PROJECT:
REPAIR STUDENT DORM
CONNER MANOR 6950

PROJECT NUMBER: MAHG15-1029

19 MAY 2015

KEESLER AIR FORCE BASE BILOXI, MISSISSIPPI

Keesler AFB 508 L Street
Keesler AFB, MS 39534

INDEX

SECTION 00 00 00
STATEMENT OF WORK
MAHG 15-1029
REPAIR STUDENT DORM CONNER MANOR 6950 KEESLER AFB, MISSISSIPPI

1.1 **SCOPE:** The Work performed under this Contract shall consist of furnishing all labor, materials, and equipment necessary to Repair Student Dorm Conner Manor 6950 as described in this **S**tatement **O**f **W**ork [SOW] and/or shown on the Drawings.

The Contractor is required to examine the site and make note of all requirements of the Work before submitting any bids. Any accessories or incidental items not specifically shown on the Drawings and detailed in the Statement of Work herein, which are necessary and/or required to complete the work within the intent of the these documents, shall be included by the Contractor without additional cost to the Government or PAE.

All work shall be done in a neat and workmanlike manner and in keeping with generally accepted standards for similar work.

All work shall be performed in strict accordance with the SOW/specifications/plans and drawings and subject to the terms and conditions of the contract.

Contractor is responsible for Disposing of all Material and cleaning the area of work at the completion of the project.

Specifically, the Contractor shall provide materials and/or work as follows:

General

- All work shall be done in phases while the Facility is occupied. Dorm Rooms will be released a wing at a time. Contractor will coordinate with Facility Manager on the number of MTL offices released in each phase. Contractor to ensure occupied rooms are not disturbed during construction in adjacent spaces.

- Contractor will be responsible for moving all furniture as required to complete the repairs. Contractor to palletize and move the following:

Palletizing of Dorm Room Furniture

A. Items to be palletized (2 each per dorm room unless noted otherwise):
   1. Desk with credenza
   2. Desk chairs
   3. Three drawer night stand
   4. Five drawer dresser
   5. Wardrobe
   6. Twin head board
   7. Metal bed frame
   8. Bunk Bed-Twin
   9. Lamp with shade
   10. Fridge with attached microwave(1)
   11. Twin mattress
   12. Twin Box spring

Palletizing of dorm furnishings:

1. Desk with Credenza: Two desks with two credenzas on one pallet, shrink wrap items then apply three inch tape on outside of shrink wrap. Wrap tape two complete times around items.
2. Desk Chairs: Eight desk chairs per pallet, shrink wrap, then wrap with 3 inch tape on outside of shrink wrap.
3. Three Drawer Night Stand: Three night stands per pallet, shrink wrap, then wrap with 3 inch tape on outside of shrink wrap.
4. Five Drawer Dresser: Four dressers per pallet, shrink wrap, then wrap with 3 inch tape on outside of shrink wrap.
5. Wardrobe: Two wardrobes per pallet, shrink wrap, then wrap with 3 inch tape on outside of shrink wrap.
6. Twin Head Boards: Approximately 12 head boards per pallet shrink wrap, then secure with 3 inch tape.
7. Metal Bed Frames: Approximately 20 bed rails per pallet, secure with strapping.
8. Bunk Beds: Six bunk beds per pallet, secure with strapping. All pins must be labeled and placed in a box or container of such and placed with each pallet.
9. Lamp: Lamps will be packed in a tri-wall box and all lamp shades must be removed
10. Lamp Shades: Will be stacked in a neat fashion and placed in a box.
11. Fridge with Microwave: Each refrigerator to include freezer door must first be blocked open before palletizing. Upon completion of blocking open refrigerator door, place four refrigerators with microwaves per pallet. Shrink wrap, then wrap with 3 inch tape.
12. Twin Mattresses: Five mattresses to a pallet, then secure with straps.
13. Twin Box Springs: Eight box springs to a pallet then secure with straps.

B. Transporting of Dorm Furnishing:
   1. Load pallets onto flat bed or enclosed trailer and transport to Bldg.4707 and unload furnishings. At this time FMO personnel will store furnishing in FMO Warehouse Bldg.4707.

- Contractor will also be responsible for removing, cleaning, storing, and reinstalling draperies throughout facility.

- Coordinate vending machine moving.
  - ☐ AAFES 228-435-5730

- Coordinate laundry equipment moving.
  - ☐ FMO office 228-377-3813

Typical Dorm Room

- Leave intact and operable:
  - Sprinkler heads, and fire alarm components.

- Leave and modify:
  - Walls, ceilings, and door frames to be painted.
  - Strip and clean Tile floor, walls, and grout.
  - Seal Tile floors, walls and grout.
  - Shower area to have existing shower surround, fixtures, pan and curb removed, leave intact all ceramic tile not influenced by shower renovation.
  - Loose toilet accessories to be re-secured. Contractor to estimate one third (1/3) for bidding purposes.

- Toilets are to remain intact. Provide new flush valves (with handles) and wax rings.
- Refinish all doors in dorm room to include corridor door (4 doors per room).
    - As noted on drawings.
    - See Paint and Finishes.

❖ Remove, clean, and reinstall
- 1" window blinds.
    - Contractor to identify damaged blinds and notify Facility Manager.
    - Contractor to figure 10% replacement for bidding purposes.
- Drapery/Curtains
    - Contractor to dry clean all drapery/curtains.
- Drapery Hardware
    - Contractor to identify damaged drapery hardware and notify Facility Manager.
    - Contractor to figure 10% replacement for bidding purposes.
- Bath area door
    - Contractor to remove and reinstall refinished solid core wood door with existing hardware.
    - Upon installation of new hollow metal frame, reinstall existing door in new frame. Swing of door is to be into vanity area.

❖ Remove and dispose of:
- Carpet and rubber base.
- Countertops and plumbing fixtures.
- Damaged electrical and communication plates. Contractor estimate 200 covers.
- Closet Door Lock Hardware.
- Damaged window sealant.
- Shower tile surround, fixtures, pan, curb, wall board and any damaged metal studs (assume 10% metal stud replacement for bidding purposes).
- Hollow metal frame in bath area.
- Light fixtures in closets, vestibule, and bath (vanity) area.
- Soap and Toothbrush shelves.
- Damaged non-working toilets. Assume 10% for bidding purposes.
- Shower door assembly (glass door) and all components. Salvage 12 shower doors for PAE structure shop.

❖ Provide and install:
- New 24" square carpet tile. Patcraft – Vector "Refract Light #I0288" or equal.
    - 22 oz. Tufted Yarn Weight
    - Multi-level Pattern Loop
    - 6/32"high 3/32" low - pile height
    - Non-Woven Synthetic primary backing
    - EcoWorx secondary backing
    - Flammability Rating: Flooring Radiant Panel ASTM E-648 and/or NFPA 253. Greater than .45 watts/CM2 Class 1. (EU) CFL S1
    - Smoke Density: Passes NBS Smoke Chamber Test ASTM E-662
    - Static Rating: <3.5KV
    - Lifetime limited warranty
    - Color and installation pattern to be selected by contracting officer from manufacturer's standard colors.
    - *Provide 5% extra material for owner*.
- 4" Rubber Base Johnsonite or equal
    - Coved
    - 1/8" thick
    - Factory corners
    - Roll length

    - ASTM E 84/NFPA 255 (Flame/Smoke) – Class B, < 450
    - ASTM E 648 (NFPA 253): Critical Radiant Flux – Class 1
    - 1 year warranty.
    - *Color to be selected from manufacturer's standard colors.*
    - *Provide 5% extra material for owner*.
- Rubber transition between Tile and Carpet Tiles.
    - ASTM E 84/NFPA 255 (Flame/Smoke) – Class B, < 450
    - ASTM E 648 (NFPA 253): Critical Radiant Flux – Class 1
    - 1 year warranty.
    - *Color to be selected from manufacturer's standard colors.*
    - *Provide 5% extra material for owner*.
- New paint on walls, ceilings, and door frames.
    - See Paint and Finishes.
- New finish on wood doors (4 per room).
    - See Paint and Finishes.
- New light fixtures in closets, vestibule, and bath (vanity) area.
- New cultured marble countertops.
    - Color to be selected by Contracting Officer from manufacturer's standard lines.
- New lavatory faucet, strainer type drain assembly, flat rubber drain cover with chain, traps, and supply lines to stop valves.
    - Modify pop up drain handle on new faucet to accommodate strainer drain and rubber drain cover with chain.
- New metal studs in shower area as necessary. New concrete backer board with all joints sealed.
- New shower trim assembly with mixing valve, shower head and all piping necessary.
- New Hollow Metal door frame in bath/shower area.
    - Paint new hollow metal door frame.
    - See Paint and Finishes
    - Upon reinstallation of existing door, door swing to be in the direction of the bathroom vanities.
- New shower door assembly.
    - Equal to Alumax 700c Continuous Hinge Framed Shower Door.
    - Provide all new stainless steel attachment hardware.
    - Caulk with 100% silicone caulk upon reinstallation.
- New Custom cultured marble shower assembly with:
    - Integral 8" high fiberglass pan, monolithic sides with max 3 seams overall, and shower drain assembly (match existing shower drain pipe size).
    - Color to be selected by Contracting Officer from manufacturer's standard lines.
- New flush valves (with handles) and wax rings for all toilets.
- Gypsum wall board patches at all damaged areas.
    - Match existing wall texture and finish.
    - Patch wall area at location of removed toothbrush and soap holder to level 4 finish.
- Closet Door Hardware.
    - Provide Stainless Steel Padlock Gate Hasp locking mechanism
    - Provide Stainless Steel blank wraparound.
- Sealant around windows and window sills.
    - Replace window and window sill sealant.
- Provide new toilets, equal to Eljer Savoy Toilet Model #091 0220, for damaged non-working toilets. Assume 10 % for bidding purposes.

Typical Dorm Wing Halls

- ❖ Leave intact and operable:
    - Light fixtures and fire alarm components.
    - Ceiling Grid.

- Fire Extinguisher Cabinets.
- Fire Stair Doors.

❖ Leave and modify:
- Strip, Clean, and Seal Tile floors.
- Gypsum walls and hollow metal frames to be painted.
- Intercom speakers.
- Exit Signage.
- Refinish wood doors as noted on drawings.

❖ Remove and dispose of:
- Ceiling tiles.
- Existing room signage to include signage on doors.
- Rubber base.
- Damaged gypsum wall board.
- Cork and dry erase boards.
- Damaged window sealant.
- Stairwell rubber flooring and base.

❖ Provide and install:
- New paint on walls and door frames.
  - See Paint and Finishes. Contractor is responsible for testing ALL existing paint for compatibility with specified paint and finish. If additional preparation is required, it is the Contractors responsibility to bear the burden of the preparation and compatibility of finishes.
- Porcelain Tile base to match existing tile color and size.
  - Coved
  - Bullnose top edge
  - 6”x12”
  - Match existing grout.
  - Thinset to existing gypsum wall board
    - Repair damaged wallboard as necessary before applying tile base. Contractor to estimate 10% of wallboard unsuitable for mounting tile.
  - Submit Sample for approval prior to bid.
  - Seal with penetrating, waterproofing sealer.
  - *Provide 5% extra material for owner*.
- Gypsum wall board patches at all damaged areas.
  - Match existing wall texture and finish.
- Replace all ceiling tiles
  - Provide sag/mildew resistant ceiling tiles.
  - Ceiling tiles containing “Exit” signage to be replaced with 3/4” white melamine panel.
    - Fasten “Exit” signage to panel.
- New Dorm Room signage
  - Match existing color, style, size, and verbiage of signage in buildings 7404 & 6965.
  - Provide insert area to match signage in buildings 7404 & 6965.
- New outside corner guards.
  - 4’ tall.
  - Heavy duty.
  - 2” wide legs.
  - Fasten to walls following manufacturer’s recommendations.
- New 3’x5’ Cork board and Dry Erase Board. (1 each per wing)
  - With integrated accessory tray.
  - Wall mounted with fasteners.
- Sealant around windows and window sills.

    - Replace window and window sill sealant.
- New rubber flooring and 6" rubber base in all stairwells.
- New 24x24 ceiling tiles Armstrong "Cirrus 574" or equal.
    - Provide sag/mildew resistant ceiling tiles.
    - Ceiling tiles containing "Exit" signage to be replaced with 3/4" white melamine panel.
        - Fasten "Exit" signage to panel.
    - Use existing ceiling grid.
    - *Provide 5% extra material for owner*.
- New Heavy Duty Aluminum Storefront Entry doors and frames to replace Wing Entry Aluminum Storefront Entry doors and frames.
    - See door types for profile and hardware.
    - New Aluminum Storefront doors Kawneer "500 Series" Entrance or equal.
- New Heavy Duty Aluminum Thresholds at all Entry Doors.
    - Equal to Pemko Aluminum Saddle threshold 271 with 290_SStop applied door stop.

First Floor Common Area

- Leave intact and operable:
    - Light fixtures and fire alarm components.
    - Ceiling Grid.
    - Windows.
    - Fire Extinguisher Cabinets

- Leave and modify:
    - Gypsum walls and ceilings to be painted.
        - Do not paint over indicated murals.
    - Public Address speakers.
    - Secure loose Toilet Partitions.
    - Strip and clean Central Stair nosing's and treads.
    - Strip, clean, and seal all tile.
    - Wood doors and hardware.
        - Refinish all solid core wood doors.
        - Provide new push/pull hardware at stairwell doors.
    - Display Cases (Silver).
        - Clean Cases.
        - Remove and replace new cork backing/lining.
- Remove and dispose of:
    - Ceiling tiles.
    - Ceramic base.
    - Rubber Base.
    - Carpet.
    - Sheet vinyl and VCT flooring.
    - Front Desk, Vending, and Laundry millwork.
    - Recessed door mats.
    - Vinyl wallcovering where indicated on drawings.
    - Mop sink.
    - Existing Public Address unit and microphone.
    - Toilet paper dispensers.
    - Soap Dispensers.
    - Countertops and sinks in Common Restrooms.
    - Damaged window sealant.
    - Display Case (Black).

- Housekeeping shelving.
- Damaged electrical faceplates.
- Rubber flooring and rubber base in all stairwells and vestibules.

❖ Remove and salvage:
- Existing alarm control unit (all components are to be packaged and delivered to PAE Electrical Shop).

