

PROJECT:  
REPAIR/RENOVATE ROOMS AMX WX AMV STAND-UP  
BLDG. 4221

PROJECT NUMBER: MAHG16-9004

17 MARCH 2017

KEESLER AIR FORCE BASE BILOXI, MISSISSIPPI



Keesler AFB 508 L Street  
Keesler AFB, MS 39534

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INDEX

| SECTION  | NAME   |
|----------|--|
| 00 10 20 | DRAWING LIST                                   |
| 01 30 00 | SUBMITTALS                                     |
| 02 61 30 | ASPHALT PAVING                                 |
| 03 12 00 | EARTHWORK                                      |
| 03 30 00 | CAST IN PLACE CONCRETE                         |
| 05 40 00 | LIGHT GAUGE METAL FRAMING                      |
| 07 20 00 | INSULATION                                     |
| 07 92 00 | JOINT SEALANTS                                 |
| 08 11 13 | STEEL FRAMES                                   |
| 08 11 16 | INTERIOR ALUMINUM DOORS, FRAMES AND PARTITIONS |
| 08 20 00 | WOOD DOORS                                     |
| 08 58 00 | ALUMINUM SLIDING SERVICE WINDOW                |
| 08 71 00 | DOOR HARDWARE                                  |
| 09 25 50 | GYPSUM BOARD ASSEMBLIES                        |
| 09 30 00 | TILE AND ACCESSORIES                           |
| 09 51 10 | ACCOUSTICAL PANEL CEILINGS                     |
| 09 65 13 | RUBBER WALL BASE                               |
| 09 65 50 | RESILIENT ACCESSORIES                          |
| 09 68 13 | TILE CARPETING                                 |
| 09 91 00 | PAINT  |
| 09 93 23 | STAINS AND TRANSPARENT FINISHES                |
| 16 00 00 | GENERAL PROVISIONS – ELECTRICAL                |
| 16 11 00 | RACEWAYS                                       |
| 16 50 00 | LIGHTING                                       |
| 32 31 00 | HIGH SECURITY STEEL ROLL GATES                 |
| 32 31 01 | DECORATIVE FENCE PRODUCTS                      |
|          |  |

SECTION 00 10 20  
LIST OF DRAWINGS

PART 1 GENERAL

1.1 SUMMARY

This document lists the drawings for the project.

1.2 CONTRACTDRAWINGS

Contract drawings are as follows:

| <u>DRAWING No.</u> | <u>TITLE</u>   |
|--------------------|--|
| T1.0               | TITLE SHEET  |
| C1.0               | SITE PLAN – FENCING/UTILITIES                          |
| D1.0               | DEMOLITION PLAN  |
| A1.0               | FLOOR PLANS  |
| A2.0               | WALL SECTIONS, DOOR AND FRAME ELEVATIONS, AND SCHEDULE |
| A3.0               | INTERIOR ELEVATIONS                                    |
| A4.0               | REFLECTED CEILING PLAN                                 |
| E1.0               | EXISTING LIGHTING PLAN                                 |
| E1.1               | LIGHTING PLAN  |
| E2.0               | ELECTRICAL POWER PLANS                                 |

END OF SECTION

SECTION 01 30 00

SUBMITTALS

1.01 GENERAL

- A. Related Requirements Specified Elsewhere
  - 1. General Conditions-Statement of Work
- B. Send all submittals to:  
81 Contracting Building 4605  
Keesler AFB, MS 39534

1.02 CONSTRUCTION SCHEDULE

- A. Provide projected construction schedules for entire work, revise periodically.
- B. Prepare in form of horizontal bar chart.
  - 1. Provide separate horizontal bar column for each trade or operation.
  - 2. Order: Chronological order or beginning of each item of work.
  - 3. Identify each column:
    - a. By major specification section number.
    - b. By distinct graphic delineation.
  - 4. Horizontal time scale: Identify first workday of each week.
  - 5. Scale and spacing: To allow space for updating.
- C. Provide complete sequence of construction by activity.
  - 1. Shop Drawings, Product Data and Samples:
    - a. Submittal dates.
    - b. Dates reviewed copies will be required.
  - 2. Product procurement and delivery dates.
  - 3. Dates for beginning and completion of each element of construction, specifically:  
  
Ordering/Delivery of Materials  
Preparation of Installation site  
Installation of Carpeting and accessories
- D. Show projected percentage of completion for each item of work as of first day of each month.

1.03 SUB-CONTRACTORS AND SUPPLIERS

- A. Submit to the Contracting Officer within 10 days of award of contract a list of all sub contractors to be used on the work.
- B. Submit to the Contracting Officer within 10 days of award of contractor a list of all suppliers and material men furnishing products to be incorporated in the work not a part of a sub-contract.

- C. Lists shall include company name, address, phone number and contact person if applicable.

1.04 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Submit to the Designer samples and product data on the following:
1. Light Gauge Metal Framing
  2. Sound Attenuation Batt Fiberglass
  3. Wood Doors
  4. Steel Frames
  5. Aluminum Entrances and Storefronts
  6. Door and Frame Hardware
  7. Gypsum Board Assemblies
  8. Acoustical Panel Ceiling tiles and metal grid
  9. Paint to include color samples
  10. Primer
  11. Stains and Transparent Finishes
  12. All adhesives and removers, to include MSDS for all.
  13. Any and all contingent components deemed necessary by the Contracting Officer.
- B. Each submittal shall be forwarded to:  
[81 Contracting Building 4605](#)  
[Keesler AFB, MS 39534](#)

with a separate transmittal letter identifying specification section and number pertinent to submittal. Transmittal letter shall delineate all variations of product submitted from that specified.

- C. Designate on the Construction Schedule dates for submission and dates reviewed shop drawings, product data and samples will be needed for each product.
- D. Product Data
1. Manufacturer's standard schematic drawings:
    - a. Modify drawings to delete information not applicable to project.
    - b. 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.
    - a. Clearly mark each copy to identify pertinent materials, products or models.
    - b. Show dimensions and clearances required.
    - c. Show performance characteristics and capacities.
    - d. Show wiring diagrams and controls.
- E. Contractor Responsibilities
1. Review shop drawings, product data and samples prior to submission.
  2. Verify:
    - a. Field measurements.
    - b. Field construction criteria.

- c. 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 Contracting Officer's review of submittals.
  5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Contracting Officer's review of submittals, unless Contracting Officer gives written acceptance of specific deviations.
  6. Notify Contracting Officer in writing at time of submission of deviations in submittals from requirements of Contract Documents.
  7. Begin no work which requires submittals until return of submittals with Contracting Officer's stamp and initials or signature indicating review.
  8. After Contracting Officer's review, distribute copies.
- F. Submission Requirements
1. Schedule submissions at least ten days before dates reviewed submittals will be needed.
  2. Submit number of shop drawings and product data and samples which Contractor requires for distribution plus two copies which will be retained by Contracting Officer on all items.
  3. Accompany submittals with transmittal letter, in duplicate, containing:
    - a. Date
    - b. Project title and number
    - c. Contractor's name and address
    - d. Identification of product or material
    - e. Relation to adjacent structure or materials
    - f. Field dimensions, clearly identified as such
    - g. Specification section number. Applicable standards, such as ASTM number or Federal Specification.
    - l. Contractor's stamp initialed or signed certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
- G. Resubmission Requirements
1. Shop Drawings:
    - a. Revise initial drawings as required and resubmit as specified for initial submittal.
    - b. Indicate on drawings any changes, which have been made other than those requested by Contracting Officer.
  2. Product Data and Samples: Submit new data and samples as required for initial submittal.

END OF SECTION

SECTION 02 61 30

POLYMER MODIFIED SLURRY SURFACE SEAL

PART I - GENERAL

1.01 DESCRIPTION

- A. The work required under this Section consists of Slurry Surface Seal as indicated on the Drawings with Polymer Modified Slurry Surface Seal. The work shall, as a minimum, include the following specific tasks:
  - 1. Removal of deteriorated asphalt surfacing.
  - 2. Repair of damaged asphalt surfacing.
  - 3. Polymer Modified Slurry Surface Seal materials including placement.
  - 4. Surface Stripping.
- B. Related Requirements Specified Elsewhere
  - 1. Section 01 30 00 - Submittals

1.02 SUBMITTALS

- A. Submit in accordance with Section 01 30 00 - Submittals.
- B. Submit mix design for the following:
  - 1. Asphalt base and surface course.
  - 2. Polymer Modified Slurry Surface Seal.

PART 2 - MATERIALS

2.01 BITUMINOUS MIXTURES

- A. The bituminous mix shall be composed of a mixture of aggregate, mineral filler and other material, as required, mixed in a central mixing plant with asphalt cement in the proportions specified.
- B. Mineral aggregates for the mixture shall be so sized and graded and shall be combined in such proportions that the resultant composite blend will meet the gradation requirements as specified in Table B, subsection 703.091, Mississippi standard Specifications for Road and Bridge Construction, 1976 Edition, For Surface Course and Bituminous Base Course 1976.
- C. Coarse aggregate type for the mixture shall be crushed gravel, Class II and shall conform to the requirements for mixture Type III for surface mixtures as specified in Table A, subsection 703.091, of the aforementioned reference.
- D. The bituminous material used in the mixture shall be Petroleum Asphalt Cement, Grade AC-8, conforming to requirements of Table I, subsection 702.08, of the aforementioned reference. In addition, the mixture shall be homogeneous, free of water and shall not foam when heated to a temperature of 347 degrees F. The percentage of asphalt cement, by weight of total mix, to be used in the mixture shall be as specified in Table B, subsection 703.091 of the aforementioned reference.
- E. Mineral filler may be used in the mixture to obtain the desired properties; however, its excessive use will not be permitted. For surface course mixture SC-1, a minimum of one (1) percent mineral filler, by weight of the total mineral aggregate before addition of asphalt cement, shall be required. Mineral filler shall meet the requirements of subsection 703.15, Mississippi Standard Specifications, mentioned above.

2.02 PRIME COAT

- A. Prime coat shall be Medium Curing Cutback Asphalt, MC-I, conforming to requirements of Table III, Section 702, of aforementioned reference.

2.03 BLOTTER MATERIAL

- A. Aggregate for blotter material shall conform to gradation requirements as follows:

Percent passing 3/8 inch 100  
Percent passing No. 4 screen 85-100  
Percent passing No. 100 screen 10-30

The aggregate shall be free from vegetable or other deleterious matter.

2.04 TACK COAT

- A. Tack coat shall be Emulsified Asphalt, Grade EA-4, meeting the requirements of Table V, Section 702, Mississippi Standard Specifications, hereinbefore specified.

2.05 EQUIPMENT

- A. The central bituminous mixing plant shall conform generally to the requirements of subsection 401-08, Mississippi Standard Specifications for Road and Bridge Construction, 1967 Edition.

2.06 POLYMER MODIFIED SLURRY SEAL

- A. Polymer Modified Emulsified Asphalt shall meet the requirements of Section 405.02.3 of the Mississippi Standard Specifications for Road or Bridge Construction.
- B. Slurry Seal aggregate shall meet the requirements of Section 405.02.4 of the Standard Mississippi Specifications for Road and Bridge Construction.
- C. Water, Portland Cement, and Mineral Filler shall meet the requirements of Section 405.02.06 thru 405.02.8 of the Mississippi Standard Specifications for Road and Bridge Construction.
- D. Slurry Seal Composition shall meet Section 405.02.9.2 Type 4 of the Mississippi Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.01 REPAIR OF EXISTING PAVEMENT

- A. Surface preparation: Prior to any construction, remove from the existing bituminous pavement surface all loose material, dirt, clay, and other objectionable substances. Clean all surface cracks and crevices in the existing asphalt surface. Cleaning shall be by power broom, blower, compressed air, stiff-bristled hand brooms, and other approved methods.
- B. Pavement repair procedures: After cleaning operation is complete, identify all potholes, depressions, ruts, raveling, cracks, corrugations, shaved areas, etc., requiring remedial work prior to overlay application. The following procedures will be used in the repair of these defects:
  - 1. Potholes, deep depressions, large cracks, shoved areas, upheavals, etc.:
    - a. Remove surface and base material as deep as necessary to reach firm support, extending at least a foot into good pavement outside cracked areas. Make the cut square or rectangular with spaces straight and vertical.
    - b. Apply a tack coat as hereinbefore specified to the vertical faces at the cut-out.
    - c. Backfill the hole with a dense graded hot bituminous mixture as hereinbefore



- specified. Spread carefully to prevent segregation of the mixture.
- d. Compact in layers in the hole is more than 6 inches deep. Compact each layer thoroughly with equipment most suited for the size of the job. A vibratory plate compactor is excellent for small patches. A roller will be more practical for large area.
  - e. The finished surface shall be smooth and true to grade of existing section.
2. Ruts, shallow depressions, raveling, etc.:
- a. Apply a fog seal tack coat of asphalt emulsion, EA-4, diluted equally with water, to entire area of patch at rate of 0.12-0.15 gallon per square yard.
  - b. Spread dense graded hot bituminous mixture as hereinbefore specified to the patch area. Be sure the material is feathered at the edges.
  - c. Compact thoroughly with a pneumatic-tired roller.
  - d. The finish surface shall be smooth and true to grade of existing section.
3. Cracks and Crevices:
- a. After thorough cleaning as hereinbefore specified, apply fog seal of asphalt Emulsion, EA-4, diluted equally with water, to entire surface of area to be patched at rate of 0.12-0.13 gallons per square yard. Emulsion shall be applied to large areas with a pressure distributor.
  - b. Allow time for the asphalt to break and then apply a light sand seal to the surface. Sand shall be dry and completely free of extraneous material.
  - c. Roll the surface with a light pneumatic roller to form a complete seal.
  - d. Broom excess sand from the water.

### 3.02 POLYMER MODIFIED SLURRY SEAL APPLICATION

- A. Apply Polymer Modified Slurry Seal in accordance with the requirements of Section 405.03.3 of the Mississippi Standard Specification for Road and Bridge Construction.

### 3.03 WORKMANSHIP

- A. Specified hot bituminous pavement courses shall be constructed as nearly in accordance with the thicknesses specified and as the conditions of the underlying foundation will permit. Contractor shall be responsible for adhering to the alignment, thicknesses, grades, and sections as shown on the Drawings for obtaining the required in-place material density and adhering to the specified surface tolerances.

### 3.04 CLEAN-UP

- A. At the conclusion of the project, the Contractor shall provide complete, total, and full clean-up service of the entire project site.

### 3.05 GUARANTEE

- A. Guarantee materials and workmanship for this work for a period of one (1) year from date of acceptance.

END OF SECTION

SECTION 03 12 00

EARTHWORK

PART 1 - GENERAL 1.1 DESCRIPTION:

This section specifies the requirements for furnishing all equipment, materials, labor and techniques for earthwork including excavation, fill and backfill and site restoration utilizing fertilizer, seed and/or sod.

1.2 DEFINITIONS:

- A. Unsuitable Materials:
  - 1. Fills: Topsoil, frozen materials; construction materials and materials subject to decomposition; clods of clay and stones larger than 75 mm (3 inches); organic materials, including silts, which are unstable; and inorganic materials, including silts, too wet to be stable.
  - 2. Existing Subgrade (footings only): Same as Paragraph 1, but no fill or backfill. If materials differ from reference borings and design requirements, excavate to acceptable strata subject to a Governmental Representative and/or Contracting Officer approval.
- B. Earthwork: Earthwork operations required within the new construction area. It also includes earthwork required for auxiliary structures and buildings and sewer and other trench work throughout the job site.
- C. Degree of Compaction: Degree of compaction is expressed as a percentage of maximum density obtained by the test procedure presented in ASTM D1557 Method A.
- D. The term fill means fill or backfill as appropriate.

1.3 RELATED WORK:

- A. Materials testing and inspection during construction: Section 01450, TESTING LABORATORY SERVICES.
- B. Safety Requirements: Section 01000, GENERAL REQUIREMENTS.
- C. Protection of existing utilities, fire protection services, existing equipment, roads, and pavements: Section 01 00 00, GENERAL REQUIREMENTS
- D. Subsurface Investigation: Section 01000, GENERAL REQUIREMENTS

PART 2 - EXECUTION

2.1 SITE PREPARATION:

- A. Clearing: Clearing within the limits of earthwork operations as described or designated by the Contracting Officer. Work includes removal of trees, shrubs, fences, foundations, incidental structures, paving, debris, trash and any other obstructions.
- B. Grubbing: Remove stumps and roots 75 mm (3 inches) and larger diameter. Undisturbed sound stumps, roots up to 75 mm (3 inches) diameter, and nonperishable solid objects which will be a minimum of 900 mm (3 feet) below subgrade or finished embankment may be left.
- C. Trees and Shrubs: Trees and shrubs, not shown for removal, may be removed from the areas within 4500 mm (15 feet) of new construction and 2250 mm (7'-6") of utility lines if such removal is approved in advance by the Contracting Officer. Box, and otherwise protect from damage, existing trees and shrubs which are not shown to be removed in the construction area. Repair immediately damage to existing trees and shrubs by trimming, cleaning and painting damaged areas, including the roots, in accordance with standard industry horticultural practice for the geographic area and plant species. Building materials shall not be stored closer to trees and shrubs that are to remain, than the farthest extension of their limbs.

- D. Stripping Topsoil: Unless otherwise indicated on the drawings, the limits of earthwork operations shall extend anywhere the existing grade is filled or cut or where construction operations have compacted or otherwise disturbed the existing grade or turf. Strip topsoil as defined herein, or as indicated in the geotechnical report, from within the limits of earthwork operations as specified above unless specifically indicated or specified elsewhere in the specifications or shown on the drawings. Topsoil, whether on site or imported, shall be fertile, friable, natural topsoil of loamy character and characteristic of the locality and shall meet the applicable requirements of MDOT. Topsoil shall be capable of growing healthy horticultural crops of grasses. Stockpile topsoil and protect as directed by the Contracting Agent. Eliminate foreign material, such as weeds, roots, stones, subsoil, frozen clods, and similar foreign materials, larger than 0.014 m<sup>3</sup> (1/2 cubic foot) in volume, from soil as it is stockpiled. Retain topsoil on the station. Remove foreign materials larger than 50 mm (2 inches) in any dimension from topsoil used in final grading. Topsoil work, such as stripping, stockpiling, and similar topsoil work, shall not, under any circumstances, be carried out when the soil is wet so that the tilth of the soil will be destroyed.
1. Concrete Slabs and Paving: Score deeply or saw cut to insure a neat, straight cut, sections of existing concrete slabs and paving to be removed where excavation or trenching occurs. Extend pavement section to be removed a minimum of 300 mm (12 inches) on each side of widest part of trench excavation and insure final score lines are approximately parallel unless otherwise indicated.
- E. Disposal: All materials removed from the property shall be disposed of at a legally approved site, for the specific materials, and all removals shall be in accordance with all applicable Federal, State and local regulations. No burning of materials is permitted onsite.

