete schedule.
   2. Contractor to coordinate installation and provide blocking in metal stud walls for all items specified.

B. Related Sections include the following:
   1. Division 6 Section 06 10 00 “Rough Carpentry” for blocking in metal stud walls.
   2. Division 10 Section 10 21 213.17 "Phenolic Toilet Compartments".
   3. Division 22 Section 22 00 00 "Plumbing"

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's data sheets for each product specified, including the following:
   1. Installation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Cleaning and maintenance instructions.
   4. Replacement parts information.

B. Shop Drawings: Provide shop drawings showing locations, mounting heights, clearances, etc. for each accessory.

C. Schedule: Submit a complete toilet accessory schedule, indicating the type and quantity to be installed in each washroom. Use room numbers as indicated on the Drawings.

D. Setting Drawings: Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

1.03 QUALITY ASSURANCE

A. Manufacturer: Provide products manufactured by a company with a minimum of 10 years successful experience manufacturing similar products.

B. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

C. Inserts and anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

D. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.

E. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

1.05 WARRANTY

A. Manufacturer’s Warranty for Washroom Accessories: Manufacturer’s standard 1 year warranty for materials and workmanship.

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. Bobrick Washroom Equipment (Basis of Design), https://washroominc.com/

B. American Specialties Inc. (ASI), https://www.totalrestroom.com/collections/asi

C. Bradley Corporation, www.bradleycorp.com

2.02 MATERIALS

A. Stainless Steel: AISI Type 304, with polished No. 4 finish, 22 gauge minimum thickness, unless otherwise indicated.

B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16: castings, ASTM B-30

C. Sheet steel: Cold-rolled, commercial quality ASTM A366, 20-gauge minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.

D. Galvanized Steel Sheet: ASTM A527, G60.

E. Galvanized Steel Mounting Devices: ASTM A153, hot-dip galvanized after fabrication.

F. Fasteners: Screws, bolts, and other devices of same materials as accessory unit or of galvanized steel where concealed.

G. Keys: Unless otherwise indicated, provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of 6-keys to Owner and obtain receipt.

2.03 GRAB BARS

A. Compliance: Universal/accessibility design, including ADA-ABA and ICC/ANSI for structural strength.
   1. Capacity: Designed to support 900 lbs in compliant installations.

B. Description: Grab bar with 90 degree return to flange. Clearance between grab bar and finished wall is 1-1/2 inches (38 mm).

C. Grab Bar Materials: 18-8, Type 304, 18 gauge stainless steel tubing with satin finish, ends of grab bar pass through flanges and are heliarc welded to flanges to form one structural unit, outside diameter 1-1/2 inches (38 mm).

D. Mounting Flanges: Concealed, 18-8, Type 304, 1/8 inch (3.18 mm) thick, stainless steel plate.
   1. End Flanges: 2 inches (50.8 mm) x 3-1/8 inches (79 mm) with two holes for attachment to wall.
   2. Intermediate Flanges: 2-5/8 inches (67 mm) x 3-1/8 inches (79 mm) wide x 3-1/8 inch (79 mm) diameter.

E. Snap Flange Covers: 18-8, Type 304, 22 gauge drawn stainless steel with satin finish, 3-1/4 inch (83 mm) diameter x 1/2 inches (12.7 mm) deep; snap over mounting flange to conceal mounting screws.

F. Mounting Accessories: Provide mounting accessories as required for complete installation.

G. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
   1. A – 36” Grab Bar: equal to Bobrick, No. B5806.99-36
   2. B – 42” Grab Bar: equal to Bobrick, No. B5806.99-42
   3. C – 18” Grab Bar: equal to Bobrick, No. B5806.99-18
   4. Q - Two Wall Shower Grab Bar: equal to Bobrick No. B6861

2.04 TOILET TISSUE DISPENSER

A. Surface-Mounted Toilet Tissue Dispenser and Utility Shelf (D.2):
   1. Shelf: Type 304, 14 gauge stainless steel with satin finish, all welded construction.
   2. Post: Type 304, ¾” diameter, solid stainless steel rod. Post is securely welded to the Wall Plate.

3. Dispenser Bar: Type 304, 14 gauge stainless steel with satin-finish; equipped with a lock keyed like other washroom accessories.
4. Retaining Pin (2): Type 304, ¼" diameter, solid stainless steel rod press fit and secured into Dispenser Bar.

B. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
1. D – Toilet Paper Dispenser: Equal to Bobrick No. B4288
2. Contactor furnish and install.

2.05 SANITARY NAPKIN DISPOSAL

A. Surface-Mounted Sanitary Napkin Disposal Units:
1. Cabinet: Type 304, heavy-gauge stainless steel. All-welded construction. Exposed surfaces have satin finish.
2. Skirt: Type-304, stainless steel with satin finish
3. Door: Type-304, 20-gauge stainless steel with satin finish or matte black, as specified. Secured to cabinet with two rivets and equipped with a magnet catch.
4. Waste Receptacle: HDPE Plastic. Removable for servicing. Capacity: 0.5-gal.

B. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
1. E – Bobrick No. B-35139

2.06 SOAP DISPENSER – SURFACE MOUNTED

A. Housing: Welded 18-8, Type-304, 18-gauge stainless steel with satin-finish. Plastic back plate incorporates mounting screw holes and mounting tape. Equipped with concealed mounting, clear acrylic refill-indicator window and key lock. Refillable, plastic container. Capacity: 800 ml.

B. Valve: No-touch, sensor-activated valve suitable for foam soap, concentrated foam soap or cartridge type of foam soap.

C. Operation: To fill the dispenser, remove the lid and fill with foaming hand soap solution. Dispenses foaming hand soap solution of viscosities ranging from 0-150 cps. After filling soap container, DO NOT TIGHTEN lid. Air flow is necessary inside the container for dispensing. To activate the dispenser, place hand under spout for

D. approximately one second. Sensing range comes at factory setting of 60mm. Make sure the wall surface is cleaned and in good condition to ensure proper mating of the dispenser to the wall. Install four (4) Alkaline "AA" Cell Batteries, 1.5V and replace battery cover. After filling soap container, DO NOT TIGHTEN lid. Air flow is necessary inside the container for dispensing. Housing must be closed for dispenser to function.

E. Toilet Accessory Schedule Symbol / Manufacturer / Model No:
1. F- Bobrick Soap Dispenser; https://www.bobrick.com
2. Equal to Bobrick B-2111
3. Contractor furnished and installed.

2.07 MIRROR UNITS

A. Angle Frame:
1. Materials: Type 304 stainless steel angle 3/4 inch (19.05 mm) x 3/4 inch, with satin finish with vertical grain on exposed surfaces.
2. Construction: One-piece, roll-formed construction with continuous integral stiffener.
3. Design: Mitered design on front of angle to hold mirror tightly against frame; prevents exposure to sharp edges.
4. Corners: Heliarc welded, ground, and polished smooth.

B. Mirror:
1. G - Mirror 24"x36" - Bobrick B290-2436
2. Edges: Protected with plastic filler strips.
3. Back of Mirror: Protected by full-size, shock-absorbing, water-resistant, non-abrasive 3/16 inch (4.76 mm) thick polyethylene padding.

C. Mounting: Removable, galvanized steel back with integral horizontal hanging brackets located at top and bottom for mounting on Concealed one-piece rectangular wall hanger(s); galvanized steel back fastened to frame with Concealed screws to permit glass replacement; attachment by rivets or tabs is not acceptable; Concealed Phillips head locking setscrews secure mirror to wall hanger in bottom of frame.

D. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
   1. G – Bobrick No. B-290 18" x 36"

2.08 SURFACE MOUNTED PAPER TOWEL DISPENSER

A. Housing: Welded 18-8, Type-304, 18-gauge stainless steel with satin-finish. Plastic back plate incorporates mounting screw holes and mounting tape. Equipped with concealed mounting, clear acrylic refill-indicator window and key lock. Refillable, plastic container. Capacity: 800 ml.

B. Operation: To fill the dispenser, remove the lid and fill with foaming hand soap solution. Dispenses foaming hand soap solution of viscosities ranging from 0-150 cps. After filling soap container, DO NOT TIGHTEN lid. Air flow is necessary inside the container for dispensing. To activate the dispenser, place hand under spout for

C. Toilet Accessory Schedule Symbol:
   1. H - Paper Towel Dispenser Bobrick No. B-9262, https://www.bobrick.com
   2. Contractor furnished and installed

2.09 HOOKS

A. Stainless Steel Double Robe Clothes Hook:
   1. Flange & Support Arm: 18-8, type-304, 22-gauge stainless steel. Concealed, 18-gauge stainless steel mounting bracket. All-welded construction. Secured to wall plate with a stainless steel setscrew.
   2. Concealed Wall Plate: 18-8, type-304, 16-gauge stainless steel.
   3. Cap: 18-8, type-304, 10-gauge (2.0mm) stainless steel. Welded to the support arm.

B. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
   1. J – Clothes Hook, Bobrick No. B-677
   2. K - Hand Towel Hook, Bobrick No. B-672

2.10 SHOWER CURTAIN ROD

A. O - Curtain Rod: 18-8, Type 304, 18 gauge stainless steel tubing with satin finish.
   1. Outside Diameter: 1-1/4 inches (32 mm)
   2. Flanges: One-piece, die-formed, 18-8, Type 304, 20 gauge stainless steel with satin finish.

B. Location: provide at shower/restroom location.

C. Manufacturer / Model No.:
   1. L - Shower Curtain Rod: Equal to Bobrick, No. B-6047, lengths as required, Top at 74-1/2" AFF.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Installer must examine substrates, previously placed inserts and anchorages necessary for mounting of toilet accessories and other conditions under which installation is to occur, and must notify Contractor in writing of conditions detrimental to proper and timely completion of work.
   1. Verify blocking has been installed properly.
   2. Verify location does not interfere with door swings or use of fixtures.
   3. Comply with manufacturer’s recommendations for backing and proper support.

B. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.02 INSTALLATION

A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
   1. Use fasteners and anchors suitable for substrate and project conditions.
   2. Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
   3. Conceal evidence of drilling, cutting, and fitting to room finish.
   4. Test for proper operation.

3.03 ADJUSTING

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.

3.04 CLEANING

A. Clean and polish all exposed surfaces of compartments, hardware, and fittings after removing protective coatings.

B. Touch-up, repair or replace damaged products until Substantial Completion.

END OF SECTION 10 28 00

SECTION 10 44 13
FIRE EXTINGUISHER CABINETS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide fully charged portable fire extinguisher where noted. The types of fire extinguishers are as follows:
   1. Semi-Recessed Cabinet mounted (FEC)
   2. Bracket Mounted (FE)

1.02 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers; 2026.

1.03 SUBMITTALS

A. Product Data: For extinguishers and cabinets. Include installation instructions for cabinets and brackets.

1.04 QUALITY ASSURANCE

A. Conform to NFPA 10 requirements for portable fire extinguishers.

B. Provide fire extinguishers, cabinets, and accessories by single manufacturer.

C. Conform to UBC 43-6 (((ASTM E814))-83) for fire resistive wall performance where necessary.

D. Conform to Americans with Disabilities Act on maximum cabinet projection in corridors where necessary.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. J.L. Industries (Activar, Inc.)

B. Larsens Manufacturing Company

C. Potter Roemer

D. Or equal

2.02 MATERIALS

A. Provide cabinets with fire-rated option (equal to J.L. Industries FX Fire Rated), if applicable. Rating of the cabinet shall match the rating of the wall in which the cabinet is being installed.

B. Type 1 Fire Extinguisher Cabinets (FEC):
   1. Provide at all locations unless noted otherwise.
   2. Style shall be aluminum, semi-recessed sized for the applicable fire extinguisher as specified herein.
      a. Model:
         1) All areas unless noted otherwise: equal to J.L. Industries “Academy Series, Model #1022V10”.
      b. Door Style and Glazing:
         1) Door Style: Vertical Duo with ADA pull
         2) Door Glazing: Clear 1/4 inch (6.35 mm) Acrylic
      c. Door & Trim Construction: Clear anodized aluminum. Flush cabinet doors with a 5/8” door stop are attached by a continuous hinge and equipped with zinc-plated handle and roller catch. All models have 1-3/4” trim on face and door.
      d. Trim Style & Depth: 4” Rolled Edge with recessed ADAC pull.
      e. Tub: The tub is constructed of cold rolled steel with white powder-coat finish standard.

C. Fire Extinguisher Brackets (FE): Provide Extinguisher Brackets for the applicable fire extinguisher as indicated below in locations as indicated on the Drawings.

D. Fire Extinguishers:
   1. ABC Dry Chemical Type (All areas): equal to J.L. Industries “Model Cosmic 5E”

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of goveming authorities.

B. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturers instructions.

C. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer’s instructions.

D. Provide and verify servicing, charging and tagging of all fire extinguishers.

END OF SECTION 10 44 13

SECTION 10 73 16.13
EXTRUDED ALUMINUM CANOPIES

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Work in this section includes furnishing and installation of extruded aluminum overhead cantilever supported canopies as manufactured by Mapes Industries Inc.

B. Related Items and Considerations
   1. Flashing of various designs may be required. Generic flashing supplied by Mapes. Specialty flashing to be supplied by installer.
   2. Determine wall construction, make-up and thickness.
   3. Ensure adequate wall condition to carry canopy loads where required.
   4. Consider water drainage away from canopy where necessary.
   5. Any necessary removal or relocation of existing structures, obstructions or materials.

1.02 QUALITY ASSURANCE

A. Products meeting these specifications established standard of quality required as manufactured by Mapes Industries, Inc. Lincoln, Nebraska 1-888-273-1132.

1.03 REFERENCE STANDARDS

A. AAMA 611 - Specification for Anodized Architectural Aluminum; 2026.

B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2026.

C. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2026.

D. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

F. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 2025.

G. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2025a.

H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

J. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2026.

K. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; 2024.

L. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi, 144 ksi, and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2026.

M. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2026.

N. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2025, with Amendment (2026).

O. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).

P. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit product data sheets, including material descriptions and finishes, and preparation instructions and recommendations.

C. Shop Drawings: Prior to commencement of fabrication, submit detailed shop drawings, showing profiles, sections of components, finishes, and fastening details.

D. Design Data: Submit comprehensive structural analysis of design for the specified loads. Stamp and sign calculations by professional engineer.

E. Designer's Qualification Statement.

F. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
   1. Comply with applicable code for submission of design calculations as required for acquiring permits.
   2. Cooperate with regulatory agency or authorities having jurisdiction (AHJ), and provide data as requested.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site ready for erection.

B. Package using methods that prevent damage during shipping and storage on site.

C. Store materials under cover and elevated above grade.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Metal Canopies: Correct defective work within a two year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Canopies:
   1. Mapes Industries: https://mapes.com/#sle. (Basis of Design)
      a. Mapes Canopies: Lincoln, Nebraska, Phone: 1-888-273-1132, Fax: 1-877-455-6572.
      b. Peachtree Protective Covers
      c. Dittmer Architectural Aluminum

2.02 DESIGN

A. Provide equal to "Super Lumideck, Flat Soffit" as manufactured by Mapes Canopies, LLC.

2.03 MATERIALS

A. Extruded Aluminum interlocking decking

B. Configuration: Layout and dimensions, column layout, canopy clearance, fascia profile, and roof covering design as indicated on drawings.
   1. Decking shall consist of 3" extruded flat soffit .078 decking.
   2. Intermediate framing members shall be extruded aluminum, alloy 6063-T6, in profile and thickness shown in current Mapes brochures.
   3. Cantilever supported brackets shall be standard finish.

4. Fascia: shall be standard extruded 8" J style.
5. Structural Framing System: 3.31"x 3.31"x.25" Extruded Aluminum "I" Beam @ 8' max on center..
6. Covering Material: Aluminum.
7. Drainage Concept: Water collected in decking conducted into perimeter gutters and discharged through 2" dia. drain holes with drain stubs.

C. Performance Requirements:
1. Design and fabricate metal canopy system to resist wind, snow, live, and seismic loads without failure, damage, or permanent deflection in accordance with ASCE 7:
a. Loads: In compliance with local building codes.
2. Thermal Movement: Design canopy system to accommodate thermal movement caused by ambient temperature range of 120 degrees Fahrenheit (48.89 degrees Celsius) and surface temperature range of 180 degrees Fahrenheit (82.22 degrees Celsius) without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects on assembly components.

2.04 COMPONENTS

A. Structural Aluminum Framing: Alloy and temper 6063-T5, 6063-T6, or 6061-T6.

B. Covering:
1. Steel Decking: Interlocking panels.
a. Panel Size: 6 inches (152.4 mm) wide by 3 inches (76.2 mm) deep (.078 inch (____ mm)Flat Soffit
b. Material: ASTM A792/A792M aluminum-zinc alloy coated to AZ50/AZM150.
c. Provide canopy manufacturer's standard screw type fasteners for attaching covering to structural beams.
2. Aluminum Decking:
a. Interlocking extruded aluminum decking modules.
1) Extruded Decking: ASTM B221 (ASTM B221M), Alloy and temper 6005-T5, 6061-T6, or 6063-T6.
b. Decking Orientation: As indicated on drawings.

C. Anchor Bolts: ASTM A307 or ASTM A572/A572M, formed with bent shank, assembled with template for casting into concrete.
1. Minimum exposed thread of 7 inches (177.8 mm) above footing and 23 inch (584.2 mm) minimum embedment.
2. Provide nuts and washers as required for column leveling and plumbing.

2.05 SHOP FABRICATION

A. All canopies to be shipped in pressembled sections to the greatest extent possible for ease of installation.

B. All connections shall be mechanically assembled utilizing 3/16 fasteners with a minimum shear stress of 350 lb.. Pre-welded or factory-welded connections are not acceptable.

C. Provide a complete system ready for erection at project site.

D. Deck shall be designed with interlocking roll-formed aluminum members.

E. Concealed drainage; water shall drain from covered surfaces into intermediate trough and be directed to scupper location (to be indicated on Shop Drawings, if not indicated side location).

F. Weld steel members in accordance with AWS D1.1/D1.1M.

G. Weld aluminum members in accordance with AWS D1.2/D1.2M.

H. Fabricate connections for bolt, nut, and washer connectors.

2.06 FINISHES

A. Structural Steel Framing:
1. Shop Primer: Rust-inhibitive red oxide.

2. Finish Coating: As specified in Section 09 9000.

B. Aluminum Framing and Decking:
   1. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41, clear anodic coating not less than 0.7 mils 0 inch (0.02 mm) thick.
   2. Color: Finish type shall be 2-Coat Kynar Finish. Color as selected by Architect.

C. Steel Decking and Roofing: Polyester baked enamel finish; color as selected from manufacturer's standard range.

D. Fascia: Finish type shall be 2-Coat Kynar Finish; color as selected from manufacturer's standard range.

2.07 ACCESSORIES

A. Structural Bolts: ASTM F3125/F3125M, Grade A325, minimum 3/4 inch (19.05 mm) diameter.

B. Trim, Closure Pieces, and Flashings: Same material, thickness and finish as sheet metal decking; factory-fabricated to required profiles.
   1. Exposed Fasteners: Not permitted.

C. Fasteners, Non-Structural: ASTM F593 stainless steel or ASTM A307 carbon steel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates and site area for conditions that might prevent satisfactory installation.

B. Installer shall confirm dimensions and elevations to be as shown on drawings provided by Mapes Industries.

C. Verify that framing, electrical utilities, and placed anchors are in correct position.

D. Erection shall be performed by an approved installer and scheduled after all concrete, masonry and roofing in the area is completed

E. Do not proceed with installation until all conditions are satisfactory.

3.02 INSTALLATION - FRAMING

A. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation.

B. Installation shall be in strict accordance with manufacturer's shop drawings. Particular attention should be given to protecting the finish during handling and erection.

C. All connections shall be mechanically assembled utilizing 3/16 fasteners with a minimum shear stress of 350 lb. Pre-welded or factory-welded connections are not acceptable.

D. Do not field cut or alter structural members without approval.

E. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 INSTALLATION - CANOPY COVERING

A. Install in accordance with manufacturer's instructions.

B. Fasten metal decking to metal support members, aligned level and plumb.

C. Install fascia panels, trim, and flashing.

D. Separate dissimilar metals using concealed bituminous paint.

E. Touch-up damaged finish coating using material provided by manufacturer to match original coating.

3.04 TOLERANCES

A. Maximum Variation from Level: Plus/Minus 1/8 inch (3.18 mm).

3.05 CLEANING

A. Clean surfaces of dust and debris; follow manufacturer's cleaning instructions for the finish used.

3.06 PROTECTION

A. Extreme care shall be taken to protect the finish from scratches, nicks, gouges, dents, concrete exposure, etc. during assemble and installation.

END OF SECTION 10 73 16.13

SECTION 13 34 19
METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

B. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2025.

C. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2026.

1.02 SECTION INCLUDES

A. Structural layout and architectural criteria for a pre-engineered metal building system.
   1. Building Dimensions to match existing: 66’-6” wide x 68’-2” long x 16’-8” eave height with a 1:12 roof slope.
   2. Contractor to verify size and slope of existing Weight Room Building
   3. Primary and secondary structural steel framing assemblies including 8” depth purlins.
   4. BattenLoc structural standing seam roof panels and PBR interior liner panels.
   5. Pre-formed soffit panel profiles configured with integral venting arrays.
   6. Thermal barrier assembly featuring R-19 fiberglass batt insulation.
   7. Fastener design types, configurations, performance constraints, and color-matched finishes.
   8. Provide straight columns design refer to drawings for layout and design intent.

1.03 PERFORMANCE REQUIREMENTS

A. General Structural Performance:
   1. The metal building system shall be designed by a qualified professional engineer to withstand all applicable structural loads, wind pressures, thermal movements, and seismic criteria according to local building code requirements.
   2. Engineer should refer to existing metal building drawings and exisitng metal building for alignment, height and size variations between existing conditions and new structure. **Refer to Drawings for Design Intent**.

B. Wind Design Load Requirements:
   1. Wind Speed Requirement: 130 mph (3-second gust).
   2. Wind Importance Factor (Iw): 1.0.
   3. Wind Exposure Category: C.

C. Seismic Design Parameters:
   1. Seismic Importance Factor (Ie): 1.0.
   2. Mapped Spectral Response Acceleration at Short Periods (Ss): 0.13.
   3. Design Spectral Acceleration at Short Periods (Sds): 0.14.
   4. Mapped Spectral Response Acceleration at 1-Second Period (S1): 0.06.
   5. Design Spectral Acceleration at 1-Second Period (Sd1): 0.09.
   6. Seismic Group Classification: Group I.
   7. Geotechnical Site Profile Classification: Site Class D.
   8. Seismic Design Category: Category B.

PART 2 - PRODUCTS

2.01 SECONDARY FRAMING MEMBERS

A. Purlins and Girts:
   1. Roll-formed structural steel shapes complying with ASTM A1011/A1011M or ASTM A653/A653M, Grade 55 minimum.

2. Purlin Profile Depth: 8 inches (203.2 mm) nominal depth, pre-punched for structural framing linkages.

2.02 ROOF AND WALL PANEL SYSTEMS

A. Roof Panels (BattenLoc Profile):
   1. Type: Structural standing seam profile, mechanically seamed at 180 degrees over floating structural clips.
   2. Material: Minimum 24-gauge high-strength structural steel sheet.
   3. Finish: Prepainted premium fluoropolymer coating system (PVDF) containing minimum 70% resin finish.

B. Interior Liner Panels (PBR Profile):
   1. Type: Standard PBR (Pur-Lin Bearing Rib) high-rib structural profile.
   2. Material: Minimum 26-gauge high-strength structural steel sheet.
   3. Application: Screw-fastened to internal framing faces covering secondary steel members.

C. Soffit Panels (Vented Configuration):
   1. Type: Pre-formed flush or V-groove interlocking soffit panel profiles.
   2. Material: Minimum 26-gauge structural steel sheet.
   3. Venting Configuration: Provide factory-perforated linear venting arrays integrated into the profile geometry.
   4. Net Free Vent Area (NFVA): Minimum 15 sq. inches per linear foot of soffit length to satisfy cross-ventilation calculations.

D. Perimeter Columns
   1. Provide straight columns, refer to drawings for design intent.

2.03 FASTENERS AND COMPONENT ATTACHMENTS

A. Primary Roofing and Wall Cladding Fasteners:
   1. Type: Premium self-drilling, self-tapping structural screws with an integral carbon steel shank and an incorporated high-strength alloy or stainless-steel capped head design.
   2. Material/Finish: High-grade carbon steel core layered with a mechanical or electro-plated zinc-tin coating system to achieve a minimum 1,000-hour salt spray corrosion resistance validation per ASTM B117 standards.
   3. Sealing Element: Molded, bonded EPDM synthetic rubber washers securely recessed beneath the fastener cap to seal out ambient moisture and prevent electrolytic corrosion.
   4. Exposed Head Finish: Factory-baked thermosetting powder coat finish, precision custom color-matched to the adjacent roof, liner, or soffit panel surface coatings.

B. Fastener Spacing and Patterning Configuration:
   1. Structural Liner Panels (PBR Profile): Fasteners must be installed at specified spacings matching engineering calculations based on regional wind uplift coefficients. Screw patterns shall target structural framing members at a max spacing of 12 inches (304.8 mm) on center along internal girts or purlin segments.
   2. Roof Standing Seam Components: Hidden clips require internal structural fastening to the 8" purlins using verified self-drilling screws engineered to handle localized negative pressure wind-pull limits.

2.04 INSULATION ASSEMBLY

A. Thermal Barrier Requirements:
   1. Type: R-19 fiberglass batt insulation blanket system.
   2. Facing Material: Code-compliant, reinforced polypropylene-scrim-kraft (PSK) or vinyl vapor retarder backing material featuring an flame-spread index under 25 and smoke-developed rating below 50.

PART 3 - EXECUTION

3.01 INSTALLATION AND QUALITY CONTROL

A. Panel Alignment and Fastening:

1. Install primary structural frames, 8" purlins, roof decks, vented soffit trims, and PBR interior linings strictly aligned with finalized engineering assembly layouts.
2. Drive all self-drilling fasteners perpendicular to the sheet metal surface using calibrated depth-limiting torque drivers to fully seat the integral EPDM sealing washers without crushing or over-driving the components.
3. Ensure all perforated soffit sections remain unobstructed by fiberglass blanket insulation to preserve clear cross-ventilation airflow paths.

END OF SECTION 13 34 19

INDEX TO STRUCTURAL SPECIFICATIONS

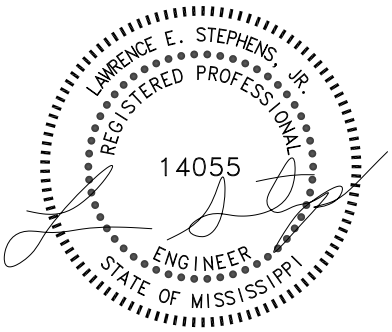
SECTION NO.	SECTION NAME	PAGES
	STRUCTURAL INDEX TO SPECIFICATIONS – STAMPED	1
DIVISION 03 – STRUCTURAL		
03 30 00	CAST-IN-PLACE CONCRETE	11
DIVISION 31 – STRUCTURAL		
31 14 11	EARTHWORK (STRUCTURAL)	8



SECTION 00 00 05 – MECHANICAL INDEX TO SPECIFICATIONS

SECTION NUMBER	SECTION NAME	PAGES
DIVISION TWENTY-TWO – PLUMBING		
22 00 00	PLUMBING GENERAL PURPOSE	9
22 05 00	BASIC MECHANICAL MATERIALS AND METHODS	8
DIVISION TWENTY-THREE – HEATING, VENTILATING, AND AIR CONDITIONING		
23 00 00	HVAC EQUIPMENT	2
23 01 00	MECHANICAL GENERAL REQUIREMENTS	8
23 07 00	INSULATION OF MECHANICAL SYSTEMS	9
23 20 00	HEATING AND AIR CONDTIONING PIPING	2
23 30 00	AIR DISTRIBUTION	4

END OF SECTION



9-29-26

SECTION 22 00 00
PLUMBING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements and Section 22 05 00 - Basic Materials and Methods, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Soil, Waste, Drain, and Vent Systems.

B. Domestic Water Piping System

C. Plumbing Fixtures, Specialties, and Equipment.

1.3 SUBMITTALS:

A. Submit product data and shop drawings under provisions of Section 23 01 00.

B. Include component sizes, rough-in requirements, service sizes, trim, and finishes.

C. Include certificate of compliance of pipe, fittings, and valves.

1.4 QUALITY ASSURANCE:

A. Welders' Certification: In conformance with AWS D1.1.

B. For each product, provide components by same manufacturer throughout

PART 2 - PRODUCTS

2.1 SOIL, WASTE, DRAIN, AND VENT PIPING:

A. Underground Soil, Waste, Drain and Vent Piping:

1. Hub and Spigot Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A-74. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute. Joints can be made using a compression gasket manufactured from an elastomer meeting the requirements of ASTM C-564 or lead and oakum. The last joint in each rise to above grade or to a fixture shall be a caulked joint. All pipe and fittings to be produced by a single manufacturer and are to be installed in accordance with manufacturer’s recommendations and local code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum).

2. Polyvinyl Chloride (PVC) pipe and fittings shall be manufactured from PVC compound with a cell class of 12454 per ASTM D-1784 and conform with National Sanitation Foundation (NSF) standard 14. Pipe shall be iron pipe size (IPS) conforming to ASTM D-1785 and ASTM D-2665. Fittings shall conform to ASTM D-2665. All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer’s recommendations and local code requirements. Solvent cements shall conform to ASTM D-2564; primer shall conform

to ASTM F-656.

3. Acrylonitrile-Butadiene-Styrene (ABS) system conforming to ASTM D 2661, single extrusion pipe.

B. Above Ground Soil, Waste, Drain and Vent Piping:

1. Hub and Spigot Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A-74. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute. Joints can be made using a compression gasket manufactured from an elastomer meeting the requirements of ASTM C-564 or lead and oakum. The last joint in each rise to above grade or to a fixture shall be a caulked joint. All pipe and fittings to be produced by a single manufacturer and are to be installed in accordance with manufacturer's recommendations and local code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum).

2. Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A-888 and CISPI Standard 301. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute. Hubless Couplings shall conform to CISPI Standard 310 for standard couplings or ASTM C-1540 for heavy duty couplings where indicated. Gaskets shall conform to ASTM C-564. All pipe and fittings to be produced by a single manufacturer and are to be installed in accordance with manufacturer's recommendations and local code requirements. Couplings shall be installed in accordance with the manufacturer's band tightening sequence and torque. Tighten bands with a properly calibrated torque limiting device. Test the system hydrostatically after installation to 10 ft. of head (4.3 psi maximum). Couplings for joining hubless cast iron soil pipe and fittings shall conform to ASTM A-888, shall be 3" wide for nominal pipe sizes 1-1/2" to 4"in diameter. Shields shall have a thickness of .015 inches, (28) gauge type 304 stainless steel. Worm drive clamps shall be type 304 stainless steel with a minimum clamping torque of 80 in/lbs. Sealing gasket shall be neoprene conforming to ASTM C-564. Couplings shall conform to Factor Mutual Standard 1680, Class 1. Clamps shall be equal to Clamp-All Model Hi-TORQ 80.

3. Copper tube conforming to ASTM B 306, type DWV, with cast bronze or wrought copper fittings and solder joints.

4. ASTM A 53 or ASTM A 120, schedule 40, galvanized steel pipe, threaded end connections, cast iron DWV fittings.

5. Polyvinyl Chloride (PVC) pipe and fittings shall be manufactured from PVC compound with a cell class of 12454 per ASTM D-1784 and conform with National Sanitation Foundation (NSF) standard 14. Pipe shall be iron pipe size (IPS) conforming to ASTM D-1785 and ASTM D-2665. Fittings shall conform to ASTM D-2665. All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and local code requirements. Solvent cements shall conform to ASTM D-2564; primer shall conform to ASTM F-656.

6. Acrylonitrile-Butadiene-Styrene (ABS) system conforming to ASTM D 2661, single extrusion pipe.

C. Cleanouts and Test Tees: Floor cleanouts shall be Smith 4031 series, Josam Series

58000, Zurn Z1425-3, or approved equal. Wall cleanouts shall be Smith 4710, Josam Series 58000, Zurn Z1440-1, or approved equal. Exterior Cleanouts shall be Smith 4231 series, Josam Series 56040, Zurn Z1420-27, or approved equal. Set in 15" x 15" x 6" concrete pad.

2.3 INTERIOR DOMESTIC WATER PIPING:

A. Materials:

1. Copper tubing, hard-drawn, Type "L", conforming to ASTM B 88 with cast-brass or wrought-copper sweat joint fittings using ASTM B 32, tin-antimony or Grade Sn96 tin-silver solder, and flux containing not more than 0.2 percent lead; or with ANSI B16.26 flare joint fittings. Piping under concrete slabs shall be copper tubing, soft-drawn, Type "K", conforming to ASTM B 88, without joints.

2. Pipe and fittings shall be manufactured from virgin rigid Chlorinated Polyvinyl Chloride (CPVC) compound with a cell class of 23447 for fittings, 24448 for pipe, as identified in ASTM D1784. CPVC schedule 80 plastic pipe shall be Iron Pipe Sizes (IPS) conforming to ASTM F 441. CPVC Schedule 80 socket fittings shall conform to ASTM F 439. CPCV Schedule 80 threaded fittings shall conform to ASTM F 437 or F 439. Pipe and fittings shall be manufactured as a system and be the product of one manufacturer. All pipe and fittings shall be manufactured in the United States. Pipe and fittings shall conform to National Sanitation Foundation (NSF) Standard 61. Installation shall comply with the latest installation instructions published by the manufacturer. Buried pipe shall be installed in accordance with ASM F 1668. Solvent cement joints shall be made in a two step process with primer manufactured for thermoplastic piping systems and solvent cement conforming to ASTM F 493. The system shall be protected from chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents not compatible with CPVC compounds.

3. Pipe shall be manufactured from cross-linked polyethylene (PEX) conforming to ASTM F876 & F877. Cold water piping shall be colored blue and hot water piping shall be colored red. Fittings shall be manufactured from solid brass and conform to ASTM F1807. Pipe and fittings shall be manufactured as a system and be the product of one manufacturer. All pipe and fittings shall be manufactured in the United States. Pipe and fittings shall conform to National Sanitation Foundation (NSF) Standard 61. Installation shall comply with the latest installation instructions published by the manufacturer.

B. Backflow Preventer: Reduced pressure type conforming to ASSE 1013; bronze body with bronze and plastic internal parts and stainless steel springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve which opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks.

C. Water Hammer Arresters: Permanently sealed mechanical device, pre-charged, threaded connection. ASSE 1010 – 2004 certified. Install as close as possible to quick-closing valve. No access panel shall be required. Unit shall be hard drawn sealed copper body with plastic rings and piston, threaded adapter equal to Sioux Chief 650 series.

D. Ball Valves: Valve shall have two piece forged brass or cast bronze body, blowout proof stem, PTFE seats/seals, chrome plated ball and full port design. Valves sizes 1/4" - 2" shall be pressure rated to 150 WSP/600Wog and conform to MSS-SP 110 and certified to CSA, UL, and FM. Valves Sizes 2 1/2" - 3" shall be pressure rated to 150 WSP/400 WOG and conform to MSS-SP 110. Provide extension through insulation as required. Valve shall be equal to Kitz valve #69.