❖ Remove, clean, and reinstall
- 1" window blinds.
  - Contractor to identify damaged blinds and notify Facility Manager.
  - Contractor to figure 10% replacement for bidding purposes.
- Drapery Hardware
  - Contractor to identify damaged drapery hardware and notify Facility Manager.
  - Contractor to estimate 10% replacement for bidding purposes.
- Drapery/Curtains
  - Contractor to dry clean all drapery/curtains

❖ Provide and install:
- New paint on walls, door frames, and hard ceilings.
  - See Paint and Finishes.
- Gypsum wall board patches at all damaged areas.
  - Match existing wall texture and finish.
- New millwork at Front Desk, Vending, Mail and Laundry.
- New solid surface lavatory countertops, porcelain sinks and faucets.
  - Color to be selected by Contracting Officer from manufacturer's standard colors.
- Porcelain Tile base to match existing tile color and size (in specific rooms only).
  - Coved
  - Bullnose top edge
  - 6"x8"
  - Match existing grout.
  - Thinset to existing gypsum wall board
    - Repair damaged wallboard as necessary before applying tile base.
  - Submit sample for approval prior to bid.
  - Seal with penetrating, waterproofing sealer.
  - *Provide 5% extra material for owner*.
- New 24" square carpet tile. Patcraft – Vector "Refract Light #I0288" or equal.
  - 22 oz. Tufted Yarn Weight
  - Multi-level Pattern Loop
  - 6/32"high 3/32" low - pile height
  - Non-Woven Synthetic primary backing
  - EcoWorx secondary backing
  - Flammability Rating: Flooring Radiant Panel ASTM E-648 and/or NFPA 253. Greater than .45 watts/CM2 Class 1. (EU) CFL S1
  - Smoke Density: Passes NBS Smoke Chamber Test ASTM E-662
  - Static Rating: <3.5KV
  - Lifetime limited warranty
  - Color and installation pattern to be selected by contracting officer from manufacturer's standard colors.
  - *Provide 5% extra material for owner*.
- 4" Rubber Base Johnsonite or equal
  - Coved
  - 1/8" thick
  - Factory corners
  - Roll length

  - ASTM E 84/NFPA 255 (Flame/Smoke) – Class B, < 450
  - ASTM E 648 (NFPA 253): Critical Radiant Flux – Class 1
  - 1 year warranty.
  - *Color to be selected from manufacturer's standard colors.*
  - *Provide 5% extra material for owner*.
- New 24x24 ceiling tiles Armstrong "Cirrus 574" or equal.
  - Ceiling tiles containing "Exit" signage to be replaced with 3/4" white melamine panel.
  - Use existing ceiling grid.
  - *Provide 5% extra material for owner*.
- New Recessed Floor Mats at Entryways.
  - 3/8"- 1/2" thick.
  - Fits in existing recess.
  - Heavy Duty
  - Cleanable.
  - Slip Resistant.
- New heavy duty electrical outlets and switch finish plates for all common area rooms.
  - Cold rolled steel
  - Color to be selected by Contracting Officer.
- New public address system control unit.
  - Connects to existing wing speakers
  - Tabletop unit.
  - Minimum 3 zone control plus master.
    - Each floor is a zone.
  - Local input only.
  - Permanently mount microphone to CQ desk.
  - See drawings for Public Address System requirements.
- New Door Exit Alarm system
  - All Stair doors.
  - See drawings for Door Alarm System requirements.
- New slip resistant VCT in elevator. Armstrong "Safety Zone" or approved equal.
  - 12" square.
  - 1/8" Thickness.
  - ASTM E 648 Critical Radiant Flux Class I
  - ASTM F 1066 Class 2 - through-pattern
  - ASTM E 662 Smoke Developed 450 or less
  - 5 year warranty.
  - *Color to be selected from manufacturer's standard colors.*
  - *Provide 10 extra tiles for owner*.
- New 32"x32" floor mop sink.
  - Coordinate with existing drain location.
  - 6" Curbing
  - Integral flanges for surrounding tile flooring.
  - Heavy duty 3 mop holder with shelf (2)
  - .0250mm Stainless Steel backsplash/surround to minimum height of 36" above sink top.
- New 12" square porcelain tile (in specific areas shown).
  - Match existing tile colors.
  - Match existing grout color.
  - Provide samples for approval before bid.
  - Provide matching tile base.
    - Coved
    - Bullnose top edge
      - 6"x12"
  - Seal with penetrating waterproofing sealer.
  - *Provide 5% extra material for owner*.
- New R-19 batt insulation above ceiling in MTL office suites and briefing areas.

    - Craft faced
    - Cut into ceiling panel sizes.
- New Solid Core Wood doors and hardware (without frames).
    - Solid core wood doors to be rated per applicable code.
- New Solid Core Wood doors and hardware (with frames).
    - Solid core wood doors to be rated per applicable code.
    - Provide new push/pull hardware at stairwell doors.
- New door hardware at indicated locations.
    - See door types for specific hardware lists.
- Sealant around windows and window sills.
    - Replace window and window sill sealant.
- New Cork Backing/Lining in Silver Display Cases.
- New Heavy Duty Display Case.
    - Match existing Silver Display Cases.
    - 4'x5' Lockable
- New Housekeeping Shelving.
- New rubber flooring and 6" rubber base in all stairwells and vestibules.

Second and Third Floor Common Area

❖ Leave intact and operable:
- Light fixtures, HVAC grills, and fire alarm components.
- Ceiling Grid.
- Windows.
- Fire Extinguisher Cabinets.

❖ Leave and modify:
- Strip, clean, and seal all tile.
- Gypsum walls and ceiling to be painted.
    - Do not paint over indicated murals.
- Public Address speakers.
- Strip and clean Central Stair nosing's and treads.
- Handrails to be painted.
- Wood doors and hardware.
    - Refinish all solid core wood doors. Remove and reinstall existing door hardware.
- Display Cases (Silver).
    - Clean Cases.
    - Remove and replace new cork backing/lining.
- Secure expansion joint floor cover.
    - Provide new Fasteners to match existing.

❖ Remove and dispose of:
- Ceramic/Wood base.
- Rubber Base.
- Carpet.
- Sheet vinyl flooring.
- Vinyl wallcovering where indicated on drawings.
- Vending and Laundry millwork.
- Wall covering.
- Mop sink.
- Housekeeping shelving.
- Rubber flooring and base in stairwells.
- Hollow metal doors and frames (third floor only).
- Damaged window sealant.

- Ceiling tiles.

❖ Remove and salvage:
- Undamaged electrical faceplates.

❖ Remove Clean and Reinstall:
- 1" window blinds.
  - Contractor to identify damaged blinds and notify Facility Manager.
- Drapery Hardware
  - Contractor to identify damaged drapery hardware and notify Facility Manager.
  - Contractor to figure 10% replacement for bidding purposes.
- Drapery/Curtains
  - Contractor to dry clean all drapery/curtains.

❖ Provide and install:
- New paint on walls, hard ceilings, door frames, hand rails, and specified doors.
  - See paint and Finishes.
- Gypsum wall board patches at all damaged areas.
  - Match existing wall texture and finish.
- Replace damaged ceiling tiles with salvaged ceiling tiles
  - Ceiling tiles containing "Exit" signage to be replaced with 1/2" white melamine panel.
    - Fasten "Exit" signage to panels.
- New millwork at Laundry area.
- Porcelain Tile base to match existing tile color and size (in specific areas shown).
  - Match existing tile colors.
  - Match existing grout color.
  - Provide samples for approval before bid.
  - Coved
  - Bullnose top edge
  - 6"x12"
  - Seal with penetrating, waterproofing sealer.
  - *Provide 5% extra material for owner*.
- New heavy duty electrical outlet and switch plate covers for all common area rooms.
  - Cold rolled steel
  - Color to be selected by Contracting officer.
- New 32"x32" floor mop sink.
  - Coordinate with existing drain location.
  - 6" Curbing
  - Integral flanges for surrounding tile flooring.
  - Heavy duty 3 mop holder with shelf
- New 12" square porcelain tile (in specific areas shown).
  - Match existing tile colors.
  - Match existing grout color.
  - Provide samples for approval before bid.
  - Provide matching tile base.
    - Coved
    - Bullnose top edge
    - 6"x12"
  - Seal with penetrating, waterproofing sealer.
  - *Provide 5% extra material for owner*.
- New 24x24 ceiling tiles Armstrong "Cirrus 574" or equal.
  - Ceiling tiles containing "Exit" signage to be replaced with 3/4" white melamine panel.
  - Use existing ceiling grid.
  - *Provide 5% extra material for owner*.

- New door hardware in indicated locations.
  - See door types for specific hardware lists.
- New Solid Core Wood rated doors and rated Hollow metal frames (third floor metal door locations only).
  - Wood doors to be finished to match existing Wing doors. See Paint and Finishes.
  - Hollow metal frames to be painted. See Paint and Finishes.
- Sealant around windows and window sills.
  - Replace window and window sill sealant.
- New Cork Backing/Lining in Silver Display Cases.
- New Housekeeping shelving.
- New rubber flooring and 6" rubber base in all stairwells.

Exterior

❖ Leave and modify:
- Front Aluminum Storefront Entry Frames.
- Gutters, downspouts, and flashing to be cleaned, sealed and secured.
  - Mechanically fasten as practical.
    - Close gaps ¼" or more with rivets.
  - Use a gutter sealant Geocel 2320 or equal.
- Clean and paint all metal lintels.
- Brick and EIFS to be cleaned and repaired.
  - At Brick Screenwall - Remove existing rowlock brick wall cap. Prepare surface for new cast concrete cap. See drawings for Brick screen wall details.
- Window sub-sills.
  - Close gaps ¼" or more.
  - Seal.

❖ Remove and dispose of:
- Front wall lights and electrical outlets.
- All entry door wall lights.
- Existing expansion joint sealant material.
- Damaged window sealant.
- Decorative curved brick wall and all electrical components. Remove any and all below grade conduit to field determined location and cap remaining conduit.

❖ Remove and recycle:
- Front Aluminum Storefront entry doors.
- Wing and Common Area Side Entry Aluminum Storefront entry doors and frames.
- All Aluminum Entry Door Thresholds.

❖ Provide and install:
- Paint all Existing Painted Surfaces. See paints and finishes.
- New Expansion joint material AES-300 or equal.
  - Paint to match existing EIFS.
- New Heavy Duty Aluminum Storefront Entry doors and frames to replace Wing and Common Area Side Entry Aluminum Storefront Entry doors and frames.
  - See door types for profile and hardware.
  - New Aluminum Storefront doors Kawneer "500 Series" Entrance or equal.
- New Heavy Duty Aluminum Storefront Entry doors at Front entry.
  - Coordinate installation with existing Aluminum Storefront Frames.
  - New Aluminum Storefront doors Kawneer "500 Series" Entrance or equal.
    - Push/Pull hardware.
    - 3 way latch.

- New Heavy Duty Aluminum Thresholds at all Entry Doors.
  - Equal to Pemko Aluminum Saddle threshold 271 with 290_SStop applied door stop.
- New Wall fixtures at all Building entries. See Specifications and drawings for locations and types.
  - Verify Electrical circuit is operable.
    - Repair circuit if necessary.
- Sealant around windows and window sills.
- Solid sod all disturbed areas in wall removal location. To include around existing plantings up to face of existing building and to edges of existing "entrance" concrete slab.
- New Aluminum Building letters (building name and number).

Mechanical:

- REMOVE:
  - Contractor is to disconnect and remove the current no-functioning RAY-PAK domestic water heating boiler from the facility.
    - Contractor to coordinate with PAE mechanical shop on all interruption of service and or temporary shutdowns.
  - Contractor is to remove and clean VAV reheat coil for conference room.'
    - Provide 24"x24" access panel in existing gypsum board ceiling.
    - Contractor to coordinate with PAE mechanical shop on location of access panel.
    - Contractor to coordinate with PAE mechanical shop on ALL interruption of service and or temporary shutdowns 3 weeks prior to interruption or outage.
- INSTALL:
  - Contractor is to place new government furnished LOCKINVAR boiler in location of the existing RAY-PAK boiler.
- MODIFY EXSITING:
  - Contractor to connect electrical power source to device. All water piping shall be insulated with fiberglass insulation.

Paint and Finishes:

- Contractor is responsible for testing ALL existing paint for compatibility with specified paint and finish as well as existing adhesion. If additional preparation is required, it is the Contractors responsibility to bear the burden of the preparation.
- Existing finished walls to receive 1 coat of premium quality latex primer and 2 coats of premium quality acrylic latex paint. Color and sheen to be selected from manufacturer's standard color chart (contractor to provide).
- New walls and patched areas to receive one coat of premium quality latex primer and 2 coats of premium quality acrylic latex paint. Color and sheen to be selected from manufacturer's standard color chart (contractor to provide).
- Door frames to receive 1 coat of compatible primer and 2 coats of premium Direct to Metal paint. Color and sheen to be selected from manufacturer's standard color chart (contractor to provide).
- Metal Doors to receive 1 coat of compatible primer and 2 coats of premium Direct to Metal paint. Color and sheen to be selected from manufacturer's standard color chart (contractor to provide).
- Exterior surfaces to receive exterior grade paint.
  - Do not paint exterior surfaces in or before inclement weather.
- Refinish all Solid Core wood doors in Common Areas.
  - Finish color to match existing Wing Door Finish.

- Doors to receive 2 coats of premium quality polyurethane. Contracting officer to select sheen from manufacturer's standard finish chart (contractor to provide).

END of STATEMENT OF WORK

SECTION 00 10 20

LIST OF DRAWINGS

PART 1 GENERAL

1.1 SUMMARY

This document lists the drawings for the project.

1.2 CONTRACT DRAWINGS

Contract drawings are as follows:

DRAWING No.	TITLE
A000	TITLE SHEET
A100	FIRST FLOOR COMMON PLAN
A101	SECOND FLOOR COMMON PLAN
A102	THIRD FLOOR COMMON PLAN
A103	FIRST FLOOR A WING
A104	SECOND FLOOR A WING
A105	THIRD FLOOR A WING
A106	FIRST FLOOR B WING
A107	SECOND FLOOR B WING
A108	THIRD FLOOR B WING
A109	FIRST FLOOR C WING
A110	SECOND FLOOR C WING
A111	THIRD FLOOR C WING
A112	TYPICAL ROOM AND DOOR TYPES
A200	EXTERIOR PLAN
A201	ELEVATIONS
A300	MILLWORK PLANS, ELEVATIONS AND DETAILS
A400	PLENUM AREA ELEVATIONS, SECTIONS, AND DETAILS
A500	COMMON AREA RCP REFERENCE

END OF SECTION

SECTION 00 10 30

SUMMARY

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Description
The project consists of the interior finish renovation of Conner Manor- a three story dorm with double occupancy rooms each with their own bathroom. Each floor contains 3 Bays and a common area with a total of 200 dorm rooms. The scope includes but is not limited to: repairing and painting walls, new carpet, new resilient base, new tile floor and base, new ceiling tiles, toilet accessories, and some molding in both the dorm rooms and common areas. Additionally, some plumbing fixtures, electrical fixtures, security door monitors, and a public address system shall be replaced. Exterior work will include washing and repairing brick screen-wall, repairing EIFS, replacing sealants and joints, some electrical work, replacing screens, and repairing gutters and downspouts. All work shall be done in phases while the Facility is occupied.

B. Location
The project is located on Keesler Air Force Base, Biloxi, Mississippi. Building 6950 Conner Manor.

C. In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":
   1. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remains.
   2. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

1.2 LOCATION OF UNDERGROUND FACILITIES

A. Obtain digging permits prior to start of excavation by contacting the Contracting Officer 15 calendar days in advance. Scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground paved surface where existing underground utilities or utilities encased in pier structures are discovered. Verify the elevations of existing piping, utilities, and any type of underground or encased obstruction not indicated to be specified or removed but indicated or discovered during scanning in locations to be traversed by piping, ducts, and other work to be conducted or installed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be made.

1.3 NOTIFICATION PRIOR TO EXCAVATION

A. Notify the Contracting Officer at least 15 days prior to starting excavation work. Contact Miss Utility 48 hours prior to excavating. Contractor is responsible for marking all utilities not marked by Miss Utility or base utilities shop.

PART 2 PRODUCTS

N O T U S E D

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 00 00

KEESLER

PART 1 GENERAL

1.1 SUMMARY OF WORK

A. The work covered by these specifications consists of furnishing all plant, labor, equipment and materials, and performing all operations in connection with renovating building 6950 Conner Manor, to include all work as indicated on drawings and in strict accordance with these specifications and applicable drawings and subject to terms and conditions of the contract.
B. All work shall be done in a neat and workmanlike manner and in keeping with generally accepted standards for similar work.
C. Contractor is responsible for field verifying all measurements and evaluating existing conditions.