### 3.7 CLEAN-UP:

Upon completion of earthwork operations, clean areas within contract limits, remove tools, and equipment. Provide site clear, clean, free of debris, and suitable for subsequent construction operations. Remove debris, rubbish, and excess material from the work site and dispose of it as directed above.

END OF SECTION

SECTION 03 30 00  
CAST IN PLACE CONCRETE

- 1.1 GENERAL
- 1.2 Related Documents
  - A. Drawings and general provisions of the contract, including General and Supplementary conditions shall apply to this Section.
- 1.3 Summary
  - A. This section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for the following:
    - 1. Footings
    - 2. Slab on Grade
- 1.4 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.
- 1.5 Submittals
  - A. Design Mixtures: For each concrete mixture. Submit design mixtures.
    - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
  - B. Material Test Reports: For the following from a qualified testing agency, indicating compliance with requirements:
    - 1. Aggregates: Include service record data indicating absence of delirious expansion of concrete due to alkali aggregate reactivity.
- 1.6 Quality Assurance
  - A. ACI Publications: Comply with the following unless modified by requirements in the contact Documents:
    - 1. ACI 301, "Specification for Structural Concrete", Sections 1 through 5.
    - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials".
  - B. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation test and to design concrete mixtures.
- 2.1 Products
  - A. Steel Reinforcement
    - 1. Reinforcement bars: ASTM A615M, Grade 60 (Grade 420), deformed.
- 2.2 Concrete Materials
  - A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout the Project:
    - 1. Portland Cement: SATMC 150, Type I/II.
      - a. Fly Ash: ASTM C 618, Class C or F.
      - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

- B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
  - 2. Maximum course-aggregate size:  $\frac{3}{4}$  inch (19mm) nominal.
  - 3. Fine aggregate: Free of materials with deleterious reactivity to alkali in cement.

### 2.3 Admixtures

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures that will not contribute water-soluble chloride or admixtures containing calcium chloride.
  - 1. Water-reducing admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and retarding admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

### 2.4 Concrete Mixtures for Building Elements

- A. Footings: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.40.
  - 3. Slump Limit: 8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50 to 100MM) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25mm).
  - 4. Air Content: 4 percent, plus or minus 1.5 percent at point of delivery for  $\frac{3}{4}$  inch (19mm) nominal maximum aggregate size.

### 3.1 Concrete Placement

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, a Project site, or during placement unless approved by the Contracting Agent's Representative.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams of planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
- D. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When the average high and low temperatures is expected to fall below 40 degrees F (4.4 degrees C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents of chemical accelerators unless otherwise specified and approved in mixture designs.
- E. Hot-Weather Placement: Comply with ACI 301 and as follows:
  - 1. Maintain concrete temperature below 90 degrees F (32 degrees C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided

water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is the Contractor's option.

2. Fog-Spray forms, steel reinforcement and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.2 Concrete protection and 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.

### 3.3 Concrete Surface repairs

- A. Defective Concrete: Repair and patch defective areas only if approved by the Owner's Representative. Remove and replace concrete that cannot be repaired and patched to Owner Representative's approval.
- B. Repairing Mortar: Mix dry-pack patch mortar, consisting of one part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18 mm) sieve, using only enough water for handling and placing.
- C. Repairing formed surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections of the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than  $\frac{1}{2}$  inch (13mm) in any dimension in solid concrete, but less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
- D. Perform structural repairs of concrete, subject to Owner Representative's approval, using epoxy adhesive and patching mortar.

END OF SECTION

SECTION 05 40 00  
LIGHT GAUGE METAL FRAMING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The intent of this Section is to establish the standard of quality for materials, fabrication and erection of light gauge studs, track, and related accessories to complete the work as indicated on the Drawings and described in the Specifications.
- B. Related Requirements Specified Elsewhere
  - 1. Section 01 30 00 – Submittals
  - 2. Section 07 20 00 - Insulation
  - 3. Section 09 25 00 - Gypsum Drywall

1.02 APPLICABLE STANDARDS

- A. American Iron and Steel Institute (AISI): Design of Cold Formed Steel Structural Members.
- B. American Welding Society (AWS): Welding in building Construction.
- C. American Society for Testing and Materials (ASTM),
- D. Building Code as applicable.
- E. American Institute of Steel Construction (AISC): Manual of Steel Construction.

1.03 SUBMITTALS

- A. Shop Drawings
  - 1. Indicate all member gauges, spacing's and sizes.
  - 2. Indicate shop and field assembly details including cut and connections.
  - 3. Indicate type and location of all welds, bolts and fastening devices.
  - 4. Shop drawings shall indicate all prefabricated framing with individual panel drawings for each condition.

1.04 QUALITY ASSURANCE

- A. For purposes of designating type, sizes and quality for the work under this Section, Drawings and Specifications are based on products manufactured or furnished by INRYCO/Milcor Steel Framing Systems. Sizes and shapes shown on Drawings are to be considered the minimum structural sections allowable.
- B. Products of other manufacturers similar to those specified herein will be acceptable for use on the project when approved in writing by the Contracting Officer. Supporting technical literature, samples, drawings and performance data sheets must be submitted for comparison.
- C. Products for use on this project shall be of one manufacturer unless noted specifically otherwise herein.

PART 2 - MATERIALS

2.01 FRAMING MEMBERS

- A. All framing members shall be of the type and size as shown on the Drawings. Minimum 18 gauge.
- B. All painted 18 and 20 gauge studs, and all painted track, bridging, end closures and accessories shall be formed from steel that corresponds to the requirements of ASTM A611, Grade C with a minimum yield of 33,000psi.
- C. All painted material and accessories shall be primed with rust inhibitive paint meeting the performance requirements of TT-P-636C.

## PART 3 - EXECUTION

### 3.01 FABRICATION

- A. Framing components may be pre-assembled into panels prior to erecting. Prefabricated panels shall be square with components and attached in a manner as to prevent racking.
- B. All framing components shall be cut squarely for attachment to perpendicular members, or as required for an angular fit against abutting members. Members shall be held positively in place until properly fastened.
- C. Axially loaded studs shall be installed in a manner, which will assure that the ends of the studs are positioned against the inside track web, prior to stud and track attachment.
- D. Provide insulation equal to that specified elsewhere in all double jamb studs and doubleheader members, which will not be accessible to the insulation contractor.

### 3.02 ERECTION WALLS

- A. Erect framing and panels plumb, level and square in strict accordance with the approved shop drawings.
- B. Handling and lifting of prefabricated panels shall be done in a manner as to not cause distortion in any member.
- C. Track shall be securely anchored to the supporting structure.
- D. At track butt joints, abutting pieces of track shall be securely anchored to a common structural element, or they shall be butt-welded or spliced together.
- E. Studs shall be plumbed, aligned and securely attached to the flange or webs of both upper and lower tracks.
- F. Jack studs or cripples shall be installed above window and door heads, and elsewhere to furnish support, and shall be securely attached to supporting members.
- G. Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to the manufacturer. Minimum bridging shall be walls Up to 10'-0" height; one row at mid-height. Walls exceeding 10'-0" height; bridging rows spaced not to exceed 5'-0" on center.
- H. Framed wall openings shall include headers and supporting studs as necessary.
- I. Temporary bracing shall be provided until erection is completed.



- J. Splices in axially loaded studs shall not be permitted.

### 3.03 RECOMMENDED EQUIPMENT

#### A. Cutting

1. A radial arm 7½ hp (3425 rpm) saw with an 18" x 5/32" friction blade, style 9MR, having 280 teeth (10 teeth per inch) is frequently used in the shop. Other suggested shop cutting equipment includes either the radial arm saw or an abrasive cut-off (chop) saw with a reinforced abrasive blade or a band saw.
2. For field cutting and small quantities, a 3 hp worm drive Skill saw equipped with a reinforced abrasive cut-off blade, a band saw or a power band saw will serve satisfactorily.

#### B. Welding

1. A wire feed type welder is recommended for fastest and most uniform welding in the shop. Good welds are also obtained with a 3/32" or 1/8" AWS type 6013 or 7014 rod with a welding head of 60-110 amperes depending on the gauge of material and the fit of the parts.
2. For field welding, a 225 amp, 230 volt single phase current are welder may be used.

#### C. Screw Attachment

1. For screwing of metal to metal, a reversible screw gun capable of handling metal self tapping screws is acceptable.
2. For attachment of metal to concrete, a self contained, .22 caliber power driving tool may be used.

### 3.06 CLEAN-UP

- A. Remove all debris from site upon completion of work.

END OF SECTION





## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
- B. Form filed joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep component and hands clean when making joints.
- C. Adhere top-mount sink/bowls to countertops using manufacturer's recommended adhesives and color matched silicone sealant.
- D. Provide backsplashes and endsplashes as indicated on drawings. Adhere to countertops using manufacturer's standard color matched silicone sealant.
- E. Keep components and hands clean during installation. Remove adhesives, sealants and other stains.
- F. Protect surfaces from damage. Repair or replace damaged work that cannot be repaired to Architect's satisfaction.

END OF SECTION

SECTION 07 20 00

INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work required under this Section consists of rigid board wall insulation, batt insulation, blanket insulation and related items to complete the work as indicated on the Drawings and described in the Specifications.
- B. Related Requirements Specified Elsewhere
  - 1. Section 01 30 00 – Submittals

1.02 SUBMITTALS

- A. Submit data in accordance with Section 01300 - Submittals.
- B. Submittals shall include, but not be limited to, the following;
  - 1. Technical literature
  - 2. Performance data
  - 3. Spec-Data sheets
  - 4. Manufacturer's installation instructions

1.03 COORDINATION

- A. Efficient utilization of this product requires minimum damage thereto and maximum surface integrity. Therefore, allow others adequate time and space in which to work to complete their requirements prior to commencing insulation work.
- B. Insulation which must be installed as other trades perform their work will be installed in a timely manner and protected so that the work of adjacent trades does not damage or displace insulation.

1.04 HANDLING AND STORAGE

- A. Deliver all materials to the job site in the original manufacturer's sealed packages.
- B. Store all materials off-ground and cover to keep dry.

PART 2 – MATERIALS

2.01 Manufacturer

- A. Owens-Corning.
- B. Or Approved equal

2.01 SOUND ATTENUATION BATTS

- A. Type: Unfaced glass fiber acoustical insulation complying with ASTM C 665, Type I.
- B. Size:
  - 1. Thickness 2½" Width 16" Length 96" (furr out in room 125B).

2. Thickness 3½" Width 16" Length 96" (partition walls –rooms 125C and 125D).
- C. Surface Burning Characteristics:
    1. Maximum flame spread: 10
    2. Maximum smoke developed: 10
    3. When tested in accordance with ASTM E 84.
  - D. Combustion Characteristics:
    1. Passes ASTM E 136.
  - E. Fire Resistance Ratings:
    1. Passes ASTM E 119 as part of a complete fire tested wall assembly.
  - F. Sound Transmission Class: STC 44
  - G. Dimensional Stability:
    1. Linear Shrinkage less than 0.1%

### PART 3 - EXECUTION

#### 3.01 WALL INSULATION (Sound Attenuation Batt Fiberglass)

- H. Install 3 ½" sound attenuation batts in stud spaces of partition walls and elsewhere as indicated. Chink loose spots, holes and gaps with insulation.
- I. Install 2 ½" sound attenuation batts in "furred" out wall area of room 125B. Chink loose spots, holes and gaps with insulation.

#### 3.02 WORKMANSHIP

- A. All work of this Section shall be done by competent craftsmen in a neat workmanlike manner. All insulation shall be left in good condition and neat appearance.

#### 3.03 CLEAN UP

- A. Remove all debris from the site upon completion of insulation work.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C1311 (2010) Standard Specification for Solvent Release Agents

ASTM C509 (2006; R 2011) Elastomeric Cellular Preformed Gasket and Sealing Material

ASTM C734 (2006; R 2012) Low-Temperature Flexibility of Latex Sealant After Artificial Weathering

ASTM C834 (2010) Latex Sealants

ASTM C919 (2012) Use of Sealants in Acoustical Applications

ASTM C920 (2011) Standard Specification for Elastomeric Joint Sealants

ASTM D1056 (2007) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber

ASTM D1667 (2005; R 2011) Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell)

ASTM D217 (2010) Cone Penetration of Lubricating Grease

ASTM D2452 (2003; R 2009) Standard Test Method for Extrudability of Oil- and Resin-Base Caulking Compounds

ASTM D2453 (2003; R 2009) Standard Test Method for Shrinkage and Tenacity of Oil- and Resin-Base Caulking Compounds

ASTM E84 (2012c) Standard Test Method for Surface Burning Characteristics of Building Materials

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

- A. SD-03 Product Data
  - 1. Sealants
  - 2. Primers
  - 3. Bond breakers
  - 4. Backstops

Manufacturer's descriptive data including storage requirements, shelf life, curing time, instructions for mixing and application, and primer data (if required). Provide a copy of the Material Safety Data Sheet for each solvent, primer or sealant material.

B. SD-07 Certificates

1. Sealant
2. Certificates of compliance stating that the materials conform to the specified requirements.

1.3 ENVIRONMENTAL CONDITIONS

Apply sealant when the ambient temperature is between 4 and 32 degrees C 40 and 90 degrees F.

1.4 DELIVERY AND STORAGE

Deliver materials to the job site in unopened manufacturers' external shipping containers, with brand names, date of manufacture, [color,] and material designation clearly marked thereon. Label elastomeric sealant containers to identify type, class, grade, and use. Carefully handle and store materials to prevent inclusion of foreign materials or subjection to sustained temperatures exceeding 32 degrees C 90 degrees F or less than 4 degrees C 0 degrees F.

1.5 QUALITY ASSURANCE

1.4.1 Compatibility with Substrate

Verify that each of the sealants are compatible for use with joint substrates.

1.4.2 Joint Tolerance

Provide joint tolerances in accordance with manufacturer's printed instructions.

1.6 SPECIAL WARRANTY

Guarantee sealant joint against failure of sealant and against water penetration through each sealed joint for five (5) years.

PART 2 PRODUCTS

2.1 SEALANTS

Provide sealant that has been tested and found suitable for the substrates to which it will be applied.

2.1.1 Interior Sealant

Provide ASTM C834 [ASTM C920, Type S or M, Grade NS, Class 12.5, Use NT. Location(s) and color(s) of sealant for the following:

1. Location: Small voids between walls and door frames, built-in or surface-mounted equipment and fixtures, and similar items.
2. Color: As selected by Designer of Record

2.1.2 Floor Joint Sealant

Provide ASTM C920, Type S or M, Grade P, Class 25, Use T. Provide location(s) and color(s) of sealant as follows:

1. Location: Seats of metal thresholds for exterior doors.
2. Color: As selected by Designer of Record



## 2.2 PRIMERS

Provide a non-staining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.

## 2.3 BOND BREAKERS

Provide the type and consistency recommended by the sealant manufacturer to prevent adhesion of the sealant to backing or to bottom of the joint.

## 2.4 BACKSTOPS

Provide glass fiber roving or neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Provide 25 to 33 percent oversized backing for closed cell and 40 to 50 percent oversized backing for open cell material, unless otherwise indicated. Make backstop material compatible with sealant. Do not use oakum and other types of absorptive materials as backstops.

## 2.5 CLEANING SOLVENTS

Provide type(s) recommended by the sealant manufacturer (except for aluminum and bronze surfaces that will be in contact with sealant).

## PART 3 EXECUTION

### 3.1 SURFACE PREPARATION

Clean surfaces from dirt frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion.

Remove oil and grease with solvent. Surfaces must be wiped dry with clean cloths. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant. For surface types not listed below, contact sealant manufacturer for specific recommendations.

#### 3.1.1 Steel Surfaces

Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finish work, scraping and wire brushing. Remove protective coatings by sandblasting or using a residue-free solvent.

#### 3.1.2 Aluminum or Bronze Surfaces

Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive just prior to sealant application. For removing protective coatings and final cleaning, use non-staining solvents recommended by the manufacturer of the item(s) containing aluminum or bronze surfaces.

#### 3.1.3 Concrete and Masonry Surfaces

Where surfaces have been treated with curing compounds, oil, or other such materials, remove materials by sandblasting or wire brushing. Remove laitance, efflorescence and loose mortar from the joint cavity.

### 3.1.4 Wood Surfaces

Keep wood surfaces to be in contact with sealants free of splinters and sawdust or other loose particles.

### 3.2 SEALANT PREPARATION

Do not add liquids, solvents, or powders to the sealant. Mix Multi-component elastomeric sealants in accordance with manufacturer's instructions.

### 3.3 APPLICATION

#### A. Acceptable Ratios:

| <u>JOINT WIDTH</u>                             | <u>JOINT DEPTH</u>                     |                |
|--|--|----------------|
|  | Minimum                                | Maximum        |
| For metal, glass, or other nonporous surfaces: |  |                |
| 6 mm (minimum)                                 | 6 mm                                   | 6 mm           |
| over 6 mm                                      | 1/2 of width                           | Equal to width |
| For wood, concrete, or masonry:                |  |                |
| 6 mm (minimum)                                 | 6 mm                                   | 6 mm           |
| over 6 mm to 13 mm                             | 6 mm                                   | Equal to width |
| over 13 mm to 50 mm                            | 50 mm                                  | 16 mm          |
| Over 50 mm                                     | As recommended by sealant manufacturer |                |
| For metal, glass, or other nonporous surfaces: |  |                |
| 1/4 inch (minimum)                             | 1/4 inch                               | 1/4 inch       |

|                                 |  |                |
|---------------------------------|--|----------------|
| For wood, concrete, or masonry: |  |                |
| 1/4 inch (minimum)              | 1/4 inch                               | 1/4 inch       |
| over 1/4 inch to 1/2 inch       | 1/4 inch                               | Equal to width |
| over 1/2 inch to 2 inch         | 1/2 inch                               | 5/8 inch       |
| Over 2 inch                     | As recommended by sealant manufacturer |                |
| over 1/4 inch                   | 1/2 of width                           | Equal to width |

- B. Unacceptable Ratios: Where joints of acceptable width-to-depth ratios have not been provided, clean out joints to acceptable depths and grind or cut to acceptable widths without damage to the adjoining work. Grinding is not required on metal surfaces.