E. Icemaker/water dispenser wall outlet, ABS body, ¼ turn brass valve with chrome plated brass ball, ½" sweat pipe connection by ¼", 3/8" compression fitting or ¾" hose bibb threaded connection. Include water hammer arrester on valves and fire-rated box. Unit shall be equal to Sioux Chief # 696R1010MF.

2.4 PLUMBING FIXTURES SCHEDULE: Fixtures shall be Kohler, Crane, Eljer or American Standard equal to manufacture's numbers specified herein for identification of type.

AMERICAN STANDARD

FLUSH Valves

A. WC-1 , Watercloset for Handicapped: General Description: 1.6 gal flush, Vitreous china, elongated bowl, 18" high, siphon jet action, 1-1/2 top spud, quiet flush valve with vacuum breaker and 1" angle stop, open front white seat with stainless steel self-sustaining check hinge.

1. Fixture: Equal to American Standard "MADERA" #3043.102
2. Seat: Beneke #523-SS
3. Valve, Manual: Sloan 111 –XL flush valve. Install flush valve in accordance with ADA guidelines.

URINALS

A. UR-1, Urinal for Handicapped: Vitreous china urinal with integral extended shields, flushing rim, strainer and trap, 3/4" top spud, 2" outlet, wall hanger, and flush valve with angle stop and vacuum breaker.

1. Outfit shall be equal to American Standard "ALLBROOK" #6541.132 (Rough in so that front lip is 17" above finish floor.)
2. Valve: Sloan #186-1 flush valve.

WALL HUNG SINKS

A. L-1, Lavatory: Vitreous china lavatory with back and soap depression, 20" x 18", concealed wall hanger, single faucet, self closing handle with aerator, angle supplies with stops and flexible risers and 1-1/4" cast brass adjustable "P" trap with cleanout and waste to wall.

1. Fixture: American Standard "LUCERNE" #0355.021
2. Faucet, Manual: T&S Brass #B0890
3. Drain: Dearborn Brass #760W-1
4. P-Trap: Dearborn Brass #707-1
5. Pipe Insulation: Lav-Guard 102EZ

6. Supply: Brass Craft #OCR1920AZ C

COUNTER MOUNT

B. L-1, Lavatory: Vitreous china, 20 x 17 oval lavatory for counter top mounting, self-rimming, and overflow concealed in front. Combination supply fitting with aerator, angle supplies with stops and flexible risers, 1-1/4" cast brass adjustable "P" trap with cleanout and waste to wall.

1. Fixture: American Standard “Cadet” oval countertop lavatory #0419.444,
2. Faucet, Manual ADA: &S Brass #B0890
3. Drain: Dearborn Brass 760-1,1-1/4” grid drain,
4. P-Trap: Dearborn Brass #707-1
5. Supply: Brass Craft #OCR1920AZ C

STAINLESS STEEL SINKS

SINGLE BOWL S.S.

A. KS-1, Sink: Stainless steel, Type 304, 18 gauge, 17" x 22" with single 13-1/2" x 16" x 7-5/8" compartment, self-rimming with 9” spout, flexible supplies, 10” deck plate, temperature limit stop, ceramic cartridge, 3 1/2" strainer and ground joints seat stopper, 1-1/2" cast brass adjustable “P” trap with cleanout and waste to wall, angle supplies with stops and flexible risers.

1. Fixture: Elkay LR1722C-3
2. Drain: Elkay LK35
3. Faucet: T&S Brass B-2731.
4. P-Trap: Dearborn Brass #710-1
5. Supply: Brass Craft #OCR1920AZ C

SHOWERS

A. SH-1, Shower: Shower shall be thermostatically controlled with built-in shutoff, lever handle, chrome plated and colored dial.

1. Shower shall be Symmons Temptrol Shower System #96-1-131-X or approved equal.
2. Drain: Equal to Josam #30003-A, Smith #2005-A (3") or Zurn #Z415 with Type B strainer

B. SH-1, Shower: Shower enclosure by architect. Single-function showerhead and pressure-balancing control valve. Outfit equal to Kohler “Fairfax” #K-T12014-4-CP shower trim and K-304-K pressure balancing valve.

2.10 PLUMBING SPECIALTIES: Furnish and install the following plumbing specialties:

A. HB-1 , Non-Freeze Hose Bibb: Woodford Model B65 or equal, cast brass, vacuum breaker, heavy duty, wall hydrant with polished brass face, brass working parts, renewable nylon seat, 3/4" NPT hose outlet and T-handle.

B. FD-1, Floor Drain with Trap Primer: Equal to Josam #30003-5A-50 #8803 adaptor, and #88250-10 trap seal primer, Smith #2005-C (3") auxiliary inlet #2696, with automatic trap primer #2699-CP, Zurn #Z415 with type B STRAINER trap primer connector Z-1023 and Sani-gard primer Z-1022. All exposed piping to be chrome plated. (Equal to Josam #30003-5S-50 #8803 adaptor, and #88250-10 trap seal primer, Smith #2010-B (3") auxiliary inlet #2696, with automatic trap primer #2699, Zurn #Z415 with type S STRAINER trap primer connector Z-1023 and Sani-gard primer Z-1022. All exposed piping to be chrome plated.)square

C. FS-1 , Floor Drain: Equal to Josam #4932 -3. (Kitchen floor sink 1/2 grate).

D. BP- , Backflow Preventer: Reduced pressure principle backflow preventers shall be complete assembly consisting of two independently acting spring loaded toggle lever check valves together with an automatically operating pressure differential relief valve located between the check valves. All parts must be removable or replaceable without removal of the unit from the line. Unit shall be equal to Watts #909S-AG-F-__" reduced pressure principle backflow preventer. Pipe air gap piping full size down to floor or pipe to nearest floor drain.

E. VB-1, Vacuum Breaker: To be installed on the cold water inlet on all water heaters. Equal to Watts No. 289 vacuum, breaker.

F. Urinal Support: Equal to Smith 637, Josam 17560-UR Series or approved equal.

G. Lavatory Support: Equal to Smith 700, Josam 17100 Series or approved equal.

H. Electric Drinking fountain support: Equal to Smith 0834(bi-Level), 0830(single), Josam 17550-WCBL, ZURN 1225-BL or approved equal.

I. AAV, Air Admittance Valve: Product to comply with the following performance standards: ASSE 1051 (revised 2002) single fixture and Branch type AAVs, NSF Standard 14 (Plastic Components. Locate a minimum of 4@ above the weir of the fixture trap. Equal to Studor # 20346 - 2”.

2.11 PLUMBING APPLIANCES AND EQUIPMENT: Provide and install the following plumbing appliances and equipment where shown on the Drawings.

Drinking Fountains

A. EDF-1, Electric Drinking: Two-level wall mounted water cooler for use by the general public. Cooler shall have a capacity to cool 8 gallons per hour from 80 degrees F. to 50 degrees F. with 90 degrees F. ambient air. Tops shall be 18-8 stainless steel with anti-splash ridge; exterior cabinet finish shall be stainless steel. Motor shall be suitable for 120 volt operation. Provide trap, stops, and waste to wall. Unit shall be Elkay LZSTL8WSLK or approved equal.

Water Heaters

ELECTRIC Tank

A. WH-1 , Water Heater: Automatic, electric, top connected, storage type water heater. The storage tank shall be 15 gallon capacity, shall be glass lined steel, and shall be insulated and jacketed. Unit shall be provided with ASME rated combination temperature and pressure relief valve. Unit shall

be provided with (2) 4500 Watt, 240 volt heating element. Unit shall be U.L. tested and listed. Tank shall be provided with a replaceable magnesium anode rod. Heater shall be equal to AO SMITH DEL-15.

Water Heater Accessories

A. ET-1, Expansion Tank: ASME rated Butyl bladder tank, for hot potable water. Tank shall be 5 gallon, with a max working pressure of 150 psi, max temperature of 240°F and a factory precharge pressure of 40 psi. Butyl Bladder shall be replaceable. Unit shall be equal to ELBI Model # DTS-19.

B. TMV-1, Tempering Valve: Thermostatic water mixing valve with minimum flow of 1 gpm with no less that 10 gpm flow @ 10 psi pressure drop. Unit shall have a color coded dial thermometer, outlet ball valve, combination check stops, unions, strainers on inlets, wall supports and cast lever handle. Unit shall have a high temperature limit stop set for 110°F. Unit shall be factor tested and assembled. Mixing valve shall be equal to Leonard # TM-554-28. Pipe tempering valve in accordance with manufacturer's requirements.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. General: Installation of plumbing systems including fixtures, equipment, materials, and workmanship shall be in accordance with all local plumbing, building, and fire code requirements. When fixtures require both hot water and cold water supplies, provide the hot water supply to the left of the cold water supply. Plastic piping shall not penetrate fire rated walls, floors, or enclosures (including plenums) and shall be used on one side of fire rated partitions not closer than 6 inches to a penetration.

3.2 PREPARATION:

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

B. Verify adjacent construction is ready to receive rough-in work of this Section.

C. Any existing sanitary sewer and drainage/vent piping being connected to with new piping shall be fully cleaned from the point of connection to the nearest manhole to ensure full flow capacity.

3.3 INSTALLATION:

A. Install bell and spigot pipe with bell end upstream. Slope pipe in accordance with the requirements of SBCC Standard Plumbing Code.

B. Tracer wire shall be installed for ductile-iron pipe and fittings in accordance with Section 15000

C. Install specialties in accordance with manufacturer's instructions.

D. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

E. Install water hammer arresters complete with accessible isolation valve.

F. Install each fixture with chrome plated rigid or flexible supplies with stops, reducers, and escutcheons.

G. Adjust stops or valves for intended water flow rate to fixture without splashing, noise, or overflow.

H. Install water heaters in accordance with manufacturer's instructions and to UL requirements. Coordinate with plumbing piping and related electrical work to achieve a satisfactory operating system.

I. There should be a minimum of 30 inches of cover for water mains.

J. While under construction, unattended exposed pipelines must have the ends capped. All materials to be used in construction shall be stored above the ground in a manner that will minimize the possibility of contamination.

K. Water mains shall be laid at least 10 feet horizontally from any sanitary sewer or manhole.

L. Water mains shall be located on opposite sides of the street from sewer where possible.

M. Where local conditions prevent 10 foot horizontal separation, the water main may be laid closer to the sewer line provided they are in separate trenches with adequate space for maintenance and the bottom of the water line is 18 inches above the top of the sewer line. Where this 10 foot horizontal separation cannot be maintained, the water line should be ductile iron with water line joints located at the maximum distance possible from the sewer line joints.

N. Where water lines cross over sewer lines, the pipe segments should be centered to provide maximum spacing of joints. A vertical separation of at least 18 inches should be maintained (water over sewer).

O. Install tanks in accordance with manufacturer's instructions.

P. Provide protective systems for all trench excavations in excess of 5 feet in depth as described by OSHA Regulation 1926.652: Requirements for Protective Systems.

3.4 FIELD TESTS:

A. Waste and Drainage Piping: The entire drainage and venting system shall have all necessary openings plugged to permit the entire system to be filled with water to the level of the highest vent stack above the roof. The system shall hold this water for 30 minutes without showing a drop greater than 4". Where a portion of the system is to be tested, the test shall be conducted in the same manner as described for the entire system, except that a vertical stack 10 feet above the highest horizontal line to be tested may be installed and filled with water to maintain sufficient pressure or a pump may be used to supply the required pressure. The pressure shall be maintained for thirty minutes. Contact the A/E representative for test verification.

B. Domestic Water Piping: Upon completion of the roughing-in and before setting fixtures, the entire hot and cold water piping system shall be tested at a hydrostatic pressure of not less than 100 pounds per square inch gauge, and proved tight at that pressure. Where a portion of the water piping system is to be concealed before completion, this portion shall be tested separately in the same manner as specified for the entire system. Contact the A/E representative for test verification.

3.5 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM:

A. After completion of the construction and pressure testing of water distribution lines, they shall be flushed and disinfected using at least a 50 mg/L free chlorine solution for 24 hours or as described in the latest revision of AWWA C651. Large volume disposal of this water may require a permit from the Department of Environmental Quality/Office of Pollution Control.

B. After completion of the construction and disinfection of water distribution lines, the contractor shall arrange for at least one microbiological water sample to be collected by a representative of the Mississippi State Department of Health or the Registered Professional Engineer in charge of the project, or the Certified Operator for the system from every dead-end line and every major looped line. Water being collected for testing shall not have chlorine residual higher that is normally maintained in other parts of the distribution system. No chlorine shall be present that is a result of line disinfection. No coli form bacteria and no confluent growth indication shall constitute a satisfactory sample when analyzed by the Mississippi State Department of Health or a laboratory certified by the State.

C. Backflow Preventers: Provide a state certified tester to certify the backflow preventer operates properly and the results shall be sent to the City Engineer and the Water Department. The backflow preventer state forms shall be completed for proper operation of each device installed.

END OF SECTION

SECTION 22 05 00

BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Noise and Vibration Isolation.

B. Basic Piping Materials and Installation Procedures for All Piping Systems.

C. Identification, Labeling, and Marking.

D. Testing, Adjusting, and Balancing.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Type of pipe and fittings are specified under each piping system.

1.4 SUBMITTALS:

A. Submit product data and shop drawings under provisions of Section 23 01 00.

B. Submit noise and vibration isolation equipment data.

C. Submit pipe hanger and support data along with certificate of compliance.

D. Submit qualifications of testing and balancing firm.

E. Include testing and balancing procedures (agenda) along with proposed forms.

F. Submit final test and balance report.

1.5 QUALITY ASSURANCE:

A. Agency: Testing and balancing agency shall be a company specializing in this type work for a minimum of three documented years and certified by AABC or NEBB.

B. Welder Certification: In conformance with AWS D1.1.

C. For each product, provide components by the same manufacturer throughout.

D. Use domestic pipe, pipe fittings, valves, and motors on this project when available unless other specified.

PART 2 - PRODUCTS

2.1 NOISE AND VIBRATION ISOLATION

A. Provide neoprene pads for all floor, base, and pad mounted equipment in accordance with ASHRAE A47.

B. Provide spring and rubber type vibration isolators for all hanging equipment.

2.2 BASIC PIPING MATERIALS:

A. Gate Valves: Valves up to 2-inch size shall have bronze body, bronze trim, inside screw, rising stem with hand-wheel, single wedge or disc, solder or threaded ends, Crane No. 1324, NIBCO No. S-126 or equal. Valves over 2-inches shall have iron body, bronze trim, rising stem with hand-wheel, OS&Y, double wedge, flanged ends.

B. Butterfly Valves: Not accepted.

C. Globe Valves: Valves up to 2-inch size shall have bronze body, bronze trim, rising stem and hand-wheel, inside screw, renewable composition disc, solder or screw ends to match adjacent piping, with back-seating capacity, and repackable under pressure. Valves over 2-inch size shall have iron body, bronze trim, rising stem, hand-wheel, OS&Y, plug type disc, flanged ends, renewable seat and disc.

D. Ball Valves: Valves up to 2-inch size shall have bronze or stainless steel body, stainless steel ball, Teflon seats and stuffing box ring, lever handle, solder or threaded ends. Valves over 2-inch size shall have cast steel body, stainless steel ball, Teflon seat and stuffing box seals, lever handle, flanged ends.

E. Plug Cocks: Plug cocks up to 2-inch size shall have bronze body, bronze tapered plug, non-lubricated, Teflon packing, threaded ends, with wrench operator. Plug cocks over 2-inch shall have iron body and plug, pressure lubricated, Teflon packing, flanged ends, with wrench.

F. Swing Check Valves: Valves up to 2-inches shall have bronze body, 45 degree swing disc, solder or screwed ends. Valves over 2-inches shall have iron body, bronze trim, 45 degree swing disc, renewable disc and seat, flanged ends.

G. Spring Loaded Check Valves: Iron body, bronze trim spring loaded, renewable composition disc and seat, screwed, wafer, or flanged ends.

H. Strainers: Strainers up to 2-inches shall screwed brass or iron body, Y-pattern with stainless steel screen. Strainers over 2-inches shall have flanged iron body, Y-pattern with stainless steel screen.

I. Escutcheon Plates: One piece or split hinge type metal plates for piping passing through floors, walls, and ceilings in exposed spaces, chromium-plated finish on plates in finished spaces, paint on plates in unfinished spaces, and with set screws to anchor plates in place securely.

J. Unions: For pipe sizes under 2-inches use 150 psig malleable iron unions for threaded ferrous piping; bronze unions with solder joints for copper pipe.

K. Flanges: For pipe size over 2-inches use forged steel slip-on flanges conforming to ANSI B16.1, Class 125, for use in ferrous piping; Bronze flanges conforming to ANSI B16.22 or B16.24 for use in copper tubing. Gaskets shall be full face flat type synthetic rubber, except use neoprene gaskets for gas service and shall conform with ANSI B16.21

L. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, except both ends threaded for gas service, water impervious isolation. Use unions as manufactured by EPCO.

M. Access Doors: Provide, 12" x 12" minimum size, factory prefabricated flush face steel access doors including steel door frame with continuous hinges and turn-screw-operated latch. Door frame shall be for installation in dry walls, plaster walls, or masonry walls.

Furnish doors under this section to provide proper access to concealed valves; install doors under the appropriate section of this specification.

N. Pipe Sleeves: Sleeves in masonry and concrete walls, partitions, floors, and roofs shall be constructed of, Schedule 40, hot-dipped galvanized, pipe conforming to ASTM A53. Sleeves in other type construction shall be constructed of steel sheet having a nominal weight of not less than 0.90 pounds per square foot.

O. Flashing: Flashing for pipes passing through roof or waterproofing membrane shall be fabricated from 4-pound per square foot sheet lead. Flashing for plumbing vents through metal roof shall be made water-tight by special flashing obtained from the roof manufacture.

P. Pipe Hangers and Supports: Provide MSS SP-58 and MSS SP-69, Type 1 or 6 of adjustable type. Attachments to steel W or S beams shall be with Type 21, 28, 29, or 30 clamps. Attachments to steel angles and channels (with web vertical) shall be with Type 20 clamp with beam clamp channel adaptor. Attachments to steel (with web horizontal) shall be with drilled hole on centerline and double nut and washer. Attachment to concrete shall be with Type 18 insert or drilled hole with expansion anchor. Attachment on roof shall be structural design with mechanically attached foam base, saddle for aligning pipe, and use of 3/8" or ½" threaded rod, equal to Roof Top Blox. Hanger rods and attachments shall be full size of the hanger threaded diameter. Provide Type 40 insulation protection shields for insulated piping. Provide steel support rods. Provide nonmetallic, hair felt or plastic piping isolators between copper tubing and the hangers or use copper hangers.

Q. Tracer Wire for Nonmetallic Pipe: Tracer wire shall be bare copper wire not less than 0.10 inch in diameter and shall be continuous over entire length of nonmetallic pipe.

2.3 Identification:

A. Stencils: With clean cut symbols and letters.

B. Stencil Paint: In accordance with Section 09900, semi-gloss enamel.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

2.4 Adjusting, Balancing & Testing:

A. General: The Contractor shall procure the services of an independent balance and testing firm, approved by the Architect which specializes in the balancing and testing of heating, ventilating and air conditioning systems; to balance, adjust, and test the mechanical systems performance in accordance with the contract plans and specifications.

B. Quality: The testing firm shall be a member of Associated Air Balance Council. All work by this firm shall be done under direct supervision of a qualified engineer employed by them. The air balance firm shall provide proof of having successfully completed at least five projects of similar size and scope. All instruments used by this firm shall be accurately calibrated and maintained in good working order. If requested, the tests shall be conducted in the presence of the Contracting Officer.

C. Testing: Balance and testing shall not begin until system has been completed and is in full working order. The Contractor shall put all heating, ventilation, and air conditioning systems and equipment into full operation and shall continue the operation of same

during each working day of testing and balancing.

D. Submittal: The Contractor shall submit six (6) copies of submittal data for the testing and balancing of the air conditioning, heating and ventilating systems.

E. Warranty: Balance firm shall include and extended warranty of 90 days, after completion of work, during which time the Architect, at his discretion, may request a re-check of resetting of any water flow, outlet, supply air fan, or exhaust fan as listed in test report.

PART 3 - EXECUTION

3.1 NOISE CONTROL AND VIBRATION ISOLATION:

A. Vibration Absorbing Supports: All items of mechanical piping and equipment, including compressors and pumps, shall be properly isolated from the building structure by means of approved vibration-absorbing supports or foundations. Each unit shall consist of machine and floor or foundation together with intermediate isolation materials. The isolation units shall be standard catalog products with printed loading ratings. The support for each piece of equipment shall be submitted for approval.

3.2 INSTALLATION OF PIPING:

A. Preparation:

1. Ream pipe and tube ends. Remove burrs. Bevel plain end of ferrous pipe.

2. Remove scale and dirt, on inside and outside of piping before assembly.

3. Prepare piping connections to equipment with flanges or unions.

4. Coordinate cutting or forming of roof or floor construction to receive drains to required invert elevations.

B. Installation:

1. Provide non-conducting dielectric connections whenever jointing dissimilar metals. Locate in accessible locations.

2. Install piping to conserve building space and not interfere with use of space. Group piping whenever practical at common elevations. Route piping in an orderly manner, plumb, and parallel with the lines of the structure, and maintain gradient.

3. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

4. Install specialties and equipment in accordance with manufacturer's instructions.

5. Install brass male adapters each side of valves in copper piped systems. Sweat solder adapters to pipe.

6. Provide clearance for installation of insulation and access to valves and fittings.

7. Slope water piping and arrange to drain at low point.

C. Application:

1. Install specialties in accordance with manufacturer's instructions.

2. Install brass male adapters each side of valves in copper piped systems. Sweat solder adapters to pipe.

3. Install globe, plug cock, or ball valves for throttling, by-pass, or manual flow control services.

4. Install tracer wire over underground nonmetallic pipe.

5. Threaded Connections: Jointing compound for pipe threads shall be polytetrafluoroethylene (PTFE) pipe thread tape, pipe cement and oil, or PTFE powder and oil; apply only on male threads. Provide exposed ferrous pipe threads with one coat of primer applied to a minimum dry film thickness of 1.0 mil.

6. Solder End Valves: Remove stems and washers and other items subject to damage by heat during installation. Reassemble valve after soldering is completed. Valves without heat sensitive parts do not require disassembly but shall be opened at least two turns during soldering.

7. Pipe Hangers and Supports: Support horizontal piping as follows:

PIPE SIZE	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER
½ TO 1-1/4 INCH	6'-0"	3/8"
1-1/2 TO 2 INCH	8'-0"	3/8"
2-1/2 TO 3 INCH	10'-0"	½"
4 TO 6 INCH	12'-0"	5/8"
8 TO 12 INCH	14'-0"	7/8"
PLASTIC – ALL SIZES	4'-0" & AT ELBOWS	3/8"
CAST IRON PIPE	5'-0" & AT JOINTS	5/8"

8. Pipe Sleeves: Provide pipe sleeves where piping passes through walls, floors, roofs, and partitions. Secure sleeves in proper position and location during construction. Provide sleeves of sufficient length to pass through entire thickness of walls, floors, roofs, and partitions. Provide not less than 0.25-inch space between exterior of piping or pipe insulation and interior of sleeve. Firmly pack space with insulation and calk at both ends of the sleeve with plastic waterproof cement which will dry to a firm but pliable mass, or provide a segmented elastomeric seal. Seal both ends of penetrations through fire walls and fire floors to maintain fire resistive integrity with UL listed fill, void, or cavity material. Extend sleeves in floor slabs 3 inches above the finished floor, except sleeves are not required where DWV piping passes through concrete floor slabs located on grade.

9. Flashing: Pipes passing through roof or floor waterproofing membrane shall be installed through lead flashing within an integral skirt or flange. Flashing shall be suitable formed and the skirt or flange shall extend not less than 8-inches from the pipe and shall set over the roof or floor membrane in a solid coating of bituminous cement. The flashing shall extend up the pipe a minimum of 8-inches. The annular space between the flashing and the bare pipe shall be sealed. Flashing for dry vents shall be turned down into the pipe to form a waterproof joint. A sheet-lead flashing shield shall be provided for floor drains and pipe sleeves with integral clamping devices that penetrate a membrane. Flashing shield shall be made from sheet lead and extend not less than 8-inches from the drain or sleeve in all directions. Flashing shall be inserted into the clamping device and made watertight.

10. Flanges and Unions: Flanges shall be faced true. Flanges shall be provided with gasket and made square and tight. Except where copper tubing is used, union or flange joints shall be provided in each line preceding the connection to each piece of equipment or material requiring maintenance such as coils, pumps, control valves, and other similar items. A union shall be installed on the downstream of each valve.

11. Grading: Connections shall be carefully made to insure unrestricted circulation or flow, eliminate air pockets and permit draining of all systems. Hot and chilled water lines shall have a grade of not less than 1" in 40' up in the direction of flow to the high point air vent. Steam and steam condensate lines shall have a grade of not less than 1" in 20' down in the direction of flow. Use eccentric reducers to maintain top of heating and chilled water piping at proper grade and to maintain bottom of steam and steam condensate piping at proper grade.

12. Valve Stems: Valves in horizontal lines shall be installed with stems horizontal or above.

D. Welding

1. Welded Joints: Welded joints shall be fusion-welded in accordance with ANSI B31.1, Section 6. Mitering or notching of pipe to form elbows or tees or other similar construction will not be permitted.

2. Beveling: Field and shop bevels shall be in accordance with the recognized standards and shall be done by mechanical means or flame cutting. Where beveling is done by flame cutting, surfaces shall be cleaned of scale and oxidation prior to welding.

3. Alignment: Before welding, the components parts to be welded shall be aligned so that no strain is placed on the weld when finally positioned. Height shall be so aligned that no part of the pipe wall is offset by more than 20% of the wall thickness. Flanges and branches shall be set true. This alignment shall be preserved during the welding operation.

4. Removing and Replacing Defective Welds: Shall be at no additional cost to the owner. Repairing defective welds by adding new materials over the defects or by peening will not be permitted.

5. Electrodes: Electrodes shall be stored in a dry heated area and shall be kept free of moisture or dampness during fabrication operations. Electrodes that have lost part of their coating shall be discarded.

6. Welding to Structure: Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

3.3 IDENTIFICATION, LABELING AND MARKING:

A. General: Piping, valves, controls, and equipment shall be labeled or marked. Manufactured name plates and labels such as Brady or Seton will be acceptable and the Contractor is invited to submit, for examination and test, samples of materials he proposes to use.

B. Piping: On all piping, stencil name of liquid or gas being handled, and direction of flow in contrasting colors. In general stencils shall be on piping at 20 foot intervals and near all operating valves & equipment. Lines less than 3/4" total diameter to be identified with brass tags, lines 1" to 2" to have 3/4" high stencils, lines 2-1/2" to 7" to have 1-1/2" high

stencils and all larger lines to have 2" high stencils. Sizes given are after insulation is applied.

C. Equipment: All apparatus, equipment, machines, controlling devices, controlled devices, starters, and switches are to be identified by name and number. Do not place label on cover or shield which is removable or interchangeable with other pieces. On all major equipment it shall be painted in prominent spots as selected. Number all boilers, fans, pumps, etc., as well as label.

D. Valve Tags: All valves shall be provided with a nickel-plated brass tag not less than 1-1/2" in diameter with stamped numbers. Tag shall be secured to the valves with approved type S hooks. Also provide and mount under glass in the equipment room a typewritten valve list, listing functions of each valve, its location and service.

3.4 TESTING, ADJUSTING, AND BALANCING:

A. General Requirements: All equipment and apparatus necessary for balancing and testing shall be furnished by the Contractor. All defects disclosed by the tests shall be rectified without additional cost to the Owner. Field tests shall be made under the direction and subject to the approval of the Contracting Officer.

B. Piping Systems: Shall be tested after installation and before any insulation is applied. All controls and other apparatus that may be damaged by the test pressure shall be removed before the tests are made. Leaking screw and solder joints shall be remade. Welded joint leaks shall be repaired by cutting the section out of the system and rewelded. Tests shall be made by the Contractor and the results submitted for approval. Each system shall be hydrostatically tested as outlined in applicable codes and standards. Test pressure shall be maintained for no less than 2 hours. No tar, grease, paint or any other compound shall be used to repair leaks.

C. Operational Test: After the above testing all mechanical systems shall be started and operated to prove proper functioning of each type of equipment. Start-up and adjustment of the heat pumps shall be accomplished by the manufacturer's start-up Engineer. All operating tests shall be to the satisfaction of the Architect. Should any element not perform properly, the Contractor shall make all required corrections.

D. The balance and testing firm shall test, balance, adjust and record the following for all systems as applicable.

1. Test and adjust all blower RPM to design requirements.
2. Test and record all motor full load amperes.
3. Test and record system static pressure, suction and discharge.
4. Test and adjust system for design recirculated air, CFM.
5. Test and adjust system for design CFM outside air.
6. Test and record entering air temperatures.
7. Test and record leaving air temperatures.
8. Test and adjust each diffuser, grilles and register to within ten percent of design requirements. Each grille, diffuser and register shall be identified as to location and area. Size, type, and manufacture of diffusers, grilles, registers, and all test equipment shall be identified and listed. Manufacturer's ratings on all equipment

shall be used to make required calculation.

9. In cooperation with the control manufacturer's representative, setting adjustment of automatically operated dampers to operate as specified, indicated and/or noted. Testing agency shall check all controls for proper calibrations and list all controls requiring adjustment by control installers.

E. Performance Test: After completion of testing, balancing and adjusting the balance and testing firm shall make performance test of all mechanical system to determine compliance with the specification requirements. Any equipment that fails to equal or to exceed the specified performance shall be modified or replaced at no additional cost to the Owner.

F. Test Data: The Contractor shall furnish to the Architect four (4) copies of the schedules of readings taken during the balance and testing operation indicating the required to specified reading and the final balanced reading of all items.

SECTION 23 00 00

HVAC EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Heat Pump Systems

B. Exhaust Fans and Accessories

1.3 QUALITY ASSURANCE:

A. Fan Performance Ratings: Conform to AMCA 210 and bear the AMCA Certified Rating Seal.

B. Fan Sound Ratings: AMCA 301; tested to AMCA 300 and bear AMCA Certified Sound Rating Seal.

C. Fan Fabrication: Conform to AMCA 99 and/or ARI 430.

1.4 SUBMITTALS:

A. Submit product data and shop drawings under provisions of Section 23 01 00.

B. Submit manufacturer's installation instruction.

C. Provide one (1) extra set of filters.

PART 2 - PRODUCTS

2.1 HEAT PUMP SYSTEMS:

A. HEAT PUMP:

1. General: Furnish and install an air-to-air electric heat pump system consisting of a fan coil unit, remote refrigeration unit, and supplementary electric heat. The system shall conform to the requirements of ARI Standard 240 and shall be UL approved.

2. Outdoor Section: The outdoor section shall consist of compressor unit, air-cooled coil, air circulatory fan, housing, controls, frame and cabinet. The coil shall be protected by a grille. The cabinet shall be finished with baked enamel or other suitable weatherproof finish.

3. Indoor Section: The indoor section shall consist of a fan/coil unit. The coil shall be provided with a drain pan of nonferrous material or with a steel pan completely waterproofed with non-hardening type mastic on the water side. The supply air fan shall be of the centrifugal type, quiet in operation and capable of supplying the CFM and static pressure indicated. The fan/coil unit cabinet shall be insulated with mineral wool to prevent seating. The unit shall be mounted on vibration absorbing supports.

4. Supplementary Heat: Supplementary heat shall be of the electric resistance type and shall be installed downstream from the indoor coil. Heating elements shall have factory wired magnetic contactors and high temperature cutout devices. One stage of the heat shall be provided with an outside air thermostat.

5. Controls: The cooling/heating system shall be protected by high and low pressure stat, loss of charge and indoor coil freeze-up protection devices, current and temperature-sensitive compressor motor protectors, a device which prevents starting of the compressor more than once every 5 minutes, and a defrost circuit which senses for frost accumulation every 90 minutes and, if frost is present, automatically puts the unit into defrost cycle.

6. Thermostats: A deluxe wall mounted heating/cooling (two (2) stage heating, one (1) stage cooling) thermostat shall be installed. The thermostat shall be equipped with a system selector switch, blower switch for automatic or continuous operation and built-in heat and cool anticipation.

7. Energy Efficiency Ratio: The cooling system energy efficiency ratio (EER) shall be equal to, or greater than those ratios scheduled on the Drawing. Energy efficiency ratios shall be for the equipment combination specified and shall conform to the listings published in the current Air-Conditioning and Refrigeration Institute Directory.

2.2 XHAUST FANS AND ACCESSORIES:

A. General: This Contractor shall furnish and install all exhaust fans. Fans shall be of the sizes and types shown on the Drawings and shall be complete with all accessories and specials scheduled. Fans shall be rated in accordance with AMCA Standards and shall be AMCA labeled. All fractional horsepower motors shall be provided with internal overload protections.

B. Ceiling Mounted Fans: Fans shall be of the centrifugal direct drive type. Each fan shall have a removable front grille and gravity discharge damper. Interior of fan housing shall be lined with sound deadening insulation. Provide appropriate roof jack or wall discharge grille and connecting ductwork. Fans shall be Greenheck Model SP-A, Cook Model GC, Twin City Fan Model T, Broan, or approved equal.

C. Wall Caps: Wall caps for ceiling type exhaust fans shall consist of flanged extruded aluminum louver with a wall sleeve and a spring loaded backdraft damper. Caps shall be Greenheck Model WLSP or approved equal.

PART 3 – EXECUTION

3.1 INSTALLATION:

A. Install equipment in accordance with manufacturer's installation instruction.

B. Coordinate installation with architectural, structural, mechanical, and electrical work.

C. Pipe drains to floor drain.

D. Clean and flush system before placing in operation.

E. Verify that the proper utilities are connected and ready for use before operation of equipment.

END OF SECTION

SECTION 23 01 00

MECHANICAL GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The general provisions of the Contract, including General and Supplementary Conditions, DIVISION 1 - GENERAL REQUIREMENTS, apply to the work specified in this Division, with additions and modifications specified herein.

1.2 APPLICATION: This section applies to all sections of Division 15 - Mechanical Work of these specifications, including modifications and additions specified in each individual section.

1.3 DESCRIPTIONS OF WORK:

A. Scope: The work covered by this Division of these Specifications consist of furnishing all plant, labor, equipment, appliances, and materials, and in performing all operations in connection with the mechanical work, including all items of special equipment specified herein, complete in strict accordance with this Division of these Specifications and the applicable Drawings.

B. Work Included: The work involves a complete mechanical system. Generally the work includes, but is not limited to the following items. Complete heating, ventilating and air conditioning system.

Complete heating, ventilating and air conditioning system

Hot and chilled water distribution system, including pumps, piping, etc.

Domestic hot and cold water distribution system.

Waste and drainage system.

Plumbing fixtures, appliances, equipment, and specialties.

Temperature control system and Instrumentation.

Terminal and acoustical insulation.

Mechanical rough-in and mechanical connection of equipment furnished under other Divisions of this Contract.

Maintain a clean work area.

Testing, adjusting and balancing of the mechanical system.

Equipment and piping identifications.

Miscellaneous other work for a complete and operative mechanical system.