1.2 WORKING CONDITIONS

The Contractor shall take all necessary and prudent safety precautions to ensure the safety of the workforce and other exposed personnel.

A. Underground Utilities: Protect all active utilities. Any damage to existing utility lines caused by the Contractor will be the Contractors responsibility.
B. Hazardous Electrical Exposure: Provide Safety protection and precautions for any electrical exposure.
C. Permits: Contractors will be required to obtain permits as required by Keesler in the performance of their work. Contractors shall post or have readily available all permits before work is commenced
The following permits must be obtained anytime referenced work is required.
Dig Permit - PAE Customer Service
Burn Permit - Keesler AFB Fire Department
Confined Entry Permit, Certified Personnel - obtain permit from PAE project management personnel, or PAE safety office. Notification to fire department of actual day and time work is accomplished.

1.3 MATERIAL DELIVERY AND STORAGE

A. Delivery: The Contractor shall have all materials for his work delivered during normal working hours or shall have a representative present to receive shipments. The contractor should be particularly aware that all delivery vehicles must have sufficient information to locate project site. This includes name and address of the project site and name of prime contractor and a point of contact for delivery.
B. Storage: The Contractor shall be responsible for the storage of all material and equipment. All items shall be properly stored to maintain their original condition until actually installed.

1.4 REPAIR OF GOVERNMENT - OWNED FACILITIES

In order to complete the work on this job, certain GOVERNMENT-owned facilities may have to be removed or altered in some way and others may be inadvertently damaged. It is the responsibility of the Contractor to return these facilities to a condition acceptable to the GOVERNMENT.

1.5 UTILITIES

A. All reasonable amounts of electricity and water required for the completion of this project will be furnished to the Contractor without charge from existing Government facilities where feasible.
   1. INTERRUPTION OF UTILITY SERVICE: Interruptions to utility services shall be minimized. Necessary outages shall be coordinated with the GOVERNMENT a minimum of 21 days in advance of the planned outage.
   2. TEMPORARY SANITARY FACILITIES: Portable sanitation units for this project shall be supplied by the contractor. This includes maintenance, transportation to and from job site, secure placement of unit as not to obstruct normal public activity, and unit clean-out as needed. The type units provided and the placement location(s) shall be approved by the GOVERNMENT.
   3. STORM DAMAGE: Should warnings of winds of gale force or stronger be issued, the Contractor shall take every practical precaution to minimize danger to persons and damage to property. These precautions shall be coordinated through the GOVERNMENT, [government technical monitor] and shall include closing all openings; removing all loose materials, tools, and equipment from exposed locations; as well as removing or securing scaffolding and other temporary work. Contractor will follow Keesler requirements for Hurricane Conditions in force.
   4. SAFETY: The Contractor shall observe all Safety, Security, Traffic and Fire regulations presently enforced at Keesler Air Force Base. And comply with latest issue of OSHA requirements.

1.6 CONSTRUCTION

A. Material: All material furnished by the Contractor for this job shall be new, unused material of high quality. All equipment and materials shall comply with the buy American act. Contractor shall notify Government if a deviation is required.
B. Cleaning: The Contractor shall maintain the premises, including any staging area or storage areas, free from accumulations of waste, debris, and rubbish caused by the Contractor's work and shall minimize the spread of dust and flying particles. As work is completed, or at the end of each day, the site shall be cleaned and all waste material shall be properly disposed of.

1.7 JOBSITE MAINTENANCE AND STORAGE AREAS

A. The contractor shall maintain the jobsite and staging areas in conformance with Keesler standards.
B. Lay down/staging areas shall be kept neat and free of loose debris at all times. Grass shall be cut and maintained regularly. Height and maintenance shall be consistent with normal Base standards and consistent with the immediate area.
C. Jobsites and lay down/staging areas shall be enclosed with a 6' chain link fence with brown fabric screening. Materials and equipment may be stored inside storage units. Items stored in the lay down area shall be arranged neatly.
D. All temporary storage trailers and storage containers shall present a neat and clean appearance and shall be in a state of good repair and shall be located within the fenced area described in paragraph above.
E. If allowed by the contract and if approved by the GOVERNMENT, an office mobile unit may be located outside of a fenced area. At a minimum, this unit shall be in a paved area and shall present a neat, professional appearance. Unit shall be of Keesler standard colors, shall have presentable skirting and access stairs. Ancillary items, such as porches and canopies, shall be neat and painted Keesler brown. Contractor shall submit a picture of the proposed unit for approval and before unit is moved to Base.
F. Execution of work may require excavation or other type of work both at and away from primary work area. These areas shall be secured and work times shall be kept to a minimum. Open excavations shall be directly in progress or shall be covered directly after work complete. Open

excavations requiring extended period of inactivity shall be temporarily backfilled. In no case shall an excavation be open for more than 72 hours. Barricades, fences and other warning devices shall be maintained neatly at all times.

1.8 INTERUPTION OF MECHANICAL, ELECTRICAL, PLUMBING SERVICE

A. Interruptions to any mechanical, electrical or plumbing services shall be minimized. Necessary outages shall be coordinated with the GOVERNMENT a minimum of 10 days in advance of the planned outage. The Contractor shall fill out a “Utility Service Outage Request Form” and submit it to the GOVERNMENT. The GOVERNMENT may require the contractor to attend a coordination meeting to access the purpose, intent, and impact of the outage request with the facility and any or all operations departments. Contractors shall not shut-down or start-up any mechanical, electrical or plumbing system without the coordination and/or permission of the GOVERNMENT.

1.9 Environmental Protection

A. Contractor personnel shall, at all times, perform all work and take such steps required to prevent any interference or disturbances to the ecological balance of the environment. All work must be performed in accordance with applicable Federal, State, Local, and Air Force environmental regulations. Use good management practices to protect air, water, land and wildlife and to prevent noise, solid waste, radiant energy, dust and radioactive pollutants. In the event of a chemical or hazardous material spill, the contractor must immediately notify the Keesler Fire Department at 228-377-1839 and the GOVERNMENT representative at 228-377-8255.
B. Required Asbestos Abatement and Management Procedures:
    1. These steps are in accordance with Air Force Instruction, EPA, and MDEQ. OSHA governs all worker safety and must be complied with by contractors and subcontractors. These requirements are summarized in the Keesler Air Force Base Asbestos Operations and Management Plan. Please reference the Plan. These steps are required by all personnel or contractors doing work on Keesler Air Force Base.
    2. If the personnel or contractor encounters what they think may be asbestos, they are required to stop and call the KAFB Asbestos Point of Contact which is Terry James at the Keesler Environmental Section. He can be reached at 228-377-1262 or 228-377-3004 during duty hours and 228-348-0864 during off hours. Once it is determined by the Asbestos POC that asbestos is present, the following actions are required (Only the APOC and Bioenvironmental are certified to make that determination).

1.10 Security Requirements

A. The Contractor is responsible for obtaining passes to enter the installation. The contractor shall coordinate with GOVERNMENT to obtain approval and documentation for application of passes/ID.

2.1 BUILDING OCCUPANCY

A. Building(s) will remain operational and may be occupied during construction. Contractor shall perform all work during normal working hours except as otherwise approved to accommodate agreed upon “shut-downs” and other required “after hours” work.

3.1 SCHEDULE OF WORK

A. The Contractor shall be responsible for establishing a schedule to meet construction time.
B. For this contract the Contractor shall have 365 calendar days to complete the work.
C. The Contractor shall develop, and submit for approval a Critical Path Method (CPM) schedule indicating all work activities including required interruptions of utilities, facilities activities, traffic flow, etc.

3.2 PHASING OF WORK

A. It is the intent of this project to renovate the Facility in groups of rooms / Common Area at a time. No work shall begin in an occupied area until the previous Work area is released to the Contracting Officer. Two week notice shall be given to the Contracting Officer in order to move occupants of the next Work Area before construction.
B. Contract phasing shall be fully developed by the Contractor with the User and the Government Technical Manager (GOVERNMENT) and shall insure that the Contractor's Phasing Plan fully allows the facility services to remain open and that there are no interferences with the facility's ability to meet its scheduled obligations.

3.3 GENERAL

A. The contractor shall coordinate his work with the Government Technical Manager (GOVERNMENT) to avoid interference with necessary activities within and adjacent to the construction site. The Contractor shall coordinate the work of all trades to prevent any conflicts. The Contractor before proceeding with the construction shall resolve any conflicts of components.
B. Normal Work Hours:
The Contractor will perform all work during work hours between 7:00 A. M. and 5:00 P.M. but work after these normal business hour shall be required if necessary to complete the work as scheduled and as required by phasing requirements. The Contractor will not normally be permitted to work on weekends or on the following legal holidays (or the day the federal government observes these holidays) unless he has coordinated such work with the GOVERNMENT at least 72 hours in advance:
    1. New Year's Day
    2. Martin Luther King, Jr.'s Birthday
    3. Washington's Birthday
    4. Memorial Day
    5. Independence Day
    6. Labor Day
    7. Columbus Day
    8. Veteran's Day
    9. Thanksgiving Day
    10. Christmas Day

4.1 SITE VISIT

A. Bidder is responsible for site investigation in accordance with contract clause entitled "Site Investigation and Conditions Affecting the Work" (FAR 52.236-3).

5.1 CONTRACT DRAWINGS AND SPECIFICATIONS

A. The Contractor must comply with the contract clause entitled "Specifications and Drawings for Construction" (FAR 52.236-21). See paragraph 19.01 entitled "INTENT OF DRAWINGS".

6.1 MATERIAL AND EQUIPMENT SUBMITTALS

A. SUBMITTAL REGISTER
    1. Within fourteen calendar days after receipt of "Notice of award," of the contract, the Contractor shall furnish the Contracting Officer a Submittal Register to indicate the Contractor's scheduled submittal dates.

2. The Register shall contain all items (shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, etc.) that the Contractor shall submit for review and approval action during the life of the contract

B. The Contractor will submit four (4) copies of all required submittals unless otherwise specifically indicated.

6.2 DESCRIPTIVE DATA

A. The Contractor shall submit three copies of AF Form 3000, Material Submittal Approval, to the GOVERNMENT for approval. Included shall be manufacturer's descriptive data for materials, fixtures, and equipment the Contractor proposes to incorporate in the work. The submittal shall include catalog numbers, diagrams, drawings, and such additional descriptive data and samples required to properly evaluate all items. When specifications require materials to conform to Federal, Military, Commercial, AGTM, etc., specifications and standards, the Contractor shall submit supplier's or manufacturer's Certification of Conformance in addition to other descriptive data. Catalog numbers and trade names specified indicate examples of a standard product. Other manufacturers' products may be substituted contingent upon approval. Approval of all items must be obtained prior to fabrication or purchase. Payment for work incorporating these materials will not be made if required material submittals have not been approved. Approval of materials, fixtures, and equipment will be based on manufacturer's published ratings and conformance with specifications.
B. The Material Descriptive Data Submittal shall include, but shall not be limited to, the information indicated in the appropriate specification section.
C. The Shop Drawing Submittal shall include, but shall not be limited to, the information indicated in the appropriate specification section.
D. The Samples Submittal shall include, but shall not be limited to, the information indicated in the appropriate specification section.

6.3 CONTRACTOR DEVIATION

A. When data is submitted for approval, the Government's approval of such data shall not relieve the Contractor from responsibility for errors or deviation from contract drawings and specifications. In the case of a deviation, the Contractor shall inform the GOVERNMENT in writing of the request f o r deviation with all the specific data related to the change.

7.1 REFERENCED PUBLICATIONS

A. Any publication referenced in this specification, but not shown in each part under paragraph entitled "APPLICABLE PUBLICATIONS", also form a part of these specifications to the extent referenced.

8.1 TEMPORARY CONSTRUCTION FENCING [not required on this project]

A. Provide and install six-foot (6’) high chain link fence, including gates as indicated, in accordance with commercial (not residential) industry standards.
B. Zinc coated steel fabric or wire not less than (9) gauge.
C. Hot-dipped galvanized steel fence supports, framing and fittings of commercial grade sizes and weights.
D. Provide Keesler standard brown vision screen.

9.1 REMOVAL PROCEDURES

A. No removed items will be reused in this contract unless specifically listed in these specifications and/or on the drawings. All removed equipment becomes the property of the Contractor unless noted otherwise. The Contractor will be required to furnish lifting equipment as necessary to

remove the equipment, and shall provide all equipment to transport the removed items off base. All unused material or debris will be removed from Government-controlled property. Use of Government-contracted dumpsters is prohibited. Unused materials, debris and rubbish shall be disposed of off base in a permitted landfill. The Contractor shall comply with Mississippi Department of Environmental Management Regulations.

10.1 GROUND FAULT CIRCUIT INTERRUPTERS

A. Whenever the Contractor uses portable electrical tools or equipment in an outside location or in an interior wet location where floor is conductive such as concrete, the Contractor shall provide and use a portable ground fault circuit interrupter (GFCI). This shall apply wherever electric power is supplied through Government-controlled facilities. The Contractor shall be responsible for maintaining the GFCI in operating condition and testing it before each use.

11.1 IRE REGULATIONS

A. The Contractor shall comply with all aspects of the National Fire Protection Association (NFPA) publication 241, "Safeguarding Building Construction and Demolition Operations," dated 1980 and Unified Facilities Criteria (UFC)3-600-01 dated 17 April 03.

12.1 ASBESTOS

A. No friable asbestos containing materials will be installed as a part of this contract. Spray application of asbestos or asbestos-containing materials to exposed walls, ceilings, ducts, columns, etc. is prohibited. In the event friable asbestos containing materials are encountered during "rip out" and demolition operations, the Contractor shall notify the Government Project Manager and will take appropriate abatement action.

13.1 INTENT OF DRAWINGS

A. All drawings are diagrammatic and are intended to qualify the materials specified and indicate their intended relationship to each other. The drawings are not to be scaled, rather field conditions should dictate placement. The various scales used on the drawings may not allow the indications of all fittings, offsets, and accessories that may be required. The Contractor is to carefully investigate the conditions that would affect the work to be performed and shall arrange such work accordingly.

14.1 AS-BUILT DRAWINGS [see specifications]

A. The Contractor shall provide to the Government marked drawings commonly referred to as "as-builts" indicating conditions that differ from that shown on the contract plans The Contractor will review with the GOVERNMENT the "as-builts" on a weekly basis to ensure an accurate up-to-date set of documents is being kept. Changes are to be noted as the work progresses. The Contractor will utilize a Government-furnished copy of the contract drawings with the changes neatly indicated in red using the drafting standards and legends indicated in the contract d r a w i n g s . One copy is required and will be submitted to the GOVERNMENT at the final inspection. If there are no changes, a title sheet (from the contract drawings) will only be required with the note "NO CHANGES" marked appropriately.

15.1 TRAFFIC CONTROL

A. The Contractor shall be responsible for the orderly handling of traffic through the work at all times during the life of the construction contract. This shall be accomplished in conformity with all state, local, federal, and military Authorities Having Jurisdiction.

16.1 CONTRACTOR MAINTENANCE

A. At the end of each working day the Contractor shall clean up the work site which includes the construction area(s), construction office area(s), material storage area(s), parking and eating area(s), and any other area(s) affected by the construction process. Stacked material shall not be within 8m (25-feet) of an active roadway. Tracking of soil, mud or other construction debris or substance on any Base street, parking area, sidewalk, patio, driveway, turf, or other area shall not be permitted. The Contractor shall keep all turfed areas clean within the construction limits, and shrubs and other elements in the landscape shall be maintained.