### 3.3.2 Masking Tape

Place masking tape on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or sealant smears. Remove masking tape within 10 minutes after joint has been filled and tooled.

### 3.3.3 Backstops

Install backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified. Install backstops in the following locations:

1. Where backstop is not indicated but joint cavities exceed the acceptable maximum depths specified in paragraph entitled, "Joint Width-to-Depth Ratios".

### 3.3.4 Primer

Immediately prior to application of the sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.

### 3.3.5 Bond Breaker

Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for each type of joint and sealant used, to prevent sealant from adhering to these surfaces. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

### 3.3.6 Sealants

Provide a sealant compatible with the material(s) to which it is applied. Do not use a sealant that has exceeded shelf life or has jelled and cannot be discharged in a continuous flow from the gun. Apply the sealant in accordance with the manufacturer's printed instructions with a gun having a nozzle that fits the joint width. Force sealant into joints to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Make sealant uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant, and tool smooth as specified. Apply sealer over the sealant when and as specified by the sealant manufacturer.

## 3.4 PROTECTION AND CLEANING

### 3.4.1 Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.

### 3.4.2 Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

1. **Masonry and Other Porous Surfaces:** Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for 24 hour then remove by wire brushing or sanding. **Metal and Other Non-Porous Surfaces:** Remove excess sealant with a solvent-moistened cloth.

-- End of Section --

SECTION 08 11 13

STEEL FRAMES

PART 1 GENERAL

1.1 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. AMERICAN WELDING SOCIETY (AWS)
  - 1. AWS D1.1/D1.1M (2010; Errata 2011) Structural Welding Code – Steel
- C. ASTM INTERNATIONAL (ASTM)
  - 1. ASTM A653/A653M (2011) Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 2. ASTM A879/A879M (2012) Standard Specification for Steel Sheet, zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
  - 3. ASTM A924/A924M (2013) Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
  - 4. ASTM C578 (2012b) Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
  - 5. ASTM C591 (2013) Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation
  - 6. ASTM C612 (2010) Mineral Fiber Block and Board Thermal Insulation
  - 7. ASTM D2863 (2013) Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)
  - 8. ASTM E1300 (2012a; E 2012) Determining Load Resistance of Glass in Buildings
  - 9. ASTM E283 (2004; R 2012) Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  - 10. ASTM F2248 (2012) Standard Practice for Specifying an Equivalent 3-Second Duration Design Loading for Blast Resistant Glazing Fabricated with Laminated Glass
- D. BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
  - 1. ANSI/BHMA A156.115 (2006) Hardware Preparation in Steel Doors and Steel Frames
- E. NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)
  - 1. NAAMM HMMA HMM (1999; R2000) Hollow Metal Manual
- F. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
  - 1. NFPA 105 (2013) Standard for Installation of Smoke Door Assemblies and Other Opening Protectives
  - 2. NFPA 252 (2012) Standard Methods of Fire Tests of Door Assemblies
  - 3. NFPA 80 (2013) Standard for Fire Doors and Other Opening Protectives
- G. STEEL DOOR INSTITUTE (SDI/DOOR)
  - 1. SDI/DOOR 111 (2009) Recommended Selection and Usage Guide for Standard Steel Doors, Frames and Accessories
  - 2. SDI/DOOR 113 (2001; R2006) Standard Practice for Determining the Steady State Thermal Transmittance of Steel Door and Frame Assemblies
  - 3. SDI/DOOR A250.11 (2001) Recommended Erection Instructions for Steel Frames
  - 4. SDI/DOOR A250.3 (2007; R 2011) Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames
  - 5. SDI/DOOR A250.4 (2011) Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing

6. SDI/DOOR A250.6 (2003; R2009) Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames
7. SDI/DOOR A250.8 (2003; R2008) Recommended Specifications for Standard Steel Doors and Frames
- H. UNDERWRITERS LABORATORIES (UL) UL 10C (2009) Standard for Positive Pressure Fire Tests of Door Assemblies

## 1.2 SUBMITTALS

- A. SD-02 Shop Drawings
  1. Doors
  2. Frames
  3. Accessories-Weather-stripping
  4. Show elevations, construction details, metal gages, hardware provisions, method of glazing, and installation details.
- B. SD-03 Product Data
  1. Doors
  2. Frames
  3. Accessories Weather-stripping
  4. Submit manufacturer's descriptive literature for doors, frames, and accessories. Include data and details on door construction, panel (internal) reinforcement, insulation, and door edge construction.
    - a. SD-04 Samples
    - b. Where colors are not indicated, submit manufacturer's standard colors and patterns for selection.

## 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Strap knock-down frames in bundles. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations, with 6 mm 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

## PART 2 PRODUCTS

### 2.1 STANDARD STEEL FRAMES

- A. SDI/DOOR A250.8, Level 1 except as otherwise specified. Form frames to sizes and shapes indicated, with knock-down field-assembled corners.

### 2.2 Knock-Down Frames

- A. Design corners for simple field assembly by concealed tenons, splice plates, or interlocking joints that produce square, rigid corners and a tight fit and maintain the alignment of adjoining members. Provide locknuts for bolted connections.
  1. Stops and Beads
    - a. Form stops and beads from 20 gauge steel. Provide for glazed and other openings in standard steel frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping sheet metal screws or concealed clips and fasteners. Space fasteners approximately 12 to 16 inch on center. Miter molded shapes at corners. Butt or miter square or rectangular beads at corners.

## 2.3 Anchors

- A. Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated or painted with rust-inhibitive paint, not lighter than 18 gage.
  - 1. Wall Anchors
    - a. Provide at least three anchors for each jamb. For frames which are more than 7.5 feet in height, provide one additional anchor for each jamb for each additional 2.5 feet or fraction thereof.
      - 1) Masonry: Provide anchors of corrugated or perforated steel straps 3/16 inch diameter steel wire, adjustable or T-shaped;
      - 2) Stud partitions: Weld or otherwise securely fasten anchors to backs of frames. Design anchors to be fastened to wood studs with nails, to closed steel studs with sheet metal screws, and to open steel studs by wiring or welding.
      - 3) Completed openings: Secure frames to previously placed concrete or masonry with expansion bolts in accordance with SDI/DOOR 111.

## 2.4 WEATHERSTRIPPING

- A. Integral Gasket
  - 1. Black synthetic rubber gasket with tabs for factory fitting into factory slotted frames, or extruded neoprene foam gasket made to fit into a continuous groove formed in the frame, may be provided in lieu of head and jamb seals. Insert gasket in groove after frame is finish painted. Air leakage of weather stripped doors shall not exceed 1.25 cubic feet per minute of air per square foot of door area when tested in accordance with ASTM E283.

## 2.5 HARDWARE PREPARATION

- A. Provide minimum hardware reinforcing gages as specified in SDI/DOOR A250.6. Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI/DOOR A250.8 and SDI/DOOR A250.6. For additional requirements refer to ANSI/BHMA A156.115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of SDI/DOOR A250.8, as applicable.

## 2.6 FINISHES

- A. Factory-Primed Finish
  - 1. All surfaces of doors and frames shall be thoroughly cleaned, chemically treated and factory primed with a rust inhibiting coating as specified in SDI/DOOR A250.8. or paintable A25 galvanized steel without primer. Where coating is removed by welding, apply touchup of factory primer.
  - 2. Hot-Dip Zinc-Coated and Factory-Primed Finish
    - a. Fabricate exterior scheduled doors and frames from hot dipped zinc coated steel, alloyed type, that complies with ASTM A924/A924M and ASTM A653/A653M. The coating weight shall meet or exceed the minimum requirements for coatings having 0.4 ounces per square foot, total both sides, i.e., A40ZF120. Repair damaged zinc-coated surfaces by the application of zinc dust paint. Thoroughly clean and chemically treat to insure maximum paint adhesion. Factory prime as specified in SDI/DOOR A250.8.

## 2.7 FABRICATION AND WORKMANSHIP

- A. Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Frames
  - 1. Set frames in accordance with SDI/DOOR A250.11. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction.
- B. Doors
  - 2. Hang doors in accordance with clearances specified in SDI/DOOR A250.8. After erection, clean and adjust hardware.

### 3.2 PROTECTION

- A. Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same type used for shop coat.

### 3.3 CLEANING

- A. Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

End of Section



SECTION 08 11 16

INTERIOR ALUMINUM DOORS, DOOR FRAMES,  
AND PARTITION FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pre-finished aluminum door frames for interior use.
- B. Pre-finished aluminum framing system for interior use.

1.2 SUBMITTAL

- A. Submit under provisions of Section 01 30 00 Administrative Requirements.
- B. Product Data: Manufacturer's fabrication and installation instructions.
- C. Shop Drawings:
  - 1. Provide standard installation details for typical architectural conditions.
  - 2. Provide details of connections to special construction and other custom features.
- D. Selection Samples: Provide aluminum chips in full range of manufacturer's standard finishes for Architect's color selection.
- E. Verification Samples: Provide two samples of each type of framing member required, not less than 12 inches (305 mm) long, in selected finish.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Provide aluminum frames manufactured by a single firm specializing in production of this type of work for a minimum of five years.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver frames and doors packaged to provide protection during transit and storage at project site.
- B. Inspect frames upon delivery for damage.
  - 1. Repair minor damage to pre-finished products by means as recommended by manufacturer.
  - 2. Replace frames that cannot be satisfactory repaired.
- C. Store frames at project site under cover and as near as possible to final installation location. Do not use covering material that will cause discoloration of aluminum finish.

1.5 WARRANTY

- A. Warrant against defects in manufacturing of materials for a period of 2 years of Substantial complete.
- B. Warrant framing finish against defects, including cracking, flaking, blistering, Peeling, and excessive, fading, chalking, and non-uniformity in color for a period of 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide products manufactured by:

Manufacturer: CRL/U.S. Aluminum 2450 E. Vernon Ave.  
Los Angeles, California 90058-1802  
Toll Free Phone: (800) 262-5151, Phone: (323) 268-4230  
Toll Free Fax: (866) 262-3299 [www.usalum.com](http://www.usalum.com)

[www.crl-arch.com](http://www.crl-arch.com)

1. Substitutions of approved equal allowed. Approval must be obtained prior to final bid date.

## 2.2 MATERIALS

- A. Aluminum Frames: (Extruded Aluminum) Standard alloys shall conform to requirements published in AA ASD-1 and ASTM B221; Controlled alloy 6063-T5 to assure compliance with tight dimensional tolerances and maintain color uniformity extruded aluminum minimum thickness of .062 inch.
- B. Acceptable Products:
  1. CRL Office Partitions, fixed throat frames to accommodate wall thickness of 4- 7/8" as indicated on drawings with applied full face trim of 1-1/2".
  2. Approved Equal.

## 2.3 EXTRUDED ALUMINUM FRAMES

- A. CRL/U.S. Aluminum Materials 487 Series Provide frames with the following characteristics:
  1. Rectilinear design.
  2. 1-1/2 inch (38.1 mm) face profiles.
  3. Trim:
    - a. 1-1/2 inch (38.1 mm) with 3/8 inch (9.5 mm) return.
  4. Throat size:
    - a. 4-7/8 inch (123.8 mm)
- B. CRL/U.S. Aluminum Entrances Doors Series 550 Wide Stile having beveled glazing stops and includes gaskets
- C. Rails are: 5" Stiles, 5-1/2" Top Rail, 9-1/2" ADA Compliant Bottom Rail.

## 2.4 FABRICATION

- A. Pre-machine jambs and prepare for hardware, with concealed reinforcement plates, drilled and tapped as required, and fastened within frame.
- B. Manufactured to receive 4-1/2 inch x 4-1/2 inch (114.3 x 114.3 mm) square hinges.
- C. Manufactured to receive a standard 2-3/4 inch (69.8 mm) Cylindrical or 4-7/8 inch (123.8 mm) A.S.A. strike.
- D. Supplied with 1/8 inch (3.2 mm) thick aluminum strike and hinge back up, pre- mounted on jambs.
- E. Supplied with Gasket.
- F. Provide corner alignment clips for precise butt or mitered connections.
- G. Fabricate all components to allow secure installation without exposed fasteners.

## 2.5 FINISHES

- A. Organic Coating (high performance fluoropolymer):
  1. Comply with requirements of AAMA 605.2-92.
  2. Surfaces cleaned and given conversion coating pre-treatment prior to application of 0.3 mil (0.0076 mm) dry film thickness of epoxy or acrylic primer following recommendations of finish coat manufacturer.
  3. Finish coat of 70 percent minimum fluoropolymer resin fused to primed surfaces at temperature recommended by manufacturer 1.0 mil (0.25 mm) minimum dry film thickness.
  4. Acceptable coating manufacturer's: PPG Industries Inc. and The Valspar Corporation.
    - a. Provide in either a 2, 3, or 4 coat system as required for color selected.
  5. Color to be selected by Contracting Officer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine project conditions and verify that the work of this section may properly commence. Do not proceed with installation until satisfactory conditions have been corrected.
- B. Verify wall thickness does not exceed standard tolerance of +/- 1/16 inch (1.6 mm).

### 3.2 INSTALLATION

- A. Comply with frame manufacturer's printed installation instructions and approved shop drawings. Strictly adhere to maintaining specified wall thickness to insure dimension does not exceed frame throat size specified.
- B. Install frames plumb and square, securely anchored to substrates with fasteners recommended by frame manufacturer.
  - 1. Use concealed installation clips to assure that splices and connections are tightly butted and properly aligned.
  - 2. Secure clips to main structural extrusion components and not to snap-in or trim members.
  - 3. Do not use screws or other fasteners that will be exposed to view when installation is complete.

### 3.3 ADJUSTING AND CLEANING

- A. Clean exposed frames promptly after installation, using cleaning methods recommended by frame manufacturer.
- B. Touch up marred areas so that touch-up is not visible from a distance of 4 feet (1.2 m).
- C. Remove and replace frames that cannot be satisfactorily adjusted.

### 3.4 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that the Interior Office Systems do not incur any damage or deterioration, other than normal wear and tear, at time of acceptance.

END OF SECTION

SECTION 08 20 00

WOOD DOORS

PART I - GENERAL

1.01 DESCRIPTION

- A. The work required under this Section consists of wood doors and related items to complete the work as indicated on the Drawings and described in the Specifications.

1.02 SUBMITTALS

- A. Submit shop drawings and brochures in accordance with Section 01300 Submittals.
- B. Submittal data shall include, but not be limited to, the following:
  - 1. Size and location
  - 2. Hardware preparation
  - 3. Details of core and edge construction
  - 4. Trim for openings
  - 5. Opening sizes and trim

1.03 QUALITY ASSURANCE

- A. Comply with requirements of the following standards unless otherwise indicated.
  - 1. Non-Fire Rated Flush Wood Doors: Comply with "Quality Standards" of Architectural Woodwork Institute (AWI) and (WDMA) Window & Door Manufacturer's Association.
  - 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.
  - 3. All laminate-faced doors shall meet the criteria for the latest edition of WDMA "Premium Grade". Doors shall be pre-fit and beveled at the factory to fit the opening. Pre-fit tolerances shall be in accordance with the requirements of WDMA.

1.04 HANDLING AND STORAGE

- A. Products shall be delivered to the job site in original wrappings and packaging by manufacturer. Handling, storage and installation of doors shall conform to the recommendations of the manufacturer.
- B. Insure proper protection from weather and damage during delivery and job site storage of specified doors. Handle products so as to prevent damage or soiling. All doors stored at site shall be stacked together on edge or end and not laid flat.

1.05 GUARANTEE

- A. All wood doors shall be guaranteed in writing for life of the installation for interior use by the manufacturer to be free from any defects which make them unsuitable for the use for which they are intended. A warp in excess of ¼ inch in 7 feet shall be termed a defect

under the terms of this guarantee. Guarantee shall provide for replacement, re-hanging and refinishing as required at no cost to the Owner.

- B. Guarantee shall be the (WDMA) Window & Door Manufacturer's Association 1.S.1-A.

## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. Unless noted otherwise, provide wood doors complying with the applicable requirements of WDMA I.S.1 for the kinds and types of doors indicated and as further specified. Provide manufacturer's standard 2 or 3 ply face panels, unless otherwise specified. Provide same exposed surface material on both faces of each door, unless otherwise indicated.
- B. Fire rated doors: Provide exposed faces and edges to match non-rated doors in same area of building unless otherwise indicated. Provide metal vision panel frames, which have been tested and listed for kind of door and rating indicated.
- C. Cut and trim openings through doors and panels as shown. Comply with the applicable trim requirements of the referenced standards for the kinds of doors required.

### 2.02 FLUSH WOOD DOORS

- A. All interior wood doors shall be 1 $\frac{3}{4}$ " inch, flush, particle board or wood staved core doors meeting the requirements of (WDMA) Window & Door Manufacturer's Association 1.S.1-A, " Industry Standard for Wood Flush Doors" and Federal Specification LLLD-581 Type 1."
- B. Construction:
1. Cores shall be solid wood block, or wood particle board, as required by the door manufacturer to comply with specified warranty period and required fire rating. Particleboard core doors shall have 1 $\frac{1}{2}$ " minimum width hardwood stiles. The core shall be grooved to receive the edge bands.
  2. Edge bands shall be two ply 1 $\frac{1}{2}$ " minimum thickness outer band same species as face veneer.
  3. Crossbands shall be 1/16" extending to all far edges of door width grain at right angles to face veneer grain.
  4. Face veneers shall be rotary cut Birch. Face veneer shall be (WDMA) Premium Grade. Avoid sharp contrast at veneer joints, unless otherwise indicated. Provide exposed edges and other exposed solid wood components of same species as face veneers, unless otherwise required for fire rating.
- C. Finish shall be mill-sanded.
- D. Comply with the tolerance requirements of (WDMA) for pre-fitting. Machine doors for hardware requiring cutting of doors. Comply with final hardware templates and other essential information required to ensure proper fit of doors and hardware. Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining.