Structural steel for equipment supports.

1.4 Related Work Specified Elsewhere: Generally the following work is specified under other Divisions of the project Specifications.

A. Electrical power wiring and power connection to equipment.

B. All painting except restoring finish on equipment that has sustained damage during shipment or installation.

C. Receiving, uncrating and installing equipment furnished by others or the Owner.

1.5 SITE CONDITIONS: Before submitting a proposal for the work contemplated in these

Specifications and accompanying Drawings, each bidder shall examine the site and familiarize himself with all the existing conditions and limitations. No extras will be allowed because of the Contractor's misunderstandings as to the amount of work involved or his lack of knowledge of any condition in connection with the work.

1.6 FEES, PERMITS AND INSPECTIONS: This Contractor shall secure and pay all fees, permits and inspections required on work performed under this section of the contract Specifications. Fees shall include, but not limited to, sewer, water and/or gas taps and all gas/ water meter fees charged by the utility companies. He shall assume full responsibility for all assessments and taxes necessary for completion and acceptance of this work.

1.7 APPLICABLE CODES AND STANDARDS: All materials, arrangements, and workmanship shall comply with all applicable codes, specifications, federal and state laws, local ordinances, industry standards and utility company regulations. In case of difference between building codes, Specifications, Federal and State laws, local ordinances, standards and utility company regulations and the Contract Documents, the most stringent requirement shall govern. The Contractor shall promptly notify the Architect in writing of such difference. Should the Contractor perform any work that does not comply with requirements of the applicable building codes, Federal and State laws, local ordinances, industry standards, and utility company regulations, he shall bear all costs arising in correcting the deficiencies. Applicable Codes and Standards shall include all state laws, State Board Health and State Rating Bureau, local ordinances, industry standards, and utility company regulations. Comply with applicable requirements of the following national accepted codes and standards as though they were copied herein fully:

ARI	Air Conditioning and Refrigeration Institute
ADC	Air Diffusion Council
AMCA	Air Moving & Control Association
AABC	American Air Balance Council
AGA	American Gas Association
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers - Handbook
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
CISPI	Cast-Iron Soil Pipe Institute
CTI	Cooling Tower Institute
FM	Factory Mutual System
HI	Hydronic Institute
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineers
IPC	International Plumbing Code
MSS	Manufacturer's Standardization Society
MPTA	Mechanical Power Transmission Association
NBS	National Bureau of Standards
NEMA	National Electrical Manufacturers Association
NEBB	National Environmental Balancing Bureau

NFPA	National Fire Protection Association - Fire Codes
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act Standards
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal & Air Conditioning Contractors National Association
SAE	Society of Automotive Engineers
UL	Underwriters' Laboratories

1.8 APPROVAL OF MATERIALS AND EQUIPMENT:

A. Quality Standards: Whenever a material, article or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard of quality and shall not be construed as limiting competition. Any material, article or piece of equipment of other manufacturers or vendors which will perform adequately the duties impose by the design will be considered equally acceptable provided the material, article, or piece of equipment so proposed is, in the opinion of the Architect, of equal substance, appearance and function. It shall not be purchased or installed by the Contractor without the Architect's written approval. In order that all bidders, manufacturers, and vendors receive fair and equal consideration, the procedures described hereinafter shall be complied with.

B. Approval of Substitutions: Prior written approval by the Architect/Engineer is required for substitutions for all materials, articles and equipment specified without qualifications or followed by "or prior approved equal". Request for prior approval shall be submitted to the Architect, with copy to Engineer, at least ten (10) days before time of bid opening. Approved substitutions will be included in an addendum to the Specification or in writing at the discretion of the Architect. Request for approval for materials, articles, and equipment qualified with "equal to" or "or equal" shall be submitted within 30 days after award of contract but before purchase. IN CONNECTION WITH THE USE OF ANY ALTERNATE ITEM APPROVED BY THE ARCHITECT, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT SUCH ITEMS MEET ALL REQUIREMENTS, AND THAT ANY ALTERATIONS TO CONNECTING OR ASSOCIATED ITEMS NECESSITATED BY USE OF THE ALTERNATE ITEMS ARE PROPERLY MADE WITHOUT ADDITIONAL COSTS TO THE OWNER. This includes but is not limited to added breakers, fuses, disconnects, wiring, or piping that is not indicated by scheduled equipment. Architect's opinion shall be final on quality of substituted items.

C. Manufacturer's Brochures and Shop Drawings: As soon as practicable after award of the contract and before starting installation of any materials or equipment, the Contractor shall submit to the Architect for approval six (6) copies of Manufacturer's brochures and shop Drawings giving rating, operating characteristics, wiring diagrams, power requirements, etc., of the material and equipment proposed for installation. A complete electrical connection diagram for each electrically controlled component shall be submitted for approval. The connection diagram shall identify each component and shall show all interconnected and interlocked components. Automatic temperature control diagrams shall be submitted. All data submitted shall be sufficiently complete to demonstrate conformance with the Specification requirements. Drawings showing all ducts, piping and installation details shall be submitted for approval with Material and Equipment submittal if equipment is different from that indicated on the Drawings. Checking and approval of brochures and shop Drawings by the Architect shall not

relieve the Contractor from the responsibility for deviations from the Drawings and Specifications unless he has in writing called the Architect's attention to such deviations at time of submission and secured his written approval, nor shall it relieve him of responsibility for errors or omissions in the shop Drawings. Checking and approval by the Architect is only for general conformance with design intent and contract requirements. It is the Contractor's responsibility to verify the accuracy of dimensions, obtaining field dimensions, by comparison and measurements in the field. Final shop Drawings shall indicate field verified dimensions.

1.9 DEVIATIONS:

A. Drawings: The Mechanical Drawings show the general arrangement of all piping, equipment, and appurtenances and shall be followed as closely as actual building construction and the work of other trades will permit. The mechanical work shall conform to the requirements shown on all of the Drawings. General and Structural Drawings shall take precedence over Mechanical Drawings. Because of the small scale of the Mechanical Drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. The Contractor shall investigate the structural and finish conditions affecting the work and shall arrange his work accordingly, providing such fittings, valves and accessories as maybe required to meet such conditions. If major departures from the contract Drawings are deemed necessary by the Contractor, details of such departures and the reasons therefore shall be submitted as soon as practicable for approval. No major departures shall be made without prior written approval.

B. Space Conditions: Every attempt has been made to design the systems so as to cover the installation of all equipment and connections thereto without interference to the structural design of the building. Contractor shall note that space in some locations is critical, and shall prior to installing his work coordinate the location with all other trades. If interference results from failure of the Contractor to exercise such caution, work shall be relocated as the Engineer ascertains would most facilitate job progress. Relocation shall be at the expense of the Contractor whose work is relocated, and the decision of the Engineer shall be final. If Contractor is unable to achieve desired cooperation with other trades and/or subcontractors, he is cautioned not to proceed but to inform the Engineer as to his difficulties. Contractor shall make offsets, transitions and changes in direction in pipe, ducts, etc., as required to maintain proper grades, or essential elevations.

1.10 COOPERATION: Cooperate and coordinate with others in laying out work so that this phase of the work will properly fit the building and other contractors' requirements. Priority of locations shall be as follows:

Light Fixtures
Ceiling Mounted Air Control Devices
Fire Protection System
Ductwork
Plumbing Waste, Drain and Vent System
Mechanical Equipment
Electrical Equipment
Mechanical Piping Mains
Electrical Feeders

1.11 OPERATING AND MAINTENANCE INSTRUCTIONS:

A. Bound Instructions: Four (4) complete sets of instructions containing the manufacturer's operating and maintenance instructions for each piece of equipment shall be furnished to the Owner. Each set shall be permanently bound and shall have a hard cover. One complete set shall be furnished at the time the test procedure is submitted, and the remaining sets shall be furnished before the Contract is completed. Flysheet shall be placed before instructions covering each subject. Flysheet shall be placed before instructions covering each subject. The instructions sheets shall approximately 8-1/2" by 11" with large sheets of Drawings folded in. The instructions shall include, but shall not be limited to the following:

1. System layout showing piping, valves, and controls.
2. Approved wiring and control diagrams, with date to explain the detailed operation and control of each component.
3. A control sequence describing startup, operation and shutdown.
4. Operating and maintenance instructions for each piece of equipment, including lubrication instructions.
5. Manufacturer's bulletins, cuts and descriptive data.
6. Parts lists and recommended spare parts.

B. Framed Instructions: Approved wiring and control diagrams showing the complete layout of the entire system, including equipment, piping, valves and control sequence, framed under glass or in approved laminated plastic, shall be posted where directed. In addition, condensed operating instructions explaining preventive maintenance procedures, methods of checking the system for normal safe operation, and procedures for safely starting and stopping the system shall be prepared in type form, framed as specified above for the wiring and control diagrams and posted beside the diagrams. Proposed diagrams, instructions and other sheets shall be submitted for approval prior to posting.

C. Field Instructions: Upon completion of the work and at a time designated, the services of one project engineer shall be provided by the Contractor to instruct the representative of the Owner in the operation and maintenance of the mechanical systems.

D. Temporary Equipment: Mechanical Contractor shall not run HVAC equipment during duration of project when dust from construction is present. When space is properly cleaned, the Engineer will inspect space conditions and approve the use of HVAC equipment. If temporary heating/cooling is necessary for construction of project, Mechanical Contractor will need to notify other trades that it will not be provided by them.

1.12 RECORD DRAWINGS:

A. This Contractor shall provide record Drawings at completion of job. Drawings to show all significant changes in piping, equipment, wiring, etc. The actual location of all piping drains, clean-outs, apparatus and equipment shall be indicated. These Drawings are to be turned over to the Architect at completion. All cleanouts and concealed equipment (below grade) to be dimensioned from building lines, etc.

1.13 CONNECTION OF EQUIPMENT FIXTURES FURNISHED BY OTHERS:

A. This Contractor shall provide all necessary materials and labor to connect to the mechanical systems all equipment and fixtures having mechanical connection and which

are specified in other Divisions of the project Specifications. Drainage connections shall be trapped. The supply and return lines for each item of equipment or fixture, except control valves with integral stops, shall be provided with cut-off valves to enable isolation of the item for repair and maintenance without interfering with the operation of other equipment or fixtures. Refer to other Divisions of the project Specifications for additional requirements. Actual rough-in dimensions shall be obtained from shop Drawings or measurements of the equipment or fixture.

B. The unpacking, assembling and setting of equipment furnished by the Owner or under other than Mechanical Sections of these Specifications will not be performed under this Division of the Specifications.

C. Due to the fact that the manufacture of the equipment actually purchased may vary slightly from that specified in the above lists and therefore require some rearranging of equipment different from that indicated on the Drawings, the Contractor shall make connections to such rearranged equipment without additional cost to the Owner. That is, for an initial installation arrangement other than that indicated on the Drawings. Equipment will be furnished complete with faucets, waste strainer and tailpiece. This Contractor shall supply traps, supplies, and stops for above equipment.

1.14 ELECTRICAL:

A. Refer to the Electrical Drawings and Division 16, ELECTRICAL WORK, for the characteristic of the available electrical power. All motors and equipment under this contract to be compatible with the local voltages.

B. For each and every motor installed under this section of the contract, furnish to the Electrical Contractor for installation the proper motor starter, where not specified to be furnished by the electrical contractor and where required, pushbuttons or hand-off automatic controls, or other required relays or control devices. All motors which start and stop automatically or as specified, shall be furnished with magnetic starters, pushbuttons and relays as required. The Electrical Contractor will wire from service to starter to motor. Any additional secondary control circuits, such as remote control stations, and temperature control wiring shall be provided under this Division. Each and every wire in each and every junction box, starter, pull box or where else terminating or connecting or visible shall be color coded and numbered using Brady Stick-On numbers or equivalent. Upon completion of all wiring, including control and secondary wiring, Contractor shall furnish finished shop Drawing showing each wire number and connecting points for each and every unit. Contractor shall 'meg' every circuit to determine leaks or shorts and correct same before calling for inspection by Engineer.

C. All wiring installed under the responsibility of this Contractor shall be in conduit and in strict accordance with the National Electrical Code and DIVISION 16, ELECTRICAL WORK of the project Specifications.

1.15 WORKMANSHIP:

A. All work shall be executed in a neat and substantial manner by skilled workmen well qualified and regularly engaged in the type of work required. Substandard work shall be removed and replaced by the Contractor at no cost to the Owner.

1.16 CUTTING AND PATCHING:

A. This Contractor shall provide all cutting, digging, etc., incident to his work and shall make all required repairs thereafter to the satisfaction of the Architect, but in no case shall the

Contractor cut into any major structural element beam or column without written approval of the Architect. Pavements, sidewalks, roads, curbs, walls, ceilings, floors and roofs shall be cut, patched, repaired and/or replaced as required to permit the installation of the work and such cutting, patching, repairing, and replacing shall be the responsibility of and paid for by the Contractor under this section of the Specifications.

B. The Contractor shall bear the expense of all cutting, painting, patching, repairing or replacing of the work of other trades required because of his fault, error or tardiness or because of any damage done by him.

1.17 CLEANING AND PAINTING:

A. The respective Contractors or Sub-contractors for the various phases of the work shall clear away all debris, surplus materials, etc., resulting from their work or operations, leaving the job and equipment furnished under any or all Contracts in a clean first class condition.

B. All plumbing fixtures shall be thoroughly cleaned of all plaster, stickers, rust stains and other foreign matter or discoloration, leaving every part in an acceptable condition and ready for use. The surfaces of all pumps, motors, floor drains, cleanouts and other equipment shall be cleaned and each item shall be left in a first class condition.

C. Painting of materials and equipment furnished under the mechanical portion of the Contract is specified under the General Construction Contract as described in other Sections. The Mechanical Contractor shall, however, refinish and restore to the original conditions and appearance, all mechanical equipment which has sustained damage to manufacturer's prime and finish coats of enamel or paint. Materials and workmanship shall be equal to the requirements described for other painting.

1.18 MECHANICAL DEMOLITION: Contractor shall visit the building to determine the existing conditions and review the items of work required to establish the planned and specified construction work. The Mechanical Contractor shall coordinate his demolition with the General Contractor, in establishing his schedule and shall consider the requirements that all activities of the existing building shall, during normal operating hours, with designated representatives of the Owner, and The Architect. All utility outages shall be approved through the Owner's Engineering Department. Contractor shall terminate and cap all active utility lines to the demolished areas, except that the Contractor shall maintain active lines that supply or drain the existing building to remain. Any damage during this contract, to existing utility lines serving the existing building to remain, shall be properly repaired and reactivated at no expense to the Owner. Contractor shall haul all debris, equipment, and fixtures from the site before any significant accumulation appears. Removal shall be done without undue noise, dust, and shall be accomplished without interfering with normal plant operations.

1.19 EQUIPMENT SAFETY: Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, rotating parts, and other power transmission apparatus, located so that any person can come in close proximity thereto, shall be fully enclosed or properly guarded in accordance with OSHA 1910.219. Provide positive means of locking out equipment so that it cannot be accidentally started during maintenance procedures. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of a type as specified. Ensure that access openings leading to equipment are large enough to carry through routine maintenance items such as filters and tools.

1.20 DELIVERY AND STORAGE: Equipment and materials shall be handled, stored, and protected to prevent damage before and during installation in accordance with the manufacturer's recommendations, and as approved by the Architect/Engineer. Damaged or defective items shall be replaced.

1.21 STANDARD PRODUCTS/SERVICE AVAILABILITY:

A. Materials and Equipment: Materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two-year use shall include applications of equipment and materials under similar circumstances and of similar size.

B. Experience Required: The two-year experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures.

C. Service Support: The equipment items shall be supported by service organizations. The Contractor shall submit a certified list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

D. Manufacturer's Nameplate: Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.22 EXISTING UTILITIES, STRUCTURES AND OTHER PROPERTY: Prior to any excavation, it shall be the responsibility of the Contractor to locate and avoid damage to any and all existing water, gas, sewer, electric, telephone and all other underground utilities or structures. The Contractor shall contact the various local utility departments or other responsible agencies and obtain location Drawings, or other assistance in the locations of existing underground work. The Contractor shall repair or pay for all damage caused by his operations to all existing property, public or private, whether it is below or above ground, and shall settle in total cost all damage suits which may arise as a result of his operations.

1.23 GUARANTEE: This Contractor shall guarantee to Owner, all work performed under this contract to be free from defects in workmanship and materials for a period of one year from date of final acceptance by Architect and Owner. Any defects arising during this period will be promptly remedied by the Contractor without cost to the Owner. Compressors shall have a five (5) year warranty.

PART 2 - NOT APPLICABLE

PART 3 - NOT APPLICABLE

END OF SECTION

SECTION 23 07 00

INSULATION OF MECHANICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Piping Insulation, Jackets, and Accessories.

B. Equipment Insulation and Covering.

C. Ductwork Insulation, Jackets and Lining.

1.3 QUALITY ASSURANCE:

A. Applicator: A company specializing in insulation application with three years minimum experience.

1.4 SUBMITTALS:

A. Submit product data under the provisions Section 23 01 00.

B. Include product description, list of materials and thickness for each service, equipment and location.

C. Submit manufacturer's installation instructions.

1.5 MANUFACTURER'S STAMP OR LABEL:

A. Every package of insulation, jackets, cement, adhesives, and coatings delivered to the project site must have the manufacturer's stamp or label attached giving name of manufacturer, brand, and description of material.

1.6 FLAME SPREAD AND SMOKE DEVELOPED RATINGS:

A. In accordance with NFPA 255, ASTM E 84, or UL 723, the materials shall have a flame - spread rating of not more than 25 and a smoke - developed rating of not more than 50.

B. Materials Tests: UL label or satisfactory certified test report from a testing laboratory will be required to indicate that the fire hazard ratings for the materials proposed for use do not exceed those specified. Test factory-applied materials as assembled. Field-applied materials may be tested individually. Flame-proofing treatments subject to deterioration due to effects of moisture or high humidity are not acceptable.

C. Materials Exempt From Fire-Resistant Rating: Nylon anchors and PVC fitting covers.

PART 2 - PRODUCTS

2.1 PIPING SYSTEMS INSULATION:

A. Piping systems requiring insulation, types of insulation required, and insulation thickness shall be as listed in Tables I and II herein. Insulate all fittings, flanges, and valves with

factory premolded, precut, or field-fabricated insulation of the same thickness and conductivity as used on adjacent piping. Use factory premolded, precut, or field-fabricated insulation of the same thickness and conductivity as used on adjacent piping. Insulation exterior shall be cleanable, grease resistant, non-flaking and non-peeling.

B. Pipe Insulation:

1. Glass Fiber Insulation: ANSI/ASTM C547; `K' value of .24 at 75 degrees F.; noncombustible.

2. Cellular Glass Insulation: ANSI/ASTM C552; maximum water vapor transmission rating of 0.1 perm; `K' value of 0.40 at 75 degrees F.

3. Flexible Unicellular Insulation: ASTM C 534. Adhesive shall be as recommended by the insulation manufacturer and applied in accordance with the manufacturer's published instructions.

4. Hydrous Calcium Silicate Insulation: ANSI/ASTM C533; rigid white; asbestos free; `K' value of 0.44 at 300 degrees F.

C. Pipe Insulation Finishes:

1. All-Purpose Jacket: Except calcium silicate and unicellular insulation, provide a factory applied all-purpose jacket with or without integral vapor barrier as required by the service. Provide jackets in exposed locations with a white surface suitable for field painting without sizing. Allow a maximum water vapor permeance of 0.05 perm per ASTM E 96, a puncture resistance of not less than 50 Beach units, and a minimum tensile strength of 35 pounds force per inch of width in accordance with ASTM D 828.

2. Vapor Barrier Materials: Kraft reinforced foil vapor barrier with self-sealing adhesive joints. Resistant to flame, moisture penetration, and mold growth. Provide vapor-barrier materials on pipe as required in Table I.

2.2 DUCTS AND PLENUMS (HVAC) INSULATION:

A. Duct Insulation in Concealed Spaces: Insulation shall be blanket type flexible mineral fiber conforming to ASTM C 553, Type I, Class B-3, 1.0 pounds per cubic foot nominal, and 2.0 inches thick. Flexible insulation shall be used in concealed spaces only.

B. Duct Insulation Exposed in Mechanical Rooms: Insulation shall be mineral fiber board per ASTM C 612, Class 2, 6 pounds per cubic foot average density, one-inch thick.

C. Acoustically Lined Ducts: Ductwork indicated or specified in Section 23 30 00, Air Distribution, to be acoustically lined shall not be insulated.

D. Duct Insulation Finishes:

1. All-Purpose Jacket: Provide a factory applied all-purpose jacket with integral vapor barrier as required by the services. Provide jackets in exposed locations in equipment rooms with a white surface suitable for field painting without sizing.

2. Vapor Barrier Material: Scrim foil facing. Materials shall be resistant to flame, moisture penetration, and shall not support mold growth. Provide vapor barrier on all HVAC duct insulation. All-purpose jacket shall have a maximum water vapor permeance of 0.05 perm per ASTM E 96; a puncture resistance of not less than 50 Beach units; and a tensile strength of not less than 35 pounds-force per inch width in

accordance with ASTM D 828.

2.3 EQUIPMENT:

A. Insulate all equipment and accessories as specified in Table III. Increase the specified insulation thickness for equipment only where necessary to equal the thickness of angels or other structural members to make a smooth exterior surface.

2.4 ADHESIVE, SEALANTS, AND COATING COMPOUND:

A. Adhesive for Securing Insulation to Metal Surfaces and Vapor Barrier Lap Adhesive: ASTM C 916, Type I, (and adhesive in which the vehicle is nonflammable in the liquid state and which will pass the burning test).

B. Mineral Fiber Insulation Cement: ASTM C 195, thermal conductivity 0.85 maximum at 200 degrees F. mean when tested per ASTM C 177.

C. Vapor Barrier Coatings: Manufacturer's recommendation for indoor on surface temperature of 60 degrees and above, color white.

D. Flexible Unicellular Insulation Adhesive: Compatible with the Insulation.

E. Finishing Cement: ASTM C 449.

2.5 ACCESSORIES:

A. Staples: ASTM A 167, Type 304 or 316 stainless steel, outside-clinch type.

B. Insulation Bands: 3/4-inch wide: 0.20-inch aluminum.

C. Glass Cloth and Tape: Tape shall be 4-inch wide rolls, shall be 405 ounces per square yard. Open weave glass membrane may be used in lieu of glass cloth.

D. Wire: Soft annealed stainless steel, 0.047-inch nominal diameter.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Do not insulate materials until all system tests have been completed and surfaces to be insulated have been cleaned of dirt, rust, and scale and dried. Insulate return ducts, outside air intakes and supply ducts to the room outlets, exhaust ducts, flexible run outs, plenums, casings, mixing boxes, filter boxes, coils, fans, and the portion of air terminals not in the conditioned spaces. Ensure full range of motion of equipment actuators. Modify insulation to avoid obstruction with valve handle, safety relief, etc. Insulation shall be continuous through sleeves, wall and ceiling openings, except at fire dampers in duct systems. Extend all surface finishes to protect all surfaces, ends, and raw edges of insulation. Apply coatings and adhesives at the manufacturer's recommended coverage per gallon. Individually insulate piping and ductwork. Provide a moisture and vapor seal where insulation terminates against metal hangers, anchors and other projections through the insulation on surfaces for which a vapor seal is specified. Keep insulation dry during the application of any finish. Bevel and seal the edges of exposed insulation. Unless otherwise indicated, do not insulate the following:

1. Factory pre-insulated flexible ductwork.

2. Factory insulated ductwork, plenums, casing, mixing boxes, and filter boxes.

3. Vertical portion of interior roof drain pipelines, chrome plated pipes, and fire protection pipes.

4. Vibration isolating connections.

5. Adjacent insulation.

6. ASME stamps.

7. Equipment name plates.

8. Access plates in fan housing.

3.2 PIPING INSULATION:

A. General: Insulation shall be continuous through sleeves, wall and ceiling openings. Extend all surface finishes to protect all surfaces, ends, and raw edges of insulation. Provide a moisture and vapor seal where insulation terminates against metal hangers, anchors and other projections through the insulation on surfaces for which a vapor seal is specified. Bevel and seal the edges of exposed insulation.

B. Glass Fiber and Cellular Glass Pipe Insulation: Place sections of glass fiber pipe insulation around the pipe and joints tightly butted into place. Place sections of cellular pipe insulation around pipe and joints; seal all horizontal joints, butt joints, ends, longitudinal joints, etc. with hot asphalt or Hydrocal B-11 gypsum cement. Secure jacket with fire resistant adhesive or factory applied self-sealing lap. Cover circumferential joints with butt strips, not less than 3-inches wide, of material identical to the jacket material. Overlap longitudinal laps of jacket material not less than 1-1/2 inches. When a vapor barrier jacket is required, as indicated in TABLE I, or on the ends of section of insulation that butt against flanges, unions, valves, and fittings, and joints, use a vapor-barrier coating. Apply this vapor barrier coating at all longitudinal and circumferential laps. At penetrations by pressure gauges and thermometers, fill the voids with the vapor barrier coating. Seal with a brush coat of the same coating.

C. Flexible Unicellular Insulation: Bond cuts, butt joints, ends, and longitudinal joints with adhesive. Miter 90-degree turns and elbows, tees, and valve insulation. Where pipes penetrate fire walls, provide mineral-fiber insulation inserts and sheet-metal sleeves. Insulate flanges, unions, valves, and fittings in accordance with manufacturer's published instructions. Apply two coats of vinyl lacquer finish to flexible unicellular insulation in outside locations.

D. Calcium Silicate Pipe Insulation: Secure insulation with metal bands on 12-inch maximum centers. Apply a skim coat of hydraulic setting cement directly to the insulation. When dry, apply a flooding coat adhesive over the hydraulic setting cement. Press a layer of glass cloth or tape into adhesive and seal laps and edges with adhesive. Coat cloth with adhesive cut at a ratio of one part water to five parts adhesive in color other than white for the purpose of visual inspection to ensure sizing of entire surface.

E. Hangers and Anchors: Pipe insulation shall be continuous through pipe hangers. Where pipe is supported by the insulation, provide MSS SP-58, Type 40 galvanized steel shields or MSS SP-58, Type 39 protection saddles conforming to MSS SP-69. Where shields are used on pipes 2 inches and larger, provide insulation inserts at points of hangers and supports. Vapor seal insulation around anchors. Insulation inserts shall be of calcium silicate, cellular glass (minimum 8 pcf), molded glass fiber (minimum 8 pcf), or other approved material of the same thickness as adjacent insulation. Inserts shall

have sufficient compressive strength to support the pipe without compressing the inserts to a thickness less than the adjacent insulation. Insulation inserts shall cover the bottom half of the pipe circumference 180 degrees and be not less in length than the protection shield. Vapor-barrier facing of the insert shall be of the same material as the facing on the adjacent insulation. Where protection saddles are used, fill all voids with the same insulation material as used on the adjacent pipe

F. Sleeves: Where penetrating interior walls, extend a metal jacket 2 inches out on either side of the wall and secure on each end with a band. Where penetrating floors, extend a metal jacket from a point below the back-up material to a point 10 inches above the floor with one band at the floor and one not more than one inch from end of metal jacket. Where penetrating exterior walls, extend the metal jackets through the sleeve to a point 2-inches beyond the interior surface of the wall.

G. Flanges, Unions, Valves and Fittings Insulation for Hot Piping: Factory fabricated removable and reusable insulation covers may be used. For domestic hot water, heating hot water, A/C condensate drains, steam and condensate return systems; exposed hot water piping and drains in handicap areas, place factory premolded, precut or field-fabricated segmented insulation of the same thickness and conductivity as the adjoining pipe insulation around the flange, union, valve, and fitting abutting the adjoining pipe insulation. Elbows insulated using segments shall have not less than three segments per elbow. Place and joint the segments with manufacturer's recommended water vapor resistant, fire retardant, and adhesive appropriate for the temperature limit of the service. Upon completion of installation of insulation, apply two coats of lagging adhesive with glass tape embedded between coats. Where unions are indicated not to be insulated, taper the insulation to the union at a 45 degree angle. Coat the insulation and all-purpose jacket with two coats lagging adhesive and with glass tape embedded between coats. Factory pre-mold one-piece PVC fitting covers may be used in lieu of two coats of adhesive with tape embedded between coats. Factory premolded field-fabricated segment or blanket insert insulation shall be used under the fitting covers. Install factory premolded one-piece PVC fitting covers over the insulation and secure by stapling, taping with PVC vapor barrier tape, or with metal or plastic tacks made for securing PVC fitting covers.

H. Flanges, Unions, Valves, Anchors, Fittings for Cold Piping: Factory-fabricated removable and reusable insulation covers may be used. For piping insulation, domestic cold water, chilled water supply and return, refrigerant suction, drinking fountain drain piping to sewer tie-in, horizontal roof drain leaders, and exposed lavatory drains, coat pipe insulation ends with vapor barrier coating not more than six inches from each flange, union, valve, anchor or fitting. Place insulation of the same thickness and conductivity as the adjoining pipe insulation (either premolded or segmented) around the item, butting the adjoining pipe insulation. Elbows insulated using segments shall not have less than 3 segments per elbow. Apply two coats of vapor barrier coating with glass tape embedded between coats. Overlap tape seams one inch. Extend the coating out onto the adjoining pipe insulation 2 inches. Seal the insulation and jacket with two coats of vapor barrier coating with glass tape embedded between coats. Insulate anchors attached directly to the pipe for a sufficient distance to prevent condensation but not less than 6 inches from the insulation surface. At the option of the Contractor, premolded, one-piece polyvinyl chloride (PVC) fitting covers may be used in lieu of the embedded glass tape. Factory premolded insulation or filed-fabricated insulation segments shall be used under the fitting covers. Secure the covers with adhesive and vapor barrier tape, or with tacks made for securing PVC covers. Then coat all tape seams and tacks with

vapor barrier coating.

3.3 DUCTS AND PLENUMS (HVAC) INSULATION:

A. General: Insulate return ducts, outside air intakes, supply ducts to the room outlets, exhaust ducts, flexible run outs, plenums, casings, mixing boxes, filter boxes, coils fans, and the portion of air terminals not in the conditioned spaces. Insulation shall be continuous through sleeves, wall and ceiling openings. Extend all surface finishes to protect all surfaces, ends, and raw edges of insulation. Provide a moisture and vapor seal where insulation terminates against metal hangers, anchors and other projections through the insulation on surfaces for which a vapor seal is specified. Bevel and seal the edges of exposed insulation.

B. Rigid Insulation: Secure rigid insulation by impaling over pins or anchors located not more than 3 inches from joint edges of boards, spaced not more than 12 inches on centers and secure with washers and clips. Spot weld anchor pins or attach with a waterproof adhesive especially designed for use on metal surfaces. Apply insulation with joints tightly butted. Neatly bevel insulation around name plates and access plates and doors. Cut off protruding ends of pins, after clips are sealed with coating compound.

C. Flexible Blanket Insulation: Apply insulation with all joints tightly butted. Secure insulation to ductwork with adhesive in 6-inch wide strips on 12 inch centers. Staple laps of jacket with outward clinching staples and seal with foil scrim kraft (FSK) tape. For ductwork over 24-inches on horizontal duct runs, provide pins, washers and clips. Use pins on sides of vertical ductwork being insulated. Space pins and clips on 18 inch centers and not more than 18 inches from duct corners. Carry insulation over standing seams and trapeze-type hangers. Install speed washers with pins and pin trimmed to washer. Sagging of flexible duct insulation will not be permitted. Cut off protruding ends of pins after clips are secured and sealed with coating compound. Vapor seal all joints and staple.

D. Insulation Finishes and Joint Sealing: Fill all breaks, punctures, and voids with vapor barrier coating compound. Vapor seal all joints by embedding a single layer of 3-inch wide open weave glass membrane, 20 by 20 mesh maximum size between two 1/16-inch wet film thickness coats of vapor barrier coating compound. Draw glass fabric smooth and tight with a 1-1/2 inch overlap. At jacket penetrations such as hangers, thermometers, and damper operating rods, fill voids in the insulation with vapor barrier coating. Brush a coat of vapor barrier coating on HVAC ducts. Provide vapor barrier jacket continuous across seams, reinforcing, and projections. Where height of projections is greater than insulation thickness, carry insulation and jacket over the projection.

E. Access Plates and Doors: On acoustically lined ducts, plenums, and casings, provide insulation on access plates and doors. On externally insulated ducts, plenums, and casings, provide insulation-filled hollow steel panels and doors for access openings. Bevel insulation around access plates and doors.

3.4 EQUIPMENT INSULATION:

A. General Procedures: Apply equipment insulation suitable for temperature and service in rigid block or semi-rigid board or flexible form to fit as closely as possible to equipment. Stagger end joints where possible. Bevel the edges of the insulation for cylindrical surfaces to provide tight joints. Join sections of cellular glass insulation with bedding compound. After the cellular glass insulation is in place on areas to be insulated, except

where metal-encased, fill joints, seams, chipped edges, or depressions with bedding compound to form a smooth surface. Fill mineral fiber joints with insulating cement conforming to ASTM C 195. Bevel insulation around name plates, ASME Stamp, and access plates. For insulation on equipment that must be opened periodically for inspection, cleaning, or repair, construct insulation to be removable and replaceable without damage. Protect exposed insulation corners with corner angles under wires and bands.

B. Pumps: Insulate pumps used for chilled water with 2-inch thick rigid mineral fiber insulation as follows:

1. Insulate pumps by forming a box around the pump housing, drive shaft, and piping. Apply insulation to inside surfaces of 20-gauge stainless steel sheet-metal boxes having openings for drive shaft and pipes. Construct the box by forming the bottom and sides using joints which do not leave raw ends of insulation exposed. Band bottom and sides to form a rigid housing that does not rest on the pump. Between top cover and sides, fit joints tightly forming a female shiplap joint on the side pieces and a male joint on the top cover to make the top cover removable. Secure insulation to the box with adhesive. Allow clearance for draining and adjustment of pump shaft seal.