17.1 ENVIRONMENTAL PROTECTION

A. The work includes demolition or removal of all construction indicated or specified. All material and debris resulting from this project shall become property of the Contractor and shall be hauled and disposed of off base at the Contractor's expense. Organic waste from ground clearing operations may be disposed of at the Base compost facility, but check with the GOVERNMENT for final clearance. All solid wastes including but not limited to wood, sheetrock, metal, wire, paint, painted brick, painted concrete, painted rock, painted anything, and etc. shall be disposed of in an approved state certified landfill at the Contractor's expense.
B. Clean concrete, brick, rock, and dirt do not require disposal in a certified landfill. This material shall be disposed of off base in any legal manner that will not result in liability to the United States Air Force. Payment for services to the Contractor shall not be released until Contractor has provided copies of all landfill receipts to the GOVERNMENT. The Contractor shall comply with all state, local, federal, and military Authorities Having Jurisdiction (AHJ).

18.1 ENVIRONMENTAL RELEASE REPORTING

A. An environmental release report shall be completed for all environmental releases that are caused by an Air Force activity or which occur on an Air Force installation or facility. Examples of environmental releases are listed as follows but not limited to: oil releases to navigable waters, hazardous substance release above the reportable quantity, vinyl chloride releases, excessive emissions over amount allowed in permits, hazardous material incidents occurring during transportation, underground storage tank spills and releases, and any emergency incidents of environmental contamination. The Contractor shall immediately notify the GOVERNMENT in the event of any environmental release. The following information shall be documented; the time, type, amount, and cause of release.

19.1 PROTECTION OF EXISTING LANDSCAPE DURING CONSTRUCTION: n/a

20.1 STAGING AREA

A. The Contractor will be provided space as indicated for an office trailer and staging of materials in support of this project and must provide protection and security for it in that area. If not identified on contract drawings the location will be mutually agreed upon and within a reasonable distance to the construction area. Contractor will be required to provide temporary fencing with Keesler AFB standard brown screening around all trailer and staging areas. Contractor will be responsible for job site security as required.

21.1 TESTING

A. Where specific tests are required by this contract, the Contractor shall notify the GOVERNMENT at least 24 hours prior to testing. The Contractor shall turn in a test report, if required, to the GOVERNMENT as soon as possible. The Contractor shall not proceed with any work that would cover up the work being tested until the GOVERNMENT has approved the work being tested.

22.1 CONDUCT OF WORK

A. The Contractor shall conduct his work so the Government property and personnel, other personnel, and work areas shall be protected at all times from inconvenience, damage of any nature, or injury caused by this work until completion of the contract.

23.1 REPAIR OR REPLACEMENT OF DAMAGED PROPERTY

A. In the event of damages of any nature caused by this work (including maintenance and warranty operations) due to improper protection, precaution, or safety measures, such damages shall be repaired or such property shall be replaced by the Contractor at no expense, cost, or charge to the Government.
B. In the event the Contractor does not satisfactorily repair or replace such damage caused by the work of the contract, the Government reserves the right to make the necessary corrections and deduct from the contract price the cost to the Government for inconveniences, labor material, etc. involved.

24.1 BARRICADES

A. The Contractor shall furnish, place and maintain all required barricades as directed by the Safety Office and the Government Project Manager, and access driveways and doors will remain clear at all times.

25.1 CLEANING SCHEDULE

A. Clean sites of all construction related and project related debris on a regular basis or as required by the GOVERNMENT.
B. Remove waste and surplus materials, rubbish, and construction facilities from the work areas and the site. All base roads are to be cleaned of dirt/debris as directed.
C. Execute final cleaning prior to the final inspection.

26.1 CLOSEOUT PROCEDURES

A. Closeout procedures will be conducted for each construction area/building as if it were a separate project. When the Contractor is ready for final inspection, the Contractor shall notify the GOVERNMENT (in writing) within two (2) working days of the desired inspection date. During the inspection, the Contractor and the GOVERNMENT shall document all deficiencies on a "punch list." The GOVERNMENT will provide a formal copy of the punch list to the Contractor. The Contractor shall be responsible for correcting all punch list items prior to the end of the contract completion date and notify the GOVERNMENT (in writing) when the contractor is ready for re-inspection.

27.1 CONTROLLED/RESTRICTED AREAS.

A. The Contractor shall implement local Base procedures for entries to Air Force control/restricted areas where Contractor personnel will work.

28.1 WEAPONS, FIREARMS, AND AMMUNITION

A. Contractor employees are prohibited from possessing weapons, firearms, or ammunition on themselves or within Contractor-owned or privately owned vehicles while on Keesler AFB.

29.1 TRAFFIC LAWS

A. All Contractor personnel shall comply with Base traffic regulations.

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUBMITTALS

A. Government approval is required for submittals. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:
   1. SD-01 Preconstruction Submittals
   2. Contractor regulations; G
   3. Transportation of personnel, materials, and equipment; G

1.2 CONTRACTOR ACCESS AND USE OF PREMISES

A. Activity Regulations
   1. Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of ingress and egress. Ingress and egress of Contractor material deliveries at the Activity is limited to the commercial gate. To minimize traffic congestion, delivery of materials shall be outside of peak traffic hours (6:30 to 8:00 a.m. and 3:30 to 5:00 p.m.) unless otherwise approved by the Contracting Officer. Wear hard hats and all required personal protection in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be conspicuously marked for identification.

B. Employee List
   1. The Contractor shall provide to the Contracting officer, in writing, the names of two designated representatives authorized to request personnel and vehicle passes for employees and subcontractor's employees prior to commencement of work under this contract. The Contractor shall adhere to the requirements of "Important Clarifications - Contractors - How to Gain Access," using most recent copy, in obtaining access to the Keesler AFB complex for the life of the contract. A copy of these requirements will be provided at the preconstruction

C. Working Hours
   1. Regular working hours shall consist of a period between 7 a.m. and 5:00 p.m. 5 days per week, excluding Government holidays.

D. Work Outside Regular Hours
   1. Work outside regular working hours requires Contracting Officer approval. Make application 15 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress, giving the specific dates, hours, location, type of work to be performed, contract number and project title. Based on the justification provided, the Contracting Officer may approve work outside regular hours. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer.

E. Utility Cutovers and Interruptions

   1. Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, and Government holidays. Conform to procedures required in the paragraph "Work Outside Regular Hours."
   2. Ensure that new utility lines are complete, except for the connection, before interrupting existing service. It is the intension of this project to continue operations of existing utility service until such time as the new utility can be made ready for service.
   3. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, shall be considered utility cutovers pursuant to the

paragraph entitled "Work Outside Regular Hours." Approvals will be required for all outages, contractor shall work with the GOVERNMENT representative to schedule these outages. Approvals for outages may take up to 3 weeks for approval and must be scheduled to allow for approvals.

4. Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government will operate the control devices as required for normal conduct of the work. The Contractor shall notify the Contracting Officer giving reasonable advance notice when such operation is required.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01 15 00

QUALITY REQUIREMENTS

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.

1.2 U.S. ARMY CORPS OF ENGINEERS (USACE)

A. EM 385-1-1(2003) Safety - Safety and Health Requirements

1.3 SUBMITTALS

A. Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:
B. SD-01 Preconstruction Submittals QC Plan; G,
C. Submit a QC plan within 15 calendar days after receipt of Notice of Award.

1.4 QC PROGRAM REQUIREMENTS

A. Establish and maintain a QC program as described in this section. The QC program consists of a QC Manager, a QC plan, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site.
B. Preliminary Work Authorized Prior to Acceptance. The only work that is authorized to proceed prior to the acceptance of the QC plan is mobilization of storage and office trailers, temporary utilities, and surveying.
C. Acceptance. Acceptance of the QC plan is required prior to the start of construction. The CONTRACTING OFFICER reserves the right to require changes in the QC plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The CONTRACTING OFFICER reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications.
D. Notification of Changes. Notify the CONTRACTING OFFICER, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to the acceptance by the CONTRACTING OFFICER.

1.5 QC ORGANIZATION

A. QC Manager
1. Duties. Provide a QC Manager to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control,

perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by others.

2. Qualifications. An individual experienced as a superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this contract. The individual must be familiar with the requirements of the EM 385-1-1 and have experience in the areas of hazard identification and safety compliance.
3. Construction Quality Management Training. In addition to the above experience requirements, the QC Manager shall have completed the course Construction Quality Management for Contractors and will have a current certificate.

1.6 QC PLAN

A. Requirements
   1. Provide, for acceptance by the CONTRACTING OFFICER, a QC plan submitted in a three-ring binder that covers both on-site and off-site work and includes the following with a table of contents listing the major sections identified with tabs.

1.7 QC ORGANIZATION

A. A chart showing the QC organizational structure and its relationship to the production side of the organization.

1.8 NAMES AND QUALIFICATIONS

A. In resume format, for each person in the QC organization. Include the CQM for Contractors course certification required by the paragraph entitled "Construction Quality Management Training".

1.9 DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONEL

A. Of each person in the QC organization.
   1. OUTSIDE ORGANIZATIONS: A listing of outside organizations such as Contracting Office rural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.
   2. APPOINTMENT LETTERS: Letters signed by an officer of the
      firm appointing the QC Manager and stating that they are responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC Manager's authority to direct the removal and replacement of non-conforming work.
   3. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.
   4. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs "Accredited Laboratories" or "Testing Laboratory Requirements", as applicable.
   5. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.
   6. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track and complete rework items.
   7. DOCUMENTATION PROCEDURES: Use Government formats.
   8. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task, which is separate and distinct from other tasks, has the same control requirements and work crews.

The list shall be cross-referenced to the Contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart, the list of definable features of work shall include but not be limited to all items of work on the schedule.

9. For projects requiring a Network Analysis Schedule, the list of definable features of work shall include but not be limited to all critical path activities.
10. PROCEDURES FOR PERFORMING THREE PHASES OF CONTROL: For each DFOW provide Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The preparatory and initial phases shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems.
11. PERSONNEL MATRIX: Not Applicable.
12. PROCEDURES FOR COMPLETION INSPECTION: See the paragraph entitled "COMPLETION INSPECTIONS".
13. TRAINING PROCEDURES AND TRAINING LOG: Not Applicable.

1.10 COORDINATION AND MUTUAL UNDERSTANDING MEETING

A. During either the Pre-Construction conference, but prior to the start of construction, discuss the QC program required by this contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and the QC personnel. At the meeting, the Contractor will be required to explain how three phases of control will be implemented for each DFOW. Contractor's personnel required to attend shall include the QC Manager, project manager, and superintendent. Minutes of the meeting will be prepared by the QC Manager and signed by both the Contractor and the CONTRACTING OFFICER. The Contractor shall provide a copy of the signed minutes to all attendees.

1.11 QC MEETINGS

A. After the start of construction, the QC Manager shall conduct QC meetings weekly at the work site with the superintendent and the foreman responsible for the ongoing and upcoming work. The QC Manager shall prepare the minutes of the meeting and provide a copy to the CONTRACTING OFFICER within two working days after the meeting. As a minimum, the following shall be accomplished at each meeting:
   1. Review the minutes of the previous meeting;
   2. Review the schedule and the status of work and rework;
   3. Review the status of submittals;
   4. Review the work to be accomplished in the next two weeks and documentation required;
   5. Resolve QC and production problems (RFIs, etc.);
   6. Address items that may require revising the QC plan; and g. Review Accident Prevention Plan (APP).

1.12 THREE PHASES OF CONTROL

A. The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each DFOW.
   1. Preparatory Phase
      a. Notify the CONTRACTING OFFICER at least two work days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent and the foreman responsible for the definable feature of work. Document the results of the preparatory phase actions in the daily CQC Report and in the QC checklist. Perform the following prior to beginning work on each definable feature of work:
      b. Review each paragraph of the applicable specification sections;
      c. Review the contract drawings;

d. Verify that appropriate shop drawings and submittals for materials and equipment have 0 0 been submitted and approved. Verify receipt of approved factory test results, when required;
e. Review the testing plan and ensure that provisions have been made to provide therequired QC testing;
f. Examine the work area to ensure that the required preliminary work has been completed;
g. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;
h. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted; and
i. Discuss construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW.

2. Initial Phase
   a. Notify the CONTRACTING OFFICER at least two work days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the Initial Phase with the foreman responsible for that DFOW. Observe the initial segment of the work to ensure that it complies with contract requirements. Document the results of the Initial Phase in the daily CQC Report and in the QC checklist. Perform the following for each DFOW:
   b. Establish the quality of workmanship required;
   c. Resolve conflicts;
   d. Ensure that testing is performed by the approved laboratory; and
   e. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.
3. Follow-Up Phase
   a. Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFOW and document in the daily CQC Report and in the QC checklist:
   b. Ensure the work is in compliance with contract requirements;
   c. Maintain the quality of workmanship required;
   d. Ensure that testing is performed by the approved laboratory;
   e. Ensure that rework items are being corrected; and
   f. Perform safety inspections.
4. Additional Preparatory and Initial Phases
   a. Additional preparatory and initial phases shall be conducted on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW is resumed after substantial period of inactivity, or if other problems develop.
5. Notification of Three Phases of Control for Off-Site Work
   a. Notify the CONTRACTING OFFICER at least two weeks prior to the start of the preparatory and initial phases.

1.13 SUBMITTAL REVIEW AND APPROVAL

A. Procedures for submission, review, and approval of submittals are described in the submittal section of the specification.

1.14 TESTING

A. Except as stated otherwise in the specification sections, perform sampling and testing required under this contract.
B. Accreditation Requirements
   1. Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (i.e.; E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office."
C. Laboratory Accreditation Authorities
   1. Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO), International Accreditation Services, Inc. (IAS), U. S. Army Corps of Engineers Materials Testing Center (MTC), the American Association for Laboratory Accreditation (A2LA), the Washington Association of Building Officials (WABO) (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) (Approval authority by WACEL is limited to projects within the EFA Chesapeake and Public Works Center Washington geographical area).
D. Capability Check
   1. The CONTRACTING OFFICER retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this contract.
E. Test Results
   1. Cite applicable Contract requirements, tests or analytical procedures used.
   2. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the CONTRACTING OFFICER immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the CONTRACTING OFFICER via the QC Manager.

1.15 QC CERTIFICATIONS

A. Contractor Quality Control Report Certification
   1. Each CQC Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."
B. Invoice Certification
   1. Furnish a certificate to the CONTRACTING OFFICER with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.
C. Completion Certification
   1. Upon completion of work under this contract, the QC Manager shall furnish a certificate to the CONTRACTING OFFICER attesting that "the work has been completed, inspected, tested, and is in compliance with the contract."

1.16 COMPLETION INSPECTIONS

A. Punch-Out Inspection
   1. Near the completion of all work or any increment thereof established by a completion time stated in the Contract clause "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items of the "Rework Items List", which were not corrected prior to the Punch-Out inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the CONTRACTING OFFICER. The QC Manager or staff shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection".

B. Pre-Final Inspection
   1. The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government pre-final punch list may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in a timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

C. Final Acceptance Inspection
   1. The QC Manager, the superintendent, or other Contractor management personnel and the CONTRACTING OFFICER will be in attendance at this inspection. Additional Government personnel may be in attendance. The final acceptance inspection will be formally scheduled by the CONTRACTING OFFICER based upon results of the "Pre-Final Inspection". Notice shall be given to the CONTRACTING OFFICER at least 14 days prior to the final inspection. The notice shall state that all specific items previously identified to the Contractor as being unacceptable will be complete by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CONTRACTING OFFICER to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause "Inspection of Construction".