### 3.01 PREPARATION

- A. Installer must examine doorframes and verify that frames are of the correct type and have been installed as required for proper hanging of corresponding doors. Fire rated

doors are to be installed in corresponding fire rated frames in accordance with requirements of NFPA No. 80.

- B. Installer shall notify the Contractor in writing of conditions detrimental to the proper and timely installation of wood doors. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to the Installer. Commencement of work will constitute acceptance of conditions affecting installation.

### 3.02 INSTALLATION

- A. Condition doors to average prevailing humidity in installation area prior to hanging. Install wood doors in accordance with manufacturer's instructions and as shown. Fit doors to frame for proper fit and uniform clearance at each edge and machine for hardware. Seal cut surfaces after fitting and machining. Bevel non-fire rated doors 1/8 inch in 2 inches at lock and hinge edges. Bevel fire-rated doors 1/16" in 2" at lock edges.
- B. Fit to frames and machine for hardware to whatever extent required for proper fit and uniform clearance at each edge. For non-fire doors provide clearances of: 1/8 inch at jambs and heads 1/8 inch at meeting stiles for pairs of doors and 1/2 inch from bottom of door to top of decorative floor finish or covering where threshold is shown or should provide 1/4" clearance from bottom of door to top of threshold. For fire-rated doors, provide clearances complying with the limitations of the authority having jurisdiction.

### 3.03 HARDWARE AND ACCESSORIES

- A. Doors shall be fitted for hardware specified in Section 08 70 00 - Hardware.

### 3.04 FINISHING

- A. Prepare and finish doors in accordance with the requirements of Section 09 93 23 Stains and Transparent Finishes. Edges must be sealed immediately after trimming. Pre-finished doors are acceptable with prior approval. Pre-finished doors equal to Graham Doors by ASSA ABLOY (plain sliced red oak).

### 3.05 ADJUST AND CLEAN

- A. Re-hang or replace doors, which do not swing or operate freely, Refinish or replace doors damaged during installation.
- B. Manufacturer shall advise Contractor of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of the work.

END OF SECTION

ALUMINUM SLIDING SERVICE WINDOW

SECTION 08 58 00

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes:
  - 1. Aluminum, heavy-duty commercial sliding service windows as indicated in drawings and in sections.

1.02 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical product data substantiating that products comply.
- B. Shop drawings: Submit for fabrication and installation of windows. Include details, elevations and installation requirement of finish hardware and cleaning.
- C. Certification: Provide printed data in sufficient detail to indicate compliance with the contract documents.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver windows crated to provide protection during transit and job storage
- B. Inspect windows upon delivery for damage. Unless minor defects can be made to meet the Contracting Agent's specifications and satisfaction, damaged parts should be removed and replaced.
- C. Store windows at building site under cover in dry location.

1.04 PROJECT CONDITIONS

- A. Field measurements: Check opening by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.05 WARRANTY

All material and workmanship shall be warranted against defects for a period of one (1) year from the original date of purchase.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER'S

- A. Basis of design: Design is based on aluminum DW1800DU or DW1800K series, deluxe sliding service window manufactured by C.R. Laurence Co., Inc. (800) 421-6144 or approved equal.

2.02 MATERIALS

- A. Frames: 4" Aluminum frame modules shall be constructed of 6063-T5 extruded aluminum. Replacement and servicing of glass shall be from the clerk side of the window by means of an access panel in the top header and does not require the removal of the frame from the opening. Window glides on top-hung heavy-duty ball bearing slides. Poly-pile weather stripping and self-latching handle. Overall frame sizes are to be in accordance with the contract drawings.
- B. Finish: All aluminum to be duranodic bronze or powder or Kynar painted.

- C. Glazing: The glazing is ¼" to ½" in thickness, tempered glass.
- D. Options: keyed lock, open counter area.

### PART 3 – EXECUTION

#### 3.01 INSTALLATION

- A. Install window in accordance with manufacturer's printed instructions and recommendations. Repair damaged units as directed (if approved by the manufacturer and the Contracting Agent) or replace with new units.

#### 3.02 CLEANING

- A. Clean frame and glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

#### 3.03 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that all the windows do not incur any damage or deterioration, other than normal weathering, at the time of acceptance.

END OF SECTION



SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following:
  - 1. Hinges
  - 2. Continuous hinges
  - 3. Lock cylinders and keys
  - 4. Lock and latch sets
  - 5. Bolts
  - 6. Closers
  - 7. Overhead stops and holders
  - 8. Miscellaneous door control devices
  - 9. Viewers
  - 10. Door trim units
  - 11. Protection plates
  - 12. Astragals or meeting seals on pairs of doors
  - 13. Thresholds
- C. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 8 Section "Steel Doors and Frames"
  - 2. Division 8 Section "Flush Wood Doors"
  - 3. Division 8 Section "Aluminum Entrances and Storefronts"
- D. Products furnished but not installed under this Section to include:
  - 1. Final replacement cores and keys to be installed by GOVERNMENT.

1.2 REFERENCES

- A. Standards of the following as referenced:
  - 1. American National Standards Institute (ANSI)
  - 2. Door and Hardware Institute (DHI)
  - 3. Factory Mutual (FM)
  - 4. National Fire Protection Association (NFPA)
  - 5. Underwriters' Laboratories, Inc. (UL)
  - 6. UL 10C - Fire Tests Door Assemblies
  - 7. Warnock Hersey
- B. Regulatory standards of the following as referenced:
  - 1. Department of Justice, Office of the Attorney General, Americans with Disabilities Act, Public Law 101-336 (ADA).
  - 2. CABO/ANSI A117.1: Providing Accessibility and Usability for Physically Handicapped People, 1992 edition.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

- B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements. For items other than those scheduled in the "Headings" of Section 3, provide catalog information for the specified items and for those submitted.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - 1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
    - a. Type, style, function, size, and finish of each hardware item.
    - b. Name and manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
    - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for hardware.
    - g. Door and frame sizes and materials.
    - h. Keying information.
    - i. Cross-reference numbers used within schedule deviating from those specified.
    - j. Column 1: State specified item and manufacturer.
    - k. Column 2: State prior approved substituted item and its manufacturer.
  - 2. Furnish complete wiring diagrams, riser diagrams, elevation drawings and operational descriptions of electrical components and systems, listed by opening in the hardware submittals. Elevation drawings shall identify locations of the system components with respect to their placement in the door opening. Operational descriptions shall fully detail how each electrical component will function within the opening, including all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval. Supply a copy with delivery of hardware to the jobsite and another copy to the Government at the time of project completion.
  - 3. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
  - 4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Government's final instructions on keying of locks has been fulfilled.
- D. Samples of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
  - 1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.
- E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- F. Contract closeout submittals:
  - 1. Operation and maintenance data: Complete information for installed door hardware.
  - 2. Warranty: Completed and executed warranty forms.

#### 1.4 QUALITY ASSURANCE

- A. Single Source Responsibility: Unless otherwise indicated, obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.
- B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced Architectural Hardware Consultant (AHC) who is available for consultation to Contracting Officer, and Contractor, at reasonable times during the course of the Work.
- C. Coordination Meetings:
  - 1. Supplier shall set up and attend the following:
    - a. Supplier to meet with the Contracting Officer to finalize lock functions and keying requirements and to obtain final instructions in writing.
    - b. Supplier to meet with the installer prior to beginning of installation of door hardware.
  - 2. General Contractor shall set up and attend the following:
    - a. Supplier to meet with the Contracting Officer, General Contractor, electrical and security contractors to coordinate all electrical hardware items. Supplier to provide riser diagrams, elevation drawings, wiring diagrams and operational descriptions as required by the General and sub-contractors.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware shall comply with standards UBC 702 (1997) and UL 10C.
  - 1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

#### 1.5 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

#### 1.6 WARRANTY

- A. Special warranties:
  - 1. Door Closers: Ten year period

2. Exit Devices: Three year period
3. Locks and Cylinders: Three year period

## PART 2 PRODUCTS

### 2.1 MANUFACTURED UNITS

(\*Denotes manufacturer referenced in the Hardware Headings)

#### A. Hinges:

1. Acceptable manufacturers:
  - a. Ives\*
  - b. Bommer
  - c. PBB
2. Characteristics:
  - a. Templates: Provide only template-produced units.
  - b. Screws: Provide Phillips flat-head screws complying with the following requirements:
    - 1) For metal doors and frames install machine screws into drilled and tapped holes.
    - 2) For wood doors and frames install threaded-to-the-head wood screws.
    - 3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
    - 4) Finish screw heads to match surface of hinges or pivots.
  - c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
    - 1) Out-Swing Exterior Doors: Non-removable pins.
    - 2) Out-Swing Corridor Doors with Locks: Non-removable pins.
    - 3) Interior Doors: Non-rising pins.
    - 4) Tips: Flat button and matching plug. Finished to match leaves.
  - d. Size: Except as otherwise indicated, size hinges as follows:
    - 1) Doors up to 3'-0" in width: Standard weight, ball bearing, 4-1/2 x 4-1/2
    - 2) Doors over 3'-0" in width and labeled doors over 8'-0" in height: Heavy weight, ball bearing, 5 x 4-1/2
    - 3) Exterior doors: Heavy weight, ball bearing, 5 x 4-1/2
  - e. Quantity: Furnish one pair of hinges for all doors up to 5'-0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

#### B. Continuous Hinges:

1. Acceptable manufacturers:
  - a. Ives\*
  - b. Select
  - c. Stanley
2. Characteristics:
  - a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
  - b. All hinges are to be manufactured to template. Uncut hinges shall be non-handed and shall be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
  - c. Vertical door loads shall be carried on chemically lubricated polyacetal thrust bearings. The door and frame leaves shall be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180o.
  - d. Hinges to be milled, anodized and assembled in matching pairs. Fasteners supplied shall be 410 stainless steel, plated and hardened.
  - e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors (suffix

-FR) shall meet the required ratings without the use of auxiliary fused pins or studs.

- C. Cylinders:
  - 1. Acceptable manufacturers:
    - a. Match existing Keesler Air Force Base Standard.
  - 2. Characteristics:
    - a. Review the keying system with the Contracting Officer and provide the type required (master, grandmaster or great-grandmaster).
    - b. Equip locksets with core cylinders to match existing Base Standard.
    - c. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
    - d. Comply with Contracting Officer's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
      - 1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
    - e. Key Material: Provide keys of nickel silver only.
    - f. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, 5 grandmaster keys for each grandmaster system, 10 construction master keys, 3 construction control keys and 3 permanent control keys.
      - 1) Furnish one extra blank for each lock.
      - 2) Furnish construction keys to General Contractor.
      - 3) Install permanent cores and deliver keys to Contracting Officer.
    - g. Government to install permanent cores
- D. Locksets, Latchsets, Deadbolts:
  - 1. Acceptable manufacturers:
    - a. Schlage\*
    - b. Sargent
    - c. Best
    - d. Stanley-National Hardware
  - 2. Mortise Locksets and Latchsets: as scheduled.
    - a. Chassis: Cold-rolled steel.
    - b. Latchbolts: 3/4-inch throw stainless steel anti-friction type.
    - c. Lever Trim: Through-bolted, accessible design, cast or solid rod lever as scheduled. Spindles: Independent break-away.
    - d. Thumbturns: Accessible design not requiring pinching or twisting motions to operate.
    - e. Deadbolts: Stainless steel 1-inch throw.
    - f. Electric operation: Manufacturer-installed continuous duty solenoid.
    - g. Strikes: 16 gage curved stainless steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
    - h. Basis of Design: Schlage L series, design 017.
    - i. Acceptable Substitution: Sargent 8200 series; Best 45H series.
    - j. Certifications:
      - 1) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
      - 2) ANSI/ASTM F476-84 Grade 30 UL Listed.
- E. Exit Devices:
  - 1. Acceptable manufacturers:
    - a. Von Duprin\*
    - b. Sargent
    - c. Percision
  - 2. Characteristics:
    - a. Exit devices shall be "UL" listed for life safety. All exit devices for fire rated openings shall have "UL" labels for "Fire Exit Hardware."

- b. All exit devices mounted on labeled wood doors shall be mounted on the door per the door manufacturer's requirements.
- c. All trim shall be thru-bolted to the lock stile case. Lever design to match locksets.
- d. All exit devices shall be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
- e. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads.
- f. Except as otherwise indicated for doors complying with FEMA 361, all exit devices shall be one manufacturer. No deviation will be considered.
- g. All series exit devices shall incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. All exit devices shall be non-handed. Touchpad shall extend a minimum of 1/2 of the door width and shall extend to the height of the cross rail housing for a "no pinch" operation. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type. Latchbolts shall have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and "dogging" components are not acceptable.
- h. Lever trim shall be solid case material with a break-away feature to limit damage to the unit from vandalism.
- i. Surface vertical rod devices shall be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices shall be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
- j. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap shall be of heavy-duty metal alloy construction and provide horizontal adjustment to provide alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.
- k. Basis of Design: Von Duprin 98 series
- l. Acceptable Substituion: Sargent HC80 series, Precision (FL)2000 Apex series x V3900 trim

F. Closers and Door Control Devices:

- 1. Acceptable manufacturers:
  - a. LCN Closers 4041\*
  - b. Sargent 281
  - c. Corbin Russwin DC8000
- 2. Characteristics:
  - a. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder and metal cover.
  - b. All closers shall utilize a stable fluid withstanding temperature range of 120oF to -30oF without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
  - c. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Spring power adjustment allows for quick and accurate power adjustment by way of dial adjustment gauge located on closer spring tube. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed and back check.
  - d. All closers shall have solid forged steel main arms (and forearms for parallel arm closers). All parallel arm mounted closers shall have "EDA" type arms.
  - e. All surface closers shall be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory. All closers (overhead,

- surface and concealed) shall be of one manufacturer and carry manufacturer's ten year warranty (electric closers to have two year warranty).
  - f. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
  - g. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
  - h. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
  - i. Basis of Design: LCN 4041 series
  - j. Acceptable Substitution: Sargent 281 series x SRI, Corbin Russwin DC8000 series x SRI.
  - k. Overhead Door Stops and Holders:
3. Acceptable manufacturers:
- a. Glynn Johnson\*
  - b. Architectural Builders Hardware
4. Characteristics:
- a. Provide heavy duty, stainless steel door stops and holders (concealed and/or surface mounted as scheduled).
  - b. Concealed holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
  - c. Surface holders to be installed with the jamb bracket mounted on the stop.
- G. Floor Stops and Wall Bumpers:
1. Acceptable manufacturers:
- a. Trimco
  - b. Ives\*
  - c. Rockwood
- H. Door Bolts/Coordinators:
1. Acceptable manufacturers:
- a. Trimco
  - b. Ives\*
  - c. Rockwood
2. Characteristics:
- a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.
  - b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
  - c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
  - d. Automatic flush bolts and self-latching flush bolts shall be UL listed for fire door application without bottom bolts (LBB).
  - e. Furnish dust proof bottom strikes.
  - f. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
  - g. Provide filler pieced to close the header. Provide brackets as required for mounting of soffit applied hardware.
  - h. Protective Plates:
3. Acceptable manufacturers:
- a. Trimco
  - b. Ives\*
  - c. Rockwood
4. Characteristics:

- a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
- b. Materials:
- c. Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
- d. Fabricate protection plates not more than 2 inches less than door width on push side and not more than 1 inch less than door width on pull side.
- e. Heights:
  - 1) Kick plates to be 8 inches in height.
  - 2) Mop plates to be 8 inches in height.
  - 3) Armor plates to be 36 inches in height. Armor plates on fire doors to comply with NFPA 80.
- I. Door Seals/Gasketing:
  - 1. Acceptable manufacturers:
    - a. National Guard Products\*
    - b. Reese Industries
    - c. Zero Weatherstripping
- J. Silencers:
  - 1. Acceptable manufacturers:
    - a. Hager
    - b. Ives\*
    - c. Rockwood
  - 2. Three for each single door; two for each pair of doors.
  - 3. Omit on doors provided with perimeter gasketing.
- K. Thresholds:
  - 1. Acceptable manufacturers:
    - a. Pemko
    - b. EQUAL to
  - 2. Products/Systems: Thresholds, including the following:
    - a. Saddle Thresholds:
      - 1) Material: Extruded tempered aluminum 6063-T6.
      - 2) Finish (ANSI/BHMA 156.18): Mill finish aluminum.
      - 3) Manufacturer Model Number: 271.
    - b. Threshold Stop Strips:
      - 1) Material: Extruded tempered aluminum 6063-T6.
      - 2) Finish (ANSI/BHMA 156.18): Mill finish aluminum.
      - 3) Seal: Pemko SiliconSeal.
      - 4) Manufacturer Model Number: 290\_SStop.

## 2.1 MATERIALS AND FABRICATION

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Contracting Officer.
  - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
  - 1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.



2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in the Hardware Headings. Coordinate with wood doors and metal doors and frames. Where thru-bolts are used, provide sleeves for each thru-bolt as a means of reinforcing the work, or use sex screw fasteners.

## 2.2 HARDWARE FINISHES

- A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- B. Provide finishes that match those established by ANSI.
- C. 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.
- D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."
- E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
  1. Hinges: 630 (US32D) Satin Stainless Steel
  2. Continuous Hinges: 628 (US28) Clear Anodized Aluminum
  3. Flush Bolts: 630 (US32D) Satin Stainless Steel
  4. Locks: 630 (US32D) Satin Stainless Steel
  5. Exit Devices: 630 (US32D) Satin Stainless Steel
  6. Door Closers: 689 Powder Coat Aluminum
  7. Protective Plates: 630 (US32D) Satin Stainless Steel
  8. Door Stops: 630 (US32D) Satin Stainless Steel
  9. Overhead Holders: 630 Satin Stainless Steel and 689 Powder Coated Steel (as scheduled)

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Contracting Officer.
  1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
  2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
  3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work

specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

### 3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
  - 1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Door Hardware Supplier's Field Service:
  - 1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
  - 2. Instruct Government's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
  - 3. File written report of this inspection to Contracting Officer.
- D. Door Hardware Manufacturer's Field Service:
  - 1. Prior to project completion, representatives of the lock, exit device and overhead closer manufacturers shall inspect and certify that all units are installed in accordance with the manufacturer's instructions, and are regulated properly and functioning correctly.
  - 2. A written report of the inspection results and recommendations shall be provided to the Contracting Officer and shall include the appropriate certificates.