TABLE 1 INSULATION MATERIAL FOR PIPING					
SERVICE	MATERIAL	SPECIFICATION	TYPE	CLASS	VAPOR BARRIER REQUIRED
Refrigerant Suction	Flexible Unicellular	ASTM C 547	I or II	1	No
Chilled Water	Cellular Glass	ASTM C 552	II	2	No
	Flexible Unicellular	ASTM C 547	I or II	1	No
Heating Hot Water	Mineral Fiber	ASTM C 547		1	No
	Flexible Unicellular	ASTM C 434	I or II	1	No
Domestic Hot Water	Mineral Fiber	ASTM C 547		1	No
Domestic Cold Water	Mineral Fiber	ASTM C 547		1	Yes
A/C Condensate Drain	Flexible Unicellular	ASTM C 534	I or II		No
Drinking Fountain Drain	Flexible Unicellular	ASTM C 534	I or II		No
Horizontal Roof Drain Leader (Including Underside of Roof Drain)	Mineral Fiber	ASTM C 547	I	B-3	Yes
Exposed Domestic Hot Water Piping & Drains to Areas for Handicapped Personnel	Flexible Unicellular	ASTM C 534	I or II		No
Exterior Backflow Preventer and Exposed Water Piping	Flexible Unicellular	ASTM C 534	I or II		Yes
Steam Steam Condensate	Calcium Silicate	ASTM C 533			No

TABLE 2

INSULATION SIZES FOR PIPING

SERVICE	MATERIAL	1/4" - 1-1/4"	1-1/2" - 3"	4" - UP
Refrigerant Suction	Flexible Unicellular	¾”	¾”	¾”
Chilled Water	Cellular Glass	1”	1-1/2”	2”
	Flexible Unicellular	¾”	N/A	N/A
Heating Hot Water	Mineral Fiber	1”	1-1/2”	2”
	Flexible Unicellular	¾”	N/A	N/A
Domestic Hot Water	Mineral Fiber	1”	1”	1-1/2”
Domestic Cold Water	Mineral Fiber	½”	½”	½”
A/C Condensate Drain	Flexible Unicellular	½”	½”	½”
Drinking Fountain Drain	Flexible Unicellular	½”	½”	½”
Horizontal Roof Drain Leader (Including Underside of Roof Drain)	Mineral Fiber	½”	½”	½”
Exposed Domestic Hot Water Piping & Drains to Areas for Handicapped Personnel	Flexible Unicellular	½”	½”	½”
Exterior Backflow Preventer and Exposed Water Piping	Flexible Unicellular	¾”	¾”	¾”
Low Pressure Steam Medium Pressure Steam High Pressure Steam Steam Condensate	Calcium Silicate	1”	1-1/2” 1-1/2” 2” 1”	2” 2” 2” 1-1/2”

END OF SECTION

SECTION 23 20 00

HEATING AND AIR CONDITIONING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Refrigerant Piping

B. Drain, Vent, and Overflow Piping.

1.3 SUBMITTALS:

A. Submit product data and shop drawings under provisions of Section 23 01 00.

B. Submit certification of pipe conformance to Specification.

1.4 Quality Assurance

A. Welders' Certification: In conformance with AWS D1.1.

B. For each product, provide components by same manufacturer throughout.

PART 2 - PRODUCTS

2.1 BASIC MATERIALS:

A. Refer to Section 22 05 00, BASIC MATERIALS AND METHODS, for basic piping materials.

B. General: All piping in conjunction with the heating and air conditioning system shall be complete as indicated on the drawings or as required for the proper operation of the system.

2.2 REFRIGERANT PIPING:

A. Hard Drawn:

1. Tubing: Type ACR hard drawn conforming to ASTM B 280.

2. Fittings: Wrought copper fittings conforming to ANSI B16.22.

3. Joints: Silver brazed joints conforming to ANSI A5.8.

B. Soft Drawn (Accepted Up To 3ft Maximum Length):

1. Tubing: Type K copper tubing conforming to ASTM B88

2. Fittings/Joints: Flared tube end with compression type fittings conforming to ASME/ANSI B16.26.

C. Sight Glass: A combination moisture and liquid indicator, double port type, UL listed. The indicator shall have a glass port for complete view of the refrigerant flow and moisture sensitive indicator of the type that changes color. Sight glass shall be equal to

Sporlan "See-All".

D. Driers: Permanent type liquid line dehydrator with inlet and outlet shut-off valves. Driers shall be equal to Sporlan "Catch-All".

E. Expansion Valves: The valves shall be of the stainless steel diaphragm type with external equalization and external super-heat adjustment set for 10°F super-heat.

F. Shut-Off-Valves: Manual valves shall be for refrigeration service with back seating construction and cap seals. Valves shall be Mueller Brass or approved equal.

2.3 DRAIN, VENT, AND OVERFLOW PIPING: Materials: Schedule 40 PVC or copper tubing, Type L, conforming to ASTM B 88 with cast-brass or wrought-copper sweat joint fittings. Drains at air handling units shall be provided with water seals, depth equal to the total static pressure of the blower, constructed of two tees and an appropriate U-bend with open end of each tee plugged. Pipe and equipment drains with valves shall provide complete draining of all systems. Pipe to nearest open-sight drain, floor drain, wet vent, or as indicated on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. General: Piping shall comply with the general piping installation specified in Section 22 05 00, Basic Materials and Methods.

B. Install specialties in accordance with manufacturer's instructions to permit intended performance.

C. Provide relief and safety valves on all pressure tanks, make up assemblies, heat exchangers, and expansion tanks. Select relief valves above operating pressure. Pipe to nearest floor drain or safe exterior location.

D. Dry refrigerant systems per manufacturers direction. Purge all systems with inert gas similar to nitrogen prior to pulling vacuum and charging system.

END OF SECTION

SECTION 23 30 00

AIR DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Section 23 01 00 - Mechanical General Requirements, with modifications and additions specified herein, apply to the work specified in this Section.

1.2 SECTION INCLUDES:

A. Ductwork and Ductwork Accessories.

B. Grilles and Registers

C. Louvers & Block Vents.

1.3 SUBMITTALS:

A. Submit product data and shop drawings under provisions of Section 23 01 00.

1.4 REGULATORY REQUIREMENTS:

A. Construct Ductwork to recommendations in SMACNA Duct Construction Manual, and to the requirements of NFPA 90A.

PART 2 - PRODUCTS

2.1 DUCTW0RK MATERIALS:

A. Sheet Steel for Ducts: ASTM A 525 and ASTM A 527 galvanized sheet steel, lock-forming quality, having zinc coating of 1.25 oz. per sq. ft. for each side in conformance with ASTM A 90.

B. Galvanized Steel Hot Dipped After Fabrication: ASTM A 123.

C. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

2.2 LOW PRESSURE DUCTS: All ducts except high pressure supply ducts from the central air handling unit serving variable volume terminal units.

A. General: Construction, metal gauge, and reinforcements shall conform to NFPA 90A and SMACNA LPDCS. Ductwork shall be airtight and shall not vibrate or pulsate when system is in operation. Air leakage shall be less than 5 percent of system capacity. Construct ductwork of galvanized steel.

B. Curved Elbows: Make curved elbows with a centerline radius not less than 1-1/2 times the width or diameter of the duct.

C. Joints and Laps: Make substantially airtight. Make laps at joints in the direction of air flow. Button-punch or bolt-connection in standing seams shall be spaced at fixed centers not greater than 6 inches. "Button Punch Snap-Lock" may be used instead of Pittsburgh Lock.

2.3 DUCTWORK ACCESSORIES:

A. DAMPERS

1. Automatic Control Dampers: All automatic control dampers to be furnished by Control Subcontractor and installed by this Contractor (except unit mounted dampers).

   a) Automatic control dampers to be low-leak, galvanized steel or aluminum construction parallel blade type, Ruskin Model CD36 or approved equal.

   b) Dampers to be complete with minimum 4" deep, 16 gage hat-shaped channel frame, minimum 16 gage blades on maximum 6" centers, 1/2" diameter shafts, and corrosion resistant bearings.

   c) Dampers to have extruded vinyl blade seals and stainless steel or aluminum flexible metal compression type jamb seals to limit leakage to a maximum of 1/2% (maximum of 5.4 cfm/sq. ft. leakage for 48" x 48" size damper) when tested in accordance with AMCA Standard 500,

   d) Motor actuator to be oil immersed gear train, 120-volt line voltage type with spring return. to closed position on power interruption. Provide Honeywell Model M445/845 or approved equal complete with damper linkages.

2. Manual Volume Dampers (MVD): Manual volume dampers to be hand-operated type dampers constructed of galvanized steel, minimum 22 gauge for duct widths 18" and less, minimum 16 gauge for duct widths greater than 18". Dampers for ducts to 12" height and 12" diameter to be single blade carried on a 3/8" round steel rod mounted inside of duct without frame and fitted with locking type quadrant and brass end bearing plate accurately drilled and secured to duct. Dampers for ducts greater than 12" height to be multiblade type, 12" maximum blade width up to 30" blade length and 10" maximum blade width over 30" blade length. Blades to be mounted on frame with brass sleeve bearings interconnected for operation from one locking type hand quadrant. Round pivot rods to have section faced flat to receive locking setscrew in locking quadrant. Refer to SMACNA manual Figures 2-14 and 2-15.

3. Backdraft Dampers (BDD): Backdraft dampers to be Ruskin Model CBD6 or approved equal low-leak counterbalanced backdraft dampers. Dampers to be heavy-duty type suitable for air velocities to 2500 fpm with all extruded aluminum construction, minimum 0.81" thick frame, and minimum .050" thick blades on maximum 4" centers. Provide blades with vinyl edge seals. Provide dampers with aluminum linkage and corrosion resistant type bearings. Provide dampers with adjustable counterbalances on blades to assist closing.

B. FLEXIBLE CONNECTORS: Install UL listed flexible duct connectors between duct and fan/equipment connections. Flexible duct connectors to be made of 28 ounce, heavy glass fabric double coated with neoprene. Seal duct connection with mastic equal to Hardcast Duct-Seal 321. Sealants, mastics used for flexible duct connectors shall be listed and labeled in accordance with UL-I8IB.

C. DUCT SLEEVES: Duct sleeves shall be provided for all ducts passing through floors, walls, ceilings, or roof and shall be installed by the contractor for this Section during the construction of the building. Sleeves Shall be wood, galvanized sheet steel, or other approved materials to meet the conditions encountered.

D. DUCT CLOSURE COLLAR: A collar constructed of galvanized sheet steel not less than 4-inches wide shall be provided on each side of floors, walls, partitions, and under ceilings at each duct sleeve except where grilles, registers, or diffusers are installed. Collar shall be installed and secured tight against the surfaces. Collars at fire and

smoke dampers shall be 1-1/2-inch by 1-1/2-inch by 10-gauge steel angles as indicated in the SMACNA Guide.

E. TURNING VANES: Turning vanes shall consist of double thickness curved metal blades or vanes rigidly mounted in a runner, arranged so as to permit the air to make the abrupt turns without appreciable turbulence, shall be the manufacturer's standard products and shall be quiet and free from vibration when the system is in operation.

F. DUCT ACCESS DOORS

1. Duct access doors to be provided for access to all coils, fire, fire/smoke, and smoke dampers, automatic and backdraft dampers, duct smoke detectors, static pressure and air volume sensing devices, and other equipment installed in ducts and at other points indicated on drawings.

2. Access door construction and air tightness must be suitable for the duct pressure class used (low, medium, or high).

3. Access doors to be double-panel, galvanized steel construction with minimum 1" rigid insulation between panels. Access doors in exhaust duct and unlined return duct may be un-insulated single panel, galvanized steel construction. Doors to mount in rigid frame constructed of formed galvanized steel. Angle iron bracing to be used as required to provide rigid assembly. Doors to hinge on one side with door latch on opposite side.

4. Access doors in ductwork shall fully comply with Figure 2-10 and 2-11 of SMACNA manual. Casing access doors shall fully comply with Figure 6-11 and 612 0f SMACNA manual.

5. Doors to close against gasket seal.

2.4 Grilles, Registers, and Diffusers

A. Manufacturers: Price, Titus, Nailor, or approved equal.

B. SQUARE CEILING DIFFUSERS: Provide Titus TDC-AA or approved equal round or square neck, louvered face ceiling diffusers at all locations designated by schedule on drawings. Diffusers to be all aluminum construction each complete with opposed-blade volume damper. Frame to be flush mount for diffusers in "hard" ceilings and lay-in T-bar mount for diffusers in lay-in ceilings. Finish to be baked-on, off-white enamel.

2.5 AIR LOUVERS AND BLOCK VENTS:

A. Outside air stationary air louvers to be rain resistant, extruded aluminum construction, fixed drainable blade type as manufactured by Ruskin, Greenheck, or approved equal. Louvers to be constructed of minimum 0.081" thick frame and blades. Louver depth to be 5" with equal blade spacing. Blade construction to provide built-in rain stops. Provide 1/2" mesh expanded aluminum screen with removable frame mounted on inside face of louver. Design basis shall be Ruskin Model ELF-375X for rectangular louver. All air louvers shall be provided by DIV 15. Reference mechanical and architectural drawings. Color as selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. General: Installation shall conform to NFPA and SMACNA. Provide mounting and supporting of ductwork and accessories including, but not limited to, structural supports, hangers, vibration isolators, stands, clamps and brackets, access doors and dampers. Install ductwork accessories as indicated in accordance with the manufacturer's printed instruction. Allow clearance for inspection, repair, replacement, and service.

B. Ductwork: Install airtight. When air distribution systems are operated, there shall be no chatter, vibration, or dust marks.

C. Duct Supports: Ducts shall be supported by not less than two 1-inch wide by 1/16-inch thick galvanized strap of sheet steel hangers located one on each side of duct, spaced not over 5-feet on centers for round ducts and not over 6-feet on centers for ducts up to 24-inches wide and not over 3-1/2-feet on centers for ducts over 24-inches wide. Support flexible ducts every 3 feet. Provide sway bracing. Anchor risers in the vertical run to allow ends of riser free vertical movement. Attach supports only to structural framing members and concrete slabs. Provide suitable metal intermediate framing where supports are required between structural framing members. Do not support ducts from metal decking.

D. Fire and smoke Dampers: All devices shall adhere to the UL listed installation based on wall construction and the fire/smoke damper rating. The automated dampers that include a spring return operator shall be mounted for correct operation. The controls contractor shall be responsible to insure the operation of fire/smoke dampers with operators are connected to a fire alarm connection. Coordinate with fire alarm contractor to insure all relays and terminals are able to accept the device. Provide a control transformer if power for device is required.

END OF SECTION

INDEX TO ELECTRICAL SPECIFICATIONS

NUMBER	SECTION NAME	PAGES
	ELECTRICAL INDEX TO SPECIFICATIONS – STAMPED	1
DIVISION TWENTY-SIX – ELECTRICAL		
26 01 00	BASIC ELECTRICAL REQUIREMENTS	6
26 01 11	WORK IN EXISTING FACILITIES	2
26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS	3
26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS	2
26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS	9
26 24 16	PANELBOARDS	3
26 27 26	WIRING DEVICES	5
26 28 16	DISCONNECT SWITCHES	2
26 51 00	LIGHTING	4
DIVISION TWENTY-SEVEN – COMMUNICATIONS		
27 15 00	COMMUNICATIONS HORIZONTAL CABLING	6
	MGCCC CABLING STANDARDS	17
	SUBTOTAL ELECTRICAL INDEX PAGES	**60**



SECTION 26 01 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: This section provides basic electrical requirements.

1.02 BASIC ELECTRICAL REQUIREMENTS

A. Quality Assurance:

1. Workers possessing the skills and experience obtained in performing work of similar scope and complexity shall perform the Work of this Division.

2. Refer to other sections of the Specifications for other qualification requirements.

B. Drawings and Specifications Coordination:

1. For purposes of clearness and legibility, Drawings are essentially diagrammatic and the size and location of equipment is indicated to scale whenever possible. Verify conditions, dimensions, indicated equipment sizes, and manufacturer's data and information as necessary to install the Work of this Division. Coordinate location and layout with other Work.

2. Drawings indicate required size and points of termination of conduits, number and size of conductors, and diagrammatic routing of conduit. Install conduits with minimum number of bends to conform to structure, avoid obstructions, preserve headroom, keep openings and passageways clear, and comply with applicable code requirements.

3. Routing of conduits may be changed provided that the length of any conduit run is not increased more than 10 percent of length indicated on the Drawings.

4. Outlet locations shall be coordinated with architectural elements prior to start of construction. Locations indicated on the Drawings may be distorted for clarity.

5. Coordinate electrical Work with all other Work.

6. The scope of the electrical work includes furnishing, installing testing and warranty of all Electrical work and complete electrical systems shown on the electrical drawings and specified herein.

7. The drawings and specifications complement each other and together complete the contract documents for the electrical work included in this project. Neither the drawings nor the specifications are complete without the other. Any item mentioned in either document is binding. Where conflicts arise between the drawings and the specifications, the more stringent requirement shall prevail.

8. The contractor shall provide and install all electrical systems to provide a complete package as indicated by the contract documents. The documents are intended to provide an outline for the required installations. The contractor shall ultimately provide a complete and operational system at the conclusion of the project.

9. Details are provided as they relate to the installation. Contractor shall provide and install all miscellaneous components, parts, materials, fasteners, splices, and any other incidental items necessary to provide a complete installation.

C. Terminology:

1. Signal Systems: Applies to fire alarm, annunciator, sound, telephone, television, inter-communication, and network systems.

2. Low Voltage: Applies to signal systems operating at 120 volts and less, and power systems operating at less than 600 volts.

3. UL: Underwriter's Laboratories Inc, Nationally Recognized Testing Laboratory (NRTL), or equal.

D. Regulations: Work shall comply with the requirements of authorities having jurisdiction and the Electrical and Building Codes. Material shall conform to regulations of the National Board of Fire Underwriters for electrical wiring and apparatus. Materials shall be new and listed by UL, or another NRTL.

E. Structural Considerations for Conduit Routing:

1. Where conduits pass through or interfere with any structural member, or where notching, boring or cutting of the structure is necessary, or where special openings are required through walls, floors, footings, or other buildings elements, contractor shall submit shop drawings to the architect for approval.

2. Holes required for conduit entrances into speaker poles, floodlight poles or other poles, shall be drilled with the conduit nipple or coupling welded to poles. Welds shall be provided by the electric arc process and shall be continuous around nipple or coupling.

F. Electrically Operated Equipment and Appliances:

1. Furnished Equipment and Appliances:

a. Work shall include furnishing and installing wiring enclosures for, and the complete connection of electrically operated equipment and appliances and electrical control devices which are specified to be furnished and installed in this or other sections of the Specifications, wiring enclosures shall be concealed except where exposed Work is indicated on the Drawings.

b. Connections shall be provided as necessary to install equipment ready for use. Equipment shall be tested for proper operation and, if motorized, for proper rotation. If outlets are of incorrect electrical characteristics or any specified equipment fails to operate properly, repair and/or replace the outlet and/or equipment.

2. Equipment and Appliances Furnished by Others:

a. Equipment and appliances indicated on Drawings as "not in contract" (NIC), "furnished by others," or "furnished by the Owner," will be delivered to the Project site. Required electrical connections shall be performed for such equipment and appliances. Motorized equipment will be furnished factory-wired to a control panel or junction box unless otherwise indicated. Appliances will be furnished equipped with portable cord and cap. Provide disconnect switches where required.

b. Connections to equipment furnished under this Division shall be part of the Work of this section. Work shall include internal wiring, installation, connection and adjustment of bolted drive motors in which the motor is supplied as a separate unit, and connections only for equipment furnished with factory installed internal wiring, except as further limited by Drawings and this Specification. Work shall include furnishing and installing suitable outlets, disconnecting devices, conduit, junction boxes, and wiring necessary for a complete electrical installation. Work shall also include furnishing and installing conduit and boxes for HVAC control systems, furnished under Division 15. Devices and equipment furnished shall be of same type used elsewhere on the Work or as specified.

c. Electrical equipment furnished under other sections, for installation and connection under Work of this section, will be delivered to the Project site ready for installation.

d. Equipment furnished under other sections, and requiring electrical connection under this section, will be set in place as part of the Work of the section

furnishing such equipment unless noted otherwise. If electrical connections exceed the requirements of the specified equipment, it shall be the responsibility of the contractor or vendor supplying the equipment to compensate the electrical contractor for any and all work to make the electrical connections to the equipment being supplied. Any discrepancies shall immediately be brought to the engineers' attention for coordination between all other disciplines. All increased costs shall be the responsibility of the contractors, not the owner, architect, or engineer.

e. Suitability and condition of equipment furnished under other sections shall be determined in advance of installation. Immediate notice of damage, unsuitability, or lack of parts shall be given to the entity providing such equipment.

G. Protection of Materials:

1. Protect materials and equipment from damage and provide adequate and proper storage facilities during progress of the Work. Damaged materials and/or equipment shall be replaced.

H. Cleaning:

1. Exposed parts of Work shall be left in a neat, clean, usable condition. Finished painted surfaces shall be unblemished and metal surfaces shall be polished.

2. Thoroughly clean parts of apparatus and equipment. Exposed parts to be painted shall be thoroughly cleaned of cement, plaster, and other materials. Remove grease and oil spots with solvent. Such surfaces shall be wiped and corners and cracks scraped out. Exposed rough metal shall be smooth, free of sharp edges, carefully steel brushed to remove rust and other spots, and left in proper condition to receive finish painting.

3. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

I. Permits and Regulations:

1. Include payment of all permit and inspection fees applicable the work in this Division.

2. Work must conform to the National Electric Code, National Electrical Safety Code, and other applicable local, state, and federal laws, ordinances, and regulations. Where drawings or specifications exceed code requirements, the drawings and specifications shall govern. No work shall be installed which is less than minimum legal standards.

3. All work performed under this Division shall be inspected and approved by the Local Authority having Jurisdiction.

J. Site Inspection:

1. Each and all bidders shall inspect the project site prior to bidding.

2. Existing site conditions shall be compared with the information shown on the drawings. Immediately report any discrepancies to the Architect. After project bid date, no allowances will be made for failure to have made inspections.

3. During construction, the contractor shall exercise care and take appropriate precautionary measures to prevent any damage to the existing structures, sidewalks, utilities, communications, etc. during the project. The Contractor shall correct all damage caused by or during the project. Contractor shall provide not less than (2) and not more than (10) working days advance written, electronic, or telephonic notice of the commencement, extent, location and duration of the excavation work to Mississippi One-Call System, Inc. (1-800-227-6477) and any nonmembers operator(s) of any underground utility lines or underground facilities in and near the excavation area, so that Mississippi One-Call System, Inc operator(s) and any non-member operator(s) may locate and mark the location of underground utility lines and underground facilities in the excavation area.\

K. Utility Coordination:

1. Contractor shall inspect and verify the existing utilities at the project site prior to bidding.

L. Temporary Lighting and Power for Construction:

1. The electrical contractor shall provide and install temporary lighting during the period of construction. Temporary lighting shall be provided to meet all local ordinances, codes, and safety requirements. Lighting shall be installed in all open, general, and thoroughfare areas of construction. This shall not include any task lighting specifically required by any trade to complete their work or installations.

2. The electrical contractor shall provide and install temporary power during the construction period as required to complete the project installation. Contractor shall coordinate with the general contractor, and/or owner to provide 120/240 volt power for the project. All devices shall be provided with ground fault circuit protection. Power shall be provided in central work area(s). This shall not include any remote power needs for any specific trades. For power requirements at voltages other than those listed above, the contractor shall coordinate connection requirements with the local utility company.

3. All temporary lighting and power installations shall meet local and national codes and be approved by the local authority having jurisdiction.

4. Coordinate with college maintenance personnel for temporary power connection location.

1.03 SUBMITTALS

A. Where indicated submit to architect, (1) electronic copy of Shop Drawings including control diagrams, list of materials, catalog cuts, technical data, manufacturer's specifications, and applicable installation details.

1.04 RECORD DRAWINGS

A. The Electrical Contractor shall maintain, at the project site, a separate set of prints of the contract documents and shall show all changes and variations, in a neat and clearly discernible manner, which are made during construction. Upon completion of the work, these drawings shall be turned over to the Architect. Provide the following as-built documents including all contract drawings regardless of whether corrections were necessary and include in the transmittal: “2 sets of CDs and prints for Owner’s use, one set of CDs, prints for Architect / Engineers Records”. Delivery of these as-built electronic files and prints are a condition of final acceptance.

1.05 OPERATION AND MAINTENANCE MANUALS

A. The Electrical Contractor shall submit to architect (3) copies each of operating and maintenance manuals for each piece of equipment applicable to the project.

B. All shop drawings, installation, operation, and maintenance manuals, wiring diagrams, parts lists, and other information including warranties and technical support, shall be obtained from each manufacturer.

C. Assemble all information into three-ring binders or other suitable binding. Add an index and/or tabbed and labeled sections of all items submitted.

D. The Electrical Contractor shall at all times, maintain a clean set of construction document plans on site. Any and all deviations from the construction documents shall be marked, and clearly noted in red ink. All changes shall exactly indicate the revisions or changes to the design documents. Upon completion of the project, (2) clean sets of "red-line" construction as-built documents shall be submitted to the architect. Unclear, illegible, or inaccurate plans will be returned to the contractor for correction and resubmission. As-built documents shall be corrected by the Electrical Contractor and resubmitted at no additional cost.

1.06 INSPECTIONS AND PUNCH LIST

A. The Electrical Contractor shall survey and inspect his work and develop his own punch list to confirm that work is complete and finished. He shall then notify the General Contractor that work is complete and ready for inspection by the Architect. It is not the Architects or Engineers obligation to perform a final inspection until the contractor states his work has been inspected and is complete and ready for final inspection.

B. Request to the Architect, Engineer, or Owner for final inspection may be accompanied by a limited list of known deficiencies with a brief explanation or status of deficiencies and schedule for completion of each. Correction of these items shall be completed within (30) days of inspection or before final acceptance of occupancy.

1.07 WARRANTY

A. The Electrical Contractor shall warrant all workmanship, equipment, and materials installed under this contract for a period of (1) year minimum from the date of final acceptance as agreed between the Contractor and the Architect, unless indicated by other sections of these specifications.

B. Any equipment, materials, etc. proving to be defective during the warranty period shall be corrected or replaced without any expense to the Owner or other parties. This provision shall not be construed to include general maintenance items or luminaire lamps or correcting errors on the part of the owner, owner's personnel, or owner's representative.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and Equipment furnished under this contract shall be in strict accordance with the specifications and drawings and shall be new and of best grade and quality. When two or more items of equal and similar materials and construction are required, they shall be of the same manufacturer.

B. All electrical equipment and materials shall bear the Underwriters Laboratories, Inc. label, and shall comply with the NEC and NFPA requirements as applicable.

2.02 MATERIALS AND EQUIPMENT SELECTION

A. Selection of Materials and Equipment furnished under this contract shall be determined by the following:

1. Where trade names, brands, and manufacturer's part numbers are listed, the exact equipment listed shall be furnished. Where more than one name is used, the contractor shall have the option of selecting between those specified. All products used shall be equal to that specified and shall be of best quality.

2. When the words "or equal" appear, specific approval must be obtained from the Architect during the bidding period in sufficient time to be included in an addendum. The same shall apply for equipment and materials not named in the specifications, where approval is sought.

3. Alternate materials and/or equipment must be submitted for approval a minimum 2 weeks prior to project bid date.

B. Before bidding, when preparing shop drawings, and prior to rough-in for installation, the contractor shall verify that adequate space is available for entry and installation of the item including any accessories. Also that adequate space is available for servicing equipment and required code clearances are satisfied.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Advise the general contractor or architect before starting the Work of this Division.

B. Exposed conduits shall be painted to match the surfaces adjacent to installation. Refer to painting and coating section of specifications.

C. Salvaged materials, if applicable, removed from buildings shall be removed from the Project site as required by the general contractor.

D. Trenches outside of barricade limits shall be backfilled and paved within 24 hours after being inspected. Provide traffic plates during the time that trenches are open in traffic areas and in areas accessible to nonconstruction personnel.

E. Where structural walls are cored for new conduit runs, separation between cored holes shall be 3 inches edge to edge, unless otherwise required by the Architect. All coring to be laid out and reviewed by Architect prior to drilling. Contractor to verify location of structural steel, rebar, stress cabling, or similar prior to lay out.

F. Electrical equipment shall be braced and anchored as indicated on the Drawings.

3.02 CLEANUP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

3.03 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 26 01 11

WORK IN EXISTING FACILITIES

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: This section provides electrical requirements for demolition or rework of existing systems. Work shall include all existing electrical including auxiliary systems. Coordinate with owner and General Contractor for removal and rework of all electrical systems.

1.02 DEMOLITION OF EXISTING ELECTRICAL SYSTEMS

A. In reworked and renovated areas, remove all electrical equipment including but not limited to: Light fixtures, switches, receptacles, auxiliary system devices, telephone outlets, life safety devices, and fire alarm; unless otherwise noted. Remove existing branch circuits, conduits, wiring, junction boxes, hangers, fittings, etc. serving equipment to be removed and as noted on drawings. Abandon conduits concealed in concrete, but remove conductors. Leave existing branch circuits and feeders which run through reworked areas and serve existing equipment to remain in service, continuous and uninterrupted. Repair, reterminate, re-support, etc., any damaged circuits.

B. Abandon junction boxes where devices are located in block walls. Remove any plates or extension rings. Fill box with grout and finish over to match adjacent wall. Remove any wiring and cut off flush any conduits protruding from wall.

C. Where below grade conduits are abandoned, cut off 2-3" below slab, grout over and finish smooth to match adjacent flooring, or finish ready to accept floor covering.

1.03 CUTTING, PATCHING, AND REPAIRING

A. Electrical contractor shall coordinate with General Contractor for all cutting, patching, and repairing. Electrical contractor shall perform all cutting or allow general contractor to perform cutting in a professional manner. Flooring and walls shall be cut in straight lines and parallel or perpendicular to walls. Electrical contractor shall coordinate and notify General Contractor of all cutting prior to bid and shall be responsible for any costs associated with cutting, patching, and repairing.

B. Do not pierce or cut any existing walls below grade.

C. Do not cut any structural walls or structural members, unless receiving approval in writing from the architect and structural engineer.

D. All new work shall match and be comparable to existing conditions or new adjacent finishes. Architect and engineer reserve the right to reject any unsuitable work.

1.04 ELECTRICAL SYSTEMS

A. Electrical, low voltage, systems wiring, life safety, etc. in areas outside of work area shall remain in service at all times. Provide and install necessary temporary wiring as required to maintain continuity of all electrical systems outside of the work area.

B. Where service interruptions are required, obtain approval for interruption in writing from Owner 10 days prior to interruption. Include schedule of work to be performed and the time required to accomplish work in request for interruption. Work during service interruptions may be

required after normal working hours. Include premium (overtime) time labor in bid. No service interruptions shall occur until written approval is granted from the owner.

1.05 MATERIAL TO BE REMOVED/SALVAGED

A. Where noted, salvaged materials are to be reused. Clean any reused materials prior to reinstalling and at the completion of the project.

B. When materials are demolished and shown to be removed, the owner has the right to retain any desired/salvageable materials.

C. Discard or remove from site any materials not retained by the owner.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Advise the general contractor or architect before starting the Work of this Division.

B. Demolished or Salvaged materials, if applicable, removed from buildings shall be removed from the Project site as required by the general contractor.

3.02 CLEANUP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: Low-voltage wire, splices, terminations and installation.

1.02 SUBMITTALS

A. None.

PART 2 - PRODUCTS

2.01 WIRES

A. Wires shall be single conductor type THHN or THWN insulated with polyvinyl chloride and covered with a protective sheath of nylon, rated at 600 volts. Wires may be operated at 90 degrees C. maximum continuous conductor temperature in dry locations, and 75 degrees C. in wet locations and shall be listed by UL Standard 83 for thermoplastic insulated wires, listed by Underwriter's Laboratories (UL) for installation in accordance with Article 310 of the National Electrical Code (NEC). Conductors shall be solid or stranded copper for 12 AWG and smaller conductors, and stranded copper for 10 AWG and larger conductors. Conductors shall be insulated with PVC and sheathed with nylon. Wires shall be identified by surface markings indicating manufacturer's identification, conductor size and metal, voltage rating, UL symbol, type designations and optional rating. Indentations for lettering is not permitted. Wires shall be tested in accordance with the requirements of UL standard for types THWN, or THHN.

B. Conductors shall be solid Class B or stranded Class C, annealed uncoated copper in accordance with UL standards, or another Nationally Recognized Testing Laboratory (NRTL).

2.02 STANDARDS

A. THWN/THHN wires shall comply with the following standards:

1. UL 83 for thermoplastic insulated wires.

2. UL 1063 for machine tool wires and cables.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Wires shall not be installed until debris and moisture is removed from conduits, boxes, and cabinets. Wires stored at site shall be protected from physical damage until they are installed and walls are completed.

B. Wire-pulling compounds furnished as lubricants for installation of conductors in raceways shall be compounds approved and listed by UL, NRTL, or equal. Oil, grease, graphite, or similar substances are not permitted. Pulling of 2 AWG or larger conductors shall be performed with a cable pull machine. Any runs shorter than 50 feet are exempt. When pulling conductors, do not exceed manufacturer’s recommended values

C. At outlets for light, power, and equipment, pigtail splices with 8-inch circuit conductor leads for connection to fixtures, equipment, and devices.

D. Pressure cable connectors, pre-insulated Scotchlok, 3M, or equal, Y, R or B spring-loaded twist-on type, may be furnished in splicing number 8 AWG or smaller wires for wiring systems; except public address and telephone systems.

E. All Joints, splices, taps, and connections to panelboard neutral, bonding or grounding conductors, conductors to ground busses, and transformer connections for wires 6 gauge and larger shall be performed with high-pressure cable connectors approved for installation with copper conductors. Connectors shall be insulated with heavy wall heat shrink WCSM, or cold-applied roll-on sleeve RVS. Insulation level shall be a minimum of 600V and joints, splices, and taps shall be qualified to ANSI C 119.2, UL, NRTL, or equal listed mechanical pressure connections.

F. Connections to any bussing and high-press cable connectors shall be securely bolted together with corrosion-resistant plated carbon steel, minimum grade 5 machine screws secured with constant pressure-type locking devices.

G. Connection of any bonding or grounding conductors shall be securely bolted together with corrosion-resistant plated carbon steel, minimum grade 5 machine screws secured with constant pressure-type locking devices.

H. Wiring in panelboards, panel cabinets, pull boxes, and other cabinets, shall be neatly grouped and tied in bundles with nylon ties at 10-inch intervals. In panelboards, panels and terminal blocks, wires shall be fanned out to terminals. If bundles are longer than 24 inches, a maximum of 9 current carrying conductors may be bundled together.

I. Install conductor lengths with a minimum length within the wiring space. Conductors must be long enough to reach the terminal location in a manner that avoids strain on the connecting lug.

J. Maintain the conductor required bending radius.

K. Neutral conductors larger than 6 gauge, which are not color identified throughout their entire length, shall be taped, painted white or natural gray, or taped white where they appear in panelboards, cabinet, gutters or pull boxes. Neutral conductors 6 gauge and smaller shall be white color identified throughout their entire length.

L. Wiring systems shall be free from short circuits and grounds, other than required grounds.

3.02 COLOR CODES

A. General Wiring:

1. Color code conductor insulation as follows:

SYSTEM VOLTAGE	
Conductor	208Y/120
Phase A	Black
Phase B	Red
Phase C	Blue
Neutral	White

Neutrals shall be colored-distinguished if circuits of two voltage systems are used in the same raceway.

2. For phase and neutral conductors 6 gauge or larger, permanent plastic-colored tape may be furnished to mark conductor end instead of coded insulation. Tape shall cover not less than 2 inches of conductor insulation within enclosure.

3.03 FEEDER IDENTIFICATION

A. Feeder wires and cables shall be identified at each point the conduit run is broken by a cabinet, box, gutter, etc. Where terminal ends are available, identification shall be by means of heat shrink wire markers, which provide terminal strain relief. Markers shall be Brady Perma-Sleeve, or equal. Identification in other areas shall be by means of wrap-around tape markers Brady Perma-Code or equal. Markers shall include feeder designation, size, and description.

3.04 TAPE AND SPLICE KITS

A. Splices, joints, and connectors joining conductors in dry and wet locations shall be covered with insulation equivalent to that provided on conductors. Free ends of conductors connected to energized sources shall be taped. Voids in irregular connectors shall be filled with insulating compound before taping. Thermoplastic insulating tape approved by UL, NRTL, or equal for installation as sole insulation of splices shall be furnished and shall be installed according to manufacturer's printed specifications.