1.17 DOCUMENTATION

A. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER (CONTRACTING OFFICER)" shall be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work shall be identified by terminology consistent with the construction schedule. In the "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

B. Quality Control Validation
   1. Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Government's Quality Assurance Team during all business hours.
      a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.
      b. All milestone inspections, arranged by Activity/Event Number.

c. A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.
d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
e. A current up-to-date copy of the Rework Items List.
f. Maintain up-to-date copies of all punch lists issued by the QC
g. Staff on the Contractor and Sub-Contractors and all punch lists issued by the Government.

C. As-Built Drawings
1. The QC Manager is required to review the as-built drawings, required by Section 01770 CLOSEOUT PROCEDURES, are kept current on a daily basis and marked to show deviations, which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation, e.g. PC number, modification number, RFI number, etc. The QC Manager shall initial each deviation or revision. Upon completion of work, the QC Manager shall submit a certificate attesting to the accuracy of the as-built drawings prior to submission to the CONTRACTING OFFICER.

1.18 NOTIFICATION ON NON-COMPLIANCE

A. The CONTRACTING OFFICER will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after r e c e i p t of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the CONTRACTING OFFICER may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time, for excess costs, or damages.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

A. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.
B. Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.
C. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.
D. Contractor's Quality Control System Manager, to check and approve all items prior to submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified.
E. Submittals are to be scheduled and made prior to the acquisition of the material or equipment covered thereby. Picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations samples remaining upon completion of the work.

1.2 SUBMITTALS

A. Government approval is required for all submittals. Government approval is required for extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, or the completed design, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer.
B. The approval of submittals by the GOVERNMENT shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error, which may exist, as the Contractor is responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work.

1.3 FORWARDING SUBMITTALS REQUIRING GOVERNMENT APPROVAL

A. Submittals Required from the Contractor
    1. As soon as practicable after award of contract, and before procurement of fabrication, forward to the Government. Submittals required in the technical sections of this specification. The Contractor shall prepare and submit all items listed on the Submittal Register (741-F-016, Schedule of Material Submittals, or equivalent)
    2. TRANSMITTAL FORM (AF 3000); AF Form 3000 shall be used for submitting both Governments approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor by the GOVERNMENT. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care will be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.4 QUANTITY OF SUBMITTALS

A. Number of Copies Submittals
    1. Submit four copies of submittals.
B. Review Schedule
    1. A period of 14 working days will be allowed for consideration by the Government of submittals.

1.5 SUBMITTAL REGISTER

A. Prepare and maintain submittal register, as the work progresses. The Contractor shall develop a complete list of submittals required in the specifications, and use the list to prepare the Submittal Register. The Contractor is required to complete the submittal register and submit it to the Contracting Officer for approval within 30 calendar days after Notice to Proceed.
B. Copies Delivered to the Government
   1. Deliver one copy of submittal register updated by Contractor to Government with each invoice request.

1.6 SCHEDULING

A. Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.
   1. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.
   2. Submittals called for by the contract documents will be listed on the register.
   3. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.
   4. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."
   5. Except as specified otherwise, allow review period, beginning with receipt by approving authority that includes at least 14 working days for Contracting Officer approval. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization
   6. Period of review for each resubmittal is the same as for initial submittal.
B. Schedule Submittal
   1. At the Preconstruction conference, provide, for approval by the Contracting Officer, the following schedule of submittals:
      a. Schedule of shop drawings and technical submittals required by the specifications and drawings.

1.7 GOVERNMENT APPROVING AUTHORITY

A. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.
B. Identify returned submittals with one of the actions defined in paragraph entitled "Review Notations" and with markings appropriate for action indicated.
C. Upon completion of review of submittals Government will, stamp and date approved submittals. 2 copies of the approved submittal will be retained by the Contracting Officer and 2 copies of the submittal will be returned to the Contractor.

1.8 REVIEW NOTATIONS

A. DISAPPROVED SUBMITTALS
   1. Contractor shall make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the clause entitled, "Changes" is to be given to the Contracting Officer. Contractor is responsible for the dimensions and

design of connection details and construction of work. Failure to point out deviations may result in the Government requiring rejection and removal of such work at the Contractor's expense.

2. If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.9 APPROVED SUBMITTALS

A. The Contracting Officer's approval or acceptance of submittals is not be construed as a complete check, and indicates only that the general method of construction, materials, detailing and other information are satisfactory, design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval or acceptance will not relieve the Contractor of the responsibility for any error which may exist.

1.10 APPROVED SAMPLES

A. Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

1.11 WITHHOLDING OF PAYMENT

A. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.12 PROGRESS SCHEDULE

A. Bar Chart
   1. Submit the progress chart, for approval by the Contracting Officer, at the Preconstruction Conference in one reproducible and 4 copies.
   2. Prepare the progress chart in the form of a bar chart utilizing form "Construction Progress Chart" or comparable format acceptable to the Contracting Officer.

B. Project Network Analysis
   1. Submit the initial progress schedule within 21 calendar days of notice to proceed. Schedule is to be updated and resubmitted monthly beginning 7 calendar days after return of the approved initial schedule. Sufficient detail to facilitate the Contractor's control of the job and to allow the Contracting Officer to readily follow progress for portions of the work should be shown within the schedule.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 33 10

PROJECT SCHEDULE

PART 1 GENERAL

1.1 REFERENCES (Not Applicable)

1.2 QUALIFICATIONS

A. The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS, a Project Schedule as described below shall be prepared. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

3.2 BASIS FOR PAYMENT

A. The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel will result in an inability of the Contracting Officer to evaluate Contractor's progress for the purposes of payment.

3.3 PROJECT SCHEDULE

A. The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer.
   1. Use of the Critical Path Method
      a. The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in the Precedence Diagram Method (PDM).
   2. Level of Detail Required
      a. The Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule:
   3. Activity Durations
      a. Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule.
   4. Government Activities
      a. Government and other agency activities that could impact progress shall be shown

5. Responsibility
   a. All activities shall be identified in the project schedule by the party responsible to perform the work.
6. Work Areas
   a. All activities shall be identified in the project schedule by the work area in which the activity occurs.
7. Modification or Claim Number
   a. Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity.
8. Bid Item
   a. All activities shall be identified in the project schedule by the Bid Item to which the activity belongs.
9. Phase of Work
   a. All activities shall be identified in the project schedule by the phases of work in which the activity occurs.
10. Category of Work
    a. All Activities shall be identified in the project schedule according to the category of work which best describes the activity
11. Scheduled Project Completion
    a. The schedule interval shall extend from NTP to the contract completion date.
12. Project Start Date
    a. The schedule shall start no earlier than the date on which the NTP was acknowledged.
13. Constraint of Last Activity
    a. Completion of the last activity in the schedule shall be constrained by the contract completion date.
14. Interim Completion Dates
    a. Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.4 PROJECT SCHEDULE SUBMISSIONS

A. The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.
   1. Initial Project Schedule Submission
   2. The Initial Project Schedule shall be submitted for approval within 20 calendar days after NTP. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.
B. Periodic Schedule Updates
   1. Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer to assess Contractor's progress.

3.5 SUBMISSION REQUIREMENTS

A. The following items shall be submitted by the Contractor for the preliminary submission, initial submission, and every periodic project schedule update throughout the life of the project:
   1. Hard Copy of Schedule
   2. Two hard copies of the project schedule shall be provided.
B. File Medium
   1. Required data shall be submitted on CD unless otherwise approved by the Contracting Officer.
C. Disk Label
   1. A permanent exterior label shall be affixed to each disk submitted.

D. Network Diagram
   1. The network diagram shall be required on the initial schedule submission and on monthly schedule update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:
E. Continuous Flow
   1. Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity number, description, duration, and estimated earned value shall be shown on the diagram.
F. Project Milestone Dates
   1. Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.
G. Critical Path
   1. The critical path shall be clearly shown.

3.6 PERIODIC PROGRESS MEETINGS

A. Progress meetings to discuss payment shall include a monthly onsite meeting or other regular intervals mutually agreed to at the preconstruction conference.
   1. Meeting Attendance
      a. The Contractor's Project Manager shall attend the regular progress
   2. Update Submission Following Progress Meeting
      a. A complete update of the project schedule containing all approved progress, revisions, and adjuncts, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

3.7 REQUESTS FOR TIME EXTENSIONS

A. In the event the Contractor requests an extension of the contract completion date, or any interim milestone date, the Contractor shall furnish the following for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of delay is obligatory to any approvals.
   1. Justification of Delay
      a. The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, will not be a cause for a time extension to the contract completion date.
   2. Directed Changes
      a. If the NTP is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule.

3.8 OWNERSHIP OF FLOAT

A. Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

END OF SECTION

SECTION 01 35 50

ENVIRONMENTAL

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.

1.2 U.S. ARMY CORPS OF ENGINEERS (USACE)

A. EM 385-1-1 (2003) Safety - Safety and Health Requirements

1.3 DEFINITIONS

A. Environmental Pollution and Damage
   1. Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.
B. Environmental Protection
   1. Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
C. Contractor Generated Hazardous Waste
   1. Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and excess pesticides, and contaminated pesticide equipment rinse water.

1.4 GENERAL REQUIREMENTS

A. The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations.

1.5 SUBCONTRACTORS

A. The Contractor shall ensure compliance with this section by subcontractors.

1.6 PAYMENT

A. No separate payment will be made for work covered under this section. The Contractor shall be responsible for payment of fees associated with environmental permits, application, and/or

notices obtained by the Contractor. All costs associated with this section shall be included in the contract price. The Contractor shall be responsible for payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations.

1.7 SUBMITTALS

A. Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 013300 SUBMITTAL PROCEDURES:
   1. SD-01 Preconstruction Submittals
   2. Environmental Protection Plan

1.8 ENVIRONMENTAL PROTECTION PLAN

A. Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit an Environmental Protection Plan for review and approval by the Contracting Officer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, the Contractor shall meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.
   1. Compliance
      a. No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.
   2. Contents
      a. The environmental protection plan shall include, but shall not be limited to, the following:
         1) Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.
         2) Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.
         3) Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
         4) Description of the Contractor's environmental protection personnel training program.
         5) An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan.
         6) Drawings showing locations of proposed temporary excavations or embankments or haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.
         7) A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such

materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of these materials. In accordance with EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time shall be included in the contaminant prevention plan. As new hazardous materials are brought on site or removed from the site, the plan shall be updated.

8) A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, the plan shall include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, the plan shall include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented. If surface discharge will be the method of disposal, a copy of the permit and associated documents shall be included as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

3. Appendix
   a. Copies of all environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents shall be attached, as an appendix, to the Environmental Protection Plan.

1.9 PROTECTION FEATURES

A. This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.10 SPECIAL ENVIRONMENTAL REQUIREMENTS

A. The Contractor shall comply with the special environmental requirements listed here and included at the end of this section.

1.11 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

A. Any deviations, requested by the Contractor, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.12 NOTIFICATION

A. The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

PART 2 P R O D U C T S (NOT USED)

PART 3 E X E C U T I O N

3.1 LAND RESOURCES

A. The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.
   1. Work Area Limits
      a. Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.
   2. Landscape
      a. Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.
   3. Odors
      a. Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.
   4. Sound Intrusions
      a. The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the State of Mississippi rules.

3.2 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

A. Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.
   1. Solid Wastes
      a. Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic

waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill shall be the minimum acceptable off-site solid waste disposal option. The Contractor shall verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. The Contractor shall comply with site procedures and Federal, State, and local laws and regulations.

3.3 TRAINING OF CONTRACTOR PERSONNEL

A. The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Additional meetings shall be conducted for new personnel and when site conditions change. The training and meeting agenda shall include: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.4 POST CONSTRUCTION CLEANUP

A. The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

END OF SECTION

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Site Plan
   1. The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.
B. Identification of Employees
   1. The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.
C. Employee Parking
   1. Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

A. Payment for Utility Services
   1. The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies, as specified in the contract The Contractor shall carefully conserve any utilities furnished without charge.
B. Temporary Connections
   1. The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary connections, distribution lines
C. Sanitation
   1. The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.
D. Telephone
   1. The Contractor shall make arrangements and pay all costs for telephone facilities desired.

1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

A. Bulletin Board
   1. Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to a l l employees, as approved by the Contracting Officer. Legible copies of the

aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

B. Project and Safety Signs
   1. The requirements for the signs, their content, and location shall be as shown on the drawings. The signs shall be erected within 15 days after receipt of the notice to proceed. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the site.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

A. During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property.

B. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

C. Haul Roads
   1. The Contractor shall be restricted to haul routes indicated on the drawings unless otherwise approved by the Contracting Officer. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Upon completion of the work, haul roads used and/or damaged by the Contracting Officer shall be cleaned and/or repaired to the condition prior to the start of construction work.

D. Barricades
   1. The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5 CONTRACTOR'S TEMPORARY FACILITIES

A. Administrative Field Offices
   1. The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

B. Storage Area
   1. The Contractor shall construct a temporary 6 foot high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored brown, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

C. Supplemental Storage Area
   1. Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

D. Appearance of Trailers
   1. Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property. Trailers shall be in accordance with Base standards for temporary trailers.

E. Maintenance of Storage Area
   1. Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and i areas not accessible to mowers shall be edged or trimmed neatly.

F. Security Provisions
   1. Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.6 TEMPORARY PROJECT SAFETY FENCING

A. As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.7 CLEANUP

A. Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.8 RESTORATION OF STORAGE AREA

A. Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 73 20

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolition and removal of selected portions of building or structure.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 PREINSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.
B. Pre-demolition Photographs or Video: Submit before Work begins.
C. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an PA-approved certification program.

1.7 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by THE GOVERNMENT as far as practical.
   1. Before selective demolition, THE GOVERNMENT will remove the following items:
      a. Furnishings within the area of work.
B. Notify Contracting Officer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
C. Hazardous materials will be removed by THE GOVERNMENT before start of the Work u nless specifically stated as part of the project.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify THE GOVERNMENT. Hazardous materials will be removed by THE GOVERNMENT under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.
E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
   1. Comply with requirements for existing services/systems interruptions specified in Section 01100 "Summary."
B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off indicated utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
      a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
      b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
      c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
      d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
      e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to THE GOVERNMENT.
      f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 PREPARATION

A. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
      a. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
      b. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame- cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
      c. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
      d. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items:
   1. Clean and repair items to functional condition adequate for intended reuse.
   2. Pack or crate items after cleaning and repairing. Identify contents of containers.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain THE GOVERNMENT's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
   4. Comply with requirements specified in Section 01524 "Construction Waste Management."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off THE GOVERNMENT's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUBMITTALS

A. Government approval is required for submittals. The following shall be submitted in accordance with Section 013300 SUBMITTAL PROCEDURES:
   1. SD-10 Operation and Maintenance Data Equipment/Product Warranty List; G
   2. SD-11 Closeout Submittals As-Built Drawings; G

1.2 PROJECT RECORD DOCUMENTS

A. As-Built Drawings
   1. "FAC 5252.236-9310, Record drawings." In addition to the requirements of FAC 5252.236-9310, the Contractor shall survey the horizontal and vertical location of all underground utilities to within0.1 feet relative to the station datum. All pipe utilities shall be surveyed at each fitting and every 100 LF of run length. Electrical and communication duct bank, direct buried conduit, and direct buried conductor shall be surveyed every 100 LF and at each change of direction. Locations and elevations shall be recorded on the Record Drawings. Submit drawings with QC certification.