END OF SECTION

SECTION 09 25 50

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Interior gypsum wallboard – regular
  - 2. Interior screw type support systems
  - 3. Wallboard finishing (joint tape-and-compound treatment)
  - 4. Gypsum wallboard accessories including control joints
  - 5. Levels of Gypsum Board Finish
- B. Related Sections include the following:
  - 1. Section 01 30 00 - Submittals
  - 2. Section 05 40 00 – Light Gauge Metal Framing
  - 3. Section 07 20 00 – Insulation
  - 4. Section 09 51 00 – Acoustical Panel Ceilings
  - 5. Section 09 91 00- Paint

1.2 SUBMITTALS

- A. Product Data:
  - 1. Submit manufacturer's product specifications and installation instructions for each gypsum board component, including other data as may be required to show compliance with these specifications.

1.3 QUALITY ASSURANCE

- A. Gypsum Board:
  - 1. GA-216, Specifications for the Application and Finishing of Gypsum Board” by Gypsum Association
  - 2. GA-214-96, “Recommended Levels of Gypsum Board Finish” by Gypsum Association.
- B. Metal Support System Installation: ASTM C754
- C. Manufacturer: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards
- D. Allowable Tolerances: 1/8" in 8' - 0" variation in finish surface

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packaged, containers or bundles bearing brand name and identification of manufacturer or supplier
- B. 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. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after applications of gypsum board
- B. Cold Weather Protection: When ambient outdoor temperatures are below 55 degrees Fahrenheit, maintain continuous, uniform, comfortable building working temperatures of not less than 55 degrees Fahrenheit. for a minimum period of 48 hours prior to, during and following application of gypsum board and joint reinforcement materials or bonding of adhesives.

- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Gypsum Board:
  - 1. USG Corporation
  - 2. G-P Gypsum Corporation
  - 3. National Gypsum Company
  - 4. Certainteed Corporation
  - 5. Temple Inland
- B. Metal Support System:
  - 1. Dietrich Metal Framing, Inc.
  - 2. MarinoWare; a Division of Ware Industries
  - 3. Or equal

### 2.2 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating, unless otherwise indicated.

### 2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
  - 1. Double 20 gage stud framing at all openings including door and view panels.
  - 2. 22 gauge at 16" o.c. for other locations.
  - 3. Use 18 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 C 645 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.
- C. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 25 gauge
  - 2. Depth: 1-1/2 inches unless otherwise noted.

### 2.4 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.

## 2.5 GYPSUM BOARD MATERIALS

- A. Gypsum Wallboard: ASTM C 1396, of types, edge configuration and thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.
  - 1. Types:
    - a. Regular, unless otherwise indicated.
  - 2. Edges: Tapered.
  - 3. Thickness: 5/8", unless otherwise indicated.
- B. Tile Backer Board (provide at all locations where wall tile occurs and other areas indicated):
  - 1. 5/8" Dens Shield Tile Backer Board as manufactured by Georgia Pacific Corporation.
  - 2. 5/8" Fiber Brand Sheathing – Aqua Tough Tile Backerboard as manufactured by USG Corporation.
  - 3. Equal as approved.

## 2.6 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Sheet steel zinc coated by the hot dip process or electrolytic process, or sheet steel coated with aluminum.
  - 2. Shapes:
    - a. Cornerbead: use at outside corners, unless otherwise indicated.
    - b. U-Bead: J-shaped; exposed short flange does not receive joint compound, use at exposed panel edges
    - c. Expansion (control) joint: One piece control joint formed with V-shaped slot and removable strip covering slot opening.

## 2.7 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Setting Type Joint Compound: Factory prepackaged, job mixed chemical-hardening powder products for bedding and filling, formulated for uses indicated.
  - 1. For taping and filling only.
  - 2. For prefilling gypsum board joints.
  - 3. For filling joints and treating fasteners of mold and mildew resistant backing board behind base for ceramic tile.
  - 4. For topping compound, use sandable formulation.
- D. Drying-Type Joint Compounds: Factory prepackaged vinyl-based products complying with the following requirements for formulation and intended use.
  - 1. Ready-Mix Formulation: Factory-mixed product.
  - 2. All-purpose compound formulated for use as both taping and topping compound (use for finish (third and above) coats only.)
- E. Joint Compound for Tile Backing Panels: As recommended by backing panel manufacturer.

## 2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Do not deliver or install gypsum board until building is fully 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.

### 3.2 EXAMINATION

- A. Examine substrates to which gypsum board construction attaches or abuts, installed hollow metal frames, cast-in anchors and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board assemblies specified in this Section.
  - 1. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.3 INSTALLATION

- A. Metal Support Systems:
  - 1. Wall/Partition Support System: Support systems shall extend from floor to heights indicated on partition types/schedule.
    - 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 on center, attached at each end, and secure top runner of partition thereto.
    - b. Space studs 16 inches 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 from each end and 24 inches 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 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.
- B. Gypsum Board
  - 1. Install, fasten and finish gypsum wallboard and accessories in strict accordance with manufacturer's printed directions and recommendations, with GA-216.
  - 2. Install gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.
  - 3. Locate edge and end joints over supports. Position boards so that both tapered edge joints abut, and mill-cut or field-cut end joints abut. Do not place tapered edges against cut edges or ends.
  - 4. Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

- a. Fasten base layer to metal supports with screws, spaced 12" o.c. along supported edges and 24" o.c. along intermediate supports.
  - b. Fasten single layer and face layer to metal supports with screws, spaced 12" o.c. for 24" stud spacing and 16" o.c. for 16" stud spacing, unless otherwise indicated. Stagger screws on abutting edges and ends.
- C. Trim Accessories
1. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.
  2. Install metal corner beads at all exposed external corners of gypsum board work.
  3. Install metal edge trim when edge of gypsum board would otherwise be exposed or semi-exposed and where work is tightly abutted to other work.
  4. Control Joints:
    - a. Install control joints at locations indicated, or if not indicated, at spacings and locations required by ASTM C 840 and manufacturer's recommendations; and approved by Contracting Officer for visual effect.
      - 1) Provide not more than 30 feet apart on walls and ceilings.

### 3.4 FINISHING OF GYPSUM WALL BOARD

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Finish interior gypsum wallboard by applying the following joint compounds in three coats (not including prefill of openings in base), sand between coats, and after last coat.
  1. Embedding and First Coat: Setting-type joint compound.
  2. Fill (Second) Coat: Setting-type joint compound.
  3. Finish (Third) Coat: Ready-mix drying all-purpose or topping compound.
- E. Glass-Mat Water Resistant Backer Board: Comply with glass mat backer board manufacturer's recommendations.
- F. Partial Finishing: Omit third coat and sanding on concealed drywall construction indicated for drywall finishing or which requires finishing to achieve sound rating.
- G. Levels of Finish: Provide in accordance with Gypsum Association GA 214, "Recommended Levels of Gypsum Board Finish".
  1. Level 1: Concealed areas, except provide higher level of finish as required to comply with acoustical ratings.
    - a. All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
  2. Level 2: not used
  3. Level 3: not used
  4. Level 4: all Gypsum board surfaces, except where another finish level is indicated.
    - a. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.
  5. Level 5: not used.

### 3.5 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION



SECTION 09 30 00

PORCELAIN TILE, TILE SETTING MATERIALS, AND ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Setting materials, grouting materials and methods of installation for ceramic tile.

1.2 REFERENCES

- A. ANSI A108 - American National Standard Specifications for Installation of Ceramic Tile.
- B. ANSI A108.01 General Requirements: Sub-surfaces and Preparations by Other Trades.
- C. ANSI A108.02 General Requirements: Materials, Environmental, and Workmanship.
- D. ANSI A108.5 Installation of Ceramic Tile with Dry-Set Portland cement Mortar or Latex-Portland Cement Mortar.
- E. ANSI A108.10 Installation of Grout in Tilework.
- F. ANSI A108.17 Installation of Crack Isolation Membranes.
- G. ANSI A118.4 Specifications for Latex-Portland Cement Mortar.
- H. ANSI A108.7 Specifications for Polymer Modified Ceramic Tile Grouts.
- I. ANSI A118.12 Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations.
- J. TCNA 2012 "Handbook for Ceramic Tile Installation"; Tile Council of America Method #F113-14.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.
- B. Product Data for Membranes, Mortars, Grouts, and Adhesives:
  - 1. Submit manufacturer's product data demonstrating compliance with specified requirements.
  - 2. Submit manufacturer's instructions for use.
  - 3. Submit manufacturer's certification that materials are suitable for intended use.
- C. Samples: Submit samples of each type and color of grouting material and tile.
- D. Tile Certificates:
  - 1. Submit Master Grade Certificates issued and signed by the manufacturer and the Contractor when the tile is shipped. State grade, kind of tile, and identification marks for tile packages.
  - 2. Product Certificates: For each type of product, signed by product manufacturer.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.
- C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

- D. Source Limitations for Other Products: Obtain each of the following products specified in this Section from one source and by a single manufacturer for each product.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide heated and dry storage facilities on site.
- B. Deliver and store all materials on site a minimum of 24 hours before usage.
- C. Deliver and store tile and packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage to materials such as chipping, breakage, freezing, or excessive heat. Prevent contamination by water, moisture, foreign matter, or other causes.

#### 1.6 PROJECT CONDITIONS

- A. Maintain ambient and surface temperatures at not less than 60 degrees F during installation of cementitious materials and for 72 hours thereafter. Maintain ambient and surface temperatures between 65 degrees F and 95 degrees F during installation of epoxy setting and grouting materials and for 72 hours thereafter.
- B. Vent temporary heaters to outside to avoid carbon dioxide damage to new tile work.
- C. Provide adequate lighting for good grouting and clean-up.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Porcelain Tile Acceptable Manufactures:
  - 1. Florida Tile
  - 2. Equal to.
- B. Edge-protection and transition profiles for floors
  - 1. Schluter Systems, L.P.
  - 2. Equal to.

#### 2.2 TILE

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
  - 1. Type: Porcelain tile shall be EQUAL to: Florida Tile Earthstone.
  - 2. Thickness: Porcelain tile shall be manufactured to specific thickness after firing and shall be nominal 9.5mm.
  - 3. Nominal Size: 18 x 18

#### 2.3 SETTING MATERIAL

- A. Subject to compliance with ANSI A118 requirements, provide products by one of the following:
  - 1. Substitutions must be approved.
  - 2. Custom Building Products
  - 3. Laticrete International
  - 4. TEC; a subsidiary of H. B. Fuller Company.

## 2.4 LEVELING MATERIALS

- A. Self-Leveling Underlayment (Cementitious):
  1. SLU Primer: a concentrated, solvent free acrylic primer and admixture used for the application of self-leveling underlayment's to increase bond strength and inhibit rapid water loss during cure.
  2. Self-Leveling Underlayment: a professional grade, Portland cement based, pourable, pumpable, self-leveling floor underlayment, for leveling from 0 inch to 3/4 inch depth in a single pour.

## 2.5 CRACK ISOLATION MEMBRANE

- A. Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installations, A118.12.
  1. Low VOC, fast drying, single-component, thin mil, modified latex, elastomeric, mold resistant crack isolation membrane that provides superior elongation to inhibit the transfer of shrinkage and non-structural substrate cracks to the finished ceramic, quarry, porcelain or stone tile finish.

## 2.6 SETTING MATERIALS

- A. Latex-Portland Cement Mortar ANSI A118.4.
  1. Medium Bed Mortar: a premium quality medium bed, latex modified Portland cement dry set mortar for installations requiring a medium bed mortar to compensate for slight irregularities in the substrate or tile. Ideal for large format ceramic, porcelain gauged and irregular stone tile installations.

## 2.7 GROUTING MATERIALS

- A. Polymer Modified Latex Portland cement Grout with built in anti-microbial; ANSI A118.6 & ANSI A118.7.
  1. Sanded Polymer Modified Colored Grout: a multi-purpose, polymer modified Portland cement grout with antimicrobial additives that inhibit growth of mold and mildew and forms a colorfast, dense matrix grout for all types of ceramic and dimensional stone tiles on walls and floors. Joint widths 1/16 inch to 1/2 inch. Color to be selected by Contracting Officer.

## 2.8 EDGE-PROTECTION AND TRANSITION PROFILES FOR FLOORS

- A. Schluter®-SCHIENE
  1. Description: L-shaped profile with 1/8 inch (3.2 mm) wide visible surface integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
  2. Material and Finish: EV4A - Stainless Steel Type 316 L = V4A
  3. Height: Height as required.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Before work commences, examine the areas to be covered and report any flaw or adverse condition in writing. Do not proceed with the tile work until surfaces and conditions comply with the requirements indicated in the manufacturer's instructions and in ANSI A108.5
- B. Verify that substrate is properly prepared for direct bond of tile. No sealers or contaminants remain from asbestos abatement procedure.
- C. Protect adjoining work surfaces before tile work begins.

### 3.2 PREPARATION:

- A. Floor Flatness: Install leveling material if necessary to bring floors to required flatness. Maximum variation from plane:
  - 1. 1/8 inch in 10 feet for thin-set mortar.
  - 2. Leveling, when necessary, is to be accomplished using leveling materials specified in Part 2.

### 3.3 INSTALLATION - GENERAL

- A. Comply with applicable ANSI 108 series of the "American National Standard Specifications for the Installation of Ceramic Tile."
- B. Comply with current TCNA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.
- C. Coverage and Terminations: Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown.
- D. Intersections and Returns: 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.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining floor tile with tile, base, or trim on walls when wall tile, base or trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.
- F. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated, or if not indicated, at spacing and locations recommended by EJ 171 in the TCNA "Handbook for Ceramic Tile Installation", and approved by Contracting Officer.
  - 1. Prepare joints and apply sealants to comply with referenced installation standards and sealant manufacturer's instructions.
- G. Crack Isolation Membrane: Install membrane, where required, to comply with manufacturer's instructions.
- I. Install tile to comply with referenced TCNA and ANSI installation standards, using setting materials indicated.
- J. Curing set tile:
  - 1. 72 hours before grouting when the temperature is low or the humidity is high.
  - 2. 48 hours before grouting when hot, dry conditions exist.
  - 3. Check the bond strength carefully before grouting.
- K. Grout the tile to comply with referenced installation standards using grouting materials indicated.
  - 1. Latex Portland cement Grout ANSI A108.10

### 3.4 CLEANING AND PROTECTION

- A. Upon completion of setting and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
- B. Acid Cleaning: Tile may be cleaned with sulfamic acid solutions complying with the following:
  - 1. Only if permitted by tile and grout manufacturer's printed instructions.
  - 2. No sooner than 14 days after installation.
  - 3. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning.
  - 4. Flush surface with clean water before and after cleaning.
- C. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining damage and wear.
  - 1. Protective Coatings: Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

- D. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.
- E. Protect tile installation from traffic as specified in ANSI specifications.
- F. Protect tile installation from traffic according to manufacturer's instructions.

END OF SECTION

SECTION 09 51 10

ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Extent of each type of acoustical ceiling is shown on drawings.
- B. Types of acoustical ceilings specified in this section include the following:
  - 1. Acoustical panel ceilings, exposed suspension.

1.2 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. Coordination Drawings: layout of ceilings drawn to scale coordinating acoustical tile ceiling installation and spacing with hanger attachment to building structure and ceiling mounted items. Include locations of all mechanical and electrical items. Reproduction of Contract Documents is not acceptable and will be rejected if submitted.
- C. Samples: Set of samples for acoustical unit, showing full range of exposed color and texture, and set of 12" long samples of suspension system.

1.3 QUALITY ASSURANCE

- A. Installer: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units.

1.4 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. Before installing acoustical ceiling units, permit them to reach room temperature and stabilized moisture content.
- C. 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 Contracting Officer; otherwise, remove and replace damaged items as directed.

1.5 PROJECT CONDITIONS

- A. Space enclosure - Do not install interior acoustical ceilings 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.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Tile: Full-size units equal to 5 percent of amount installed.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Armstrong World Industries
- B. USG Interiors, Inc.
- C. CertainTeed (BPB America)

### 2.2 MINERAL FIBER ACOUSTICAL PANELS

- A. Type 1 (ACT1):
  - 1. NRC – 0.55; CAC – 33
    - a. 2' x 2' x 5/8" Radar ClimaPlus (2210) by USG Interiors, Inc.
    - b. 2' x 2' x 5/8" Fine Fissured (1728) by Armstrong World Industries.
    - c. 2' x 2' x 5/8" Fine Fissured (HHF-157) by Certainteed.
- B. Where units less than 6 inches wide would occur at edges of room with 24 X 24 inch pattern, provide 24 X 48 inch panels cut to extend to wall, eliminating the tee near the wall.

## PART 3 EXECUTION

### 3.1 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.

### 3.2 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.

### 3.3 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 acoustical panels in coordination with suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

### 3.4 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 65 13

RUBBER WALL BASE

PART 1 PRODUCTS

1.0 Rubber Wall Base – Specification based on Johnsonite Traditional Wall Base; Rubber Wall Base product - submitted by Contractor - must meet or exceed the criteria put forth in this specification.

1.1 Manufacturer: Johnsonite, Inc. (or equal)  
Phone (800) 899-8916  
16910 Munn Road (440) 543-8916  
Chagrin Falls, Ohio 44023 Tech: Ext 9297  
Web: www.johnsonite.com Samples: Ext 9299  
Email: info@johnsonite.com Fax: (440) 543-8920

1.2 Product Description:

1.2.1 Construction: Johnsonite Traditional Wall Base (or equal) is to be manufactured from a proprietary rubber formulation designed specifically to meet the performance and dimensional requirements of ASTM F-1861, Type TV and TP, Group 1 (solid), Style A and B, Standard Specification for Resilient Wall Base.