3.05 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.06 CLEANUP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: Provide and install grounding system as indicated or required.

C. Related Sections:

1. Refer to related sections for their system grounding requirements.

2. Section 26 01 00: Basic Electrical Requirements.

3. Low Voltage Systems

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. IEEE 142 Green Book.
2. Underwriter's Laboratories (UL).
3. National Electrical Code.
4. Building Industry Consultant Services International (BICSI) (Signal).
5. EIA/TIA (Signal and power).
6. Nationally Recognized Testing Laboratory (NRTL) or equal.

1.03 SYSTEM DESCRIPTION

A. Metallic objects on the Project site that enclose electrical conductors, or that are likely to be energized by electrical currents, shall be effectively grounded.

B. Metal equipment parts, such as enclosures, raceways, and equipment grounding conductors, and earth grounding electrodes shall be solidly joined together into a continuous electrically conductive system.

C. Metallic systems shall be effectively bonded to the main grounding electrode system.

D. A separately derived AC source shall be grounded to the equipment grounding conductor, and to separate “made” electrode of building grounding electrode system.

E. Electrical continuity to ground metal raceways and enclosures, isolated from equipment ground by installation of non-metallic conduit or fittings, shall be provided by a green insulated grounding conductor of required size within each raceway connected to isolated metallic raceways, or enclosures at each end. Each flexible conduit over 6 feet in length shall be provided with a green insulated grounding conductor of required size.

F. Cold water, or other utility piping systems, shall not be utilized as grounding electrodes due to the installation of insulating couplings and non-metallic pipe in such installations.

G. Neutral of service conductors shall be grounded as follows:

1. Neutral shall be grounded at only one point within the Project site for that particular service. Preferable location of grounding point shall be at the service panelboard, or main switch.

2. Equipment and conduit grounding conductors shall be bonded to that grounding point.

3. Feeder neutrals shall be bonded at service entrance point only, neutrals of separately derived systems shall be bonded at the source only.

H. Within every building, the main panelboard, shall be bonded to the cold water line. Metallic piping systems such as gas, fire sprinkler, or other systems shall be bonded to the cold water line.

1.04 SUBMITTALS

A. None.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Electrodes (where noted) shall be copper-clad steel ground rods, minimum 3/4 inch diameter by 10 feet long.

B. Grounding conductors shall be copper, #12 minimum with green insulation, unless noted otherwise.

C. Ground tails shall be copper, #12 minimum with green insulation, installed in all metallic junction boxes where devices are being installed. Branch circuit ground, junction box, and devices shall be bonded at each junction box.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All grounding shall be installed in accordance with details on drawings and per NEC 250.

B. Bond panelboards and all electrical boxes and enclosures.

C. All conduits shall have a grounding conductor, minimum #12 copper. Conductor size shall be increased based on ampacity and/or phase conductors of the circuit.

D. Install grounding conductors at each panelboard location as noted on drawings.

E. All branch circuit, device, and switch junction boxes shall contain a grounding conductor, minimum #12 copper with green insulation, to bond the one or more equipment grounding conductors and the metal box. Connections shall be made to splice the equipment grounding conductors, grounding pig-tail, and metal box by means of a grounding screw or listed grounding device.

3.02 TESTING

A. Test grounding resistance of electrodes, ground rods, bonding of building steel, water pipes, gas pipes and other utility piping. Tests shall be performed as follows:

1. Visually and mechanically examine ground system connections for completeness and adequacy.

3.03 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.04 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes:

1. Raceways and wire ways
2. Conduit installation.
3. Underground requirements.
4. Boxes, enclosures, keys and locks.
5. Identifications and signs.

C. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements.

D. Applicable Standards and Codes

1. EIA/TIA 569 Standards.
2. National American Standards Institute (ANSI)
3. National Electrical Manufacturer’s Association (NEMA)
4. Nationally Recognized Testing Laboratory (NRTL)
5. National Electrical Code (NEC)
6. Underwriters Laboratory (UL)

1.02 SUBMITTALS

A. None.

PART 2 - PRODUCTS

2.01 RACEWAYS

A. Conduit Materials:

1. Metallic conduit, and tubing shall be manufactured under the supervision of an UL, or another NRTL factory inspection and label service program. Each 10-foot length of conduit and tubing shall bear the UL or another NRTL label and manufacturer's name.
2. Rigid metallic conduit shall be rigid steel, heavy wall, mild steel, zinc-coated, with an inside and outside protective coating manufactured in accordance with ANSI C 80.1. Couplings, elbows, bends, condulets, bushings and other fittings shall be the same materials and finish as the rigid metallic conduit. Fittings, connectors, and couplings shall be threaded type, manufactured in accordance with ANSI C 80.1 and UL 6.
3. Electrical metallic tubing shall be steel tubing, zinc-coated with a protective enamel coating inside, manufactured in accordance with NEMA C 80.3. Fittings, couplings, and connectors less than 2" shall be steel, gland compression type. Fittings, couplings, and connectors 2" and larger shall be steel, set screw type or gland compression type. All

parts shall be manufactured in accordance with NEMA C80.3 and UL 6A Electrical metallic tubing is designated hereinafter as EMT. Steel and rain tight fittings shall be approved and listed for the intended application.

4. Flexible metallic conduit shall be of flexible interlocking strip construction with continuous zinc coating on strips, manufactured in accordance with UL 1.

   a. Connectors and couplings shall be required fittings of the type, which threads into convolutions of flexible conduit.

   b. Non-metallic conduit is not allowed.

5. Liquid-tight flexible metal conduit shall be galvanized heavy wall, flexible locked metallic strip construction, UV rated, with smooth moisture and oil-proof, abrasion-resistant, extruded plastic jacket. Connectors shall be as required for installation with liquid-tight flexible conduit and shall be installed to provide a liquid-tight connection.

6. Non-metallic conduit shall be rigid PVC electrical conduit extruded to schedule 40 dimensions of Type II. Grade 1 high impact, polyvinyl chloride, sweeps, couplings, reducers and terminating fittings shall be listed under the UL, or another NRTL, and shall bear the manufacturer's listed marking.

7. Conduit size shall be 1/2" minimum for above grade installations and 3/4" minimum for below grade or in-slab installations.

8. Metal Clad (MC) cable system is not allowed. Except for fixture whip connections (6’ maximum length).

B. Sleeves for Conduits: Sleeves shall be adjustable type, of 26 gage galvanized iron, Adjust-to Crete Co. Adjust-to-Crete, or Jet Line Products Inc. Jet-Line, or equal.

C. Where conduit enters a building through a concrete foundation below grade, or ground water level, or where it is necessary to seal around a conduit where it passes through a concrete floor or wall, provide O-Z/Gedney Type FSK Thru Wall and Floor Seal, or equal.

D. Wireways shall be 16 gage galvanized steel enclosed hinge/screw wiring troughs, surface metal raceway, wireway, and auxiliary gutter designed to enclose electrical wiring. Wireway fittings shall be furnished with removable covers and sides to permit complete installation of conductors throughout the entire wireway run. Cover shall be furnished with keyhole slots to accept captive screws locking the cover securely closed. Wireways shall be UL or another NRTL listed, and shall be Square D Type LDG NEMA-1 enclosure for interior applications, or Type RD NEMA-3R enclosure for exterior applications, or equal by Cooper B-line, Hoffman, Wire Guard, or Circle AW.

E. Penetration in Fire-Rated Structures: Provide 3M, or equal, caulk and fire barriers for installing fire-rated seals around penetrations through floors, walls, and elevator shafts. Fire stop system must be UL, or another NRTL listed, and classified for through-penetration applications of metallic conduits and busways.

F. Pull Wires: Install 1/8 inch polypropylene cords in empty or spare conduits.

2.02 BOXES, ENCLOSURES, KEYS AND LOCKS

A. Outlet Boxes and Fittings:

1. Outlet boxes installed in concealed Work shall be galvanized steel, pressed, or welded type, with knockouts.

2. In exposed Work, where conduit runs change direction or size, outlet boxes and conduit fittings shall be cast metal with threaded hubs cast integral with box or fitting.

3. Fittings shall be cast metal and non-corrosive. Ferrous metal fittings shall be cadmium-plated or zinc galvanized. Castings shall be true to pattern, smooth, straight, with even edges and corners, of uniform thickness of metal, and shall be free of defects.

4. Covers for fittings shall be galvanized steel or non-corrosive aluminum and shall be designed for particular fitting installed.

5. Light fixture outlets shall be 4-inch octagon, 4-inch square, 2-1/8 inches deep or larger, depending upon number of conductors or conduits therein. Plaster or tile rings shall be furnished for suitable mounting of light fixture.

6. For local device outlets provide 4-inch square 2-1/8 inch deep, boxes for single gang, 4-11/16 inch square boxes for two-gang, and special solid gang boxes with gang plaster ring for more than 2 switches.

7. Plaster or tile rings shall be provided on flush-mounted outlet boxes except where otherwise indicated or specified. Plaster or tile rings shall be same depth as finished surface. Install approved ring extension to obtain depth to finish surface.

8. In plywood wall or drywall construction, and where flexible steel conduit is fished into walls, one-gang and 2-gang outlets for wiring devices may be sectional steel boxes with plaster ears. Boxes shall be fastened to plywood with flat-head screws in each plaster ear screw hole.

9. Factory made knockout seals shall be installed to seal box knockouts, which are not intact.

10. Where flexible conduit is extended from flush outlet boxes, provide and install weatherproof universal box extension adapters.

B. Junction and Pull boxes:

1. Junction and pull boxes, in addition to those indicated, shall only be used in compliance with codes, recognized standards, and Contract Documents.

2. Interior and non-weatherproof boxes shall be constructed of blue or galvanized steel with ample laps, spot welded, and shall be rigid under torsion and deflecting forces. Boxes shall be furnished with auxiliary angle iron framing where necessary to ensure rigidity.

3. Covers shall be fastened to box with a sufficient number of brass machine screws to ensure continuous contact all around. Flush type boxes shall be drilled and tapped for cover screws if boxes are not installed plumb. Surfaces of pull and junction boxes and covers shall be labeled in black marker ink designating system, panelboard and circuit designation contained in box. In exposed Work, designation shall be installed on inside of pull box or junction box cover.

4. Weatherproof NEMA 3R pull and junction boxes shall conform to foregoing for interior boxes with following modifications:

   a. Cover of flush mounting boxes shall be furnished with a weather-tight gasket cemented to, and trimmed even with, cover all around.

   b. Surface or semi-flush mounting pull and junction boxes shall be UL, or another Nationally Recognized Testing Laboratory (NRTL) listed as rain-tight and shall be furnished complete with threaded conduit hubs.

   c. Exposed portions of boxes shall be galvanized and finished with one prime coat and one coat of baked-on gray enamel, unless already furnished with factory baked-on finish.

5. Junction and pull boxes shall be rigidly fastened to structure and shall not depend on conduits for support.

6. Underground utility boxes shall be reinforced concrete with non-setting shoulders to prevent settlement following installation. Boxes shall be furnished with cast iron cover with finger hole, size as indicated on Drawings.

7. Polymer Concrete Boxes:

   a. Polymer concrete boxes are to be made from aggregates in combination with polymer resin, combined and processed by mixing, molding, and curing, and reinforced with fiberglass.

   b. Boxes are to be high strength, impact resistant, corrosion resistant, nonflammable, and noncorrosive.

   c. Enclosures, boxes and covers are required to conform to all test provisions of the most current ANSI/SCTE 77 “Specification For Underground Enclosure Integrity”

   d. All components in an assembly (box & cover) are manufactured using matched surface tooling.

   e. Covers shall be marked as electrical, power, communications, fiber, signal, etc. as required.

C. Keys and Locks:

1. Provide 2 keys with furnished door locks, including cabinet door locks for all enclosures.

2.03 IDENTIFICATION AND SIGNS

A. Identification Plates:

1. Provide identification plates for the following unless otherwise specified, for motor switches, panelboards, and terminal cabinets.

2. Identification plates shall be of plastic stock and shall adequately describe function, voltage and phase of identified equipment. Where identification plates are detailed or described on Drawings, inscription and size of letters shall be as indicated. For lighting and power panels, identification plates shall indicate panel designation, voltage, and phase of panel. For terminal cabinets, identification plates shall indicate system contained in terminal cabinet.

3. Identification plates shall be black-and-white nameplate stock of bakelite with characters cut through black exposing white. Plates shall be furnished with beveled edges and shall be securely fastened in place with No. 4 Phillips-head, cadmium-plated steel, self-tapping screws. Characters shall be 3/16 inch high, unless otherwise indicated.

B. Markings:

1. Install identification markings to surface-mounted starters, switches, disconnect switches, contactors, and other devices controlling motors and appliances. Provide abbreviations required along with an identifying number. Markings to be provided with locking type stencils using paint of a contrasting color. Figures shall be 3/8 inch high unless otherwise indicated. Self-sticking plastic labels, with embossed characters made with a typewriter may be installed instead of stencils and paint; self adhesive plastic, or self sticking laminated plastic labels may be installed.

PART 3 - EXECUTION

3.01 CONDUIT INSTALLATION

A. General Requirements:

1. Provide complete and continuous systems of rigid metallic conduit, outlet boxes, junction boxes, fittings and cabinets for systems of electrical wiring including lighting, power, and systems, except as otherwise specified.

2. EMT may be installed in interior concealed or exposed applications where not subject to damage. EMT shall not be installed in concrete, directly buried underground, outdoors, in boiler rooms, pits, or where subject to damage.

3. Within buildings, flexible metallic conduit may be installed instead of rigid steel conduit where permitted by code. Flexible metallic conduit shall not be installed for conduit installations longer than 6 feet (inclusive of fittings and boxes), in concealed ceilings or walls, and where conduit size is 1-1/2 inches or greater.

4. Flexible metallic conduit shall be installed for final connection of motor terminal boxes, shop equipment, mechanical equipment, HVAC equipment and other equipment, or for frequent interchange, and shall be of sufficient length, not exceeding 36 inches, to permit full travel or adjustment of motor on its base. Flexible metallic conduit shall not be used for equipment not requiring adjustment or frequent interchange.

5. Liquid-tight flexible metallic conduit shall be installed at exterior locations or where subject to liquid or oil exposure, except where otherwise specified, for final connection of equipment and as listed above.

6. Connectors for flexible metal conduit and liquid-tight flexible metallic conduit shall be compatible with the conduit, and of the types which threads into convolutions of conduit. Connectors for watertight flexible metal conduit shall be as required for installation and shall be installed to provide a watertight connection.

7. Exposed conduit shall be installed vertically and horizontally following the general configuration of the equipment, using cast threaded hub conduit fittings where required and shall be clamped to equipment with suitable iron brackets and one hole pipe strap.

8. If connection is from a flush wall-mounted junction box, install an approved extension box.

9. Underground feeder distribution conduits for systems may be non-metallic conduit instead of rigid conduit except where otherwise specified or indicated.

10. Conduit shall be concealed unless otherwise indicated. Conduits exposed to view, except those in attic spaces and under buildings, shall be installed parallel or at right angles to structural members, walls, or lines of building. Conduits shall be installed to clear access openings.

11. Bends or offsets will not be permitted unless absolutely necessary. Radius of each conduit bend or offset shall be as required by ordinance. Bends and offsets shall be performed with standard industry tools and equipment or may be factory fabricated bends or elbows complying with requirements for radius of bend specified. Heating of metallic conduit to facilitate bending is not permitted. Public telephone conduit bends and offsets shall be provided with a radius which is not less than 10 times trade size of conduit unless otherwise permitted. Refer to underground installation, specified in this section, for radius of bends and offsets required for underground installations.

12. Running threads are not permitted. Provide conduit unions where union joints are necessary. Conduit shall be maintained at least 6 inches from covering of hot water and steam pipes and 18 inches from flues and breechings. Open ends of conduits shall be

sealed with permitted conduit seals during construction of buildings and during installation of underground systems.

13. Where conduits are terminated in groups at panelboards, cabinets, etc., provide templates or spacers to fasten conduits in proper position and to preserve alignment.

14. Where auxiliary supports, saddles, brackets, etc., are required to meet special conditions, they shall be fastened rigid and secure before conduit is attached.

15. Conduit in ceiling spaces, stud walls, and under floors, shall be supported with factory fabricated pipe straps or shall be suspended with pipe hangers or pipe racks. Pipe straps shall be attached to and shall fasten conduit tight at point of support against ceiling and floor joists, rafters, and wall studs, or 2-inch x 4-inch headers fitted between joists or wall studs.

16. Conduits installed on exposed steel trusses and rafters shall be fastened with factory fabricated conduit straps or clamps, which shall fasten conduit tight against supporting member at point of support.

17. Pipe hangers for individual conduits shall be factory fabricated. Steel rods shall be 3/8 inch for 2-inch conduit hangers and smaller and shall be 1/2 inch for 2-1/2 inch conduit hangers and larger.

18. Pipe racks for groups of parallel conduits and for supporting total weights not exceeding 500 pounds shall be trapeze type and shall consist of a cross channel, Steel City Kindorf B-900, Unistrut P-1000, or equal, suspended with a 3/8 inch minimum diameter steel rod at each end. Rods shall be fastened with nuts, top and bottom to cross-channel and with square washers on top of channel. Conduits shall be clamped to top for cross-channel with conduit clamps, Steel City Kindorf C-105 or Unistrut P-1111 through P-1124. Conduits shall not be stacked one on top of another, but a maximum of 2 tiers may be on same rack providing an additional cross-channel is installed. Where a pipe rack is to be longer than 24 inches, or if the supported weight exceeds 500 pounds, submit Shop Drawings of installation to the Architect for review.

19. Conduits suspended on rods more than 2 feet long shall be rigidly braced to prevent horizontal motion or swaying.

20. Factory fabricated pipe straps shall be one or 2-hole formed galvanized clamps, heavy-duty type, except where otherwise specified.

21. Conduits shall be supported at intervals required by code, but not to exceed 10 feet. One inch and smaller exposed conduits shall be fastened with one-hole malleable iron straps. Perforated straps and plumber's tape is not permitted for the support of conduits.

22. Conduits stubbed up through a roof or facade shall be flashed with a waterproof flashing. Refer to roofing specification for additional requirements.

23. Bushings and locknuts for rigid steel conduit shall be steel threaded insulating type. Setscrew bushings are not permitted.

24. Flex conduits shall be cut square and not at an angle.

25. Routing of conduits may be changed providing length of any conduit run is not increased more than 10 percent of the length indicated on Drawings.

C. General Installation Requirements for Computer Network System Conduits:

1. Location of outlet boxes and equipment on Drawings is approximate, unless dimensions are indicated. Drawings shall not be scaled to determine position and routing of wireways, drops, and outlet boxes. Location of outlet boxes and equipment shall conform to architectural features of the building and other Work already in place and must be ascertained in the field before start of Work.

2. The maximum pulling tensions of the specified cables shall not be exceeded and proper radius of cable bends shall be maintained.

3. For computer network wiring, conduit types shall be limited to rigid metal conduit, electrical metallic tubing, schedule 40 PVC, multi-cell raceways, and flexible metallic conduit for lengths less than 6 feet.

4. Interior section of conduit run shall be not longer than 100 feet and shall not contain more than 2 bends of 90 degrees between pull points or pull boxes.

5. The inside radius of a conduit bend shall be at least 6 times the internal diameter of the conduit. When the conduit size is greater than 2 inches, the inside radius shall be at least 10 times the internal diameter of the conduit. For fiber-optic cable, the inside radius of a conduit bend shall be at least 10 times the internal diameter of the conduit.

6. Conduit shall be sized in accordance with Table 4.4-1 of EIA/ TIA 569 standard.

7. Splicing or terminating cables in pull boxes is not permitted.

8. For indoor application, a pull box shall be provided in conduit run where:

   a. The length is over 100 feet.

   b. There are more than 2 bends of 90 degrees.

   c. There is a reverse bend in the run.

9. Boxes shall be provided in a straight section of conduit and shall not be installed in lieu of a bend. The corresponding conduit ends are to be aligned with each other. Conduit fittings shall not be installed in place of pull boxes.

10. Where a pull box is provided with raceways, pull box shall comply with the following:

    a. For straight pull-through, provide a length of at least 8 times the trade-size diameter of the largest raceway.

    b. For angle and U-pulls:

       1) Provide a distance between each raceway entry inside the box and the opposite wall of the box of at least 6 times the trade-size diameter of the largest raceway, this distance being increased by the sum of the trade-size diameters of the other raceways on the same wall of the box.

       2) Provide a distance between the nearest edges of each raceway entry enclosing the same conductor of at least:

          a) Six times the trade-size diameter of the raceway; or

          b) Six times the trade-size diameter of the larger raceway if they are of different size.

          c) For a raceway entering the wall of a pull box opposite to a removable cover, provide a distance from the wall to the cover of not less than the trade-size diameter of the largest raceway plus 6 times the diameter of the largest conductor.

11. Drawings generally indicate Work to be installed, but do not indicate all bends, transitions of special fittings required to clear beams, girders or other Work already in place. Investigate conditions where conduits and wireways are to be installed, and furnish and install required fittings.

D. Concrete Walls, Beams, and Floors: Provide sleeves where conduits pierce concrete walls, beams, and floors, except floor slabs on grade. Sleeves shall provide 1/2 inch clearance around conduits. Sleeves shall not extend beyond exposed surfaces of concrete and shall be securely

fastened to forms. Provide fire caulk materials as required. Where conduits pass through walls below grade, caulk with required sealant and backer materials between conduit and sleeve to provide a watertight joint.

3.02 INSTALLATION AND SUPPORT OF BOXES

A. Install outlet boxes flush with finished surface of wall or ceiling. Install plumb and securely fastened to structure, independent of conduit. Except where otherwise indicated, provide factory-fabricated bar hangers to support outlet boxes. When installation is performed in fire rated walls, maintain the wall's rating integrity by means of approved fire stop methods.

B. Do not install junction boxes back-to-back in walls. Maintain a minimum of 4" separation measured edge-to-edge between boxes. Where separation is not possible, install sound proofing material in boxes to minimize noise transfer between rooms. In fire rated walls, boxes may be no larger than 4" x 4" and are to be separated 24" minimum, measured edge-to-edge.

C. Outlet boxes installed in suspended or furred ceilings with steel runner or furring channels shall be supported.

D. Heights of outlets and equipment indicated on Drawings shall govern. In absence of such indications and if applicable to the project, the following heights shall be maintained with heights measured to centerline unless otherwise noted:

1. Install wall-mounted telephones, light switches, other switches, 48 inches above finished floor. Refer to other Division 16 Sections.

2. Install power receptacle outlets, telephone outlets, and data outlets 18 inches above finished floor.

3. Install panelboards and terminal cabinets 6 feet-6 inches from finish floor to top of cabinet.

4. Install television outlets at a height corresponding to location of television monitor, or a minimum of 18 inches above finished floor. Refer to other Division 16 sections.

3.03 COVER PLATES

A. Provide a plate on each outlet device as indicated or required. Plates shall be of stainless steel unless otherwise specified.

B. Flush wiring device and system outlets indicated to be blank covered, shall be covered with blank stainless steel plates. Flush lighting outlets to be blanked shall be covered with decorative, blank cover plates, painted to match surrounding finish. Provide stainless steel covers to blank indicated or required surface-mounted outlets.

C. In the following cases, and at required locations. Switch and receptacle plates shall be engraved with the device(s), or fixtures being controlled, or as indicated:.

1. Three-gang and larger gang switches.

2. Switches so located that operator cannot see fixtures, or items of equipment controlled while his hand is on the switch.

3. Switches not in same room with fixtures or items of unit heaters, air curtains, fly fans, etc.

4. Receptacles operating at other than 120 V shall be labeled with the operating voltage.

5. Where indicated on Drawings.

D. Designations shall be as indicated on Drawings or as specified by Architect.

3.04 IDENTIFICATION OF CIRCUITS AND EQUIPMENT

A. Provide descriptive nameplates or tags permanently attached to panelboards, circuit breakers, disconnect switches, starters, pushbutton control stations and other apparatus installed for operation or control of circuits, appliances, power supplies, terminal cabinets, energy management control units, and Information technology system backbone and distribution equipment points. .

B. Provide nameplates of engraved laminated plastic, or etched metal. Submit Shop Drawings denoting dimensions and format to Architect before installation. Fasten to equipment with escutcheon pins, rivets, self-tapping screws, or machine screws. Self-adhering or adhesive backed nameplates are not permitted.

C. Fasten tags to feeder wiring in conduits at every point where runs are broken or terminated, including pull wires in empty conduits. Indicate circuit, phase, and function. Tag branch circuits in panel boards and cabinets. Tags may be manufactured of pressure-sensitive plastic or embossed self-attached stainless steel or brass ribbon.

D. Provide circuit identification cards and cardholders in all panel boards. Cardholders shall consist of metal frame retaining a clear plastic cover permanently attached to inside of panel door. List of circuits shall be typewritten on a card. Circuit description shall include name or number of circuit, area and connected load.

E. Junction and pull boxes shall have covers stenciled with box number when indicated on Drawings, or circuit numbers according to panel schedules. Data shall be lettered in a visible manner with a color contrasting with finish.

F. Name shall be correctly engraved, with a legend indicating function or areas, when required by codes or indicated on Drawings.

G. Provide wire marker indicating circuit number for each conductor located within each electrical panel, starter, disconnect, large junction box or trough, etc.

3.05 PROTECTION

A. Protect Work of this section until Substantial Completion.

3.06 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

END OF SECTION

SECTION 26 24 16
PANELBOARDS

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: Lighting and power distribution facilities, including panelboards.

C. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements.

2. Section 26 51 00: Lighting.

1.02 SUBMITTALS

A. Provide in accordance with Division 01.

B. Shop Drawings: Include a front elevation indicating cabinet dimensions, make, location and capacity of equipment, size of gutters, type of mounting, finish, and catalog number. General layout of internal devices, wiring drawings with wire numbers and device connections, vendor cut sheets of devices in enclosure and bill of materials listing description, manufacturer, part number, and quantity of items shall be included.

C. Installation Instructions: Submit manufacturer's written installation instructions.

1.03 DESIGN REQUIREMENTS

A. Panelboards:

1. Panelboards are existing unless noted otherwise. New panels shall be wall-mounted, enclosed safety type with 120/208 volt, 4-wire solid neutral mains as indicated on Drawings or specified. First panelboard of each building shall be provided with main or sub-feeder circuit breakers where indicated.

2. Single pole branches shall be molded case, thermal magnetic circuit breakers with inverse time delay, trip free, quick-make, quick-break mechanism and silver alloy contacts. Circuit breakers shall be fully rated, with ampere rating marked on handle and shall indicate on/off and tripped positions. Ground fault interrupters shall be incorporated into circuit breakers where indicated. They shall be listed by UL, or other NRTL as ground fault devices. Provide appropriate lug kit of sufficient size to accommodate the feeders.

3. Two- and 3-pole branches shall be enclosed, and shall be thermal magnetic circuit breakers with inverse time delay, tamper-proof, ambient compensated, single handle, internal common trip, and quick-make, quick-break mechanism with silver alloy contacts. Circuit breakers shall be fully rated or as otherwise indicated on the Drawings.

4. Circuit breakers shall be fully rated and of one-piece, bolt-on type and shall meet short-circuit interrupting capacity requirements indicated on Drawings.

B. Panelboard Schedule: All panelboards shall have updated directories/schedules indicating loads being served. Provide a neatly typewritten schedule with number or name of room or area, or load served by each panelboard circuit. Room numbers or names shall be determined at the Project site and shall not necessarily be those indicated on the Drawings. Schedule shall also indicate panel designation, voltage and phase, building and distribution panel or switchboard from which it is fed. Schedule shall be installed in a frame under transparent plastic on inside of each panelboard door.

C. Panelboard Standards (if applicable): Panelboards shall be UL, or other NRTL listed and labeled. Panelboards shall meet latest revisions of following standards:

1. National Electric Code, Article 408.
2. UL 67, Panelboards.
3. UL 50, Cabinets and Boxes.
4. UL 943, GFCI.
5. UL 489, Molded Case Circuit Breakers.
6. NEMA PB1.
7. Federal Specifications W-P- 115C and WC-375B.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Panelboards shall be manufactured by General Electric, Eaton, Square D, Siemens, or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Panelboard locations shall provide sufficient working space around panels to comply with the National Electrical Code.

B. Panelboards interiors shall be installed in existing panel enclosures. Provide new flush mounted covers to fit existing enclosures.

C. Unused openings in cabinets and disconnects shall be effectively closed as required by the manufacturer.

D. Cabinets shall be grounded as specified in Article 250 of the National Electrical Code.

E. Conduits shall be installed so as to prevent moisture or water from entering and accumulating within the enclosure.

F. Lugs shall be suitable and listed for installation with the conductor being connected.

G. Conductor lengths shall be maintained to a minimum within the wiring gutter space. Conductors shall be long enough to reach the terminal location in a manner that avoids strain on the connecting lugs.

H. Maintain the required bending radius of conductors inside the cabinet.

I. Clean the cabinet of foreign material such as cement, plaster, and paint. Repaint to manufacturers original finish any blemishes that occur during construction.

J. Distribute and arrange conductors neatly in the wiring gutters.

K. Use the manufacturer's torque values to tighten lugs.

L. Before energizing panelboards, the following steps shall be taken:

1. Retighten connections to the manufacturer's torque specifications. Verify that required connections have been provided.
2. Remove shipping blocks from component devices and panelboard interiors.
3. Manually exercise circuit breakers to verify they operate freely.
4. Remove debris from panelboard interior.

M. Follow manufacturer's instructions for installation.

N. Do not install in highly corrosive environments, unless rated for the application.

3.02 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.03 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes:

1. Receptacles
2. Switches
3. Coverplates
4. Occupancy sensor switches

C. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements.

1.02 SUBMITTALS

A. Provide in accordance with Division 01.

B. Shop Drawings:

a. Include manufacturer's cut sheets for each type device being installed listing description, manufacturer, and part number.

b. Include manufacturer's cut sheets for each device coverplate being installed listing description, manufacturer, and part number.

C. Installation Instructions: Submit manufacturer's written installation instructions including any warning labels and instruction manuals.

1.03 QUALITY ASSURANCE

A. Receptacles shall comply with NEMA WD 1, NEMA WD 6, and UL 498.

B. Switches shall comply with NEMA WD 1 and UL 20.

PART 2 - PRODUCTS

2.01 RECEPTACLES AND SWITCHES

A. Receptacles:

1. Color: Coordinate with architect

2. Duplex receptacles shall be heavy-duty specification grade, grounding type. Terminal screws shall be back and side wired with internal screw pressure plates. Mounting strap shall feature heavy-duty brass construction. Receptacle back body shall be PVC. Receptacle face shall be impact resistant nylon. Receptacles shall have triple wipe brass power contacts.

NEMA #	Pass & Seymour	Hubbell	Leviton
NEMA 5-20	PS5362	HBL5362	5362

3. Provide specification grade ground-fault circuit interrupter (GFCI) type receptacles in accordance with UL standards. GFCI receptacles shall have a trip indication light. Receptacle terminal screws shall be back and side wire with internal screw pressure plates. Test and reset buttons shall match device body in color. GFCI receptacles shall be manufactured in standard configuration for installation with stainless steel smooth plates. Exterior mounted receptacles shall be mounted inside weatherproof enclosure.

NEMA #	Pass & Seymour	Hubbell	Leviton
(20 amps) NEMA 5-20R	2094	GFR5352	8898

4. Provide weatherproof receptacles, except where otherwise indicated or specified, consisting of GFCI receptacles, as specified herein, and metal plates with die-cast hinged, "in-use" covers and weatherproof mats.

5. Receptacles within 6 feet of water fountains, counter tops, or any sources of water shall be GFCI type.

6. Single receptacles shall be heavy-duty specification grade, grounding type. Terminal screws shall be back and side wire with internal screw pressure plates. Mounting strap shall feature heavy-duty brass construction. Receptacle back body shall be thermoplastic. Receptacle face shall be impact resistant nylon. Receptacles shall have triple wipe brass power contacts. For circuits consisting of one single receptacle only, ampere rating of receptacle shall be same as circuit breaker or fuse.

NEMA #	Pass & Seymour	Hubbell	Leviton
(20 amps) NEMA 5-20R	5361	HBL5361	5361

7. For equipment receptacles, provide 3-wire or 4-wire, non-grounding type, rated 30 amps or 50 amps at 125/250 volts, NEMA 10-30R or 10-50R, with 2-gang stainless steel plates. Refer to drawings.

B. Switches:

1. Color: Coordinate with architect

2. Local Switches:

a. Provide local switches, high strength thermoplastic toggle, specification grade, rated 20 amps at 120-277 volts AC only, with plaster ears, external screw pressure plate back and side wired, and standard size composition cups which fully enclose mechanism. Switches shall be approved for installation at currents up to full rating on resistive, inductive, tungsten filament lamp and fluorescent lamp loads, and for up to 80 percent of rating for motor loads. Switches shall have oversized silver alloy contacts for long life and better heat dissipation. Provide switches as single pole, double pole, 3-way, 4-way, non-lock type.

	Pass & Seymour	Hubbell	Leviton
Single pole	PS20AC1	HBL1221	1221-2
Double pole	PS20AC2	HBL1222	1222-2
Three way	PS20AC3	HBL1223	1223-2
Four way	PS20AC4	HBL1224	1224-2

3. Dimmer Switches: Provide dimmers switches to be completely compatible with fixtures and loads being controlled. Color shall be the same as other devices.

C. Occupancy sensor switches (CEILING OR WALL MOUNT):

1. Control Specifications
   a. Adjustment: Self-Adjusting
   b. Manual Time Adjustment: 30 sec to 30 min
   c. Timer Factory Preset: 10 Minutes
   d. Sensitivity Adjustment: 0 to 100 Pct
   e. Sensitivity Factory Preset: Ultrasonic 50 Pct Infrared 75 Pct
   f. Photo Cell Adjustment: 20 to 3000 Lux
   g. Single/Multi-Tech Mode: Switchable ON/OFF PIR/ULTRA
2. Electrical Specifications
   a. Input Voltage: 120/277 volt
   b. Current Consumption: 30-50mA
   c. Output Voltage: 120/277 volt
3. Material Specifications
   a. Color: match other devices
   b. Housing Material: High-Impact, Injection Molded Plastic
   c. LED Indicator: Red Infrared Motion & Green Ultrasonic Motion
   d. PIR Lens Type: Extended Range
   e. Wire Leads: Color Coded 6 Inch
4. Mechanical Specifications
   a. Sensor Technology: PIR/Ultrasonic 32kHz
   b. Pattern Degrees: 360
   c. Coverage (Sq.Ft.): 1000 or 2000 Sq. Ft. or linear coverage for corridors
5. Wall mount switches shall have a manual off override function.

PART 3 - EXECUTION

3.01 INSTALLATION OF DEVICES

A. Installation shall be in accordance with the NEC and as shown as on the drawings.

B. Ground terminal of each receptacle shall be bonded to the outlet box with an approved green bonding jumper, and also connected to the green equipment grounding conductor.

C. Ensure that devices and their boxes are protected until completion of project.

D. Do not install junction boxes back-to-back in walls. Maintain a minimum of 4" separation measured edge-to-edge between boxes. Where separation is not possible, install sound proofing material in boxes to minimize noise transfer between rooms. In fire rated walls, boxes may be no larger than 4" x 4" and are to be separated 24" minimum, measured edge-to-edge.