B. Utility Record Drawings
   1. In addition to record drawings provide for each exterior utility system a set of reproducible utility drawings, stamped and signed by a registered professional civil engineer or professional land surveyor, and two copies. Submit within ten working days after each system is in place, but no later than five working days before final inspection. Indicate exterior utilities from a point five feet from a building to the termination point or point of connection to existing system. Include the following:
      a. Horizontal and vertical controls for new utilities and existing utilities exposed during construction. Reference to station's horizontal and vertical control system.
      b. Sufficient dimensional control for all important features such as beginning and termination points, points of connection, inverts for sewer lines and drainage collection systems, top of pipe or conduit runs, manholes, cathodic protection appurtenances, valves, valve stem tops, backflow preventers, and other significant features.
      c. Indicate type and size of all materials used in the construction of the system.
      d. Indicate bearing and distance on tangent lines. On curves, indicate delta and radius of the curve, also provide X, Y, and Z coordinates at all BC and EC angle points. Indicate horizontal and vertical control for all intersecting and tangent points where utility alignment changes. Indicate X, Y, and Z coordinates at building line and point of connection for straight building laterals or services under 40 feet.
      e. Tolerances: Horizontal and vertical control dimensions, plus or minus 0.10 foot. Angular control, plus or minus 0 degrees 01 minute.

C. As-Built Record of Materials
   1. Furnish a record of materials. Where several manufacturers' brands, types, or classes of the item listed have been used in the project, designate specific areas where each item was used. Designations shall be keyed to the areas and spaces depicted on the contract drawing. Furnish the record of materials used in the following format:
      MATERIALS SPECIFICATION MANUFACTURER MATERIALS USED WHERE DESIGNATION (MANUFACTURER'S USED DESIGNATION)

1.3 EQUIPMENT/PRODUCTWARRANTIES

A. Equipment/Product Warranty List
   1. Furnish to the Contracting Officer a bound and indexed notebook containing written warranties for equipment/products furnished under the contract, and prepare a complete listing of such equipment/products. The equipment/products list shall state the specification section applicable to the equipment/product, duration of the warranty therefore, start date of the warranty, ending date of the warranty, and the point of contact for fulfillment of the warranty. The warranty period shall begin on the same date as project acceptance and shall continue for the full product warranty period. Execute the full list and deliver to the Contracting Officer prior to final acceptance of the facility.

B. Equipment Warranty Tags and Guarantor's Local Representative
   1. Furnish with each warranty the name, address, and telephone number of the guarantor's representative nearest to the location where the equipment and appliances are installed. The guarantor's representative, upon request of the station representative, shall honor the warranty during the warranty period, and shall provide the services prescribed by the terms of the warranty. At the time of installation, tag each item of warranted equipment with a durable, oil- and water-resistant tag approved by the Contracting Officer. Attach tag with copper wire and spray with a clear silicone waterproof coating. Leave the date of acceptance and QC's signature blank until project is accepted for beneficial occupancy. Tag shall show the following information:

EQUIPMENT/PRODUCT WARRANTY TAG

Type of Equipment/Product _____
_____ Warranty
Period_____From_____To _____
Contract No. _____
Inspector's Signature_____Date Accepted _____
Construction Contractor:
Name: _____
Address: _____
Telephone: _____
Warranty Contact: _____
Name: _____
Address: _____
Telephone: _____
STATION PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE

1.4 CLEANUP

A. Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.

PART 2 P R O D U C T S

Not used.

PART 3 E X E C U T I O N

Not used.

END OF SECTION

SECTION 01 78 00

CLOSE OUT SUBMITTALS

PART 1 G E N E R A L

1.1 SUBMITTALS

A. Government approval is required for submittals. The following shall be submitted in accordance with Section 013300 SUBMITTAL PROCEDURES:
   1. SD-02 Shop Drawings
      a. As-Built Drawings
         1) Drawings showing final as-built conditions of the project. The manually prepared drawings shall consist of 1 set of completed final as-built original transparency drawings, 2 sets of blue-line prints of the transparencies, and the approved marked working as-built prints. The digitally prepared drawings shall consist of 1 set of completed final as-built drawings in AutoCAD format.
   2. SD-03 Product Data
      a. As-Built Record of Equipment and Materials
         1) Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.
         2) Warranty Management Plan
         3) One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.
         4) Warranty Tags
         5) Two record copies of the warranty tags showing the layout and design.
         6) Final Cleaning

1.2 PROJECT RECORD DOCUMENTS

A. As-Built Drawings
   1. This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.
B. Working As-Built and Final As-Built Drawings
   1. The Contractor shall revise 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times.
C. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final as-built drawings shall be prepared after the completion of each definable feature of work, as appropriate for the project. The working and final as-built drawings shall show, but shall not be limited to, the following information:
   1. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by

dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

2. The location and dimensions of any changes within the building structure.
3. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.
4. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor.
5. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
6. Changes or modifications which result from the final inspection.
7. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.
8. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.
9. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
10. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications

D. Drawing Preparation
   1. The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

E. Manually Prepared Drawings
   1. Only personnel proficient in the preparation of manually prepared drawings shall be employed to modify the original contract drawing or prepare additional new drawings. Additions and corrections to the contract drawings shall be neat, clean and legible, shall be done to the same level of detail, and shall match the adjacent existing line work, and lettering being annotated in type, density, size and style.
   2. Within 30 days for contracts less than $5 million after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final as-built drawings for that phase of work and submit two sets of blue-line prints of these drawings for Government review and approval. Drawings will become the property of the Government upon final approval. Failure to submit final as-built drawings and marked prints, as required herein, will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

F. Digitally Prepared Drawings
   1. Only personnel proficient in the preparation of digitally prepared drawings shall be employed to modify the original contract drawing or prepare additional new drawings. Additions and corrections to the contract drawings shall be neat, clean and legible, shall be done to the same level of detail, and shall match the adjacent existing line work, and lettering being annotated in type, density, size and style.
   2. Within 30 days for contracts less than $5 million after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final as-built drawings for that phase of work and submit two sets of blue-line prints of these drawings for Government review and approval. Drawings will become the property of the Government upon final approval. Failure to submit final as-built drawings and marked prints, as required herein, will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

G. Payment

1. No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

H. As-Built Record of Equipment and Materials
1. The Contractor shall furnish two sets of final record of equipment and materials 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings.

I. Final Approved Shop Drawings
1. The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

J. Construction Contract Specifications
1. The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

K. Real Property Equipment
1. The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

1.3 WARRANTY MANAGEMENT

A. Warranty Management Plan
1. The Contractor shall develop a warranty management plan. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative.

B. Performance Bond
1. The Contractor's Performance Bond shall remain effective throughout the construction period.
   a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.
   b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the company.
   c. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

C. Pre-Warranty Conference
   1. Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

D. Contractor's Response to Construction Warranty Service Requirements
   1. Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements as shown below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and back charge the construction warranty payment item established. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, all other work to be initiated within 3 work days and work continuously to completion or relief.

E. Warranty Tags
   1. At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy.

1.4 MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

A. Prior to final inspection and transfer of the completed facility; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical systems shall be submitted to and approved by the Contracting Officer as specified in applicable technical specification sections.

1.5 OPERATION AND MAINTENANCE MANUALS

A. Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.6 FINAL CLEANING

A. The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

END OF SECTION

SECTION 01 78 20

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUBMISSION OF OPERATION AND MAINTENANCE DATA

A. Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01330 SUBMITTAL PROCEDURES.
B. Package Quality
   1. Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.
C. Package Content
   1. Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission.
D. Changes to Submittals
   1. Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.2 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

A. Operating Instructions
   1. Include specific instructions, procedures, and illustrations for the following phases of operation:
      a. Safety Precautions
         1) List personnel hazards and equipment or product safety precautions for all operating conditions.
      b. Operator Prestart
         1) Include procedures required to set up and prepare each system for use.
      c. Startup, Shutdown, and Post-Shutdown Procedures
         1) Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.
      d. Normal Operations
         1) Provide narrative description of Normal Operating Procedures. Include Control Diagrams with data to explain operation and control of systems and specific equipment.
      e. Emergency Operations
         1) Include Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of all utility systems including required valve positions, valve locations and zones or portions of systems controlled.
      f. Operator Service Requirements
         1) Include instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gage readings.

g. Environmental Conditions
   1) Include a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.
h. Preventive Maintenance
   1) Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair.
i. Lubrication Data
   1) Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under paragraph titled "Operator Service Requirements":
   2) A table showing recommended lubricants for specific temperature ranges and applications.
   3) Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.
   4) A Lubrication Schedule showing service interval frequency.
j. Preventive Maintenance Plan and Schedule
   1) Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

B. Corrective Maintenance (Repair)
   1. Include manufacturer's recommended procedures and instructions for correcting problems and making repairs.
   2. Troubleshooting Guides and Diagnostic Techniques
      a. Include step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.
   3. Wiring Diagrams and Control Diagrams
      a. Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.
   4. Maintenance and Repair Procedures
      a. Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.
   5. Removal and Replacement Instructions
      a. Include step-by-step procedures and a list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.
   6. Spare Parts and Supply Lists
      a. Include lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

C. Corrective Maintenance Work-Hours
   1. Include manufacturer's projection of corrective maintenance work-hours including requirements by type of craft. Corrective maintenance that requires completion or participation of the equipment manufacturer shall be identified and tabulated separately.

D. Appendices
1. Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:
a. Parts Identification
1) Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.
b. Warranty Information
1) List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force.
c. Personnel Training Requirements
1) Provide information available from the manufacturers that are needed for use in training designated personnel to properly operate and maintain the equipment and systems.
d. Testing Equipment and Special Tool Information
1) Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.
e. Contractor Information
1) Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.3 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

A. Furnish the O&M data packages specified in individual technical sections.
1. Data Package 3
a. Safety precautions
b. Parts identification
c. Emergency operations
d. Lubrication data
e. Troubleshooting guides and diagnostic tech
f. Spare parts and supply list
g. Warranty information
h. Contractor information
i. Environmental conditions
j. Preventive maintenance plan and schedule
k. Wiring diagrams and control diagrams
l. Maintenance and repair procedures
m. Removal and replacement instructions

n. Test equipment and special tool information

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1GENERAL

1.1 SUMMARY

A. Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated. Types of work in this Section include rough carpentry for:
   1. Wood nailers and blocking
   2. Other rough carpentry indicated
B. Related Sections include the following:
   1. Division 6 Section “Finish Carpentry”
   2. Division 6 Section “Interior Architectural Woodwork”

1.2 DELIVERY STORAGE, AND HANDLING

A. Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and provide air circulation within stacks.

1.3 PROJECT CONDITIONS

A. Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, and similar supports to allow proper attachment of other work.

PART 2 PRODUCTS

2.1 MATERIALS

A. Framing Lumber:
   1. Miscellaneous Lumber:
      a. Provide wood for support or attachment of other work including bucks, nailers, blocking, furring, stripping and similar members. Provide lumber of sizes shown or specified worked into shapes shown. Grade: Standard or No. 2 Southern Pine.
B. Plywood:
   1. Plywood Backing Panels:
      a. For mounting electrical or telephone equipment, provide fire retardant treated plywood panels with grade designation, APA C-C Plugged INT with exterior glue, in 3/4" thickness, 6 ply construction.

2.2 ACCESSORIES

A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nail, staples, screws, bolts, nuts, washers and anchoring devices.

PART 3 – EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
2. Framing lumber and other rough carpentry shall be fitted closely, set accurately to the required lines and levels and shall be secured in place in a rigid and substantial manner.
3. All framing and support members, not indicated or specified, shall be provided as necessary for the proper completion of the work. Spiking, nailing and bolting shall be done in an approved manner; spikes, nails and bolts shall be of the proper size, and care shall be used so as not to split the members.
4. Provide framing to support all edges of covering material.

B. Wood Nailers, and Blocking:
1. Provide wherever shown and where required for attachment of other work. Form to shapes as shown or required and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
2. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work.
3. 12" o.c. along intermediate supports, and 3/8" minimum from panel edge.

END OF SECTION

SECTION 06 20 00

FINISH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Definition: Finish carpentry includes carpentry which is exposed to view is non-structural, and which is not specified as part of other Sections. Types of finish carpentry work in this section include:
   1. Finish wood – panel and solid product
   2. Standing and Running Trim
   3. Other finish wood work indicated.
B. Related Sections include the following:
   1. Division 6 Section “Rough Carpentry”
   2. Division 6 Section “Interior Architectural Woodwork”

1.2 SUBMITTALS

A. Shop Drawings – Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, surface grain directions, profiles, assembly methods, joint details, attachment devices and other components
B. Samples
   1. Provide minimum 12” x 12” for panel products, 12” long for solid wood products for transparent finish, for each species and cut, finished on one side and one edge.
   2. Provide step sample for solid and veneer woods showing each stage of finishing process.

1.3 QUALITY ASSURANCE

A. Quality standards - except as otherwise shown or specified, comply with specified provisions of the following:
   1. Architectural Woodwork Institute (AWI) "Architectural Woodwork Quality Standards".

1.4 DELIVERY, STORAGE AND HANDLING

A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
B. Do not deliver finish carpentry materials until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.5 PROJECT CONDITIONS

A. Conditioning: Installer shall advise contractor of temperature and humidity requirements for woodwork installation areas. Do not install woodwork until required temperature and relative humidity have been stabilized and will be maintained in installation areas.
B. Maintain temperature and humidity in installation area as required to maintain moisture content of installed woodwork within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity condition.

PART 2 PRODUCTS

2.1 MATERIALS

A. Wood Moisture Content:
   1. Provide kiln-dried (KD) lumber with an average content range of 6% to 11%. Maintain temperature and relative humidity during fabrication, storage and finishing operations so that moisture content values for woodwork at time of installation do not exceed the following:
   2. Interior Wood Finish: 8% - 13%.
B. Interior Hardwood – Solid for Transparent Finish:
   1. Select white birch species, Grade I, plain sliced
C. Interior Hardwood – Plywood for Transparent Finish:
   1. Grade: Grade A faces.
   2. Species: Select white birch
   3. Cut: plain sliced
   4. Match between adjacent veneer leaves: Book match
   5. End matching: Architectural End Match
   6. Matching within Individual Panel Faces: Center Balance Match
   7. Trim and Edges:
   8. Trim and edges shall be solid wood construction of same species and cut as panel faces and compatible with grain and color of panel faces.
D. Interior Wood for Opaque Finish (Softwood):
   1. Solid Wood: Yellow-Poplar or any softwood rated "good" or "excellent" for paint finishing in AWI "Guide to Wood Species", and meeting requirements for specified woodwork grade.
   2. Plywood: APA Group 2, Exposure 1 or 2, Grade A on exposed faces, Grade D or better on concealed faces (such as backs of shelving units against wall).

2.2 ACCESSORIES

A. Rough Hardware:
   1. Provide all necessary nails, screws and other hardware to properly secure members in place. Use finish or casing nails and trim head screws as appropriate where exposed.

2.3 FABRICATION

A. General
   1. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber at time of fabrication and for relative humidity conditions in the installation areas.
   2. Fabricate woodwork to dimensions, profiles and details indicated with openings and mortises precut, where possible, to receive hardware and other items and work.
   3. Complete fabrication, assembly, finishing, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming and fitting.
   4. Measurements: Before proceeding with fabrication of woodwork required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.
B. Cabinet and Paneling Grade: Fabricate to AWI Custom Standards.
C. Standing and Running Trim:
   1. Fabricate to AWI Custom Standards.
   2. Shop prepare and identify components for grain matching during site erection.
   3. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

4. Sand work smooth and set exposed nails.
5. Apply wood filler in exposed nail indentations.
   a. Wood filler to match surrounding surfaces and of type recommended for applied finish.