1.2.2 Physical Characteristics:

Rubber Wall Base: Traditional: DC-XX with toe (coved), 0.125" thickness, 4" height (or equal).

Available in 4' (1.22 m) straight lengths and 120' (36.58 m) coiled lengths.

2.0 PRODUCT PERFORMANCE AND TECHNICAL DATA

- A. Meets or exceeds the performance requirements for resistance to heat/light aging, chemicals, and dimensional stability when tested to the methods, as described, in ASTM F-1861.
- B. Flexibility: Will not crack, break, or show any signs of fatigue when bent around a 1/4" (6.4 mm) diameter cylinder.
- C. Chemical resistance (ASTM F 925): Passes – 5% acetic acid, 70% isopropyl alcohol, mineral oil, 5% sodium hydroxide solution, 5% hydrochloric acid solution, 5% sulfuric acid solution, 5% household ammonia solution, and 5.25% household bleach solution.
- D. Resistance to light (ASTM F 1515):  $\Delta E < 8$
- E. Fire Resistance: Rubber Wall Base
  - 1. ASTM E 84/NFPA 255 (Flame/Smoke) – Class A, < 450
  - 2. ASTM E 648 (NFPA 253): Critical Radiant Flux – Class I



### 3.0 INSTALLATION

Wall Base and adhesives must be site conditioned at room temperature for a minimum of 48 hours prior to, during, and after installation. Room temperature must be maintained between 65° and 85° F (18° and 30° C) with HVAC system operating. A minimum temperature of 55 degrees F (13° C) must be maintained afterwards. The ambient relative humidity should be between 40% and 60%.

All walls must be clean, smooth, flat and dry. The surface must be free of all dust, loose particles, solvents, paint, grease, oil, wax, alkali, sealing/curing compounds, old adhesive, and any other foreign material, which could affect installation. Remove existing adhesive mechanically – do not use chemical adhesive removers or solvents. Fill all depressions, cracks, and other surface irregularities with a good quality patching compound.

Caution: Do not use liquid solvents or adhesive removers.

#### 3.1 Adhesives:

960 Cove Base Adhesive or equal (porous surfaces)

Approximate coverage:  
2 ½" high – 300 to 350 linear feet/gallon  
4" high – 200 to 250 linear feet/gallon

946 Premium Contact Adhesive or equal (non-porous surfaces)

Application: Brush or roller  
Approximate coverage:  
1kg Unit (0.95 Qt) – 24 to 36 sq. ft. per unit  
6kg Unit (1.44 Gal.) – 144 to 215 sq. ft. per unit

### 4.0 WARRANTY

Limited 2 year warranty. Contact manufacturer for complete details.

### 6.0 MAINTENANCE

- A. Refer to Wall Base Installation Instructions for complete maintenance details.
- B. Extra Materials: Provide additional five (5) percent material for use by owner in building maintenance and repair.

### 7.0 TECHNICAL SERVICES

Samples: Submittal samples for verification and approval available upon request. Samples shall be submitted in compliance with the requirements of the Contract Documents. Accepted and approved samples shall constitute the standard materials which represent materials installed on the project.

END OF SECTION

SECTION 09 65 50  
RESILIENT ACCESSORIES

PART 1 – GENERAL

1.1 SUMMARY

- A. Extent of resilient accessories is shown on Drawings and in schedules. Work includes the following:
  - 1. Vinyl transition edge strip. Equal to Mercer Molding 935 Super 2" T. Color shall be selected by Contracting Officer.

1.2 SUBMITTALS

- A. Product Data: Provide Safety Data Sheets for adhesives.
- B. Samples: Submit sample of each type, color and finish of resilient accessory required, indicating full range of color and pattern variation. Provide 6" long sample of accessories.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives and sealants.

1.4 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 accessories after other finishing operations, including painting, have been completed.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Accessories
  - 1. Johnsonite, Inc.
  - 2. Roppe Corporation
  - 3. Flexco
  - 4. Or EQUAL

2.2 ACCESSORIES

- A. Adhesives (Cements):
  - 1. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
  - 2. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. Cove Base Adhesives: Not more than 50 g/L.
  - 3. INSTALLATION
    - a. The installation of Burke Rubber Stair Nosings should not begin until the work of all other trades has been completed, especially overhead trades. Areas to receive stair nosings shall be clean, fully enclosed, weather-tight, and maintained at a uniform temperature of at least 70°F for 24 hours before, during, and after the

installation is completed. The stair nosings and adhesives shall be conditioned in the same manner. Stair steps shall be smooth, flat, permanently dry, clean and free of all foreign material, such as dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt, and old adhesive residue. Stair Nosings may be installed on any smooth, dry interior step. Do not install on exterior steps subject to weather. Stair shape shall conform closely to stair tread contour, especially where the flat part of the tread joins the nosing. An epoxy caulking nose filler shall be applied to ensure a tight fit and eliminate any open spaces between the step edge and stair tread nosing. Stair Nosings shall be trimmed to within 1/16" of the stringer to allow for expansion. Adhesives shall be applied per Burke's instructions. Stair Nosings shall be rolled, with a J-hand roller, after installation, to ensure proper bonding.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Installer must examine wall surfaces to determine that they are satisfactory. A satisfactory 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.
- B. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- C. Start of flooring installation indicates acceptance of conditions and full responsibility for completed work.

### 3.2 INSTALLATION

- A. Accessories:
  - 1. Apply resilient base to walls, columns, pilasters, 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.
  - 2. Apply vinyl transition edge strip to all areas where carpet meets non-carpet floor finishes. Where carpet meets carpet or existing metal thresholds no edge strip is required; join carpet to existing carpet and metal thresholds in a professional manner contingent upon approval of Contracting Officer.

### 3.3 CLEANING

- A. Perform following operations immediately upon completion of resilient accessories:
  - 1. Remove any excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient manufacturer.

END OF SECTION

SECTION 09 68 13

TILE CARPETING

PART1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes modular, tufted carpet tile. EQUAL TO: Patcraft – pdQ1 “Experience #10291”.

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at building 4705 Civil Engineering.
  - 1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
    - a. Review delivery, storage, and handling procedures.
    - b. Review ambient conditions and ventilation procedures.
    - c. Review subfloor preparation procedures.
    - d. Follow manufacturer's modular carpet installation guidelines and/or Carpet & Rug Institute Installation Standard 2011 where applicable.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include manufacturer's written specifications and lab documents for any physical testing.
  - 2. Include installation recommendations for each type of substrate as specified in carpet manufacturer's installation guidelines and/or Carpet & Rug Institute Installation Standard 2011, where applicable.
  - 3. Include carpet maintenance recommendations as outlined by carpet manufacturer.
  - 4. Carpet Manufacturer shall also submit a plan for recycling the specified carpet at the end of the useful life of the carpet.
- B. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch long Samples.
- C. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified independent testing agency.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10.67 sq. yd.

#### 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Carpet manufacturer shall have no less than 5 years' experience of producing recyclable carpet tile and shall have published product literature clearly indicating compliance with requirements of this section.
  1. Certification: ISO 9001 and ISO 14001 certified manufacturer.
  2. Commitment to Sustainability: Carpet manufacturer must practice environmental responsibility through programs of recycling, reuse, conservation, and source reduction. Manufacturer should have a public demonstration of such efforts through reporting documents such as an annual sustainability report that contains third party verification and confirmation.
  3. Carpet manufacturer must take back carpet to be recycled free of charge for quantities of 500 sq. yards or more.
- B. Installer Qualifications: An installer with a minimum of 5 years commercial carpet installation experience, and who is certified by the International Certified Floorcovering Installers Association.
- C. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with carpet manufacturer's installation recommendations and the Carpet & Rug Institute Installation Standard 2011 where applicable.

#### 1.10 FIELD CONDITIONS

- A. Comply with carpet manufacturer's installation recommendations and the Carpet & Rug Institute Installation Standard 2011 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weather-tight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. HVAC system should be operational and running prior to carpet installation and remain running after carpet installation.
- D. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to allow bond between adhesive and concrete. Concrete slabs should have moisture and have pH readings that are within the specified tolerance of the adhesive to be used.
- E. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

#### 2.11 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components

of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent face fiber loss, edge raveling, dimensional instability, excess static discharge, loss of tuft bind strength, delamination, and where face fiber is 100 percent solution dyed, inability to remove acid based stains, lack of colorfastness to light, and lack of colorfastness to atmospheric contaminants.
3. Carpet and fiber must be manufactured and warranted by same manufacturer.
4. Warranty Period: Lifetime Commercial Limited Warranty.

### PART 3 PRODUCTS

#### 3.1 CARPET TILE – EQUAL TO: Patcraft – pdQ<sup>1</sup> “Experience #10291”

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Patcraft - pdQ<sup>1</sup> Modular Collection (Experience 10291 Modular).
- B. Source Limitations:
  1. Single Source Responsibility: Provide products that have components manufactured by a single source. Fiber and backing, as well as final carpet product, should be manufactured and warranted by same company.
  2. Commitment to sustainability: Carpet manufacturer must practice environmental responsibility through programs of source reduction, recycling, reuse, and conservation.
- C. Color: 0750.
- D. Pile Characteristics: Multi-Level Pattern Loop pile.
- E. Fiber Content: Eco Nylon - 100 percent trilobal, minimum 24 denier per filament (DPF) nylon 6. Fiber must contain a minimum of 45 percent recycled content (20 percent pre consumer recycled content and 25 percent post-consumer recycled content.)
- F. Fiber Name: Eco Solution Q Nylon
- G. Dye Method: 96 percent Solution Dye, 4% Yarn Dye
- H. Gauge: 1/12
- I. Stitches: 10.5 per inch
- J. Pile Thickness: .109” for finished carpet tile[ according to ASTM D 6859].
- K. Surface Pile Weight: 22 oz./sq. yd.
- L. Density: 7266 oz./cu. yd.
- M. Primary Backing: Nonwoven synthetic.
- N. Secondary Backing: High performance pre-coat laminated to a proprietary thermoplastic polyolefin compound with a fiberglass reinforced layer. Backing must contain a minimum of 40 percent recycled content and be SCS NSF 140 Platinum certified. Backing should be recyclable, PVC free, free of 4-PCH, brominated flame retardants, and phthalate plastizers.
  1. Total Backing Weight: Not to exceed 80 oz./sq yd.
- O. Backing System: EcoWorx.
- P. Applied Soil-Resistance Treatment: SSP Shaw Soil Protection.
- Q. Total Weight: 94 oz./sq. yd. for finished carpet tile.
- R. Size: 24 by 24 inches
- S. Texture Appearance Retention Rating (T.A.R.R.):
  1. Texture Appearance Retention Rating (T.A.R.R.): Severe Traffic
- T. Recycling Requirements:
  1. Total Carpet Product Recycled Content:
    - a. Pre-Consumer Recycled Content: 32.5 percent.
    - b. Post-Consumer Recycled Content: 11.9 percent.
    - c. Total Recycled Content: 44.4 percent.
  2. Recycled Content: Preference will be given to manufacturer's recycling 100 percent

- of reclaimed carpet tile back into carpet tile with recycled content.
3. Carpet Disassembly and Recycling: Carpet capable of disassembly and recycling, with nylon being recycled into nylon and backing being recycled into backing.
  4. Carpet product must meet guidelines of Presidential Executive Order 13101, and must meet the spirit of section 6002 of the Resource and Recovery Act (RCRA).
- U. Performance Characteristics: As follows:
1. Critical Radiant Flux Classification, Flooring Radiant Panel ASTM E648: Not less than 0.45 W/sq. cm.
  2. Smoke Density: Less than 450 per ASTM E662.
  3. Methanamine Pill Test CPSC FF1-70: Must pass pill test.
  4. Tuft Bind: Not less than 8 lbf (36 N) according to ASTM D 1335.
  5. Delamination: Not less than 3.5 lbf/in. (15 N/mm) according to ASTM D 3936.
  6. Dimensional Tolerance: Within 1/32 inch (0.8 mm) of specified size dimensions, as determined by physical measurement.
  7. Dimensional Stability: 0.119 percent or less according to ISO 2551 (Aachen Test).
  8. Colorfastness to Atmospheric Contaminants: Not less than 4, according to AATCC 129 and AATCC 164.
  9. Colorfastness to Light: Not less than 4 after 60 AFU (AATCC fading units) according to AATCC 16, Option E.
  10. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174 when installed using the Shaw 5036D pressure sensitive adhesive.
  11. Electrostatic Propensity: Less than 3.5 kV according to AATCC 134.
  12. Emissions: Provide carpet tile that complies with testing and product requirements of Carpet & Rug Institute's "Green Label Plus" program.

### 3.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Trowelable Adhesives: Water-resistant, mildew-resistant, nonstaining, premium grade pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation such as Shaw 5000 or Shaw 5100 or available equivalent where slab moisture does not exceed 85 percent per ASTM F 2170 or 5 lbs per ASTM F 1869. Where moisture exceeds 85 percent or 5 lbs but does not exceed 90 percent or 10 lbs, use Shaw 5900 or available equivalent.
  1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

## PART 4 EXECUTION

### 4.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects prior to installation. See manufacturer's requirements for substrate conditions and ambient conditions.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing moisture and pH tests as recommended by carpet tile manufacturer.

2. Subfloor finishes comply with requirements specified in Section 033000 "Cast-in-Place Concrete" for slabs receiving carpet tile.
  3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
  4. Lightweight concrete and gypcrete subfloors may require a primer such as Shaw 9050 or equivalent to reduce surface porosity.
  5. Where previous surface treatments are unknown, or where other concerns exist as to the ability of the adhesive to bond to the substrate, a 24 hour bond test is recommended.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 4.2 PREPARATION

- A. General: Comply with Carpet & Rug Institute Installation Standard 2011, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds that contain a cementitious base with a latex additive, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

#### 4.3 INSTALLATION

- A. General: Comply with Carpet & Rug Institute Installation Standard 2011, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive or with a non-spreadable dry adhesive system, such as LokDots. Any non-spreadable adhesive system must adhere the carpet to the substrate.
- C. Maintain dye lot integrity. Do not mix dye lots in same area unless the specific carpet tile style is manufactured as a merge-able dyelot product .
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Roll the entire installation with a 75 lb roller once installation is completed.

#### 4.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
  1. Remove excess adhesive, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  2. Remove yarns that protrude from carpet tile surface.
  3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with Carpet & Rug Institute Installation Standard 2011, "Protecting Indoor Installations."
- C. When construction or move-in activities will continue where new carpet is installed,



provide non-staining building material paper to protect carpet. Do not use plastic sheeting as it can trap moisture, and self-sticking plastic sheeting can transfer adhesive residue to carpet that will attract soil.

- D. When heavy objects are moved over carpet within 24 hours of installation, use plywood over carpet to prevent buckling and wrinkling.
- E. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION

SECTION 09 91 00

PAINT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Interior Primer.
- B. Interior Paint.
- C. Wall Preparation.

1.2 RELATED SECTIONS

- A. Section 01 30 00 - Submittals
- B. Section 05 40 00 – Light Gauge Metal Framing
- C. Section 09 25 50 - Gypsum Board: Preparation of interior wall sheathing to receive finishes.

1.3 REFERENCES

- A. MPI (APL) - Master Painters Institute.
- B. SCAQMD 1168 - South Coast Air Quality Management District Rule #1168; October 3, 2003.
- C. SSPC (PM1) - Steel Structures Painting Manual, Vol. 1, Good Painting Practice; Society for Protective Coatings; 1993, Third Edition.
- D. SSPC (PM2) - Steel Structures Painting Manual, Vol. 2, Systems and Specifications; Society for Protective Coatings; 1995, Seventh Edition.
- E. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

1.4 DEFINITIONS

- A. Paints are available in a wide range of sheens or glosses, as measured by a gloss meter from a 60 degree angle from vertical, as a percentage of the amount of light that is reflected. The following terms are used to describe the gloss of our products.
  - 1. Flat - Less than 5 units.
  - 2. Matte - 0 - 10 units.
  - 3. Eggshell - 10 - 25 units.
  - 4. Satin - 20 - 35 units.
  - 5. Semi-Gloss - 35 - 70 units.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Coordinate with Section 01305 - Submittals, for submittal procedures.
- C. Product Data: Provide a complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category.
  - 2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.
- D. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.

- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: a single manufacturer with a minimum of ten (10) years' experience will supply all primary products specified in this section.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Disposal:
  - 1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
  - 2. Do not incinerate closed containers.
  - 3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

#### 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.9 WARRANTY

- A. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

#### 1.10 EXTRA MATERIALS

- A. At project closeout, supply the Owner or owner's representative one gallon of each product for touch-up purposes.
- B. At project closeout, provide the color mixture name and code to the Owner or owner's representative for accurate future color matching.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
  - 1. Benjamin Moore & Co Approved Manufacturers
  - 2. Sherwin Williams
  - 3. Coronado Paints
  - 4. Equal to.

#### 2.2 MATERIALS – GENERAL

- A. Volatile Organic Compound (VOC) Content:

1. Provide coatings that comply with the most stringent requirements specified in the following:
  - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
  - b. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- B. Compatibility: Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

### 2.3 MIXING AND TINTING

- A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.
- C. Where paint is to be sprayed, thin according to manufacturer's current guidelines.

### 2.4 INTERIOR PRIMERS - NEW CONSTRUCTION

- A. Gypsum Board, Plaster:
  1. Latex:
    - a. One (1) Coat - Ultra Spec® 500 Interior Latex Primer #N534 (MPI listed Product, Categories 50, 50-X, 149, 149-X)
- B. Ferrous Metals:
  1. Alkyd:
    - a. One (1) Coat - Super Spec® HP Alkyd Metal Primer #P06.

### 2.5 INTERIOR PRIMERS - PREVIOUSLY PAINTED SURFACES

- A. Previously Painted:
  1. Latex:
    - a. One (1) Coat - Ultra Spec® 500 Interior Latex Primer #N534 (MPI listed Product, Categories 50, 50-X, 149, 149-X)
- B. Ferrous Metals:
  1. Alkyd:
    - a. One (1) Coat - Super Spec® HP Alkyd Metal Primer #P06.