E. Do not cut holes for boxes with routers that are designed to ride along the inside of device back box. Replace any damaged wiring from router cut outs.

F. Keep outlet boxes free of plaster, drywall compounds, mortar, cement, paint, dust, or other materials that may contaminate the devices, conduits, wiring, cables, etc.

G. Install device boxes in brick or block walls so the cover plate does not cross a joint unless the joint is toweled flush with the face of the wall.

H. Cut outs around device boxes shall be completed such that a standard faceplate completely covers the cut out. Walls shall be patched accordingly where oversize cut outs occur.

I. Install proper size and depth tile extension rings at outlet back boxes based on wall types and thickness.

J. Do not install wiring devices until all wall preparation, painting, finishing, is complete.

K. Do not strip insulation from wiring until devices are being installed.

L. Replace any devices that have been damaged or show signs of use during construction phase of project before finishes were complete.

M. Keep devices in their package or protected until time of installation.

N. Connect devices using pigtail connections of not less than 6". Where conductors larger than #12 AWG have been installed, use #12 AWG for pigtail connections to devices.

O. Remove fiber or plastic washers prior to installation to ensure metal-to-metal contact.

P. Outlet boxes for light switches shall be mounted on the strike side of doors, unless shown otherwise.

Q. Provide barriers in multigang outlet boxes to separate systems of different voltages, Normal Power and Emergency Power systems, and in compliance with the NEC.

R. Coordinate with other work, including painting, electrical boxes and wiring installations, as necessary to interface installation of wiring devices with other work. Coordinate the electrical work with the work of other trades to ensure that wiring device flush outlets are positioned with box openings aligned with the face of the surrounding finish material. Pay special attention to installations in cabinet work, and in connection with laboratory equipment.

S. Exact field locations of floors, walls, partitions, doors, windows, and equipment may vary from locations shown on the drawings. Prior to locating sleeves, boxes and chases for roughing-in of conduit and equipment, the Contractor shall coordinate exact field location of the above items with other trades. In addition, check for exact direction of door swings so that local switches are properly located on the strike side.

T. Test wiring devices for damaged conductors, high circuit resistance, poor connections, inadequate fault current path, defective devices, or similar problems using a portable receptacle tester. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.

U. Test GFCI devices for tripping values specified in UL 1436 and UL 943.

V. Heights of outlets and equipment indicated on Drawings shall govern. In absence of such indications and if applicable to the project, the following heights shall be maintained with heights measured to centerline unless otherwise noted:

1. Install wall-mounted telephones, light switches, other switches, 48 inches above finished floor. Refer to other Division 16 Sections.

2. Install power receptacle outlets, telephone outlets, and data outlets 18 inches above finished floor.

3. Install television outlets at a height corresponding to location of television monitor, or a minimum of 18 inches above finished floor. Refer to other Division 16 sections.

W. Where ceiling occupancy sensors are shown in the same area as toggle switches, connect lighting to be auto controlled by sensor device, but manual override by wall mounted switch.

3.02 COVER PLATES

A. Provide a plate on each outlet device as indicated or required. Plates shall be of stainless steel unless otherwise specified.

B. Flush wiring device and signal system outlets indicated to be blank covered, shall be covered with blank stainless steel plates. Flush lighting outlets to be blanked shall be covered with decorative, blank cover plates, painted to match surrounding finish. Provide stainless steel covers to blank indicated or required surface-mounted outlets. All flush wiring device and outlets that are not utilized, shall have a blank cover plate.

C. In the following cases, and at required locations. Switch and receptacle plates shall be engraved with the device(s), or fixtures being controlled, or as indicated:.

1. Three-gang and larger gang switches.
2. Switches so located that operator cannot see fixtures, or items of equipment controlled while his hand is on the switch.
3. Switches not in same room with fixtures or items of unit heaters, air curtains, fly fans, etc.
4. Receptacles operating at other than 120 V shall be labeled with the operating voltage.
5. Where indicated designations shall be as indicated on Drawings or as specified by Architect.

3.03 PROTECTION

A. Protect Work of this section until Substantial Completion.

3.04 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

END OF SECTION

SECTION 26 28 16
DISCONNECT SWITCHES

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section

B. Section Includes: Disconnect switches.

C. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements.

2. Section 26 24 16: Panelboards.

1.02 SUBMITTALS

A. Provide in accordance with Division 01.

B. Shop Drawings: Include dimensions, make, capacity of equipment, size, rating, and catalog number. Vendor cut sheets of devices in enclosure and bill of materials listing description, manufacturer, part number, and quantity of items shall be included.

C. Installation Instructions: Submit manufacturer's written installation instructions.

1.03 DESIGN REQUIREMENTS

A. Disconnect Switches:

1. In accordance with UL 98, NEMA KS1, and NEC.

2. Shall be HP rated.

3. Fusible Switch, 600 amp and smaller: NEMA KS 1, Type HD, with clips or bolt pads to accommodate specified fuses or recommended fuses, lockable handle; interlocked with cover in closed position.

4. Shall have the following features:

a. Switch mechanism shall be the quick-make, quick-break type.
b. Copper blades, visible in the OFF position.
c. An arc chute for each pole.
d. External operating handle shall indicate ON and OFF position and have lock-open padlocking provisions.
e. Mechanical interlock shall permit opening of the door only when the switch is in the OFF position, defeatable to permit inspection.
f. Fuse holders for the sizes and types of fuses specified.
g. Electrically operated switches shall only be installed where shown on the drawings.
h. Solid neutral for each switch being installed in a circuit which includes a neutral conductor.
i. Ground lugs for each ground conductor.
j. Enclosures:
i. Shall be the NEMA types shown on the drawings for the switches.
ii. Where the types of switch enclosures are not shown, they shall be the NEMA types most suitable for the ambient environmental conditions. Unless otherwise indicated on the plans, all outdoor switches shall be NEMA 3R.
iii. Shall be finished with manufacturer’s standard gray baked enamel paint over pretreated steel (for the type of enclosure required).

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Disconnect switches shall be manufactured by General Electric, Eaton, Square D, Siemens, or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Disconnects/Safety switches shall be installed in the vertical position with "ON" at the up position and top of the switch.

B. Disconnects/Safety Switches shall be securely fastened to wall or structural member by at least 4 points. Where structural support is not present, uni-strut shall be installed for additional support and points-of-contact.

C. Unused openings in cabinets and disconnects shall be effectively closed as required by the manufacturer.

D. Cabinets shall be grounded as specified in Article 250 of the National Electrical Code.

E. Conduits shall be installed so as to prevent moisture or water from entering and accumulating within the enclosure.

F. Lugs shall be suitable and listed for installation with the conductor being connected.

G. Conductor lengths shall be maintained to a minimum within the wiring gutter space. Conductors shall be long enough to reach the terminal location in a manner that avoids strain on the connecting lugs.

H. Maintain the required bending radius of conductors inside the cabinet.

I. Clean the cabinet of foreign material such as cement, plaster, and paint. Repaint to manufacturers original finish any blemishes that occur during construction.

J. Distribute and arrange conductors neatly in the wiring gutters.

K. Use the manufacturer's torque values to tighten lugs.

L. Before energizing disconnect switches, the following steps shall be taken:

1. Retighten connections to the manufacturer's torque specifications. Verify that required connections have been provided.
2. Remove shipping blocks from component devices and panelboard interiors.
3. Remove debris from switch interior.

M. Follow manufacturer's instructions for installation.

N. Do not install in highly corrosive environments, unless rated for the application.

3.02 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.03 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 26 51 00

LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of the General and Supplementary Conditions and Division 01 apply to this section.

B. Section Includes: Furnishing and installing lighting fixtures, including lamps, ballasts, wiring, and lighting controls.

C. Light fixtures model numbers were determined at the time this specification was written; model numbers may need to be modified, or may require the addition or deletion of options to fully meet specification requirements.

D. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements

2. Section 26 05 33: Raceway and Boxes for Electrical Systems.

1.02 SUBMITTALS

A. Provide in accordance with Division 01.

B. List of Materials: Submit a complete list of materials proposed for this section.

C. Shop Drawings: Provide detailed and dimensioned Shop Drawings or manufacturer’s data sheet with specific model and part numbers indicating kind, weight and thickness of materials, method of fitting and fastening parts together, location and number of sockets, size of lamps, and complete details of method of fitting suspension and fastening fixtures in place.

D. Submittals must comply with contract general provisions.

1.03 MOUNTING REQUIREMENTS

A. Design of lighting fixtures, accessories, supports, and method of fixture installation shall comply with requirements of ceiling type which fixture is installed.

B. Provide suspension points at no more than 2 feet from fixture ends. Spacing between supports shall not exceed 8 feet.

C. For fixtures mounted in grid ceiling, provide fixture supports at all (4) corners of the fixture independent of ceiling grid system, or manufacturer’s approved ceiling support system.

1.04 QUALITY ASSURANCE

A. Components and fixtures shall be listed and approved for the intended application by Underwriter's Laboratories (UL), or other Nationally Recognized Testing Laboratory (NRTL).

B. Owners approval shall be obtained for any equipment or materials substitutions.

1.05 GUARANTEE

A. Provide a 1 year labor warranty.

B. Provide material warranty as specified:

1. Lamps: 1 years

2. Ballasts: 5 years

3. Controls: 3 years

C. Warranty period begins at substantial completion or project acceptance for beneficial occupancy.

PART 2 - PRODUCTS

2.01 MATERIAL AND FABRICATION

A. Lighting fixtures shall be the type indicated on Drawings and as specified. Fixtures of same type shall be of one manufacturer.

B. Fixtures shall be of the types and manufacturers described in the Luminaire Schedule of the Drawings, with lamps, wattage and voltage as indicated. Alternate fixtures must be submitted for approval minimum 2 weeks prior to project bid date.

C. All fixtures shall be baked-on enamel or powder-coated, unless otherwise specified in subsections below.

2.02 LAMPS AND BALLASTS

A. LED Fixtures, Driver, and Characteristics

1. LED Fixture

a. Cast aluminum heat sink integrated directly with housing.

b. Replaceable PC board with quick connects.

c. High lumen output LED's with 50,000 hours life expectancy.

d. No lead or mercury.

2. Optics System

a. Computer-optimized internal reflector with specular finish with diffusing lens to conceal the LED's for uniform luminance.

b. Low glare, 900 lumens minimum.

3. LED Driver

a. Non-dimming and optical 0-10V dimming driver accommodating 120 or 277 volts AC at 60 Hz.

b. Power factor 0.9 minimum.

c. Driver to accept 120 or 277 volts AC.

2.03 TIME CLOCK

A. Furnish and install where shown a Time Switch as manufactured by TORK, or equal.

B. Characteristics

1. 24 hour dial and day-omitting device
2. Powered by a self-starting synchronous motor
3. Contacts shall be capable of switching 40 amperes per pole continuously at rated voltage.
4. Time Switch shall be DPST.
5. Removable ON-OFF trippers shall make possible automatic operation with a minimum ON period of 20 minutes and a minimum of 2 hours between one OFF period and the next.
6. Enclosure shall be NEMA 1 surface type, finished in beige enamel, with combination 1/2”, 3/4” knockouts on bottom, both sides and back.
7. Provision shall be made for positive padlocking.
8. Terminals shall be capable of receiving #8 AWG wire.

9. Time Switch shall be equal to TORK Model 7200 for 120 volt systems or 7202 for 277 volt systems.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install a lighting fixture for each lighting outlet indicated and mark new ballasts with day of installation.

B. Fixture voltage shall be as indicated on Drawings.

C. Install recessed and surface-mounted fixtures, with plaster frames compatible with ceiling and wall systems employed; secure fixtures mechanically to frames.

D. Align rows of suspended and surface-mounted fixtures to form straight lines at uniform elevations.

E. Recessed fixtures shall fit snugly against ceilings to prevent light leakage.

F. Support suspended recessed fixtures in T-bar ceilings. Fixture installation shall be coordinated with acoustical ceiling installation.

G. Continuous suspended fixtures:

1. Fixture suspension device shall allow vertical adjustment of fixture without the use of tools. Cable shall be minimum 7 strand twisted stainless steel capable of supporting minimum four times the fixture weight. For continuous linear suspended fixtures longer than eight feet, provide not less than three suspension points.

2. Top of fixture shall be suspended as shown on the Drawings, typically 24 inches below the ceiling and a minimum of 18 inches from the ceiling.

3. Fixture shall utilize factory furnished or approved hardware and canopy for either hard or T-bar ceilings.

H. Where emergency battery packs are installed, provide constant hot for emergency fixtures. Unless noted otherwise, when powering unit inverter power packs, use the same circuit that powers the switched ballast to power the inverter.

I. Where emergency ballast(s) are specified within the fixture, provide constant hot for the ballast(s). Nonemergency ballasts within the same fixture shall be switched as indicated, unless noted otherwise.

J. Surface mount fixtures shall be attached to structure. Toggle bolts are NOT permitted. Provide backing where required.

3.02 TESTING

A. Check and adjust fixtures for required illumination.

B. Replace defective lamps and ballasts.

C. Test and adjust lighting control equipment for proper operation.

3.03 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.04 CLEANUP

A. Remove rubbish, debris, and waste materials from all areas of work each day.

B. Clean fixture surfaces of dirt, cement, plaster and debris. Furnish cleansers compatible with material surfaces being cleaned.

3.05 HAZARDOUS WASTE DISPOSAL

A. All hazardous waste disposal shall be handled and disposed of by an approved, licensed contractor.

B. Any and all ballasts are assumed to contain PCB unless clearly marked “NO PCB.”

C. Place ballasts and lamps in appropriate containers provided by hazardous waste contractor labeled clearly with:

1. Project Name

2. Quantity of ballasts and lamps

3. Date ballasts and lamps became waste

D. Store, remove, transport and dispose of hazardous materials in all accordance with state and federal regulations.

E. Provide Owner with copy of manifest and certificate of destruction.

END OF SECTION

SECTION 27 15 00

COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Pathways.
2. UTP cabling.
3. Multiuser telecommunications outlet assemblies.
4. Cable connecting hardware, patch panels, and cross-connects.
5. Telecommunications outlet/connectors.
6. Cabling identification products.
7. Cabling administration system

B. Related Sections:

1. Section 26 01 00: Basic Electrical Requirements
2. Section 26 05 33: Raceways and Boxes for Electrical Systems
3. MGCCC Cabling Standards: Attached to these specifications.

1.02 HORIZONTAL CABLING DESCRIPTION

A. Horizontal cable and its connecting hardware provide the means of transporting signals between the telecommunications outlet/connector and the horizontal cross-connect located in the communications equipment room. This cabling and its connecting hardware are called "permanent link," a term that is used in the testing protocols.

1. TIA/EIA-568-B.1 requires that a minimum of two telecommunications outlet/connectors be installed for each work area.
2. Horizontal cabling shall contain no more that one transition point or consolidation point between the horizontal cross-connect and the telecommunications outlet/connector.
3. Bridged taps and splices shall not be installed in the horizontal cabling.

1.03 PERFORMANCE REQUIREMENTS

A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA/EIA-568-B.1, when tested according to test procedures of this standard.

1.04 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:

1. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.

2. System Labeling Schedules: Electronic copy of labeling schedules that are part of the cabling and asset identification system of the software.

3. Cabling administration drawings and printouts.

4. Wiring diagrams to show typical wiring schematics, including the following:
   a. Cross-connects.
   b. Patch panels.
   c. Patch cords.
5. Cross-connects and patch panels. Detail mounting assemblies, and show elevations and physical relationship between the installed components.

C. Qualification Data: For installer, qualified layout technician, installation supervisor, and field inspector.

D. Maintenance and Operations Manuals.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Cabling Installer must have personnel trained and certified in the installation of proposed structured cable system components.

1. Layout Responsibility: Preparation of Shop Drawings and Cabling Administration Drawings, and field testing program development.
2. Installation Supervision: Installation shall be under the direct supervision of Registered Technician, who shall be present at all times when Work of this Section is performed at Project site.
3. Refer to MGCCC standards for additional qualifications.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A.

D. Grounding: Comply with ANSI-J-STD-607-A.

E. Warranty: The contractor shall provide the standard warranty of the structured cable system solution group.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Test cables upon receipt at Project site. Test each pair of UTP cable for open and short circuits.

PART 2 - PRODUCTS

2.01 PATHWAYS

A. Cable Support: NRTL labeled for support of 10 GB Category 6 augmented cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
   1. Support brackets with cable tie slots for fastening cable ties to brackets.
   2. Lacing bars, spools, J-hooks, and D-rings.
   3. Straps and other devices.
   4. Conduit sleeves through walls as required.

B. Conduit and Boxes: Comply with requirements in Division 26 Section "Raceways and Boxes." Flexible metal conduit shall not be used.

1. Outlet boxes for “non-data” device installations or CAT6A “data” device installations, shall be 4-inch square 2-1/2 inch deep boxes with plaster or tile rings suitable for device outlet(s).

2. Outlet boxes for “data” device installations with CAT6A, shall be true 5-inch square 2-1/2 inch deep minimum boxes with plaster or tile rings suitable for device outlet(s). In existing walls, cut-in devices shall be installed.

2.02 BACKBOARDS

A. Backboards: Existing to remain.

2.03 UTP CABLE

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Belden CDT Inc.; Electronics Division.
2. Berk-Tek; a Nexans company.
3. CommScope.
4. Tyco Electronics/AMP Netconnect; Tyco International Ltd.

B. Description: 10GB, 4-pair UTP, covered with a plenum rated jacket.

1. Comply with ICEA S-90-661 for mechanical properties.
2. Comply with TIA/EIA-568-B.1 for performance specifications.
3. Comply with TIA/EIA-568-B.2, **Category 6A**.

2.04 UTP CABLE HARDWARE

A. Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, eight-position modular. Comply with TIA/EIA-568-B.1.

B. Workstation Outlets: Two port-connector assemblies mounted in single faceplate.

1. Metal Faceplate: Stainless steel, complying with requirements in Division 26 Section "Wiring Devices."

2. For use with snap-in jacks accommodating any combination of UTP work area cords.

a. Flush mounting jacks, positioning the cord at a 45-degree angle.

3. Legend: Snap-in, clear-label covers and machine-printed paper inserts.

C. General Requirements for Cable Connecting Hardware: Comply with TIA/EIA-568-B.2, IDC type, with modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of same category or higher.

D. Patch Panel: Modular panels housing multiple-numbered jack units with IDC-type connectors at each jack for permanent termination of pair groups of installed cables.

2.05 RACKS

A. Existing to remain.

B. Provide and install additional patch panel as required.

.

2.06 GROUNDING

A. Comply with requirements in Division 26 Section "Grounding and Bonding" for grounding conductors and connectors.

B. Comply with ANSI-J-STD-607-A.

2.07 IDENTIFICATION PRODUCTS

A. Comply with TIA/EIA-606-A and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

B. Comply with requirements in Division 26 Section "Electrical Identification."

2.08 SOURCE QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to evaluate cables.

B. Factory test UTP cables on reels according to TIA/EIA-568-B.1.

C. Factory test UTP cables according to TIA/EIA-568-B.2.

D. Cable will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

PART 3 - EXECUTION

3.01 ENTRANCE FACILITIES

A. Building Entrance: Existing conduit system below grade shall remain.

3.02 WIRING METHODS

A. Wiring Method: Install cables in raceways except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces, in attics, and in gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables except in unfinished spaces.

1. Install plenum cable in environmental air spaces, including plenum ceilings.

2. Comply with requirements for raceways and boxes specified in Division 26 Section "Raceways and Boxes."

B. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.03 INSTALLATION OF PATHWAYS

A. Comply with requirements for demarcation point, pathways, cabinets, and racks specified in Division 26 Sections. Drawings indicate general arrangement of pathways and fittings.

B. Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.

C. Comply with requirements in Division 26 Section "Raceways and Boxes" for installation of conduits and wireways.

D. Install conduit sleeves through walls (above ceiling) where required. No cables shall pass through any wall unless routed through conduit or approved raceway.

E. Install manufactured conduit sweeps and long-radius elbows whenever possible.

F. Pathway Installation in Communications Equipment Rooms:

1. Position conduit ends adjacent to a corner on backboard where a single piece of plywood is installed, or in the corner of room where multiple sheets of plywood are installed around perimeter walls of room.

2. Secure conduits to backboard when entering room from overhead.

3. Extend conduits 3 inches above finished floor.

4. Install metal conduits with grounding bushings and connect with grounding conductor to grounding system.

G. Install conduit nipples through rated and all corridor walls for wiring access from rooms to corridors.

H. Install EZ-Path (or equal) fire rated access chases above ceilings at fire rated walls.

I. Backboards: Install backboards with 96-inch dimension vertical. Butt adjacent sheets tightly, and form smooth gap-free corners and joints. Paint with (2) coats of fire retardant white paint.

3.04 INSTALLATION OF CABLES

A. Comply with NECA 1.

B. General Requirements for Cabling:

1. Comply with TIA/EIA-568-B.1.
2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
5. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
6. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
7. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
8. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
9. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
10. In the communications equipment room, install a 10-foot- (3-m-) long service loop on each end of cable.
11. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.

C. UTP Cable Installation:

1. Comply with TIA/EIA-568-B.2.
2. Do not untwist UTP cables more than 1/2 inch (12 mm) from the point of termination to maintain cable geometry.

D. Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend UTP cable not in a wireway or pathway a minimum of 8 inches (200 mm) above ceilings by cable supports not more than 60 inches apart.
3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.

E. Group connecting hardware for cables into separate logical fields.

F. Separation from EMI Sources:

1. Comply with BICSI TDMM and TIA/EIA-569-A for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.

3.05 FIRESTOPPING

A. Comply with requirements in Section "Through-Penetration Firestop Systems."

B. Comply with TIA/EIA-569-A, Annex A, "Firestopping."

C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.06 GROUNDING

A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

B. Comply with ANSI-J-STD-607-A.

C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch (50-mm) clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.

D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.07 IDENTIFICATION

A. Provide pre-printed labels with appropriate preprinted addresses at each outlet jack. Coordinate labeling type and method with owner.

3.08 PROTECTION

A. Protect the work of this section until Substantial Completion.

3.09 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

END OF SECTION

SEE APPENDIX

Mississippi Gulf Coast Community College

CABLING STANDARDS

Updated 02.11.2025



Mississippi Gulf Coast Community College

CABLING STANDARDS

Updated 02.11.2025

STANDARDS TO BE FOLLOWED AS APPLICABLE FOR NEW INSTALLATIONS NOTED ON DRAWINGS.

Overview 3
General Instructions 3
Terms and Abbreviations 3
Communication/Data Closet 4
Floor Space/Footprint 4
Grounding 4
Installation Guidelines and Documentation 5
Inside Plant 5
Cable Routing 5
Cabling Terminations 6
EMI Sources 6
Fire Stopping 6
Outside Plant 7
Base Bid: 7
Equipment Listing and Specifications 7
Fiber Optic Cable 7
Copper Cable 7
Twisted Pair Cable 8
Rack Hardware and Misc. 8
Testing, Certification, and Acceptance 8
Warranty 8
Acceptance by Owner 8
As-Built Documentation 9
DRAWINGS 10
EQUIPMENT RACK TEMPLATE 10
TYPICAL WORK AREA OUTLET 15
Revision History 16

Overview

This document is designed to assist certified Information Transport System (ITS) designers such as Professional Engineers and Registered Communications Distribution Designers (RCDD®) in the preparation of telecommunications documents in the appropriate Construction Specifications Institute (CSI) format that will accompany a full set of Telecommunications drawings for new construction projects, major renovation projects, and minor renovation projects on the Mississippi Gulf Coast Community College Campus. This document is also intended as a standard by which all low voltage telecommunications infrastructure shall be installed college wide.

Within the Office of Information Technology, User Services & Networking Services are responsible for the maintenance of this document. Suggested changes to this document or variances from this standard must be coordinated through the Technical Director of Information Technology at 228-897-3894.

General Instructions

Only vendors with the following criteria are eligible to respond to work on this project.

Qualifications:
TrueNet Value Added Reseller (VAR) certification from ADC
Installation must be eligible for ADC's Extended Warranty Program (EWP)
Corning Network Performance Installers (NPI)
Licensed and bonded to perform work in the State of Mississippi

Terms and Abbreviations

AWG - American wire gauge
CAT - Category
EIA/TIA - Electronics Industry Association/Telecommunications Industry Association
EMI - Electromagnetic Interference
EWP - Extended Warranty Program
FSP - Firestop Putty
IDF - Intermediate Distribution Frame
IEEE - Institute of Electrical and Electronics Engineers
KVA - Kilovolt-ampere
MDF - Main Distribution Frame
NFPA - National Fire Protection Association
NPI - Network Performance Installers
PC - Personal Computer
PLW - Firestop Pillow
UPS - Uninterruptable Power Supply
UTP - Unshielded Twisted Pair
VAR - Value Added Reseller

Communication/Data Closet

Backboards are to be sized as shown on the drawings and are to be made of 3/4" fire retardant plywood with the long dimension vertical and painted with two (2) coats of a good quality white fire retardant paint. Backboard assemblies shall be fire retardant. Each backboard shall have at least one (1) duplex receptacle connected to dedicated circuits that are connected to the building's emergency generator (if available).

The MDF and IDF rack layout drawings are listed in the drawings section of this document. Any deviation from these designs must be reviewed by MGCCC IT personnel and require written permission from IT.

For each cable run, the vendor must provide one (1) seven foot (7') blue Category 6 patch cord for the workstation and one (1) five foot (5') blue Category 6 patch cord for inside the MDF/IDF. All Category 6 augmented terminations will be made into Category 6 augmented patch panels in each MDF and IDF. Terminations must be made with a Krone Punch-down tool. High-density 48 port patch panels shall be provided by the vendor. Patch panels shall be installed as noted in the drawings section of this document. Patch panel part numbers are in the equipment listing and specifications section of this document.

A combination of Wall Mount and two post equipment racks will be used in the MDF and IDF of this project. The two post equipment racks shall be nineteen inch (19") wide racks and approximately seven feet (7') tall. Equipment rack part numbers are in the equipment listing and specifications section of this document.

Each MDF communication room shall have a rack mounted UPS (30 AMP NEMA L5-3P wall outlet) that is connected to a generator circuit (if available). Power for the active network electronics shall be provided by rack mounted power strips with a minimum of six (6) outlets per strip. These power strips shall be connected to the rack mounted UPS unit. The rack mount power strip part number is in the equipment listing and specifications section of this document.

Floor Space/Footprint

Layout for the MDF/IDF floor space must be approved by IT prior to installation.

Grounding

Ground all systems and equipment in accordance with the most recent version of NFPA 70.

Ground connections in the MDF and IDF rooms shall be made to a ground bar. All ground bars shall be interconnected to each other with #6 AWG and directly connected to the building Main Service ground.

Each backboard or rack shall have a minimum of #6 AWG solid insulated ground wire installed. Ground wire shall originate from the service equipment ground and shall be installed in 3/4" conduit. Bond conduit to grounding conductor at all wire exit points and install bushing. Bonding conductor may be installed from backboard to backboard.

All Entrance cable shielding shall be grounded.

Installation Guidelines and Documentation

All installations must conform to the TIA/EIA standards.

Inside Plant

Cable Routing

Cable runs shall be through common use areas (i.e., corridors, atriums, etc.) not through offices, closets or areas that cause undue disruption to personnel or clients. In the event this is not possible, deviations from these areas shall be first reviewed with the MGCCC IT group. Cabling shall enter and exit the run areas at 90-degree angles.

Cable runs shall be in raceways (conduit, cable trays, or J-hooks depending on project plan).

All cable runs shall run parallel or perpendicular to corridors to preserve neatness and to minimize interference with structures mounted above the drop ceilings. Corridor crossovers shall be minimized.

All cables run above drop ceilings shall be installed such that they are supported up off of ceiling tiles, using cable trays, saddlebags, J-Hooks, or conduit.

Cables with service loops or additional length specified shall be coiled from 300% to 600% of their recommended minimum bend radius, the coiled wire tied, and the tied coil attached to support. When a coil shall be comprised of cables of more than one virtual channel of communications, then each loop of the coil shall be of varying diameters to ensure there is no inductance of signals from one channel to its neighbor.

Cables shall terminate to the patch panels in such a manner that there is logical progression through the patch panel(s) of ports representing adjacent offices or wall plate locations. This is to ensure that wall plate locations are not randomly scattered across the field.

A typical wall plate will consist of one (1) Category 6 augmented data jack. MGCCC's standard for wall plate placements is dependent on the classification of the space. MGCCC's standard templates drawings are illustrated in the drawings section of this document.

Cable runs shall be free of tension at both ends as well as over the length of the run. Cable runs shall be free from bridges, taps, or splices from the user interface (wall plate) to the Distribution Frame. No cable run shall be exposed. No UTP data cables shall be longer than 90 meters from the MDF or IDF to the workstation.

Cables shall be secured with detachable Velcro straps and should be loosely attached and at random intervals. Maintain a maximum bend radius of four times the circle diameter, but never exceed 90 degree turn. Do not staple, do not exceed twenty-five (25) pounds per feet tension when pulling cable bundles.

Cabling Trunk systems shall be constructed out of cable tray and conduit. Diagram of proposed trunk layout is provided in the project drawings. Part specifics are in the equipment listing and specifications section of this document. Any deviation from this design must have the signed approval from the MGCCC IT group.

It is the contractor's responsibility to verify the telephone and data requirements with MGCCC IT group before installation. Assume responsibility for failure to do so. The copper and fiber interconnects on this project are shown in the Drawings section of this document. Report any recommendation for changes to Architect.

Cabling Terminations

All copper terminations shall be completed using EIA/TIA 568B standard.

All outside plant fiber terminations should use Splice on Cassettes

EMI Sources

Cable shall be routed such as to maintain the following minimum distances from power sources:

6 inches from power lines of 2 KVA or less
12 inches from high voltage lighting (including fluorescent)
36 inches from power lines of 5 KVA or greater
40 inches from transformers and motors

Fire Stopping

Whenever and wherever it is necessary to pass through a fire-wall or between floors, all such pathways shall be sleeved and fire stopped using Nelson FSP Fire stop Putty or equivalent to reduce the possibility of the spread of fire and smoke. Any equivalent material must be of such composition as to allow it to be removed for the placement of additional conductors and then be replaced in sleeved area to resist the spread of fire. In the case than any cable installation through a breached firewall or floor is to be left incomplete for a period of more than 8 hours then the pathway must be temporarily fire stopped using Nelson PLW Fire stop Pillow or equivalent.

Outside Plant

Base Bid:

Fiber part numbers are listed in the equipment listing and specifications section of this document. Vendor certifications for fiber installation are outlined under General instructions section of this document. Placement of the Fiber hardware is located in the drawings section of this document. Telco Copper part numbers are in the equipment listing and specifications section of this document. Placement of the copper hardware will need to be approved by IT.

Equipment Listing and Specifications

Fiber Optic Cable

CORNING CCH-03U	3U Closet Connector Housing 72 strand capacity w/ (6) -- 12 Fiber CCH
CORNING CCH-02U	2U Closet Connector Housing 48 strand capacity w/ (4) -- 12 Fiber CCH
CORNING CCH-01U	1U Closet Connector Housing 24 strand capacity w/ (2) -- 12 Fiber CCH
CORNING CCH-CP12-E4	Closet Connector Housing (CCH) Panel, LC adapters, Duplex, 12 fiber, 50 µm multimode (OM3/4)
CORNING CCH-CP12-A9	Closet Connector Housing (CCH) Panel, LC adapters, Duplex, UPC, 12 fiber, Single mode (OS2)
CORNING CCH-CP06-A9	Closet Connector Housing (CCH) Panel, LC adapters, Duplex, UPC, 6 fiber, Single mode (OS2)
CORNING CCH-CP24-A9	Closet Connector Housing (CCH) Panel, LC adapters, Duplex, UPC, 24 fiber, Single mode (OS2)
CORNING CCH-CP24-E4	Closet Connector Housing (CCH) Panel, LC adapters, Duplex, 24 fiber, 50 µm multimode (OM3/4)
CORNING 048EUC-T4101D20	ALTOS Lite Loose Tube, Gel-Free, Armored Cable, 48 fiber, Single-mode (OS2) Outdoor Direct Burial
CORNING 012ZUC-T4F22D20	ALTOS Lite Loose Tube, Gel-Free, Single-Armored Cable 12 F, Single-mode (OS2) Outdoor
CORNING 024ZUC-T4F22D20	ALTOS Lite Loose Tube, Gel-Free, Single-Armored Cable 24 F, Single-mode (OS2) Outdoor
CORNING 024E88-33131-29	MIC Tight-Buffered Cable, Plenum, 24 fiber, Single-mode (OS2) Indoor
CORNING 024T88-33180-29	MIC Tight-Buffered Cable, Plenum, 24 fiber, 50 µm multimode (OM3) Indoor
CORNING-C 95-200-99	Unicam Connector, LC, Single mode (OS2)
CORNING 95-050-99-X	UniCam Connector, LC, Multimode (OM3/OM4)
CORNING CCH-CS12-A9-P00RE	CCH Pigtailed Splice Cassette 12 F, LC UPC duplex, Single-mode (OS2), single-fiber (250 µm)
COMMSCOPE FEWLCLC42-JXM002	LC to LC, Fiber Patch Cord Duplex, Riser, 2 Meter Single Mode (OS2)
COMMSCOPE FEWLCLC42-JXM003	LC to LC, Fiber Patch Cord Duplex, Riser, 3 Meter Single Mode (OS2)
COMMSCOPE 1966162-2	LC to LC Fiber Optic Patch Cord, Duplex, Multimode, 2 Meter (OM3)
COMMSCOPE 1966162-3	LC to LC Fiber Optic Patch Cord, Duplex, Multimode, 3 Meter (OM3)
CORNING FAN-BT25-06	Indoor Buffer Tube Fan-Out Kit, 6-Fiber, 25-Inch
CORNING FAN-BT25-12	Indoor Buffer Tube Fan-Out Kit, 12-Fiber, 25-Inch

Telco Copper Cable

General 7525819	PE89 Outdoor 100 pair cable 24AWG filled shield
Berk-Tek 10032396	25 pr Indoor telephone Riser cable
Ortronics OR-808004042	48-Port High Density Telco Patch Panel
CommScope 6652-1-880-10	CommScope 50 pr Disconnect
CommScope 6639 3 016-00	89D Bracket
1890ECT1-25	Circa Telecom 25 pair Building Entrance Protector
4B1EW	Circa Gas Protectors
KBS5-100-6	3-M K&B vault splice closure for telco cable
BELDIN 638AFS	638AFS – Door Access Control, 16c (#18-3pr, #16-4c, #18-6c), Shielded, Banana Peel®, CMP

Twisted Pair Cable

CommScope UN874035104/10	Commscope CS44P BLU C6A 4/23 U/UTP RL 1KFT	
CommScope UN884031004/10	Commscope CS44R BLU C6A 4/23 U/UTP RL 1KFT	
Panduit PUP6AHD04BU-G	TX6A Slim Copper Blue Cable Cat 6A 4/23 U/UTP Plenum	
Panduit PUO6C04BL-CEG	Copper Cable, Cat 6, 23 AWG, U/UTP, Outdoor, Black	
Panduit PUP6C04BU-ULP	TX6™ Copper Cable, Cat 6, 23 AWG, UTP, Blue	
CommScope UNP-6A-DM-2U-48	Commscope Distribution Module Panel, Cat 6A, UTP, 2U, 48 port	
CommScope 760257321	1-PORT MOD JACK Uniprise Ultra 10® UNJ10G Category 6A U/UTP Information Outlet, blue	
CommScope 108168469	2-PORT M12L-262 SINGLE GANGE WHITE	
CommScope UC1AAA2-0ZF003	CBL ASSYMOD 24-4PR STRANDED CAT6 10GIG T568A/B 3FT COPPERTEN BLUE	
CommScope UC1AAA2-0ZF005	CBL ASSYMOD 24-4PR STRANDED CAT6 10GIG T568A/B 5FT COPPERTEN BLUE	
CommScope UC1AAA2-0ZF007	CBL ASSYMOD 24-4PR STRANDED CAT6 10GIG T568A/B 7FT COPPERTEN BLUE	

Rack Hardware and Misc.