2.4 FINISHES

A. Finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
B. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling.
C. Transparent Finish:
   1. Grade: Custom.
   2. AWI Finish System: Conversion varnish, solvent based.
   3. Staining: Match approved samples for color. Sample to be provided by Contracting Officer.
   4. Fillers: Apply a wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
   5. Sheen:
      a. Gloss units measured on 60-degree gloss meter per ASTM D 523.
      b. Semigloss, 46-60 gloss units.
D. Opaque Finish:
   1. Finish per Division 9 Section “Painting”.

PART 3 EXECUTION

3.1 EXAMINATION

A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.
B. Prior to installation of Finish Carpentry, examine shop fabricated work for completion, and complete work as required, including removal of packing.

3.2 INSTALLATION

A. Grade: Install paneling and solid wood components to comply with requirements of AWI Custom Grade.
B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
C. For flush paneling, install with variations in reveal width, alignment of top and bottom edges, and flushness between adjacent panels not exceeding 1/16 inch.
D. Scribe and cut paneling to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
E. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips or blind nailing ONLY. Do not use face fastening, unless covered by trim.
F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Scarf running joints and stagger in adjacent and related members. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and matching final finish where transparent finish is indicated.

3.3 ADJUSTING

A. Repair damaged and defective work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace work. Adjust joinery for uniform appearance.

3.4 CLEANING

A. Clean work on exposed and semi-exposed surfaces.

3.5 PROTECTION

A. Installer of Finish Carpentry shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION

SECTION 06 40 20

INTERIOR ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Architectural cabinets.
   2. Accessories
B. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips unless concealed within other construction before woodwork installation.
C. Related Section include the following:
   1. Division 6 Section “Rough Carpentry”.
   2. Division 6 Section “Finish Carpentry”.

1.1 SUBMITTALS

A. Product Data: For cabinet hardware and accessories.
B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1.2 QUALITY ASSURANCE

A. Quality standards - except as otherwise shown or specified, comply with specified provisions of the following:
   1. Architectural Woodwork Institute (AWI) "Architectural Woodwork Quality Standards".

1.3 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 PRODUCTS

2.1 MATERIALS

A. Wood Products:
   1. Softwood Plywood: DOC PS 1, Medium Density Overlay (for use with painted plywood only).
   2. Interior Hardwood: as specified in Division 6 Section “Finish Carpentry”.

2.2 ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural woodwork.
B. Hinges:
   1. 5 Knuckle Hinges: Hinges shall be .95” steel five-knuckle hospital-tip institutional grade quality with .187” diameter tight pin. Hinge shall permit door to swing 270 degrees without binding.

C. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
D. Drawer Slides: Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
E. Door Locks: BHMA A156.11, E07121.
F. Drawer Locks: BHMA A156.11, E07041.
G. Shelf Supports:
   1. Where shelving is indicated as "adjustable shelf standards" or “pin type", provide Hafele standard, 25mm, silver anodized aluminum finish or equal. Include metal shelf supports in matching finish.
H. Round Grommets: ZG “Flip Top” Series, 2" hole, by Doug Mockett & Company. Color to be selected by Contracting Officer.
I. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   1. Satin Stainless Steel: BHMA 630.
J. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

2.3 FABRICATION

A. General: Complete fabrication to maximum extent possible before shipment to Project site. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
   1. Interior Woodwork Grade: Custom
   2. Shop cut openings to maximum extent possible. Sand edges of cutouts to remove splinters and burrs. Seal edges of openings in countertops with a coat of varnish.
B. Architectural Cabinets and Shelving, Paneling, Standing and Running Trim, Transparent Finish
   1. As specified in Division 6 Section “Finish Carpentry”.

2.4 FINISHING

A. Finish woodwork per Division 6 Section “Finish Carpentry”.

PART 3EXECUTION

3.1 INSTALLATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.
B. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
C. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch in 96 inches. Shim as required with concealed shims.
D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.
G. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c.
H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop. Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

END OF SECTION

SECTION 06 61 13

Engineered Composites Fabrications

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Engineered Composites:
   1. Shower Wall Panels

1.2 REFERENCES

A. ANSI Z 124.3 - Plastic Lavatories.
B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures.
B. Product Data: Submit manufacturer's product data including installation instructions.
C. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, and details indicating dimensions, sizes, installation details, attachment provisions, and coordination requirements with adjacent work.
D. Samples: Submit manufacturer's 4-inch by 4-inch samples of engineered marble for each color specified, showing material thickness and finish. Indicate full range of colors and patterns.
E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
F. Maintenance Data: Submit manufacturer's care and maintenance recommendations, including recommended repair and cleaning instructions.
G. Warranty: Submit manufacturer's standard commercial warranty.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Sufficient plant facilities to provide quality, quantities, shapes, and sizes of engineered marble units required without delaying progress of the Work.
   2. Minimum of 20 years' experience in producing engineered composite products.
B. Installer Qualifications:
   3. Experienced installer who has demonstrated successful installation of engineered marble or cast polymer products similar to that specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and individual unit number.
B. Storage: Store materials flat in clean, dry area indoors in accordance with manufacturer's instructions.
C. Handling: Protect materials and finish from damage during handling and installation in accordance with manufacturer's instructions.

1.6 SCHEDULING

A. Schedule and deliver engineered composite units when ready for installation.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Company Name: [Company], Address: [Address], City, State, Zip code: Phone: [Phone], Fax:[Fax], Email: [Email], Web Site: [Web Site]

2.2 ENGINEERED COMPOSITE

A. Material: Engineered marble consisting of 25% polyester resin and 75% calcium product (crushed limestone).
B. Performance Requirements: ANSI Z 124.3, ASTM-D2583, Certified by IPCA (International Cast Polymer Association through Universal Laboratory, Inc.
C. Fabrication:
   1. Mix clean aggregate filler with polyester resin to create a matrix.
   2. Add colorants to matrix in a manner to provide veining to mimic appearance of natural marble products.
   3. Pour material into molds behind gel coat
   4. Allow to fully cure to a solid material.
   5. Coat finished engineered marble units with protective wax.
   6. Provide consistent color throughout depth of material, not just the surface.
D. Gel Coat Thickness: 15 mils minimum dry with an average thickness of 25 mils dry.
E. Minimum Thickness: Blocks, plugs, or other devices placed in molds to reduce specified thickness of load bearing surface(s) are not allowed.

2.3 SHOWER BASES

A. As indicated on the drawings.
B. Thickness: 3/4 inch minimum.
C. Color: Full manufacturer’s colors, Contracting Officer will determine color.
D. Finish: Molded with textured nonslip finish for floor and smooth walls.

2.4 SHOWER THRESHOLDS

A. Width: As indicated on the drawings
B. Color: Full manufacturer’s colors, Contracting Officer will determine color.

2.5 SHOWER WALL PANELS

A. Size: As indicated on the drawings.
B. Thickness: 3/8 inch.
C. Color: Full manufacturer’s colors, Contracting Officer will determine color.
D. Accessories:
   1. Standard large shampoo and soap dish recessed in wall panel.
   2. Panel Adhesive: Clear or color-matched 100 percent silicone panel adhesive.
   3. Sealant: Clear or color-matched 100 percent silicone sealant.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive engineered marble units. Notify Contracting Officer if surfaces are not acceptable. Do not begin installation until unacceptable conditions have been corrected.
B. Examine engineered composite units before installation. Do not install unacceptable units.

3.2 INSTALLATION

A. Install engineered composite units in accordance with manufacturer's instructions.
B. Install engineered composite units level, plumb, square, and in proper alignment.
C. Make field cuts as necessary from unfinished bottom side in accordance with manufacturer's instructions.
D. Form field joints using manufacturer's recommended adhesive.
E. Do not allow hot water temperature over 140 degrees F to come into contact with engineered composite units.
F. Repair nicks, scratches, and other minor damages to finish in accordance with manufacturer's instructions and as approved by Contracting Officer.
G. Remove and replace damaged units that cannot be successfully repaired as determined by Contracting Officer.

3.3 CLEANING

A. Clean and polish engineered composite units promptly after installation in accordance with manufacturer's instructions.
B. Do not use abrasive or harsh cleaning materials or methods that would damage finish.
C. Protect Finish from damage until job completion using plastic wrap, cardboard or a soft cloth.

3.4 PROTECTION

A. Protect installed engineered composite units from damage for duration of project.

3.5 WARRANTY

A. One year manufacture warranty, from original date of installation, on products under normal use against manufacturing defects and/or workmanship.

END OF SECTION

SECTION 07 24 00

EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

PART 1 GENERAL

1.1 SUMMARY

A. Section includes exterior insulation and finish system (EIFS - Class PB).
   1. System includes vapor barrier over existing stucco finish (secondary weather resistive barrier).
B. Related Sections include the following:
   2. Division 7 Section “Joint Sealants”

1.2 SYSTEM DESCRIPTION

A. Description of Parex EIFS Water Master Commercial DB System:
   1. Parex EIFS Water Master System with Cementitious Base Coat: An Exterior Insulation and Finish System (EIFS) consisting of channeled Expanded Polystyrene Insulation (EPS) Board, Non-cementitious Adhesive, Vented Track, Cementitious Base Coat with embedded Reinforcing Fabric Mesh, Primer, and Finish Coat.
   2. This system is installed over a secondary weather barrier consisting of Parex KeyCoat Liquid Membrane & Adhesive applied over exterior sheathing to form a water draining assembly.

1.3 SUBMITTALS

A. Written approval of applicator by System manufacturer.
B. Finish standard color and texture samples for selection. Then 2 x 4 foot sample of color and texture selected for approval.

1.4 QUALITY ASSURANCE

A. Applicator and Application:
   1. Applicator shall be approved by the manufacturer of the System.
   2. Engaged in application of EIFS for a minimum of three (3) years.
   3. Employ skilled mechanics who are experienced and knowledgeable in EIFS application, and familiar with the requirements of the specified work.
   4. Successful completion of minimum of three (3) projects of similar size and complexity to the specified project.
B. Regulatory Agencies:
   1. System shall be approved by Southern Building Code Congress International.
   2. System shall have been subjected in its end use configuration to a full scale fire test such as Building Corner Test and shall be listed by Factory Mutual or Underwriter's Laboratories as an acceptable system for use on non-combustible construction.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original unopened packaging with legible manufacturer's identification.
B. Protect coatings (pail products) from freezing and temperatures in excess of 90□F. Store away from direct sunlight.
C. Protect Portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.

1.6 PROJECT CONDITIONS

A. Apply only in ambient temperature above 40 degrees F. and on unfrozen surfaces and maintain specified ambient temperature for at least 24 hours after installation.
B. Provide protection of surrounding areas and adjacent surfaces from application of materials.

1.7 WARRANTY

A. Provide manufacturer's standard labor and material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Drawings and specifications are based upon Parex, Inc.
B. Equal as approved

2.2 SYSTEM

A. Parex Exterior Insulation & Finish System (EIFS) Water Master Commercial DB System.
   1. Secondary Weather Resistive Barrier:
   2. Parex KeyCoat Liquid Membrane Adhesive 395A, trowel applied liquid membrane weather barrier.
   3. Parex Sheathing Tape 396.
   4. Adhesive: Parex KeyCoat Liquid Membrane/Adhesive, or manufacturer’s specified adhesive for the system.
   5. Insulation Board: In compliance with manufacturer’s requirements for the system.
   6. Base Coat: Base Coat/Adhesive 121 or 121 Dry (Cementitious), or ABC-N1 Base Coat/Adhesive 302 (Full Synthetic).
   7. Mesh Reinforcement: Locations to achieve impact strength shall be as follows:
   8. Locations (Not Otherwise Noted): EIMA Impact Classification: High Impact
   9. Track: Vented Track 363 as required for EIFS.
   10. Seal Tape: Seal Tape 360.
B. Parex System Finish:
   1. Type, texture, and color to be selected by Contracting Officer from manufacturer’s standard
C. Product Performance Requirements: Refer to Product Performance Sheet as attached herein.

2.3 MATERIALS

A. Secondary Weather Barrier:
   1. Parex KeyCoat Liquid Membrane Adhesive 395A: Vapor permeable fluid-applied flexible coating for exterior gypsum sheathing to provide a secondary weather barrier.
   2. Parex Sheathing Tape 396: Non-woven synthetic fiber tape to reinforce liquid membrane at sheathing board joints.
   3. Parex Flashing Membrane 365: Self-sealing, non-woven mat backed, rubberized asphalt membrane, 30 mils thick.
B. Water Master Insulation Board:
   1. Shall be produced by a manufacturer approved by Parex.
   2. Shall conform to ASTM C-578, Type I and the Parex specification for Molded Expanded Polystyrene Insulation board.
   3. Maximum size shall be 2’ x 4’.
   4. Nominal thickness shall be 1-1/2” minimum.
   5. Back of insulation board shall be configured with channels as per Parex Water Master design.
C. Adhesive:
   1. Parex KeyCoat Liquid Membrane Adhesive 395A: Full synthetic weather resistive membrane and adhesive for bonding Parex Water Master Insulation board to exterior gypsum sheathing.

2. Sheathing Adhesive 303: 100% acrylic polymer based; ready to use, applied without the addition of cement; used as an adhesive to laminate EPS Insulation Board to appropriate substrates.

D. Parex Reinforcing Mesh:
1. High Impact 14 Mesh 358.14: Weight 14 oz. per sq. yd. Reinforcing mesh used with Parex EIFS Water Master Commercial System; to achieve EIMA high impact strength.
2. Short Detail Mesh 356: Reinforcing mesh used for backwrapping and details.
3. Self-Adhesive Detail Mesh 352: Reinforcing mesh used for complex details.

E. Parex Base Coat:
1. Base Coat/Adhesive 121: 100% acrylic polymer base, requiring the addition of Portland cement.
2. Base Coat/Adhesive 121 Dry: Copolymer based, factory blend of cement and proprietary ingredients.
3. ABC-N1 Base Coat/Adhesive 302: 100% acrylic polymer base, ready to use.

F. Parex Primers:
1. Primer 310: 100% acrylic based coating to prepare surfaces for Parex finishes.
2. Sanded Primer 313: 100% acrylic based coating to prepare surface for Parex Cerastone finish.

G. Parex Finish Coat: Factory blended, 100% acrylic polymer based synthetic finish, integrally colored. Finish type, texture and color as selected by Contracting Officer.

H. Parex Vinyl Track: Exterior grade PVC extrusion accessory used for base termination of Parex EIFS at grade; provides straight termination. Vented Track 363: Vent holes for drainage and perforated front flange to key base coat.

I. Parex Seal Tape 360: Self adhering pre-compressed expanding tape for forming a weather seal.

J. Water: Clean, potable water.

K. Portland Cement: ASTM C 150, Type I.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examination of Substrate:
1. Prior to installation of EIFS, examine substrate as follows:
   a. Substrate shall be of a type approved by the manufacturer.
      1) Substrate shall be examined for soundness, such as tightness of connections, crumbling or looseness of surface, voids and projections, spacing of panels, and other conditions.
      2) Deviations beyond allowable tolerances for installation of substrate material. The substrate shall have no planar irregularities greater than 1/4 inch.
      3) Substrate surface shall be free of foreign materials such as oil, dust, dirt, form release agents, paint, wax, water, frost, and other harmful materials.
2. Advise Contracting Officer of discrepancies preventing installation of a manufacturer's warranty EIFS. Do not proceed with EIFS work until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General: Installation shall conform to this specification and Parex EIFS written instructions and drawing details.
1. Install tracks, back-wrap mesh, or edge-wrap mesh at system terminations.
2. Apply Self-Adhering Flashing Membrane as specified in Division 7 Section “Vapor Barriers” at rough openings and tracks to provide continuity of water shedding.
3. Install Parex KeyCoat Liquid Membrane Adhesive and Parex Sheathing Tape on all sheathing joints to receive the system to provide continuity of water shedding.
4. Apply Parex KeyCoat Liquid Membrane Adhesive to entire surface of substrate to form a continuous, monolithic weather resistive barrier.