### 2.6 INTERIOR FINISH COAT

- A. Eggshell Finish:
  1. Latex:
- B. Two (2) Coats – Ultra Spec® 500 Interior Eggshell Finish N538 (MPI Listed Product Categories 52, 52-X Green)
- C. Satin/Semi-Gloss Finish:
  1. Latex:
    - a. Two (2) Coats – Ultra Spec® 500 Interior Semi-Gloss Finish N539 (MPI Listed Product Categories 43, 43-X Green)
    - b. Two (2) Coats Ultra Spec® 500 Interior Gloss Finish N540 (MPI Listed Product Categories 54, 54-X Green)
- D. High Gloss Finish:
  1. Latex:

- a. Two (2) Coats Ultra Spec® 500 Interior Gloss Finish N540 (MPI Listed Product Categories 54, 54-X Green)
- E. High Gloss Finish (Metals):
  - 1. Latex:
    - a. Two (2) Coats Super Spec HP® D.T.M. Acrylic Gloss Enamel P28 (MPI Listed #114, 154)

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Ensure that surfaces to receive paint are dry immediately prior to application.
- C. Ensure that moisture-retaining substrates to receive paint have moisture content within tolerances allowed by coating manufacturer. Where exceeding the following values, promptly notify Contracting Officer and obtain direction before beginning work.
  - 1. Concrete and Masonry: 13 percent. Allow new concrete to cure a minimum of 28 days.
  - 2. Exterior Wood: 17 percent.
  - 3. Interior Wood: 15 percent.
  - 4. Interior Finish Detail Woodwork, Including Trim, and Casework: 10 percent.
  - 5. Plaster and Gypsum: 15 percent.
  - 6. Concrete Slab-On-Grade: Perform calcium chloride test over 24 hour period or other acceptable test to manufacturer. Verify acceptable moisture transmission and pH levels.
- D. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.
- E. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

### 3.2 PREPARATION – GENERAL

- A. Clean surfaces thoroughly prior to coating application.
- B. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
- C. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.
- D. Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.
- E. Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.
- F. Remove or protect adjacent hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings.
- G. Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.
- H. Protect adjacent surfaces not indicated to receive coatings.
- I. Prepare surfaces in accordance with manufacturer's instructions for specified coatings and indicated materials, using only methods and materials recommended by coating manufacturer.

### 3.3 SURFACE PREPARATION

- A. Concrete and Concrete Masonry: Clean surfaces free of loose particles, sand, efflorescence, laitance, form oil, curing compounds, and other substances which could impair coating performance or appearance.
- B. Existing Coatings:
  - 1. Remove surface irregularities by scraping or sanding to produce uniform substrate for coating application; apply one coat primer of type recommended by coating manufacturer for maximum coating adhesion.
  - 2. If presence of lead in existing coatings is suspected, cease surface preparation and notify Contracting Officer immediately.
- C. Gypsum Board: Repair cracks, holes and other surface defects with joint compound to produce surface flush with adjacent surfaces.
- D. Metals - Aluminum, Mill-Finish: Clean and etch surfaces with a phosphoric acid- water solution or water based industrial cleaner. Flush with clean water and allow to dry, before applying primer coat.
- E. Metals - Ferrous, Unprimed: Remove rust or scale, if present, by wire brush cleaning, power tool cleaning, or sandblast cleaning; remove grease, oil, and other contaminants which could impair coating performance or appearance by solvent cleaning, with phosphoric-acid solution cleaning of welds, bolts and nuts; spot-prime repaired welds with specified primer.
- F. Metals - Ferrous, Shop-Primed: Remove loose primer and rust, if present, by scraping and sanding, feathering edges of cleaned areas to produce uniform flat surface; solvent-clean surfaces and spot-prime bare metal with specified primer, feathering edges to produce uniform flat surface.
- G. Metals - Galvanized Steel (not passivated): Clean with a water-based industrial strength cleaner, apply an adhesion promoter followed by a clean water rinse. Alternately, wipe down surfaces using clean, lint-free cloths saturated with xylene or lacquer thinner; followed by wiping the surface dry using clean, lint-free cloths.
- H. Metals - Galvanized Steel, Passivated: Clean with water-based industrial strength cleaner. After the surface has been prepared, apply recommended primer to a small area. Allow primer to cure for 7 days, and test adhesion using the "cross-hatch adhesion tape test" method in accordance with ASTM D 3359. If the adhesion of the primer is positive, proceed with a recommended coating system for galvanized metal.
- I. Wood:
  - 1. Seal knots, pitch streaks, and sap areas with sealer recommended by coating manufacturer; fill nail recesses and cracks with filler recommended by coating manufacturer; sand surfaces smooth.
  - 2. Apply primer coat to back of wood trim and paneling.

### 3.4 APPLICATION – GENERAL

- A. Apply each coat to uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.
- B. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.
- C. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 39”.
- D. Remove dust and other foreign materials from substrate immediately prior to applying each coat.

- E. Where paint application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.
- F. Where color changes occur between adjoining spaces, through framed openings that are of same color as adjoining surfaces, change color at outside stop corner nearest to face of closed door.
- G. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

### 3.5 CLEANING

- A. Clean excess coating materials, and coating materials deposited on surfaces not indicated to receive coatings, as construction activities of this section progress; do not allow to dry.
- B. Re-install hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items that have been removed to protect from contact with coatings.
- C. Reconnect equipment adjacent to surfaces indicated to receive coatings.
- D. Relocate to original position equipment and fixtures that have been moved to allow application of coatings.
- E. Remove protective materials.

### 3.6 PROTECTION

- A. Protect completed coating applications from damage by subsequent construction activities.
- B. Repair to Contracting Officer's acceptance coatings damaged by subsequent construction activities. Where repairs cannot be made to Contracting Officer's acceptance, re-apply finish coating to nearest adjacent change of surface plane, in both horizontal and vertical directions.

END OF SECTION

SECTION 09 93 23

STAINS AND TRANSPARENT FINISHES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Exterior and Interior coating with transparent and semi-transparent finishes.

1.2 REFERENCES

- A. SSPC-SP 1 - Solvent Cleaning.
- B. SSPC-SP 2 - Hand Tool Cleaning.
- C. SSPC-SP 3 - Power Tool Cleaning.
- D. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete.
- E. EPA-Method 24

1.3 SUBMITTALS

- A. Submit under provisions of Section 013300, Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each paint and coating product should include:
  - 1. Product characteristics
  - 2. Surface preparation instructions and recommendations
  - 3. Primer requirements and finish specification
  - 4. Storage and handling requirements and recommendations
  - 5. Application methods
  - 6. Cautions
- C. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's color samples available.
- D. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.

1.4 MOCK-UP

- A. Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of painting on the project.
  - 1. Finish surfaces for verification of products, colors, & sheens
  - 2. Finish area designated by Contracting Officer
  - 3. Provide samples that designate prime & finish coats
  - 4. Do not proceed with remaining work until the Contracting Officer approves the mock-up samples

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
  - 1. Product name, and type (description)
  - 2. Application & use instructions
  - 3. Surface preparation
  - 4. VOC content
  - 5. Environmental issues



6. Batch date
7. Color number
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.
- C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

## 1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
  1. Benjamin Moore Company
  2. Sherwin-Williams Company
  3. Equal to.
- B. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 016000 Product Requirements. When submitting request for substitution, provide complete product data specified above under Submittals, for each substitute product.

### 2.2 APPLICATIONS/SCOPE

- A. Surfaces To Be Coated:
  1. Wood Interior Systems - Transparent

### 2.3 SCHEDULE

- A. Wood Interior Systems (vertical) - Semi-Transparent
  1. Water Reducible Polyurethane (topcoat)
    - a. Semi-Transparent Stain
      - 1st Coat: S-W WoodClassics Oil Stain, A49 Series (450-500 sq ft/gal)
      - 2nd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
      - 3rd Coat: S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series (400-500 sq ft/gal)
  2. Alkyd (topcoat)
    - a. Semi-Transparent Stain
      - 1st Coat: S-W WoodClassics Oil Stain, A49 Series (450-500 sq ft/gal)
      - 2nd Coat: S-W WoodClassics Oil Base Varnish, A66-300 Series
      - 3rd Coat: S-W WoodClassics Oil Base Varnish, A66-300 Series (350-400 sq ft/gal)
  3. Polyurethane (topcoat)
    - a. Semi-Transparent Stain
      - 1st Coat: S-W WoodClassics Oil Stain, A49 Series (450-500 sq ft/gal)
      - 2nd Coat: S-W WoodClassics Polyurethane Varnish, A67 Series

3rd Coat: S-W WoodClassics Polyurethane Varnish, A67 Series (350-400 sq ft/gal)

## 2.4 MATERIALS - GENERAL REQUIREMENTS

### A. Paints and Coatings - General:

1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

## 2.5 ACCESSORIES

### A. Coating Application Accessories:

1. Provide all sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Architect of unsatisfactory conditions before proceeding.
- B. If substrate preparation is the responsibility of another installer, notify Contracting Officer of unsatisfactory preparation before proceeding.
- C. Proceed with work only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

### 3.2 SURFACE PREPARATION

- A. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.
- B. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.
- C. The surface must be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion.
- D. Remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry 48 hours before painting. Wear protective glasses or goggles, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
- E. Surface Preparation
  1. Wood—Interior  
All surfaces must be sanded smooth, with the grain, never across it. Surface blemishes must be corrected and the area cleaned of dust before coating. Patching compounds will generally be visible through clear coatings.

### 3.3 INSTALLATION

- A. Testing: Due to the wide variety of substrates, preparation methods, application methods and environments, one should test the product in an inconspicuous spot for adhesion and compatibility prior to full-scale application.
- B. Apply all coatings and materials with manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendation.
- C. Do not apply to wet or damp surfaces. Wait until wood is fully dry after rain, fog or dew.
- D. Apply coatings using methods recommended by manufacturer.
- E. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
- F. Apply coatings at spreading rate required to achieve the manufacturer' recommended dry film thickness.
- G. Regardless of number of coats specified, apply as many coats as necessary for complete hide and uniform appearance.
- H. Inspection: The coated surface must be inspected and approved by the Contracting Officer just prior to each coat.

### 3.4 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch-up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION

SECTION 16 00 00

GENERAL PROVISIONS - ELECTRICAL

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General and Supplementary Conditions and Division - General Requirements, apply to the work specified in this Section.
- B. Safety: In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- C. Scope of Work: Furnish all materials and equipment (except those items specifically stated in these Specifications or on the Drawings as being furnished by others), labor and incidentals required for the electrical work as indicated in these Specifications and Drawings, and as required to make a complete and operating installation to the satisfaction of the Contracting Officer.
  - 1. Furnish competent supervision of the work to be performed at all times during the progress of the work.
  - 2. The work includes (but is not necessarily limited to) the following:
    - a. Connection to existing services as indicated.
    - b. Removal of existing equipment and material on the existing building as indicated on the drawings and in the Statement of Work.
    - c. New fixtures, materials and accessories.
- D. Job Conditions
  - 1. Carefully investigate structural conditions, wall, furring and chase locations, and room finishes and make actual measurements on the job so that all equipment such as panel- boards, switches, receptacles, lighting fixtures, fire alarm stations, horns, annunciators, and accessories shall fit. Practical consideration shall be given to coordination of all visible devices with aesthetic and architectural design elements.
  - 2. Verify all measurements and be responsible for the correctness of same before ordering any materials or doing any work. No extra charge or compensation will be allowed because of any difference between the actual measurements and those indicated on the drawings. Any difference which might be discovered by the Contractor shall be submitted to the Contracting Officer for consideration before proceeding with the work.
- E. Law and Permits:
  - 1. The latest published regulations of the State and Local Building Codes, National Fire Protection Association (NFPA) and National Electrical Code, with the latest tentative interim amendments, shall be considered as included in these specifications, and all applicable requirements shall be fully complied with. Questions regarding interpretation shall be addressed to the Contracting Officer.
  - 2. Apply for all permits, licenses, and inspection certificates and pay all fees incidental to the carrying on the electrical work. Give notice to the proper authorities in ample time for the work to be inspected and approved as it progresses, and conceal no work until approved by the electrical inspectors having jurisdiction. The National Electrical Code and National Board of Fire Underwriters and all state and local rulings shall be observed and shall govern the character of this work. Should the drawings or these specifications in any way conflict with the Code, State or local rules, promptly notify the Contracting Officer

in writing in order that necessary changes can be accomplished by appropriate modification.

3. Upon completion of the installation, a certificate of approval from the electrical inspection department having jurisdiction thereon shall be furnished to the Contracting Officer, and all fees shall be paid by the Contractor. The certificate shall not release the Contractor from any guarantee or warranty obligations set forth in these specifications.
- F. Examination of Premises:
1. Visit the site of the proposed work, inspect the facilities and become familiar with the difficulties and restrictions attending the execution of the Contract. No additional compensation for failure to be so informed will be allowed.
- G. Discrepancies:
1. Written clarification shall be obtained before submitting a proposal for the work under this division as to discrepancies or omissions from the Contract Documents, or questions as to the intent thereof.
  2. Consideration will not be granted for misunderstanding of the amount of work to be performed. Tender of a proposal and/or bid conveys full agreement of the items and conditions specified, shown on the drawings, and required by the nature of the project unless specific written exceptions are provided with the proposal and/or bid documents.
- H. Guarantee:
1. All materials and workmanship shall be guaranteed for a period of one year from the date of acceptance of the project as substantially completed in accordance with the drawings and specifications, or when beneficially used by the Government, whichever first occurs as certified by the Contracting Officer. Defects due to faulty materials, methods of installation or workmanship shall be repaired or replaced promptly with the least inconvenience and without expense to the Government, and at a time designated by the Contracting Officer. This guarantee is an addition to any specific performance guarantees called for in the individual paragraphs.
  2. Submit three (3) copies of all warranties and guarantees for systems, equipment, devices, and materials (this includes two (2) copies for maintenance manuals).
  3. Submit for review all requested product data, shop drawings and samples. All cuts, catalogues, bulletins, diagrams, curves, etc., shall be submitted in six (6) copies and in accordance with paragraphs "Submission Requirements" and Resubmission Requirements" where drawings (reproducible) used. Trade names, manufacturers, and catalog numbers are mentioned herein and on the drawings solely in order to establish a standard for the type, general design, and quality of product required. Other products similar in design of equal quality capable of fitting within the spaces allocated and complying with the Drawings and Specifications will be considered after the Contract is let unless "prior approval" requirements are set forth in these documents. Where two or more manufacturers or materials are named, the Contractor may submit any of those named, provided they conform to the Specifications and design intent. The submission of samples may be required by the Contracting Officer particularly wherever equipment or appliances are visible in finished areas. Demonstrations of a product's ability to perform as specified shall be arranged if required. Dimensional data and weights shall be included. Review of submittals and shop drawings does not relieve the Contractor of the responsibility for fitting the equipment in the space allotted with space for electrical connection and for servicing, or for coordination of the work with work of other trades. Contractor shall review submittals and shop drawings and indicate by stamp or letter that he has reviewed them before forwarding them to the Contracting Officer. Submittals and Drawings will be returned after review indicating whether or not exceptions are taken and the required procedure to be followed thereafter. Resubmission of revised submittals and shop drawings is required before construction is begun.

4. Corrections or comments made on the submittals and drawings during this review do not relieve the Contractor from compliance with the requirements of the Drawings and Specifications. This review is for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction.
  5. The products listed below shall be submitted for review after the award of the Contract and before any equipment or materials are purchased. If a product is unacceptable, another product shall be submitted.
  6. Items to be submitted are as follows:
    - a. Lighting fixtures, ballasts & lamps
  7. Further descriptions or information required with shop drawings shall be included with the description of materials specified herein as follows:
    - a. Lighting Fixtures:
      - 1) Include certified test data showing performance.
- I. Standards and Regulations:
1. The work under this division shall comply with the latest edition of the applicable standards and codes of the following:
    - a. UL Underwriters' Laboratories, Inc.
    - b. NEMA National Electric Manufacturers Association
    - c. NEC National Electric Code
    - d. Local and State Building Code
    - e. CBM Certified Ballast Manufacturer
    - f. NEPA National Fire Protection Association
    - g. FM Factory Mutual
    - h. ETL Electrical Testing Laboratories
    - i. IES Illuminating Engineering Society
  2. Include all items of labor and materials required to comply with such standards and codes. Where quantities, sizes or other requirements indicated on the Drawings, or herein specified are in excess of the requirements of the standards and codes, the Specifications and/or Drawings shall govern.
- J. Maintenance Manuals:
1. Submit two (2) copies, including wiring diagrams, maintenance and operating instructions, parts listings, and copies of all other submittals required by this Division 16. Organize each maintenance manual with Table of Contents, Index and thumb-tab marked for each section of information, Bind in 2", three-ring binders, vinyl covered, with pockets to contain folded sheets. Properly label contents on spine and face of binder.

## PART 2 PRODUCTS

### 2.1 PRODUCTS

- A. Unless otherwise specified, all materials shall be new and unused and shall be listed by Underwriters' Laboratories, Inc., for the service intended.
- B. Provide products which are compatible with other products of the electrical work and with other work requiring interface with the electrical work, including electrical connections and control devices. For exposed electrical work, coordinate colors and finishes with other work.
- C. Ensure that all electrical equipment, devices, and materials arrive at the site in good conditions, intact in factory package or crate. Any equipment found to be damaged shall be removed from the project site.
- D. Store all electrical equipment, devices, and materials in factory containers or package until ready for use. Storage facility shall be a clean, dry, indoor space which provides

protection against weather. Avoid damage by condensation by providing temporary heating when required.

- E. Handle all electrical equipment, devices, and materials carefully to prevent breakage, denting or scoring of the finish. Damaged materials shall be removed from the project site.