CPI 35523-703	GLOBAL VERTICAL CABLE MANAGER 7' H X 10" W x 24.5 D - NARROW BLACK
CPI 35441-702	CABLE MANAGER, HORIZONTAL 2 RMU, 19" W X 8.2" D BLACK SINGLE SIDED
CPI 55053-703	RACK RELAY 84"H X 19"W DOUBLE SIDED ALUMINUM BLACK
CPI 11840-724	WALL MOUNT RACK RELAY 24"H x 24"D, 12U
CPI 12100-716	CABLE RUNWAY RADIUS DROP 16"W CROSS MEMBER ALUMINUM BLACK
CPI 11746-718	CABLE RUNWAY SUPPORT BRACKET 18"W TRIANGULAR BRACKET STEEL BLACK
CPI 11421-718	CABLE RUNWAY SUPPORT KIT, 18"W RUNWAY WALL ANGLE SUPPORT STEEL BLACK
CPI 10642-001	CABLE RUNWAY END CAPS 1.5" X 3/8" STRINGER BLACK
CPI 10250-718	CABLE RUNWAY LADDER RACK 9'11.5" L X 18"W STRAIGHT SECTION STEEL BLACK
CPI 11302-701	JUNCTION SPLICE KIT FOR CABLE RUNWAY 1.5" X 0.375" BLACK
ERICO-CAT32	CATEGORY 5 CABLE SUPPORT CLIP 2" DIA. LOOP UP TO 80-4PR CABLES 60/PK
ERICO-CAT21	CATEGORY 5 CABLE SUPPORT CLIP 1-5/16" DIA. LOOP 80/pk
	FIBER OPTIC TRUNK TAG
FDC-CABLE-GRND	Armored Cable Grounding Kit; contains armored grounding clip and ground strap
HLS-15R0	PANDUIT VELCRO 15' ROLL BLACK

Testing, Certification, and Acceptance

All cables must be tested with a Fluke DSX Series cable tester and pass the requirements of the Fluke 10GigTest. http://www.flukenetworks.com/findit/2799744

Warranty

All cables must qualify for the ADC Zero Bit-Error Warranty
http://www.adckcl.com/in/en/library/warranty/Truenet_SystemWarranty_401376IN.pdf

Acceptance by Owner

Acceptance will occur once all requirements of the As-Built Documentation section of this document has been meet and all punch list items have been completed and approved by the MGCCC IT group.

As-Built Documentation

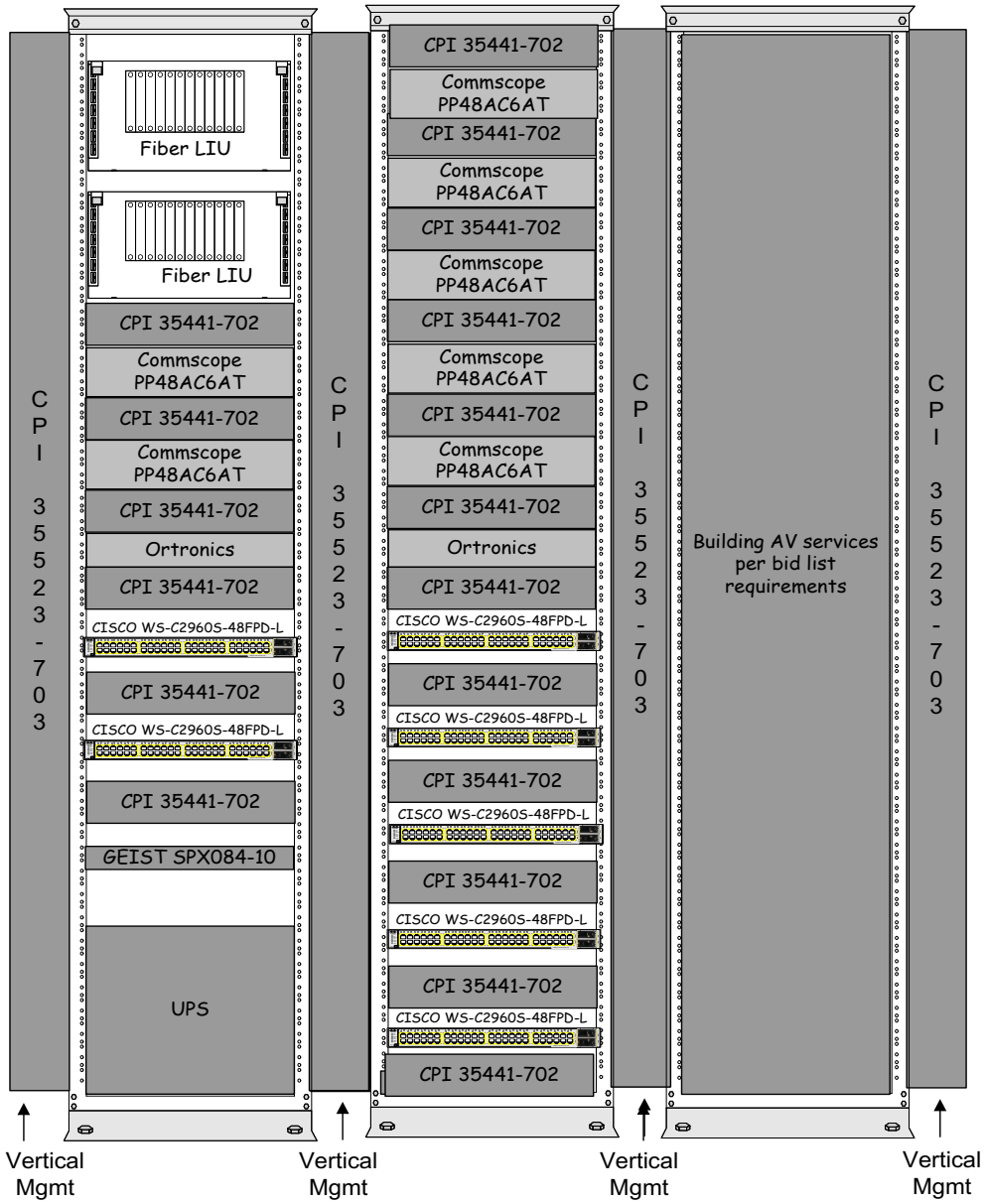
The wiring contractor shall provide the following as built documentation, within thirty (30) days of completion and before final payment:

Floor plans with cable numbering to each workstation location and cable runs.
Frame layout with one-line type drawing of entire system.
Patch panel cut-sheet hard copy and preferably a database (PC compatible).
Cross-connection log hard copy and preferably a database (PC compatible).
Cable Certification Test results.

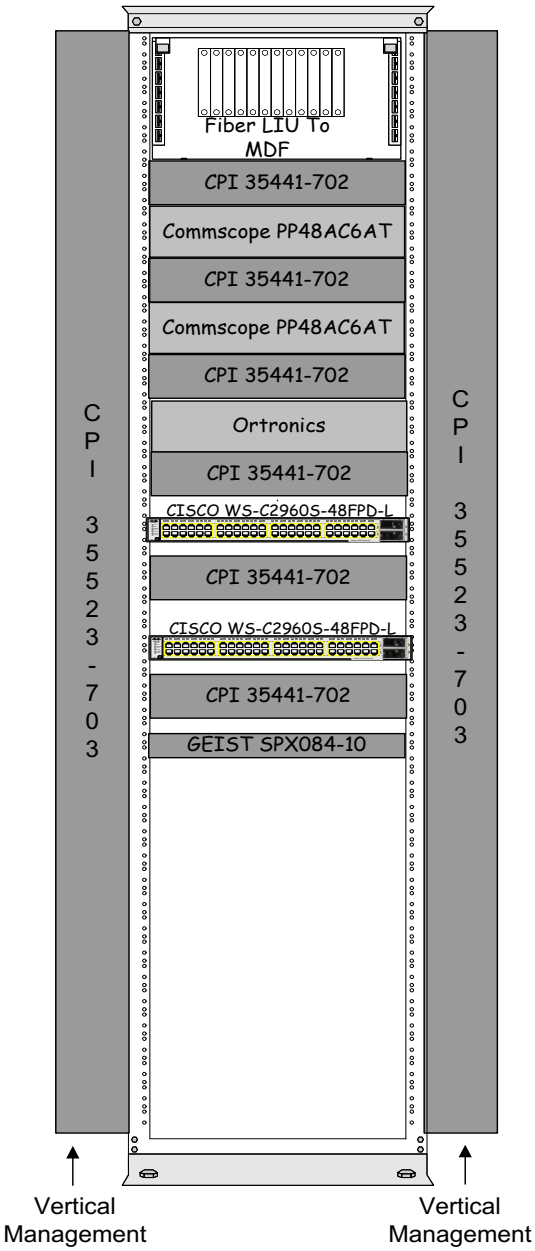
DRAWINGS

EQUIPMENT RACK TEMPLATE EXAMPLE

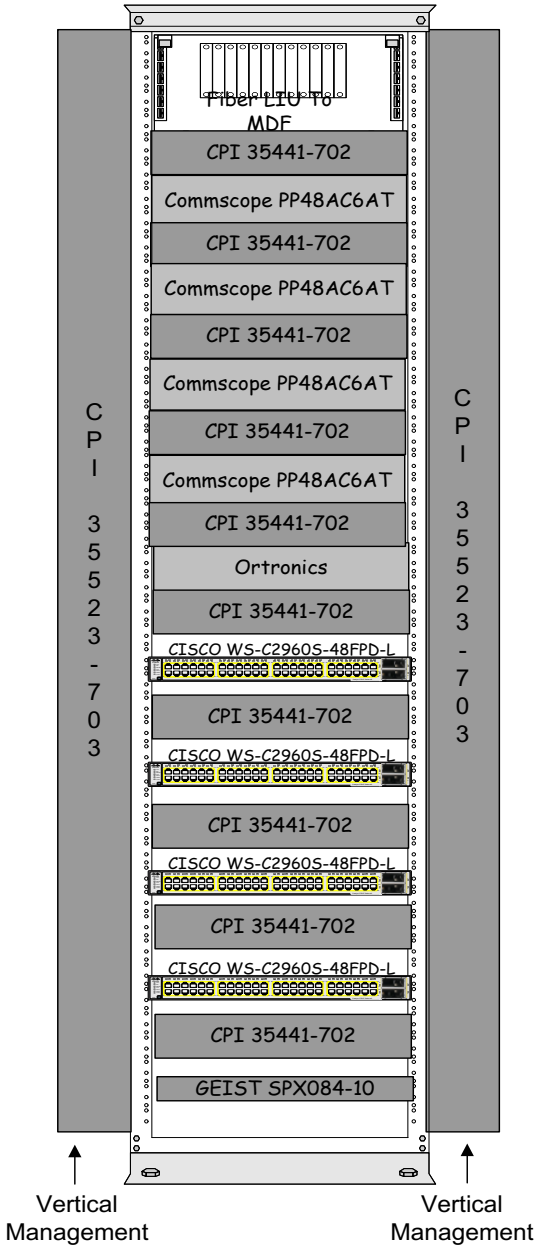
MDF



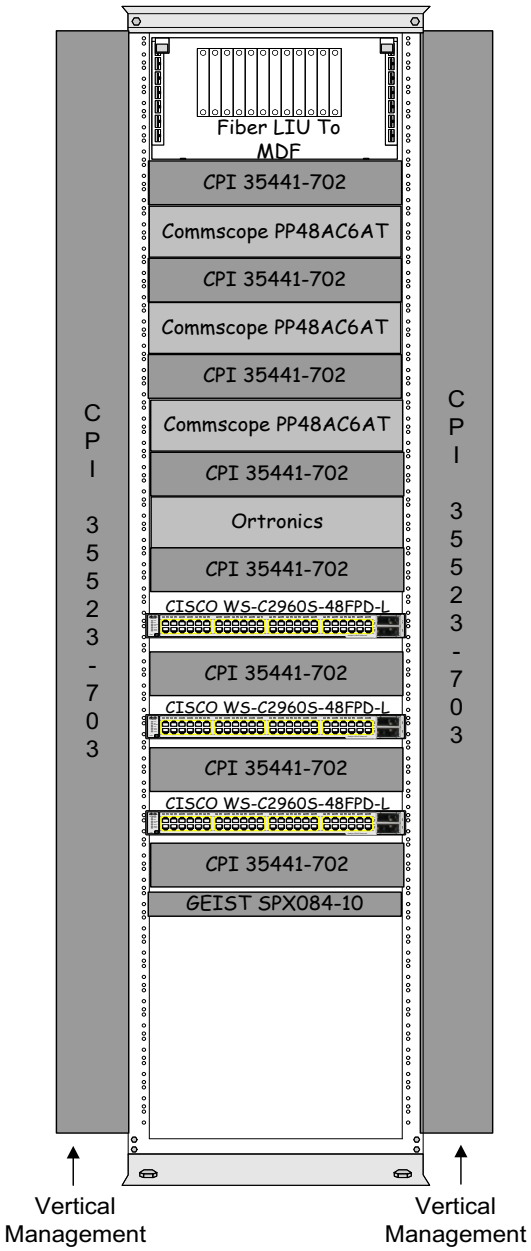
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Fiber LIU To
MDF
CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
Ortronics
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
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Vertical
Management
Vertical
Management

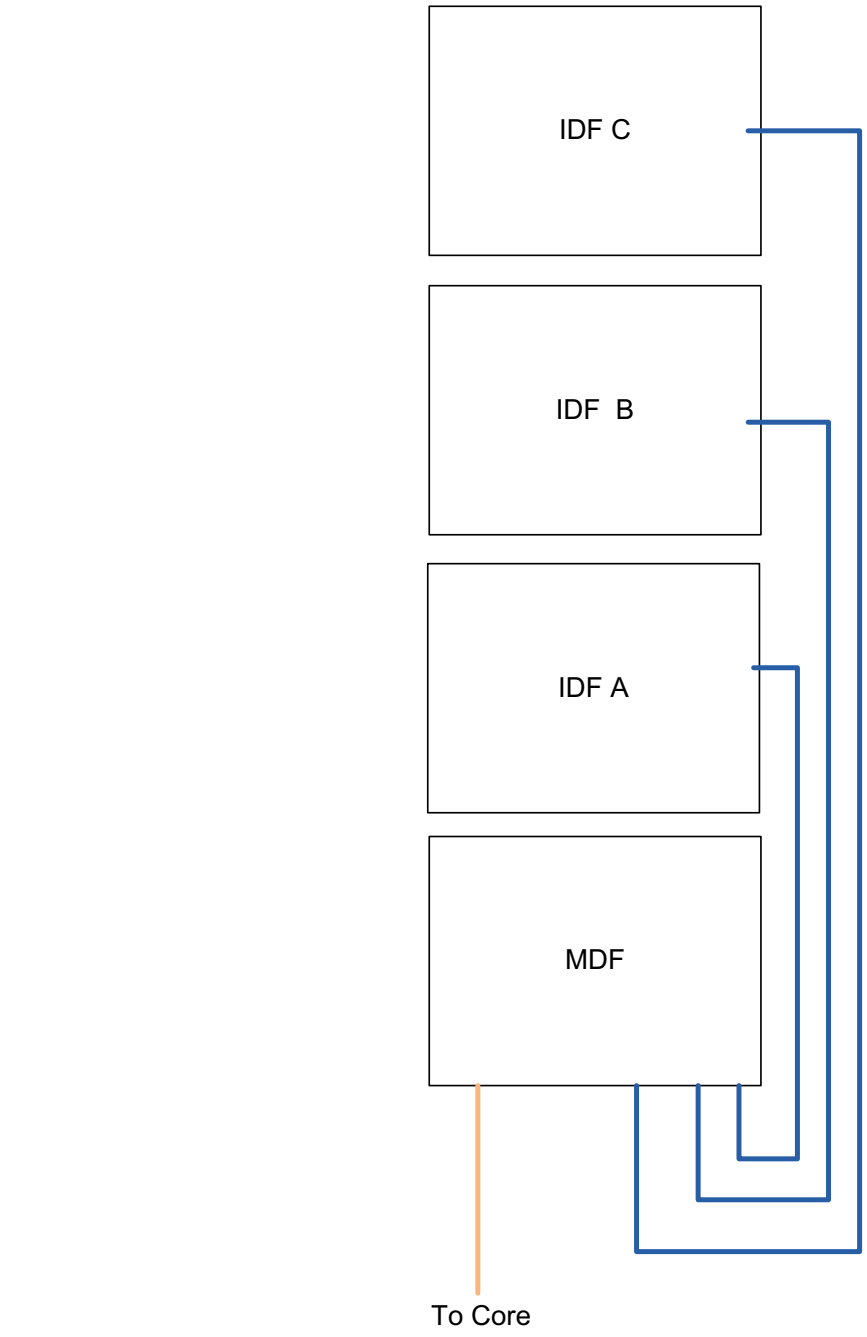
IDF
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Fiber LIU To MDF
CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
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CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
Ortronics
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
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CPI 35523-703
Vertical Management
Vertical Management

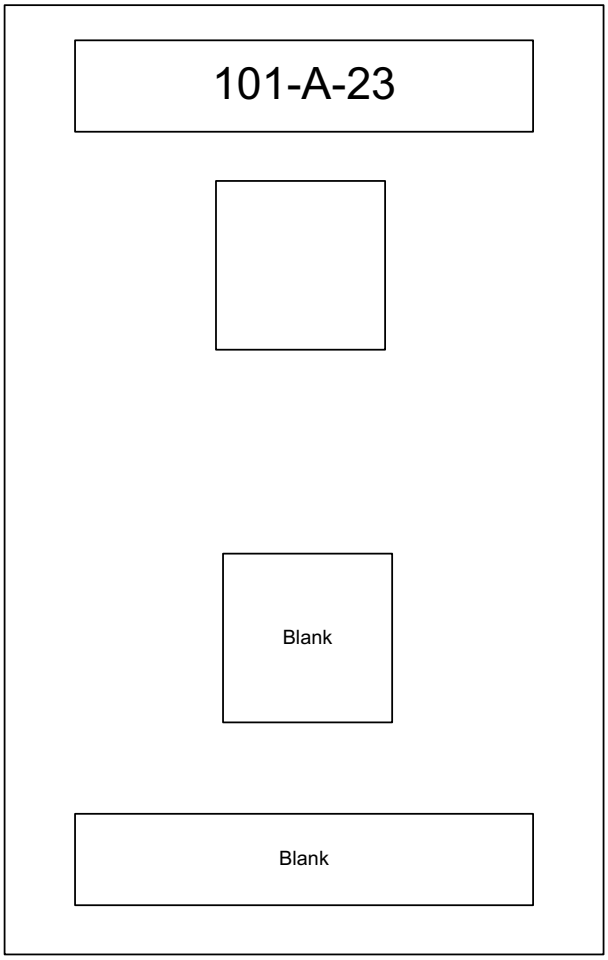
IDF
C


Fiber LIU To MDF
CPI 35441-702
Commscope PP48AC6AT
CPI 35441-702
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CPI 35441-702
Ortronics
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
CISCO WS-C2960S-48FPD-L
CPI 35441-702
GEIST SPX084-10
CPI 35523-703
CPI 35523-703
Vertical Management
Vertical Management

Fiber Riser Drawing Example



TYPICAL WORK AREA OUTLET



101= Communication Room
A= Patch Panel
23= Jack on Panel

Revision History

Created 5/10/16

Updated 5/16/17

Updated part numbers due to discontinuance. New part numbers:

- FEWLCLC42-JXM002
- FEMLCLC42-BXM002
- 8765404/10
- 8441604/10
- CC0020917/1
- UC1AAA2-0ZF003
- UC1AAA2-0ZF005 – *Addition
- UC1AAA2-0ZF007
- CORNING 95-050-99-X
- CORNING CCH-CP24-E4

Updated 7/13/17

Updated part number to match CAT6A copper cabling.

- CommScope 760150011
- CommScope 760162818
- Updated Rack Layout and Fiber Layout Template

Updated 5/13/2020

Verified Document for 2020

Updated 7/8/2020

Updated part numbers to reflect additions and discontinued products.

- COMMSCOPE 1966162-2
- COMMSCOPE 1966162-3
- CORNING FAN-BT25-06
- COMMSCOPE FEWLCLC42-JXM003
- CORNING CCH-01U
- CORNING CCH-02U
- CORNING CCH-CP06-A9
- CORNING CCH-CP12-A9
- CORNING CCH-CP12-E4

Updated 7/22/2020

Added PN to Cable Standard Document for Access Control.

- 638AFS – Access Control

Updated 10/9/2020

- Updated discontinued part numbers below:
  - CommScope 8765404/10 Commscope 23-4P UTP-CMR SOL BC XP7 CAT6 10G Blue jkt. - PLENUM Replace with UN874035104/10 | CS44P BLU C6A 4/23 U/UTP RL 1KFT
  - CommScope 8441604/10 Commscope 23-4P UTP-CMR SOL BC XP7 CAT6 10G Blue jkt. PVC - Replace with UN884031004/10 | CS44R BLU C6A 4/23 U/UTP RL 1KFT
  - CommScope 760162818 Uniprise Universal 10G Panel 2U 48 Port UNP-U-10G-2U-48 – Current Part Number
  - Removed CommScope PP48AC6AT 48-PORT PANEL ANGLED T568A/B 10GIG – |
  - Added UNPA-6A-DM-2U-48
  - CommScope 760150011 1-PORT MOD JACK Uniprise Ultra 10® UNJ10G Category 6A U/UTP Information Outlet, blue – Replace with 760241176 | UNJ10G-BL
  - CommScope 6644-1-152-01 2-PORT FLUSH MOUNT UNLOADED SINGLE GANGE WHITE – Replace with 108168469 | M12L-262

Updated 7/30/2021

- Updated Twisted Pair Cabling to Include the following new Part Numbers Below:
  - Panduit TX6A™ Slim Copper Cable Cat 6A 23 AWG UTP Blue

Updated 7/15/2022

- Added CORNING Splice Cassette
- Added ALTOS OS/2 24F Cable
- Added ALTOS OS/2 12F Cable

Updated 9/19/23

- Added Panduit PUO6C04BL-CEG for outdoor CAT6 camera cabling.
- Added Panduit PUP6C04BU-ULP for indoor CAT6 camera cabling.

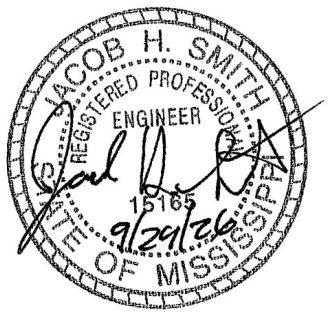
Updated 10/5/23

- Updated verbiage to include using only splice on cassettes for outside plant fiber optic terminations.
- Update verbiage to include using updated variant of Fluke Cable analyzer.

SITE WORK
TECHNICAL SPECIFICATIONS

ATHLETIC PERFORMANCE ADDITION
MGCCC PERKINSTON CAMPUS
26-028a

024100	Demolition
311000	Site Clearing
312000	Earthwork
312500	Erosion And Sedimentation Controls
321273	Concrete Joint Sealant
321313	Site Work Concrete
334000	Storm Sewer Collection System



02 41 00 - DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies demolition and removal of buildings, portion of buildings, utilities and other structures shown.

1.2 RELATED WORK

A. Demolition and removal of roads, walks, curbs, and on-grade slabs outside buildings to be demolished: Section 31 20 00 EARTHWORK.

B. Safety requirements: GENERAL CONDITIONS, Article, ACCIDENT PREVENTION.

C. Disconnecting utility services prior to demolition: GENERAL REQUIREMENTS.

D. Reserved items which are to remain the property of the Client: GENERAL REQUIREMENTS.

1.3 PROTECTION

A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such adjacent areas of structures. Comply with requirements of Section GENERAL CONDITIONS, Article, ACCIDENT PREVENTION.

B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations.

C. Maintain fences, barricades, lights, and other similar items around exposed excavations until such excavations have been completely filled.

D. Provide enclosed dust chutes with control gates from each floor to carry debris to truck beds and govern flow of material into truck. Provide overhead bridges of tight board or prefabricated metal construction at dust chutes to protect persons and property from falling debris.

E. Prevent spread of flying particles and dust. Sprinkle rubbish and debris with water to keep dust to a minimum.

F. In addition, to previously listed fire and safety rules to be observed in performance of work, include following:
    1. No wall or part of wall shall be permitted to fall outwardly from structures.
    2. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible users in use of fire extinguishers.
    3. Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.

1.4 UTILITY SERVICES

A. Demolish and remove outside utility service lines shown to be removed.
B. Remove abandoned outside utility lines that would interfere with installation of new utility lines and new construction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DEMOLITION

A. Completely demolish and remove buildings and structures, including all appurtenances related or connected thereto, as noted below:
    1. As required for installation of new utility service lines.
    2. To full depth within an area defined by hypothetical lines located 1500 mm (5 feet) outside building lines of new structures.
B. Debris, including brick, concrete, stone, metals and similar materials shall become property of Contractor and shall be disposed of by him, off the property. Break up concrete slabs below grade that do not require removal from present location into pieces not exceeding 600 mm (24 inches) square.
C. In removing buildings and structures of more than two stories, demolish work story by story starting at highest level and progressing down to third floor level. Demolition of first and second stories may proceed simultaneously.

3.2 CLEAN-UP

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to Resident Engineer. Clean-up shall include off the property disposal of all items and materials not required to remain property of the Client as well as all debris and rubbish resulting from demolition operations.

END OF SECTION 02 41 00

31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 SCOPE:

A. The work required under this section consists of clearing and grubbing of area within construction limits and related items to complete the work as indicated on the drawings and described in the specifications.

1.3 DESCRIPTION OF WORK:

A. Site clearing work includes, but is not limited to:

1. Protection of existing trees.
2. Removal of trees and other vegetation.
3. Topsoil stripping.
4. Clearing and grubbing.
5. Removing above-grade improvements.
6. Removing below-grade improvements.

1.4 JOB CONDITIONS:

A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

Protect improvements on adjoining properties and on Owner's property.

Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

C. Salable Improvements: Carefully remove items indicated to be salvaged, and store on Owner's premises where indicated or directed.

PART 2 - PRODUCTS

Not applicable to work of this section.

PART 3 - EXECUTION

3.1 SITE CLEARING:

A. General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots.

Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.

B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable material.

Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Remove heavy growths of grass from areas before stripping.

Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to main root system.

Stockpile topsoil in storage piles. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust.

C. Dispose of unsuitable or excess topsoil same as waste material, herein specified.

D. Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing.

Completely remove stumps, roots, and other debris protruding through ground surface or within building lines.

Use only hand methods for grubbing inside drip line of trees indicated to be left standing.

Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

E. Removal of Improvements: Remove existing above-grade and below-grade improvements necessary to permit construction, and other work as indicated including but not limited to pipe, sidewalks, paving, foundations, buildings, walls, etc.

Abandonment or removal of certain underground pipe or conduits may be shown on mechanical or electrical drawings, and is included under work of those sections. Removal of abandoned underground piping or conduit interfering with construction is included under this section.

3.2 DISPOSAL OF WASTE MATERIALS:

A. Burning on Owner's Property: Burning is not permitted on Owner's property.

B. Removal from Owner's Property: Remove waste materials and unsuitable and excess topsoil from Owner's property and dispose of off site in legal manner.

(END OF SECTION 31 10 00)

SECTION 31 14 11
EARTHWORK (STRUCTURAL)

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)); 2012 (Reapproved 2021).

B. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate; 2022.

C. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017 (Reapproved 2025).

D. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2017, with Editorial Revision (2018).

1.02 DESCRIPTION

A. The work includes performing site preparation, excavation, borrow, filling, backfilling, compacting, and finished grading necessary to construct the finished grades indicated for structures and on-grade slabs. Requirements for foundation and footing construction are specified in the respective sections for these systems or indicated on the drawings.

1.03 DEFINITION:

A. Backfill: Material used in refilling a cut or other excavation.

B. Cohesive Materials: Cohesive materials include materials classified by ASTM D2487 as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when fines have a plasticity index greater than zero.

C. Cohesionless Materials: Cohesionless materials include materials classified by ASTM 2487 as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines have a plasticity index of zero.

D. Compaction: The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in D 1557 for general soil types abbreviated in this specification as "a percent ASTM D1557 maximum density" as shown in Table 3.4.3.

E. Controlled Fill: A fill consisting of a specified soil mix or gradation of materials constructed to attain maximum bearing strength and minimize consolidation or differential settlement under a load. Controlled fill is sometimes called "structural fill".

F. Embankment: A "fill" having a top that is higher than adjoining ground.

G. Excavation: The removal of soil, rock, or hard material to obtain a specified depth or elevation.

H. Fill: Specified material placed at a specified degree of compaction to obtain and indicated grade or elevation.

I. Granular Subbase: A dense, well-graded aggregate mixture of sand-gravel or crushed stone with suitable binder soil, placed on a subgrade to provide a suitable foundation for further construction.

J. Hard Material: Weathered rock, dense consolidated deposits or conglomerate materials which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment with ripper teeth or the use of jack hammers for removal.

K. Lift: A layer (or course) of soil placed on top of a previously prepared or placed soil in a fill or embankment.

L. Plan Measure: Actual field measured, compacted volume of soil placed or excavated.

M. Rock: Solid, homogenous, interlocking crystalline material with firmly cemented, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement, exceeding 1/2 cubic yard in volume. Removal of "hard material" will not be considered rock excavation because of intermittent drilling and blasting that is performed merely to increase production.

N. Soil: The loose surface material of the earth's crust resulting from the chemical and mechanical weathering of rock and organic material.

O. Subgrade: The bottom layer of material (sometimes in situ soil or rock) graded or otherwise prepared for supporting the addition of fill material, pavement courses, or a building slab.

P. Topsoil: In natural or undisturbed soil formations, the fine-grained, weathered material on the surface or directly below any loose or partially decomposed organic matter. Topsoil may be a dark-colored, fine, silty, or sandy material with a high content of well decomposed organic matter, often containing traces of the parent rock material. Gradation and material requirements specified herein apply to all topsoil references in this contract. The material shall be representative of productive soils in the vicinity.

Q. Unsatisfactory Material: Existing, in-place soil or other material which can be identified as having insufficient strength characteristics or stability to carry intended loads in fill or embankment without excessive consolidation or loss of stability. Materials classified as CH, MH, PT, OH, or OL by ASTM D2487 are unsatisfactory. Unsatisfactory materials also include vegetable matter, refuse, roots, or other deleterious or objectionable material.

1.04 SUBMITTALS

A. Certified Laboratory Test Reports:
   1. Select material for controlled fills
   2. Topsoil
   3. Surface dewatering plan
   4. Storm Water Pollution Prevention Plan

1.05 DELIVERY AND STORAGE

A. Deliver and store materials in a manner to prevent contamination or segregation.

1.06 CRITERIA FOR BIDDING

Base bids on the following criteria:

A. Surface elevations are as indicated.

B. Over excavate under building pad and five feet beyond building pad to a depth of five feet below existing ground surface. All excavation, backfilling, and dewatering efforts shall be included in Base Bid.

C. No pipes or other man-made obstructions, except those indicated or noted, will be encountered.

D. The character of the material to be excavated or used for subgrade is as indicated. Rock or hard material as defined in paragraph, "DEFINITIONS," will not be encountered.

E. Ground water elevations indicated are those existing at the time subsurface investigations were made and do not necessarily represent ground water elevation at the time of construction.

F. Suitable backfill and fill material in the quantities required is not available on Owner property.

G. Blasting will not be permitted. Remove material in an approved manner.

1.07 PROTECTION

A. Dewatering: Include the disposal of surface or ground water which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Dewatering plan shall

include the rerouting of any ground water, storm water runoff or natural drainage if necessary and shall comply with all local environmental requirements.

1. Surface Drainage: So that construction operations progress successfully, completely. Drain work site during periods of construction to keep soil material sufficiently dry. Provide temporary ditches, swales, and other drainage features and equipment is required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein.
2. Subsurface Drainage: Base on site surface and subsurface conditions, available soil, and hydrological data. Remove water by pumping or other methods to prevent softening of surfaces exposed by excavation. Use filters on dewatering devices to prevent removal of fines from soil. Provide erosion control at outlet of piping to prevent erosion.

B. Utilities: Contact the Architect 72 hours prior to construction or disturbance of all existing underground utilities. Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. Excavation made with power-driven equipment is not permitted within two feet of any known Owner utility or subsurface construction. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, use hand or light equipment excavation. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work as affected by the contract excavation until approval for backfill is granted by the Architect. Report damage to utility lines or subsurface construction immediately to the Architect.

C. Protection and Restoration of Surfaces: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Protect existing ditches and storm drain inlets from water-borne soil. Conduct work in accordance with applicable storm water requirements.

1.08 STORM WATER POLLUTION PREVENTION PLAN

A. Prepare a Small Construction Notice of Intent (SCNOI) including a Stormwater Pollution Prevention Plan (SWPPP) according to Mississippi DEQ requirements. Maintain copy of SCNOI on job site throughout project term.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Soil Materials: Provide materials free from debris, roots, wood, scrap materials, vegetable matter, refuse or frozen material. Maximum particle size permitted is 3 inches (76.2 mm). Use excavated material from the site for the work indicated when material falls within the requirements specified herein.
   1. Controlled Fill and Backfill:
      a. Above Two Feet Above Static Water Table:
         1) Provide under structures, utilities, spread footings, paving and concrete slabs on grade materials classified as SM, SP or SC by ASTM D2487. The liquid limit of such material shall not exceed 25 percent when tested in accordance with ASTM D4318. The plasticity index shall not be greater than 12 percent when tested in accordance with ASTM D4318, and not more than 25 percent by weight shall be finer than No. 200 sieve when tested in accordance with ASTM D 1140.
      b. Below Two Feet Above Static Water Table:
   2. Fill material placed below two feet above static water table shall be a “clean" sand with less than 10 percent of material (by weight) finer than No. 200 mesh sieve.
   3. General Backfill Adjacent to Structures: No soft, spongy, highly plastic, or otherwise unstable material is permitted. Material shall be classified as SP, SM, or SC by ASTM D2487. If more material is required than is available from on-site excavation, then provide that material from approved sources.

4. General Site Fill and Embankment Material: Provide a soil material from the borrow that can be readily compacted to the specified densities. Materials shall be unclassified.
5. Topsoil: Provide material free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material or substance detrimental to plant growth. Topsoil shall be a natural, friable soil representative of productive soils in the vicinity.
6. Borrow: Provide materials meeting requirements for general site fill, fill, backfill, and topsoil. Obtain borrow materials in excess of those furnished from excavations described herein from sources off Owner property.
7. Drainage Course: Sandy, granular, free draining material with 10% to 15% passing a No. 200 sieve.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. Stockpiling Topsoil: Strip approved topsoil to a minimum depth of 6 inches (152.4 mm) from the site where excavation or grading is indicated and stockpile separately from other excavated material. Locate topsoil so that the material can be used readily for the finished grading. Protect and store in segregated piles until needed.

B. Unsatisfactory Material: Remove organic matter, sod, muck, rubbish, and unsuitable layers under embankments and under pavements or slabs on grade. Undercut as indicated.
   1. Subgrade Proof Rolling: After removal of topsoil or other overburden, proof roll the existing subgrade with 6 passes of a 15-ton pneumatic-tired roller. Operate the roller in a systematic manner to assure the number of passes over all areas, and at speeds between 2.5 and 3.5 miles (5.63 kilometers) per hour. When proof rolling under structures, one-half of the passes made with the roller shall be in a direction perpendicular to the other passes. Proof rolling shall be done in the presence of the Architect. Any rutting or pumping shall indicate unsatisfactory material and the material shall be undercut as directed by the Architect and replaced with the appropriate fill material.

3.02 EXCAVATION

A. Excavate to the contours and dimensions indicated. Keep excavations free from water while construction is in progress. Notify the Architect immediately in writing in the event that it becomes necessary to remove rock, hard material, or other material defined as unsatisfactory to a depth greater than indicated and an adjustment in contract price will be considered. Refill excavations cut below the depths indicated with fill and compact as specified herein. Excavate soil disturbed or weakened by the construction operations and soils permitted to soften from exposure to weather. Refill with fill and compact as specified herein at no additional cost to the Owner.
   1. Excavation Under All Footings and Slab: Remove existing soils as indicated on drawings. Excavated materials may be used, if approved, as site fill in areas outside building or pavement areas.

3.03 BORROW MATERIALS

A. Select borrow materials to meet requirements and conditions of the particular fill to be used. Perform necessary clearing, grubbing, disposal of debris, and satisfactory drainage of borrow pits as incidental operations to the borrow excavation.
   1. Selection of Borrow Materials: Obtain borrow materials from sources off of Owner property.
   2. Borrow Pits: Excavate borrow pits to afford adequate drainage. Overburden and other soil material shall be stockpiled for refilling the borrow area.

3.04 FILLING AND BACKFILLING

A. Filling and Backfilling Adjacent to Structures: Place backfill adjacent to structures and compact to prevent wedging action or eccentric loading upon or against the structures. Step or serrate slopes bounding or within areas to be backfilled to prevent sliding of the fill. Do not use equipment for backfilling operations or for the formation of embankments against structures that

will overload the structure. Backfilling against concrete will be done only after approval has been obtained from the Architect.

B. Controlled Fill and Backfill: Place backfill and fill as indicated on the drawings under spread footing, and concrete slabs, in lifts of 8 inches (203.2 mm) thick. Compact each lift one test per lift per 2,500 sq feet (2.69107 sq cm) of surface area as specified herein before placing the overlaying lift.

C. Filling and Subgrade Preparation: Construct fill and embankment at the locations and to lines and grades indicated. Use only approved materials in constructing fill upon the prepared subgrade. Scarify the entire subgrade surface to a depth of 6 inches (152.4 mm) before the fill is started. Step, bench, or break up sloped surfaces steeper than one vertical to 4 horizontal so that the fill material will bond with or be securely keyed to the existing material. Scarify existing surface to a minimum depth of [6] inches ([152.4] mm) if subgrade density is less than the degree of compaction specified and recompact. When the subgrade is part fill and part excavation or natural ground, scarify the excavated or natural ground portion to a depth of [12] inches ([304.8] mm) and recompact as specified for the adjacent fill. Place satisfactory material in horizontal lifts not exceeding [8] inches ([203.2] mm) in loose depth and then compacted. Material will not be placed on surfaces that are muddy, frozen, or contain frost. Compact with equipment well suited to the soil being compacted. Moisten or aerate material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Compact each lift one test per lift per [2,500] sq feet ([2.69107] sq cm) of surface area as specified herein before placing the overlaying lift.

TABLE 3.4.3

PERCENT ASTM D1557 MAXIMUM DENSITY

Fill, Embankment and Backfill	Cohesive Material	Cohesionless Material
Under footing and building slabs	95	95
Adjacent to structures	90	95
Controlled fill	95	100

3.01 FINISH OPERATIONS

A. Site Grading: Grade to finished grades indicated within 0.10 foot (3.05 cm). Grade areas to drain water away from structures and to provide suitable surfaces for mowing machines. Existing grades which are to remain but are disturbed by the Contractor's operations shall be restored as specified herein.

B. Finishing Subgrades Under Structures: Finish the surface of the top lift of the fill or top of the subgrade to the elevation and cross section indicated. The finished surface shall be smooth and of uniform texture. Lightly scarify or blade the finished surface to bring the finished surface to within 0.05 foot (1.52 cm) of the indicated grade and to eliminate imprints made by compaction and shaping equipment. The surface shall show no deviations in excess of 3/8 inch (9.52 mm) when tested with a 10 foot (304.8 cm) straightedge.

C. Disposition of Surplus Material: Surplus or other soil material not required or suitable for filling, backfilling, or embankment shall be removed from Owner’s property.

D. Protection of Surfaces: Protect newly graded areas from traffic, erosion, and settlements that may occur and as defined in this section. Repair or reestablish damaged grades, elevations, or slopes prior to acceptance of work.

3.02 FIELD SAMPLING AND TESTING

A. Samples: Submit one 50-pound composite sample for each material source of subgrade being compacted and fill material being placed. Submit samples, in the number directed, whenever the source or character of the embankment material changes. Contain each sample in a clean container and fasten to prevent loss of material. Tag each sample for identification. The tag shall contain the following information:
   1. Contract No.
   2. Sample No.

3. Date of Sample
4. Sampler
5. Source
6. Intended Use

B. Tests: Test fill in accordance with ASTM C 136 for conformance to ASTM C33, ASTM D2419, and ASTM D2487 gradation limits. Test fill for material finer than the No. 200 sieve in accordance with ASTM D 1140. Test fill for liquid limit in accordance with ASTM D4318 and for plasticity index in accordance with ASTM D4318. Test fill arterials for moisture density relations in accordance with ASTM D1557. Perform one of each of the required tests for each material used when directed. Provide additional tests as specified above for each source change. Perform density tests in randomly selected locations and in accordance with ASTM D 1556, ASTM D 2922 and ASTM D 3017 as follows: One test per 2,500 sq feet (2.69107 sq cm) in each layer of lift and for each 1,000 sq feet (1.07643 sq cm) of subgrade in cut areas. Determine moisture content of soil material in place in accordance with ASTM D 3017 at every location where in-place density is tested. Where ASTM D 2922 and ASTM D 3017 is used to test field compaction densities, verify the results of the tests by performing at least one test per day using ASTM D 1556 at a location already tested by ASTM D 2922 and at least one additional test using ASTM D 1556 for every ten tests performed with a nuclear device, also at locations already checked by ASTM D 2922.

C. Refer to Section 01410 – Testing Laboratory Services for required quality control testing during construction.

END OF SECTION 31 14 11

31 20 00 - EARTHWORK

PART 1 - GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Extent of earthwork is indicated on drawings and described herein.

1. Site grading to elevations indicated on drawings is included as part of this work.

2. Preparation of subgrade for building slabs, walks, and pavements is included as part of this work.

3. Soil compaction and control is included as a part of this work.

4. Backfilling of trenches within building lines is included as part of this work.

B. Excavation of Mechanical/Electrical Work: Refer to Mechanical and Electrical sections for excavation required in conjunction with underground mechanical and electrical utilities, backfilling of excavated trenches shall be in accordance with this section.

C. Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal or relocation of materials removed.

1.3 QUALITY ASSURANCE:

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

B. Testing and Inspection Service: Owner will employ a testing laboratory to perform soil testing and inspection service for quality control testing during earthwork operations.

1.4 JOB CONDITIONS:

A. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

B. Use of Explosives: The use of explosives is not permitted.

C. Protection of Persons and Property: Barricade open excavations occurring as part of this

work.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS:

A. Clean Free Sand Fill shall be "River Sand" or approved equal.

B. Red Clay Sand: All fill shall have a liquid limit of not more than 25 and a plasticity index (P.I.) of no less than 8 and no greater than 12.

C. Washed Gravel shall be graded clean, washed pea gravel.

D. Select on Site Material shall be non-organic material of the optimum moisture content that will allow the prescribed compaction and approved for use outside of building area by testing laboratory. No material removed as unsuitable bearing material shall be approved as select on-site material.

E. Backfill and Fill Materials: Satisfactory soil must be one of the above materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

PART 3 - EXECUTION

3.1 EXCAVATION:

A. Earth Excavation includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

B. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom without altering required top elevation.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.

C. Additional Excavation: Where excavation has reached required subgrade elevations, notify Architect who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Architect.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

D. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

E. Shoring and Bracing: Provide materials for shoring and bracing in good serviceable condition.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

F. Dewatering: Prevent surface water from flowing into excavations and from flooding project site, surrounding area and existing building.

G. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

H. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

Dispose of excess soil material and waste materials as herein specified.

I. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is

placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

J. Excavation for Pavements: Cut surface under pavements to comply with elevations and grades as shown making provisions for 8" minimum red sandy clay.

K. Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freezing.

Except as otherwise indicated, excavate for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is not less than 2'0" below finished grade.

Grade bottoms of trenches as indicated, including notching under pipe bells to provide solid bearing for entire body of pipe.

Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

Concrete is specified in Division 3.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect. Use care in backfilling to avoid damage or displacement of pipe systems.

3.2 COMPACTION:

A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.

B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density.

1. Structures, Building Slabs and Steps, Pavements: Compact 9” loose lifts for all layers of backfill or fill material at 95% standard proctor (ASTM D-698) within 3% of optimum moisture.

2. Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 90% maximum density.

3. Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 95% maximum density.

C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

3.3 BACKFILL AND FILL:

A. General: Place acceptable soil material in layers in required subgrade elevations, for each area classification listed below.

B. Outside Building Area: Use select on-site material or red clay sand against foundation walls, under grassed areas, trenches, and piping areas not indicated to be paved shall have a minimum of 2" of topsoil.

C. Under Walks and Pavement: Use select on-site material or red clay-sand except top eight inches shall be red clay-sand. Cut existing grade as necessary to maintain 8" of red clay-sand.

D. Inside Building Area: Areas requiring fill within building boundaries, the top two feet of fill shall be red clay-sand. In the areas requiring fill below this top two feet, a select on-site material may be used if available.

E. Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing and waterproofing.

2. Inspection, testing, approval, and recording locations of underground utilities.

3. Removal of concrete formwork.

4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.

5. Removal of trash and debris.

6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

F. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification. Break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

G. Placement and Compaction: Place backfill and fill materials in layers not more than 9" under building and 12" outside building in loose depth for material compacted by heavy compaction equipment, and not more than 6" in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

3.4 GRADING:

A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding.

Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.

2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required sub-grade elevation.

3. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.

C. Grading Surface of Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.

D. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

If in opinion of Architect based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

3.5 FIELD QUALITY CONTROL:

A. Quality Control Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

1. Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area or building slab, but in no case less than three tests. In each compacted fill layer, make one field density test for every 2000 sq. ft.of overlaying building slab or paved area, but in no case less than three tests.

2. Foundation Wall Backfill: Take at least two field density tests at locations and elevations as directed.

3.6 MAINTENANCE:

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

C. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.7 DISPOSAL OF EXCESS AND WASTE MATERIALS:

A. Removal from Owner's Property: Remove waste materials, including unacceptable and acceptable excavated material, trash and debris, and dispose of it off Owner's property.

(END OF SECTION 31 20 00)

31 25 00 – EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. Provide labor, material and equipment for temporary and permanent management practices as shown on the plans and as directed by the Architect during the life of the Contract to control erosion, storm water runoff and pollution through the use of Best Management Practices.

B. Coordinate temporary erosion control provisions with permanent erosion control features to assure economical, effective and continuous erosion, sedimentation and pollution control throughout the construction and stabilization period.

C. Management practices required are not limited to the measures shown on the plans. Provide additional practices necessitated by actual conditions and methods.

D. Silt and pollution leaving the site and any effects of the release are the sole and total responsibility of the Contractor.

E. Contractor shall be responsible for requiring all Subcontractors to comply with the Erosion and Sedimentation Control Plan.

1.2 RELATED DOCUMENTS:

A. Permanent Grassing shall comply with Section 32 92 00 – Turfs and Grasses.

B. All erosion and sedimentation control work shall comply with the Mississippi Department of Environmental Quality, Erosion Control, Sediment Control and Storm Water Management on Construction Sites and Urban Areas Manual (Three Volumes), latest edition.

PART 2 - PRODUCTS

2.1 SILT FENCE

A. Geotextile filter fabric: The geotextile shall conform to the physical requirements of Type II filter fabric.

B. Wire Backing: The wire backing shall be at least 32 inches high and have no less than six horizontal wires. Vertical wires shall be spaced no more than 12 inches apart. The top and bottom wire shall be 10 gage or larger. All other wire shall be no smaller than 12 ½ gage.

C. Posts: Posts shall be steel tee posts a minimum of 5 feet in length. The posts shall have projections, notches or holes for fastening the wire backing or geotextile to the posts.

2.2 WATTLES

A. Wattles shall be 24” diameter and shall meet the requirements of the Mississippi Standard Specifications For State Aid Road and Bridge Construction.

2.3 RIP-RAP

A. General: Stone without grout as described in Section S-815 of the Mississippi Standard Specifications for Road and Bridge Construction, Mississippi State Highway Department, 1989 Edition. Broken concrete or concrete-filled bags not allowed. Stone size: minimum 20 lbs. per stone, maximum 150 lbs. per stone, with 80% of stones by weight not less than 30 lbs. per stone, however, 10% of the total weight may be less than the minimum weight.

1. Filter Fabric: Woven construction fabric, Amoco Embankment/Erosion Control Fabric Number 1198, as manufactured by Amoco Fabrics and Fibers Company, Atlanta, Georgia, or approved equal.

2. Place rip-rap over secured filter fabric in locations shown on the plans. Prepare all slopes to a 3:1 ratio before application.

2.4 CONSTRUCTION ENTRANCE

A. Heavy duty stone aggregate and filter fabric construction entrance, complying with the requirements MDEQ Manual's Best Management Practices.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Install management practices in accordance with the plans and specifications.

B. Maintain management practices throughout construction and until the site is finally stabilized.

3.2 LIMITS OF CONSTRUCTION

A. Limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations. Provide immediate permanent or temporary erosion control measures to prevent contamination of adjacent watercourse, lakes, ponds, other water of the State. Seed and mulch cut and fill slopes as excavation proceeds to the extent possible.

B. Incorporate all permanent management practices into the project at the earliest practicable time in the activity schedule. Use temporary management practices to correct conditions that develop during construction; that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

C. Schedule and perform clearing and grubbing operations so that grading operations and permanent management practices can be installed before or immediately thereafter.

3.3 MAINTENANCE

A. Maintain temporary management practices until no longer needed or permanent management practices are provided and the site is stabilized. Remove temporary materials.

B. In the event that temporary management practices are required due to negligence, carelessness or failure to provide permanent management practices as a part of work scheduled, provide at no cost to the Owner.

C. When silt deposited in sediment controls structures occupies more than 50% of the capacity, remove the silt and restore the controls to the conditions and grades shown on the plans.

(END OF SECTION 31 25 00)

32 12 73 – CONCRETE JOINT SEALANT

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Section includes sealing control and expansion joints in concrete sidewalks, parking lots, and driveways.

1.2 WORK INCLUDED:

A. Work under this section includes providing all labor, material, and equipment to seal the contraction, control, and expansion joints in concrete sidewalk, parking lot and driveway pavements.

PART 2 - PRODUCTS

2.1 EXPANSION JOINT MATERIAL

A. Expansion joint material shall be ½" thick, full depth, pre-molded non-bituminous joint material, with the top ½" perforated for removal prior to sealing operations.

2.2 JOINT FILLER

A. One or two component polysulfide polymer sealant or a one or two component polyurethane prepolymer sealant

B. Color: Gray

2.3 BACKER ROD

A. Closed cell polyethafoam sealant backer road; sized as required

PART 3 - EXECUTION

3.1 PREPARATION:

A. Saw control joints in accordance with the drawings and specifications.

B. Seal joints following the sawing operation or as soon as possible thereafter.

3.2 GENERAL:

A. Manufacturer's recommendations on the joint sealer shall be strictly adhered to with the following additions:

1. Leave joint sealant approximately 1/16" below the pavement surface level to prevent tracking.

2. Sprinkle fine silica sand, as needed, to reduce tracking of the joint sealer.

3.3 INSTALLATION

A. Remove the perforated portion of the expansion joint material prior to placing the joint sealant.

B. Clean loose material from the joints with compressed air.

C. In contraction joints, place a polyethafoam sealant backer road of 5/16” to 3/8” below the surface elevation of the sidewalk. Install the backer rod at uniform depth.

D. Install expansion and construction joint sealant to approximately 1/16” below the sidewalk surface level.

(END OF SECTION 32 12 73)

32 13 13 – SITE WORK CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.

1.2 DESCRIPTION OF WORK:

A. Extent of work is shown on drawings, including curbs, gutters, walks.

B. Prepared subbase is specified in "Earthwork" section.

C. Concrete and related materials are specified in Division 3.

1.3 QUALITY ASSURANCE:

A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified. Joint Sealers to be installed by approved applicator.

1.4 JOB CONDITIONS:

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required to maintain indicated parking areas during construction.

Utilize flagmen, barricades, warning signs and warning lights as required.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

Use flexible spring steel forms or laminated boards to form radius bends as required.

Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric.

Sidewalks----------6 x 6 #10

C. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 40.

D. Moisture Barrier: 6 mil polyethylene.

E. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 40. Cut bars to 2'0" length with ends square and free of burrs.

F. Concrete Materials: Comply with requirements of applicable Division 3 sections for concrete materials, admixtures, bonding materials, curing materials, and others as required.

G. Expansion Joint Material: to be asphalt impregnated 1/2" thick meeting ASTM-D-1751.

H. Expansion Joint Cap: Greenstreak #941 plastic cap for 1/2" joints.

I. Joint Sealant: Woodmont 550 pour grade urethane. Color shall be concrete.

J. Curing and Sealing Compound: Conform to TT-C-800, with 30% solids content minimum.

K. Epoxy Resin Grout: FS MMM-G-650.

2.2 CONCRETE MIX, DESIGN AND TESTING:

A. Comply with requirements of applicable Division 3 sections for concrete mix design, sampling and testing, and quality control, and as herein specified.

B. Design mix to product normal-weight concrete consisting of Portland cement, aggregate, water-reducing or high-range water-reducing admixture (super-plasticizer), air-entraining admixture and water to produce the following properties:

1. Compressive Strength: 3000 psi, minimum at 28 days.

2. Slump Range: 8" for concrete containing HRWR admixture (super-plasticizer); 4" for other concrete.

3. Air Content: 5% to 8%.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 FORM CONSTRUCTION:

A. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork for grade and alignment to following tolerances:

1. Top of forms not more than 1/8" in 10'.

2. Vertical face on longitudinal axis, not more than1/4" in 10'.

C. Clean forms after each use, and coat with form release agent as often as required to

ensure separation from concrete without damage.

3.3 REINFORCEMENT:

A. Locate, place and support reinforcement as specified in Division 3 sections, unless otherwise indicated.

B. Moisture Barrier: Provide a 6 mil Polyethylene moisture barrier under all concrete walks.

3.4 CONCRETE PLACEMENT:

A. General: Comply with requirements of Division 3 sections for mixing and placing concrete, and as herein specified.

Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.

Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2-hour, place a construction joint.

B. Curbs and Gutters: Automatic machine may be used for curb and gutter placement at contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results which meet or exceed minimums specified. Machine placement must produce curbs and gutters to required cross-section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete.

3.5 JOINTS:

A. General: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.

B. Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.

C. Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.

Locate expansion joints at 20' o.c., each direction for each pavement lane, unless otherwise indicated.

Use load transfer-slip dowel devices 2'0" long, installed so that one end of each dowel bar is free to move.

Extend joint fillers full-width and depth of joint, and not less than 1/2" or more than

1" below finished surface.

Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together.

Install expansion joint cap on premoulded expansion joint material and protect until concrete has been placed on each side.

Protect top edge of joint filler cap during concrete placement. Remove protection after concrete has been placed on both sides of joint.

D. Joint Sealers: Remove plastic cap and provide joint sealant in all expansion joints and comply with manufacturers instructions.

3.6 CONCRETE FINISHING:

A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

B. After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

D. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:

1. Broom finish, on all sidewalks, and curb and gutters by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.

2. Do not remove forms for twenty-four hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects as directed by Architect.

3.7 CURING:

A. Protect and cure finished concrete walks, complying with applicable requirements of Division 3 sections. Use curing and sealing compound or approved moist-curing methods.

REPAIRS AND PROTECTIONS:

A. Repair or replace broken or defective concrete as directed by Architect.

B. Drill test cores where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy resin grout.

C. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least fourteen days after placement. When construction traffic is permitted, maintain concrete work as clean as possible by removing surface stains and spillage of materials as they occur.

D. Sweep concrete and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

(END OF SECTION 32 13 13)

SECTION 32 31 15
PVC COATED CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2023.

B. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric; 2025.

C. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework; 2018 (Reapproved 2022).

D. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2018 (Reapproved 2022).

E. ASTM F1184 - Standard Specification for Industrial and Commercial Horizontal Slide Gates; 2023, with Editorial Revision.

1.02 SUMMARY

A. Section Includes:
   1. PVC/Polymer-coated steel chain link fabric.
   2. PVC/Polymer-coated galvanized steel framework and accessories.
   3. Gates: Swing and cantilever slide gates.
   4. Fittings, hardware, and installation accessories.

1.03 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Gate and fence post footings.

B. Section 31 22 00 - Grading: Earthwork and site preparation.

1.04 REFERENCES

A. ASTM A90/A90M - Standard Test Method for Weight Mass of Coating on Iron or Steel Articles with Zinc or Zinc-Alloy Coatings.

B. ASTM F567 - Standard Practice for Installation of Chain-Link Fence.

C. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric.

D. ASTM F934 - Standard Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials.

E. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Chain Link Fence Framework.

F. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.

G. CLFMI (Chain Link Fence Manufacturers Institute) - Product Manual and Woven Wire Fence Guide.

1.05 SUBMITTALS

A. Product Data: Manufacturer's technical data, specifications, and installation instructions for all network components, fabric, posts, gates, and hardware.

B. Shop Drawings: Include layout plans, post spacing, gate dimensions, hardware details, and attachment methods.

C. Samples for Verification: 12-inch square sample of selected fabric showing color and coating type, along with coating samples for posts and fittings.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum 5 years documented experience.

B. Installer Qualifications: Experienced professional who has completed chain link fence installations similar in material, design, and extent to this project for at least 3 years.

PART 2 - PRODUCTS

2.01 MASTERFORMAT SPECIFICATIONS & MATERIALS

A. Chain Link Fabric:
   1. Core Wire: 9 gauge 0.148 inch (3.76 mm) steel wire with a minimum breaking strength of 1,290 lbf.
   2. Coating: PVC (Polyvinyl Chloride) thermally fused or extruded and adhered plastic resin coating, minimum 0.015-inch thick, conforming to ASTM F668, Class 2b.
   3. Mesh Size: 2 inches (50.8 mm) regular, (or 1-3/4 inches (44 mm) for tennis court applications).
   4. Color: Black as specified, complying with ASTM F934.
   5. Fabric Selvage: Knuckled top and bottom selvages for mesh heights under 6 feet (182.88 cm); twisted top selvage for heights 6 feet and above.

2.02 FENCE FRAMING

A. Round Steel Pipe Framework: Conforming to ASTM F1083, Schedule 40, hot-dipped galvanized steel with an exterior polymer coating matching the fabric color.
   1. Line Posts: Minimum 2.375-inch O.D. for fences up to 6 feet (182.88 cm) tall; 2.875-inch O.D. for fences over 6 feet.
   2. End, Corner, and Pull Posts: Minimum 2.875-inch O.D. for fences up to 6 feet (182.88 cm) tall; 4.000-inch O.D. for taller variations.
   3. Top and Brace Rails: 1.660-inch O.D. pipe with structural expansion sleeve couplings.

2.03 GATES

A. Swing Gates: Fabricated from 1.900-inch O.D. polymer-coated pipe, welded frames, matching fabric layout. Provide heavy-duty non-lift-off hinges and lockable latch mechanisms.

B. Slide / Cantilever Gates: Fabricated according to ASTM F1184 Type II Class 2, overhead or internal roller designs matching framework styling.

2.04 FITTINGS AND ACCESSORIES

A. Materials: All tension bars, truss rods, post caps, and rail ends must be hot-dip galvanized steel or cast iron, coated with a supplemental 10 to 14 mils (0.3556 mm) of thermally fused PVC coating matching framework color.

PART 3 - EXECUTION

3.01 PREPARATION

A. Verify final grades and site layout markers before commencing post hole excavation.

B. Remove surface obstructions or debris along the fence line fence alignment path.

3.02 INSTALLATION

A. Post Footings: Excavate holes in accordance with ASTM F567. Set posts plumb into concrete foundations with minimum 24-inch depths (or 3x post diameter).

B. Framing: Install top rails continuous through line post caps. Secure tension bars and diagonal brace rods tightly on all terminal configurations.

C. Fabric: Stretch fabric taut to recommended tension levels. Secure to line posts using matching tie wires spaced maximum 12 inches (304.8 mm) apart.

D. Gates: Hang gates plumb, ensuring level orientation and smooth mechanical function across the operational path.

END OF SECTION 32 31 15

SECTION 32 92 00
TURF AND GRASSES (REPAIR AND REPLACEMENT)

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

A. ASTM C602 - Standard Specification for Agricultural Liming Materials; 2023.

B. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017 (Reapproved 2025).

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 SUMMARY

A. Section Includes: Patching, repairing, and replacing existing turf areas disturbed by construction activities, renovations, site utilities, and building additions.

B. Scope of Work: Restore all damaged lawns and grassed surfaces to match or exceed the pre-construction condition, density, and species profile using either sodding or seeding as dictated by location or project directives.

1.04 DEFINITIONS

A. Finish Grade: Elevation of finished surface of topsoil.

B. Subgrade: Surface or elevation of subsoil remaining after excavation, or top surface of a fill or backfill immediately beneath topsoil.

C. Turf: A surface layer of earth containing mowed grass with its roots in the blanket of soil.

1.05 SUBMITTALS

A. Product Data: For seed mixes, sod, fertilizers, and mulch materials. Include certificates of inspection and manufacturer labels showing analysis.

B. Maintenance Instructions: Recommended procedures for maintenance of repaired turf areas during a full growing season.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

B. Source Quality Control: Seed and sod shall comply with federal and state laws governing inspection, purity, and germination tolerance.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Sod Delivery: Deliver sod to site within 24 hours of harvesting. Install sod within 36 hours of harvesting. Keep sod moist and protected from elements during transit and storage.

B. Seed Delivery: Deliver seed in original, sealed containers labeled with standard analysis, weed seed content, inert matter, and germination test date.

1.08 PROJECT CONDITIONS

A. Environmental Requirements: Proceed with planting only when existing and forecasted weather conditions permit successful installation and growth.

B. Coordination: Coordinate utility repairs and site work backfill to ensure complete compaction and settling before laying topsoil or establishing turf.

PART 2 - PRODUCTS

2.01 SEED AND SOD MATERIALS

A. Seed Mix: Fresh, clean, new-crop seed complying with ASTM D2487 standards. Seed mix shall match the existing lawn profile exactly (e.g., Kentucky Bluegrass, Tall Fescue, Bermudagrass,

or Perennial Ryegrass combinations). Minimum 85% germination rate, maximum 0.5% weed seed content.

B. Sod: Certified Turfgrass Sod, strongly rooted, free of noxious weeds, pests, and disease. Soil thickness of sod rolls shall be a minimum of 5/8 inch (15.88 mm) to 3/4 inch (19.05 mm) thick, excluding top growth.

2.02 TOPSOIL AND AMENDMENTS

A. Topsoil: Reused or imported friable loam topsoil, free of stones larger than 1/2 inch (12.7 mm), subsoil, clay lumps, brush, weeds, or toxic substances. Standard pH range: 6.0 to 7.0.

B. Lime: Natural limestone containing a minimum of 85% total carbonates, ground to meet ASTM C602 standards.

C. Commercial Fertilizer: Commercial-grade, free-flowing, uniform in composition. Provide standard starter formulation (e.g., 10-20-10 or 19-19-19) applied according to soil conditions or local extension guidance.

2.03 MULCH AND ACCESSORIES

A. Straw Mulch: Clean, air-dried, weed-free straw from oats, wheat, rye, or barley. Do not use salt hay or musty straw.

B. Water: Clean, potable, and free of substances harmful to plant growth.

PART 3 - EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Examine areas to receive turf repairs. Verify that utility backfills, trenching, and foundation extensions are fully settled and compacted to prevent future depression of the turf profile.

B. Scarify subgrade to a depth of at least 3 inches (76.2 mm) to blend with topsoil and eliminate soil compaction layers caused by construction equipment traffic.

3.02 TOPSOIL PLACEMENT AND GRADING

A. Spread topsoil over areas to be repaired to a minimum uniform depth of 4 inches (101.6 mm), or to match the depth of surrounding undisturbed topsoil profiles.

B. Grade to a smooth, uniform surface, blending seamlessly into surrounding undisturbed turf areas. Rake out all stones, clods, and debris larger than 1/2 inch (12.7 mm).

3.03 SODDING REPAIRS

A. Lay sod in straight rows with staggered end joints. Butt ends and sides tightly together without overlapping or leaving gaps.

B. On sloped repair areas, lay sod perpendicular to the slope, securing sheets with biodegradable sod stakes where slope exceeds 1:3.

C. Lightly roll or tamp sod immediately after placement to eliminate air pockets and establish positive contact with the underlying topsoil.

3.04 SEEDING REPAIRS

A. Broadcast seed uniformly at the manufacturer's recommended repair/overseeding rate using mechanical spreaders. Divide seed rate into two equal passes at right angles to ensure uniform coverage.

B. Rake seed lightly into topsoil to a depth of 1/8 to 1/4 inch (6.35 mm), and roll lightly to ensure close seed-to-soil contact.

C. Apply straw mulch evenly over seeded areas at a rate of roughly 2 tons per acre or to achieve 75% surface cover. Anchor mulch if required due to windy conditions.

3.05 MAINTENANCE AND ACCEPTANCE

A. Watering: Water repaired areas immediately upon installation. Maintain soil moisture levels continuously for the first 14 to 21 days until turf root systems are fully established.

B. Mowing: Perform the first mowing when grass reaches a height of 3 to 3.5 inches (88.9 mm). Cut back to no less than 2.5 inches (63.5 mm). Avoid cutting more than 1/3 of the blade height.

C. Acceptance: Repaired turf areas will be accepted when a uniform, healthy, and weed-free stand of grass is established, showing no bare patches larger than 6 inches (152.4 mm) in diameter.

END OF SECTION 32 92 00

33 40 00 - STORM SEWER COLLECTION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Extent of sewer collection system work is shown on drawings.

B. Sewer collection system work includes, but is not limited to, the following:

1. Storm sewer conduits.

2. Catch basins, frames and gratings.

3. Junction Boxes

4. Curb Inlets and Covers

C. Excavation and backfilling for storm sewer collection system is specified in Earthwork section.

D. Comply with the requirements of applicable Division 2 sections for excavation and backfilling required in connection with storm sewer collection system work.

E. Refer to applicable Division 3 sections for concrete work related to storm sewer collection systems.

PART 2 - PRODUCTS

2.1 CONDUIT MATERIALS:

A. General: Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of same type and class of material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the Architect.

B. Reinforced Concrete Pipe: ANSI/ASTM C 76, with modified tongue-and-groove compression gasket joints complying with ANSI/ASTM C 443.

C. Bituminous Plastic Cement: "#220-A-Mastic" as manufactured by Techni Cote Cord or "Talcote" as manufactured by Gibson-Homan.

2.2 METAL ACCESSORIES:

A. Catch Basin Frames and Gratings: Grey cast iron, heavy-duty.

B. Curb Inlet Manhole Covers: Grey cast iron, heavy-duty.

2.3 SLOT DRAIN

A. Slot drains for breezeways shall be Brickslot 200 as manufactured by ACO Drain, with heel resistant slots.

PART 3 - EXECUTION

3.1 INSTALLATION OF CONDUIT:

A. General:

Install conduit in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.

Inspect conduit before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.

Lay conduit beginning at low point of a system, true to grades and alignment indicated with unbroken continuity of invert.

Place groove end of concrete conduit facing upstream.

Install bituminous plastic cement in accordance with manufacturer's recommendations.

B. Concrete Pipe:

Install in accordance with applicable provisions of American Concrete Pipe Association "Concrete Pipe Field Manual", unless otherwise indicated.

C. Cleaning Conduit:

Clear interior of conduit of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed.

1. Place plugs in ends of uncompleted conduit at end of day, or whenever work stops.

2. Flush lines between catch basins if required to remove collected debris.

D. Joint Adapters: Make joints between cast iron pipe and other types of pipe with standard manufactured cast iron adapters and fittings.

E. Roof Drain Connections: Connect roof drains to storm drain with appropriate joint adapters.

F. Closing Abandoned Utilities: Close open ends of abandoned underground utilities which are indicated to remain in place. Provide sufficiently strong closures to withstand hydro-static or earth pressure which may result after ends of abandoned utilities have been closed.

G. Interior Inspection: Inspect conduit to determine whether line displacement or other damage has occurred.

1. Make inspections after lines between manholes, or manhole locations have been installed and approximately two feet of backfill is in place and at completion of project.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects to satisfaction of Architect.

3.2 UNDERGROUND STRUCTURES:

A. Catch Basins, Junction Boxes, Curb Inlets: Construct concrete catch basins to the sizes and shapes indicated. Prefabricated catch basins, junction boxes, curb inlets, etc. boxes are acceptable, but the tops shall be poured on site.

1. Use concrete which will attain a 28-day compressive strength of not less than 3000 psi.

2. Set cast iron frames and gratings to elevations indicated.

3.3 TAP CONNECTIONS:

A. Make connections to existing conduits and underground structures, so that finished work will conform as nearly as practicable to requirements specified for new work.

B. Use commercially manufactured wyes for branch connections. Field cutting into conduit will not be permitted. Spring wyes into existing line and encase entire wye, plus 6" overlap, with not less than 6" of 3000 psi 28-day compressive strength concrete.

C. Branch connections made from side into existing 12" to 21" conduit shall have a wye sprung into the existing line, and entire wye encased with not less than 6" of 3000 psi 28-day compressive strength concrete.

3.4 BACKFILLING:

A. General: Conduct backfill operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.

END OF SECTION 33 40 00