## PART 3 INSTALLATION AND EXECUTION

### 3.1 EXECUTION

- A. Do all cutting and patching necessary for the installation of the work. Note that the integrity of any fire-rated ceilings and/or ceiling-roof assemblies must be maintained. No cutting, drilling or insertion of sleeves which may weaken a structural member shall be done without consent of the Contracting Officer. Finished floors, walls, and ceilings shall not be broken without consent of the Contracting Officer. Patching and repairs shall be made by the affected trades at the responsibility and cost of the Contractor.
- A. Workmanship shall conform to the best electrical installation practice. Equipment and accessories as installed shall be complete and operating. The exact location and arrangement of material and equipment shall be determined as work progresses to conform in the best possible manner with related work of other crafts. The work in all its details is subject to the approval of the Contracting Officer. Any work or material which is rejected must be removed and replaced immediately.
- B. Test all wiring to indicate that the completed system is free of short circuits and undesirable grounds, and is ready for operation. Insulation resistance of all wiring shall meet the performance suggested by the manufacturer. Provide all necessary testing equipment for making tests. All tests shall be made in the presence of the Contracting Officer or a representative thereof. When test results are not satisfactory, the Contractor shall make such adjustments and changes as are necessary and shall notify the Contracting Officer that he is ready for another test. Repeat the test or tests which disclosed the faulty or defective work or equipment, and make such additional tests as the Contracting Officer deems necessary.
- C. Protection of Fixtures, Material and Equipment:
  - 1. Continuously maintain adequate protection of stored materials and installed work. Fixtures and equipment, whether stored under a roof or outside shall be tightly covered with sheet polyethylene or waterproof tarpaulin and protected against dirt, rust, moisture, chemical and mechanical injury. Materials and equipment shall not be stored directly on the ground nor in areas where they will be subject to physical injury from vehicular traffic or construction machinery. Contractor shall see to it that conduit and equipment installed by him is not used by other trades as supports for scaffolds or personnel. Delicate equipment shall not be delivered to the job site unless they can be placed in completed and protected areas. Conduit openings shall be capped or plugged during installation.
  - 2. At the completion of the work, equipment, fixtures, exposed supports, and piping shall be cleaned to the satisfaction of the Contracting Officer.
- D. Allowances:
  - 1. Make due allowance for relocating any lighting fixtures, wiring device, disconnect switch, motor controller, panel-board or equipment item, prior to installation (whether furnished by the contractor or by others and requiring electrical connections), a distance of 5'-0" or less from the locations indicated on the drawings without additional cost to the Government.
- E. Cleaning Up and Housekeeping:
  - 1. At the end of each work day, remove all debris, surplus materials or foreign matter (caused by the performance of the electrical work) from the premises. On completion of the work, the contractor shall be responsible for leaving the premises in a clean condition.

2. Keep stocks of material and equipment stored on the premises in a neat and orderly manner.

END OF SECTION



SECTION 16 11 00

RACEWAYS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Raceways indicated on Drawings and specified herein shall be complete in all respects including all necessary and incidental fittings, hangers and appurtenances required for a complete installation.
- B. Install all conductors in metallic raceways.

PART 2 PRODUCTS

2.1 RIGID CONDUIT

- A. Galvanized Rigid Conduit (GRC) in all sized may be used throughout project without regard to location or application. Any portion of a raceway using galvanized rigid conduit shall not be joined with IMC, EMT, or PVC. Refer to Article 346 NEC for further restrictions.

2.2 METALLIC CONDUIT

- A. Intermediate metal conduit (IMC) or electric metallic tubing (EMT) in all sizes may be used throughout project without regard to location or application. Refer to Article 345 NEC for further restrictions.

2.3 FLEXIBLE METALLIC CONDUIT

- A. shall not be used.

2.4 POLYVINYL CHLORIDE CONDUIT (PVC)

- A. PVC may be used only in applications expressly noted on drawings or specified herein. Use PVC below grade for wiring to security lighting.
- B. Minimum construction shall be schedule 40 with manufacturer's recommended fittings/solvent applied.

2.5 ELECTRICAL METALLIC TUBING (EMT)

- A. Electrical Metallic Tubing (EMT) up to and including 1" size may be used in all indoor applications in dry locations and shall not be embedded in concrete, earth or run exposes in wet locations.

PART 3 EXECUTION

3.1 LAYOUT

- A. Plans are diagrammatic and judgment shall be exercised to install electrical work in a practical manner to function properly and to fit building construction and finish. Items not shown or specified which are required to produce a complete, operative and finished system shall be provided.

- B. Cooperate with others in laying out work so that this phase of the work will properly fit the building and other Contractor requirements. Exact location of various outlets shall be determined from dimensions on general construction drawings or as may be determined on the job. Do not scale drawings for exact location of any outlet. Locations and characteristics of equipment furnished under other sections of the contract shall be determined from other Contractor's shop drawings or layouts prior to locating outlets. The right is reserved to change the location of any outlet improperly installed to fit equipment or finish. Also to change the exact location of any outlet before initial installation. Unless otherwise shown or directed, the outlet boxes shall be located with center lines at elevations above finish floor lines or below ceiling lines as indicated.
- C. Raceways exposed to view will be run perpendicular or parallel to the planes of the building structure. Where concealed in or below grade construction, raceways will take the most direct route between exit points. Raceways may be exposed to view only in the Mechanical Room.

### 3.2 INSTALLATION

- A. Where several conduits are run together, they shall be neatly paralleled with concentric and true radii. All bends shall be true and even without kinks or flats. Seal the exposed ends of conduits during construction to prevent the entry of foreign materials. Clean and dry all conduits before installing conductors.
- B. All empty conduit shall have a nylon pull cord (not nylon jet line) installed. This pull cord shall be free from knots and splices from box to box. Provide labeled tags on the pull cord to identify the location of each end.
- C. Provide expansion fittings for conduits passing through structural expansion joints.
- D. All raceway systems shall be concealed unless otherwise shown.
- E. Conduits shall terminate with bushings of solid insulating plastic material utilizing two lock nuts where lock nuts are permitted. Where lock nuts are not permitted, conduit shall terminate with threaded hub connections equal to "Scru-tite". If it is not possible to install two lock nuts, then OZ type B or equal insulated bushings shall be utilized with one lock nut.
- F. EMT crimp type connectors shall be installed with two opposing operations of the crimping tool to assure electrical continuity.
- G. Where conduits are stubbed up from the floor and are not mechanically bonded to the terminal enclosure, then OZ type BL or equal insulated grounded bushings shall be utilized and grounded as specified hereinafter. Threads on steel conduit shall be protected with corrosion resistant conductive compound similar and equal to that manufactured by the Crouse-Hinds Company. Where concrete encasement is required, it shall be a minimum of 3" thick and shall be colored red when the voltage of the circuit enclosed within the conduit is above 600 volts. Raceways that are stubbed out below grade from transition to direct burial cable will have the ends of the raceways closed with Johns-Manville "Duxseal" or equal after the conductors are installed to prevent entry of foreign matter into the raceway.
- H. At all connections to equipment, unions or flanges shall be utilized to facilitate maintenance, repair, or replacement. Flexible connection shall be utilized as specified hereinafter.
- I. Where raceway systems join equipment of dissimilar metals, they shall be made with fittings specially approved for the application.

END OF SECTION

SECTION 16 50 00

LIGHTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Furnish and install lighting fixtures, complete with lamps, in accordance with the schedule on the Drawings. For purposes of identification, certain manufacturers and catalog numbers have been specified. Fixtures of other manufactures of equal quality, general dimensions, photometric characteristics, and appearance will be acceptable upon approval by Architect. Comply with Paragraph 16000-1.06 before bidding. Section 16000 - Electrical General Requirements, apply to the work specified in this Section, with additions and modifications specified herein.

1.02 SECTION INCLUDES

- A. Luminaries
- B. Lamps
- C. Ballasts
- D. Installation of Fixtures

PART 2 - PRODUCTS

2.01 PRODUCTS

- A. Luminaries: Provide Day-Brite 2AVG-332-PMW-277 parabolic fluorescent fixture or approved equal.
- B. Accessories: Provide required accessories for mounting and operations of each luminaire as indicated.
  - 1. Thermal Protection: Provide thermal protection devices to meet NFPA 70 requirements.
  - 2. Generator Connection: Provide all required options for connection to generator(s).

2.02 LAMPS

- A. Provide lamps for all fixtures. Fluorescent lamps shall be cool white, rapid start.
- B. Description:
  - 1. Fluorescent Lamps: Type F32T8, energy saving type. Compact fluorescent lamps.

2.03 BALLASTS

- A. Fluorescent ballast shall be ETL-CBM approved high power factor premium high temperature, sound rated "A" Class "P". High pressure sodium ballast shall be constant wattage type, high power factor.
- B. Compact Fluorescent Ballasts: Provide solid state electronic ballasts suitable for use under installation conditions listed for each laminar.
  - 1. Ballasts shall be high power factor.
- C. HID Ballasts: Provide HID ballast suitable for use under installation conditions and type of each laminar.
  - 1. Voltage: As scheduled.
  - 2. Power Factor: High Power Factor.
  - 3. Description: ANSI C82.4.
  - 4. Integral Equipment: Ballast to be mounted internally of the laminar.

- C. Emergency Power Supply: Integral, listed for emergency lighting use.
  - 1. Battery: Lead calcium type.
  - 2. Battery Charger: Dual-rate type.
  - 3. Indicators and Controls: AC ON; test switch.

## 2.08 INSTALLATION OF FIXTURES

- A. Provide adequate support for all fixtures.

## PART 3 - EXECUTION

### 3.01 EXAMINATION AND PREPARATION

- A. Examine adjacent surfaces to determine that surfaces are ready to receive work.

### 3.02 INSTALLATION

- A. Install luminaries and accessories in accordance with manufacturer's instructions.
  - 1. Install recessed luminaries to permit removal from below. Install luminaries so that there is no light leakage around fixture trim. Support fixtures in accordance with Article 410-16 C of the National Electrical Code.
  - 4. Install lamps in luminaries and lamp-holders.

### 3.03 ADJUSTING AND CLEANING

- A. Align luminaries and clean lenses and diffusers at completion of work.
- B. Aim adjustable luminaries and lamp-holders as indicated or as directed.
- C. Adjust directional arrows on exit signs to meet approval of authority having jurisdiction.
- D. Clean paint splatters, dirt and debris from installed luminaries.
- E. Re-lamp luminaries, which have failed lamps at completion of work.
- F. Touch up luminaire and pole finish at completion of work.
- G. Adjust relays, timers, photo controls, etc. to achieve specified or directed operation.

END OF SECTION

SECTION 32 31 00

HIGH SECURITY STEEL ROLL GATES

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. The contractor shall provide all labor, materials and appurtenances necessary for installation of the steel roll gate system defined herein at building 4221.

1.2 RELATED WORK

- A. Section 03 12 00 Earthwork
- B. Section 03 30 00 Cast in Place Concrete

1.3 SYSTEM DESCRIPTION

- A. The manufacturer shall supply a total roll gate system of Ameristar® PassPort® IS Ornamental design series and Gauntlet style or approved equal. The system shall include all components (i.e., pales, rails, gate uprights, wheels and hardware) required.

1.4 QUALITY ASSURANCE

- A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.5 REFERENCES

- ASTM D523 - Test Method for Specular Glass.
- ASTM D822 – Practive for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculations of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to The Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.6 SUBMITTAL

- A. The manufacturer's submittal package consisting of gate elevations, hardware details, and installation details, shall be submitted prior to installation.

1.7 PRODUCT HANDLING AND STORAGE

- A. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage and to protect against damage, weather, vandalism and theft.

PART 2 – MATERIALS

2.1 MANUFACTURER

- A. The steel roll gate system shall conform to Ameristar® PassPort® IS Ornamental design series and (specify the style as Stronghold, Trident, or Gauntlet) style and (specify frame configuration as 2-rail or 3-rail) frame configuration manufactured by Ameristar Fence Products, Inc. in Tulsa, Oklahoma or approved equal to match existing Gauntlet Impasse Fence.

## 2.2 MATERIAL

- A. Steel material for roll gate components (i.e. pales, rails, diagonals and uprights), shall be commercial steel with minimum yield strength of 45,000 psi (344 MPa).
- B. Ornamental pale material shall be 3/4" square x 14 Ga. tubing for PassPort® IS Ornamental gate pales. Pale spacing shall be 6" o.c. for PassPort® IS Ornamental gate pales. Material for top rails, uprights and diagonals rails shall be 2" square x 11 Ga. Material for the bottom rail shall be 2" x 4" x 11 Ga. Posts shall be 4" square x 11 Ga.

## 2.3 FABRICATION

- A. Pales, rails, uprights and posts shall be precut to specified lengths. Diagonals shall be precut to specified lengths and angles. Frame materials shall be joined by welding. Pales shall be face welded to roll gate frame, except for Gauntlet style gates over 18' long. Gauntlet style gates over 18' long shall have pales face-welded to 2" x 2" angle iron to form panels equal in length to the gate frame bay width.
- B. The manufactured roll gates and bolt-on panels (if applicable) shall be subjected to the Perma Coat® thermal stratification coating process (high temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pre-treatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be (specify Black, Bronze, White, or Desert Sand). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.
- C. Completed gates shall be capable of supporting a 200 lb. load applied at mid-span without permanent deformation.

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. All new gate installations shall be laid out by the contractor in accordance with the construction plans.
- B. All hardware shall be installed in accordance with the Passport installation instructions. Passport roll gates shall be installed so they comply with current ASTM F2200 & UL325 standards.
- C. Gate stops shall be installed on each track in a way that conforms to current ASTM F2200 standards.

### 3.2 INSTALLATION

- A. Gate posts shall be set in accordance with the spacing's shown in the construction plans. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements. 6" wheels shall be bolted to the gate between the wheel plates welded near the ends of the gate bottom rail. The gate shall be set upright with the V-grooved wheels positioned over the pre-installed steel V-track that traverses the gate opening. Roller guides shall be affixed to the gate posts at a height even with the gate top rail to hold the gate in a vertical position. Gate stops shall be welded to the end of the gate or track so gate cannot pass rollers in either direction.

### 3.3 CLEANING

- A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

| Table 1 – Coating Performance Requirements |                               |   |
|--|-------------------------------|---|
| Quality Characteristics                    | ASTM Test Method              | Performance Requirements  |
| Adhesion                                   | D3359 – Method B              | Adhesion (Retention of Coating) over 90% of test area (Tape and   |
| Corrosion Resistance                       | B117, D714 & D1654            | Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium |
| Impact Resistance                          | D2794                         | Impact Resistance over 60 inch lb. (Forward impact using 0.625"   |
| Weathering Resistance                      | D822 D2244, D523 (60° Method) | Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).  |

END OF SECTION

SECTION 32 31 00  
DECORATIVE FENCE PRODUCTS

PART 1 GENERAL

1.1 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

|             |  |
|-------------|--|
| ASTM B 117  | (2009) Standing Practice for Operating Salt Spray (Fog) Apparatus  |
| ASTM D 523  | (2008) Standard Test Method for Specular Gloss   |
| ASTM D 822  | (2001; R 2006) Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings                        |
| ASTM D 1654 | (2008) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments                         |
| ASTM D 2244 | (2009a) Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates |
| ASTM D 2794 | (1993; R 2004) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)                   |
| ASTM D 3359 | (2009) Measuring Adhesion by Tape Test   |
| ASTM D 714  | (2002; R 2009) Evaluating Degree of Blistering of Paints   |
| ASTM F 2200 | Standard Specification for Automated Vehicular Gate Construction   |

UNDERWRITERS LABORATORIES (UL)

|        |   |
|--------|---|
| UL 325 | (2002; Rev thru Oct 2009) Door, Drapery, Gate, Louver, and Window Operators and Systems |
|--------|---|

1.2 SUBMITTALS

- A. The manufacturer's submittal package consisting of gate elevations, hardware details, and installation details, shall be submitted prior to installation.

1.3 WORK INCLUDED

- A. The contractor shall provide all labor, materials, and appurtenances necessary for installation of the Architectural Metal Impasse Fence system defined herein at Keesler Air Force Base.

1.4 RELATED WORK

- A. Section 03 30 00 - Cast-in-Place Concrete

1.5 SYSTEM DESCRIPTION

- A. The manufacturer shall supply the steel corrugated pale fence system defined herein. The system shall include all components (i.e., tracks, uprights, bracing, pickets, hardware, fittings and fasteners) required.

1.6 QUALITY ASSURANCE

- A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.



1.7 PRODUCT HANDLING AND STORAGE

- A. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. All industrial Fencing and gates shall conform to the Ameristar Impasse fence Trident style 2/3 Rail on the north side of Bldg. 4605 and Ameristar Impasse fence Stronghold style 2/3 Rail on the south side of Bldg. 4605, manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma or approved equal. The entire fence system and all associated gates, accessories, fittings and fasteners shall be obtained from a single source.

2.2 MATERIAL

- A. The materials used for Impasse fence (i.e., uprights, diagonal braces and pickets or pales) shall conform to requirements of ASTM A924/A924M with a yield strength of 50,000 PSI. The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft<sup>2</sup>, Coating Designation G-90.
- B. The manufactured galvanized framework shall be subjected to the PermaCoat thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six stage pretreatment/wash, an electrostatic spray application of an epoxy base, and a separate electronic spray application of a polyester finish. The topcoat shall be a "ho-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils. The Trident Fencing and appurtenances shall be Black while the Stronghold Fencing and appurtenances shall be Desert Sand
- C. Material for corrugated pales shall have a nominal material thickness of 0.075 inches. The cross-sectional shape of the rails shall conform to the manufacturer's Impasse rail design with a nominal thickness of 0.100 inches. Pre-drilled holes in the impasse rail shall be spaced 6" o.c. Tamper proof fastener shall be used to fasten each pale to each rail. Post shall conform to the manufacturer's Impasse double wall I-Beam design with a nominal membrane thickness of 0.100 Inches.

2.3 FABRICATION

- A. Pickets, enclosed track, uprights and diagonal bracing shall be pre-drilled and labeled for easy assembly. All components shall be pre-cut to specified lengths.
- B. Top and bottom rail extrusions shall be mechanically fastened to vertical uprights and reinforced with diagonal braces, as required by drawing.
- C. The manufactured components shall be subjected to the Ameristar thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils. The color shall be Black for the Trident and Desert Sand for the Stronghold.
- D. Installation - Fence post for 8' nominal spans shall be set 96" o.c., plus or minus 1/2". Gate post shall be spaced according to the gate openings specified in the construction plans. Gates shall be fabricated using Impasse pales. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

END OF SECTION