5. Install Water Master Insulation board into the wet KeyCoat Liquid Membrane Adhesive and press firmly into place. Make sure that the boards are butted tightly together. Rasp irregularities off insulation board.
6. Apply base coat and fully embed mesh in base coat; include diagonal mesh patches at corners of openings and reinforcing mesh patches at joints of track sections. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.
7. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's primer and base coat product data sheets for the specified finish coat.
8. Finish Coat: Apply finish coat to match specified finish type, texture, and color. Apply finish except at base coat areas to receive sealant.
9. Install sealant in accordance with Parex details and instructions. Apply sealant to base coat.

3.3 PROTECTION

A. Provide protection of installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.

3.4 CLEANING

A. Remove any temporary protection of other work. Remove finish from areas not indicated to receive this finish. Repair any other surfaces which have been stained, marred or otherwise damaged during the work under this Section.
B. Upon completion remove unused materials, containers and equipment and clean up area.

END OF SECTION

SECTION 07 56 00

FLUID APPLIED ROOFING (OVER RIGID INSULATION, DENSDECK, & PLYWOOD)

PART 1 GENERAL

1.1 DESCRIPTION

A. Fluid applied flexible acrylic waterproofing system over ISO (Polyisocyanurate), EPS (Expanded Polystyrene), DensDeck or plywood (exterior grade non-treated). This work shall include the preparation of the roof deck, application of the roof system, flashing system, and clean up.

1.2 DESCRIPTION OF FLUID APPLIED ROOFING SYSTEM

A. The fluid applied roofing system must consist of a reinforced elastomeric system specifically designed for use on a roof. The system must have been approved by FMRC (Factory Mutual Research Corporation) according to Standard 4470 for Class 1 Roof Constructions which includes- Spread of Flame Fire, Windstorm Pressure, Windstorm Pull, Hail Damage, Resistance to Foot Traffic, and Susceptibility to Leakage Classifications.

1.3 RELATED WORK

A. The contractor shall review all sections of these specifications to determine items of work that will interface with the application of this roofing system. Coordination and execution of related sections shall be the responsibility of the contractor.

1.4 REFERENCES

A. ASTM B117 - Test Method of Salt Spray (Fog) Testing.
B. ASTM G-29 - Test Methods for Algae Resistance.
C. ASTM E-108 - Test Method for Fire Test of Roof Coverings.
D. ASTM D-1653 - Water Vapor Transmission of Materials.
E. ASTM G26 - Practice for Operating Light- and Water-Exposure Apparatus (Xenon Arc Type) for Exposure of Nonmetallic Materials.
F. ASTM D-412- Ultimate Tensile Strength at Break.
G. ASTM D-6083- Standard Specification for Liquid Applied Acrylic Coatings used in roofing.
H. ASTM C1549- Standard test method for determination of solar reflectance near ambient temperature using a portable solar reflectometer
I. ASTM C1371- Standard test method for determination of emittance of materials near room temperature using portable emissometers
J. FM 4470- Standard for Class 1 Spread of Flame Fire, Windstorm Pressure, Windstorm Pull, Hail Damage, Resistance to Foot Traffic, and Susceptibility to Leakage Classifications.

1.5 SUBMITTALS

A. Shop Drawings: Submit a scaled drawing showing the layout of joint reinforcing and all flashing details.
B. Product Data: Provide manufacturer’s technical literature on products that make up the roofing system. This shall include, but is not limited to, coatings, reinforcing fabrics, flashing materials, roof drains, fasteners, etc.
C. Manufacturer's Installation Instructions: Submit all data sheets available from the manufacturer on the installation of the roofing system applicable to the work.
D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 QUALIFICATIONS

A. Applicator Qualifications: The applicator of the roofing material specified herein shall be an approved applicator (designated by Hydro-Stop LLC). Proof of this qualification shall be provided in written form from the manufacturer of the roofing system.

1.7 QUALITY CONTROL

A. Codes and Standards: The contractor shall make him/herself thoroughly familiar with all codes, regulations, and standards governing the specified work. Any contradiction between the manufacturer's requirements and these specifications shall be brought to the attention of the manufacturer and the specifier
B. Deviations: There shall not be any deviations from these specifications unless the deviation is submitted in writing to the specifier. The request for deviation must have a letter from the roofing manufacturer's technical department approving the details of the deviation.
C. An Approved Applicator (as designated by Hydro-Stop LLC) shall be on site during all applications of any Hydro-Stop products.
D. Manufacturer's Technical Representative: An employee of the roofing material manufacturer shall be on site at least once every 7-calendar days during the work specified herein. Upon request the technical representative shall provide a written inspection report, during each site visit and submit the reports to the owner/owner's representative. The manufacturer's representative must approve the application process at specific stages before the contractor may continue including: Prior to the application of the FoundationCoat and fabric, at the completion of the FoundationCoat and fabric, and after the FinishCoat is applied.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's unopened and undamaged containers bearing the following information:
    1. Name of manufacturer.
    2. Name of contents and products code.
    3. Net volume of contents.
    4. Lot or batch number.
    5. VOC content
    6. Storage temperature limits.
    7. Shelf life expiration date.
    8. Mixing instructions and proportions of contents.
    9. Safety information and instructions.
B. Store and protect materials from damage and weather in accordance with manufacturer's instructions.
C. Store materials at temperatures between 50 and 90 degrees F (10 and 32 degrees C). Keep out of direct sunlight.
D. Support stored material containers on pallets and cover with tarpaulin tied to bottom of pallets.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not apply if ambient temperatures are expected to fall below 40 degrees F (4.5 degrees C) or if rain is expected before the application has time to dry.

1.10 WARRANTY

A. Provide ten-year manufacturer's Labor and Material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Hydro-Stop, LLC Toll Free: (800) 739-5566

2.2 MEMBRANE COMPOUND MATERIAL

A. Waterproofing Material: PremiumCoat three-stage, fabric reinforced, flexible acrylic coating, fluid applied in successive stages to form one continuous, seamless, watertight membrane; 40 mil (.04 inches / 1.016 millimeters) minimum cured total system thickness; comprised of the following:
   1. Foundation and Saturation Coats: PremiumCoat FoundationCoat (highly flexible water based 100% pure acrylic polymer resin coatings).
   2. Fabric: Hydro-Stop polyester, non-woven, stitch-bonded, and heat-set fabric.
   3. Finish Coat: PremiumCoat FinishCoat (ultraviolet light resistant, blend of highly flexible water based 100% pure acrylic polymer resin coating); color as selected from manufacturer's standard colors.

B. Reinforcing Fabric: This material shall be non-woven 100% polyester, stitch bonded, heat set fabric with the following characteristics:
   Weight: 3 oz / per square yard (106.31 grams / square meter) Tensile Strength Warp 74 lbs. (33.60 kg) per ASTM D 5034
   Fill 45 lbs. (20.43 kg)
   Elongation @ Break Warp 21.3% per ASTM D 5034
   Fill 51.3% Ball Burst 111 lbs. (50.39 kg) per ASTM D 3787 Trapezoid
   Warp 13.5 lbs. (6.13 kg) per ASTM D 117 Fill 24.2 lbs. (10.99 kg)
   Thickness .018 inches (.457 mm) per ASTM D-1777

C. Cured Membrane Characteristics:

PROPERTY	TEST	RESULT
Elongation	ASTM D638	>300% elastomeric
Tensile Strength (cured)	ASTM D412	>2000 PSI (13,789 kPA)
Density:		12.1 lb/gal
Volume Solids:		> or = 53 %
Weight Solids:		> or = 66%
Algae Resistance	ASTM G29	No Growth Supported
Moisture Vapor	ASTM E96	3 Perms
Weathering	ASTM G26	No effect after 3,000 hours.
Salt Spray Test	ASTM B117	No effect.
Fire Rating	ASTM E108	Class A
VOC (calculated):		< 72 g/L
Susceptibility to Leakage	FM 4470	No signs of water leakage.
Windstorm Pressure	FM 4470	Meets Class 1- 90
Windstorm Pull	FM 4470	Class 1-225 on Polyisocyanurate
“	“	Class 1-270 on Expanded Polystyrene
“	“	Class 1-375 on Lightweight Concrete
“	“	Class 1-735 on Structural Concrete
Severe Hail Test	FM 4470	No separation or rupture 1-SH
Resistance to Foot	FM 4470	No sign of tearing or cracking.
Liquid Applied Acrylic	ASTM D6083	Approved
Solar Reflectance	ASTM C1549	> or = 0.90
Thermal Emittance	ASTM C1371	> or = 0.79 OTC (Ozone Transport Commission)
California Title 24	Compliant	
CRRC (Cool Roof Rating Council) Approved		
Energy Star (Dept. of Energy) Approved		
(White or Cotton Finish Coat Only)		

2.3 INSULATION BOARD MATERIALS

A. Acceptable recovery boards:
   1. Polyisocyanurate - 1.5 in. (3.81cm) minimum thickness. Max board size 4ft.x 8ft. (1.219m x 2.438m) if mechanically fastened or 4ft.x 4ft. (1.219m x 1.219m) if adhered with Factory Mutual approved roofing adhesive. Closed cell with factory laminated facer. Foam core to have rated flame spread of 25 in. (63.5cm.) or less and minimum compressive strength of 250 psi. (1724 kPA)
   2. Expanded Polystyrene - 1.5 inches (3.81cm) minimum thickness a minimum of 1.5 lb/ft3 (24.30 kg/m3) density. Max board size is 4ft. x 8ft. (1.219m x 2.438m) mechanically fastened or 4ft x 4ft (1.219m x 1.219m) if adhered with Factory Mutual approved roofing adhesive.
   3. Plywood - ¾ inch (1.905 cm.) minimum thickness tongue and groove exterior B&C grade. (Non-treated). Plywood is to be adhered with sub-floor adhesive and deck fasteners.
   4. Densdeck - ¼ inch (.635 cm.) minimum thickness if used over an approved smooth existing substrate. ½ inch (1.27 cm.) thickness is the normal recommendation.
   5. Tapered ISO or EPS - 1.5 inches (3.81cm) minimum thickness a minimum of 1.5 lb/ft3 (24.30 kg/m3) density. Max board size is 4ft x 4ft (1.219m x 1.219m) with a slope of not less than .25 inch per foot (2.083cm/meter).

B. Unacceptable recovery boards-
   6. OSB – any type, Blue Board (Dow Co.), High Density Board, Perlite, and Treated Plywood.

2.4 ACCESSORIES

A. Adhesive: Insta-Stick, OlyBond, or FM (Factory Mutual) approved polyurethane adhesive, dispensed from pre-pressurized containers. Application guidelines should be dictated by the adhesive manufacturer.
B. Mechanical Fasteners (preferred method): Use mechanical “Screw Type” fasteners with plates. Fastener patterns as to be recommended by the board manufacturer.
C. Cant Strips: Recommended composition materials are EPS (Expanded Polystyrene), ISO (Polyisocyanurate), and wood (non-treated). Cant strips are to be installed at all internal corners, around curbs, and at all 90 degree angles specified by Hydro-Stop LLC.
D. Moisture Breathers: Install moisture breathers as recommended by Hydro-Stop LLC Technical Representative.
E. Hydro-Fiber: Bulking material used in conjunction with FoundationCoat or BarrierGuard slurry (as specified by Hydro-Stop Technical Representative) to fill cracks, voids, or low depressions on various substrates.
F. StableRust Primer: water based surfactant-free primer used in direct metal applications to stabilize and protect metal surfaces.

PART 3EXECUTION

3.1 EXAMINATION

A. Verify substrate surfaces are durable, free of frozen matter, dampness, loose particles, cracks, pits, projections, or foreign matter detrimental to adhesion or application of waterproofing system.
B. Verify that substrate surfaces are smooth and not detrimental to full contact bond of waterproofing materials.
C. Verify items that penetrate surfaces to receive waterproofing are securely installed.
D. Verify that substrate areas are adequately supported and firmly fastened in place.
E. Verify that roof deck has a minimum slope of .25 inch / foot (2.083cm/meter)
F. Verify that roof does not have ponding water areas.
G. Verify that all attached vertical walls are properly waterproofed.

3.2 PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing.
B. Do not apply waterproofing to surfaces unacceptable to manufacturer.

3.3 INSTALLATION - INSULATION

A. Adhere insulation to deck with Polyurethane adhesive or proper fasteners in accordance with manufacturer's installation instructions to meet a minimum uplift requirement of 1-90. Please verify the proper uplift requirements with the specifier or your local building code authority.
B. Stagger all board joints.
C. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
D. Apply no more insulation than can be covered with waterproofing on the same day.
E. Install cant strips at internal corners and metal drip edge on outside perimeter.

3.4 WATERPROOFING APPLICATION

A. FoundationCoat & Fabric Components- Consist of one coat of FoundationCoat applied to the substrate, Hydro-Stop PremiumCoat Fabric (sizes vary) laid into the wet FoundationCoat, and finally a second coat of FoundationCoat saturating the fabric from above. Care should be given to ensure that adjacent runs of fabric are overlapped a minimum of 4 inches (10.16 cm). Foundation Coats are applied at a total rate of 25- 40 ft2/gal (.594 - .951 m2/liter) depending on substrate. FoundationCoat should only be applied with the use of approved roof brushes. Rolling and spraying of the FoundationCoat are absolutely forbidden.
    1. Recovery Board Seams- Using 6 inch (30.48 centimeters) fabric and the Foundation components (as described above), waterproof all board seams, cracks, and non-working joints.. Center 6 inch (15.24 centimeters) fabric over all seams.
    2. Roof Perimeter- Using 12 inch (30.48 centimeters) fabric and the Foundation components (described above), waterproof entire roof perimeter. Continue waterproofing up vertical surfaces and onto deck a minimum of 6 inches (15.24 centimeters) in each direction.
    3. Roof Penetrations- Using 12 inch (30.48 centimeters) fabric and the Foundation components (described above) seal items projecting through waterproofing material watertight. Waterproof up penetrations a minimum of 6” (15.24 centimeters)
    4. Roof Field- Using 40 in. (1.016 m) fabric and the Foundation components (as described above) seal the entire roof field. Overlap adjacent runs of fabric 4 inches (10.16 cm) minimum
B. Finish Coat Component- Apply 2 coats of FinishCoat at a combined total rate of 70 ft2/gal (1.664 m2/liter) over entire roof area. Minimum milage requirements are 11.5 mils (.0115 inches / .292 millimeters) wet and 6.1 mils (.0061 inches / .155 millimeters) dry per coat. Allow to dry between coats. Total Finish Coat dry thickness should be a minimum of 12.2 mils (.0122 inches / .31 millimeters).
C. Completed PremiumCoat System- System must be installed to a minimum 40 mil (.04 inches / 1.016 millimeters) total cured thickness.

3.5 PROTECTION OF FINISHED WORK

A. Monitor finished system for 7 day, sweeping off birdbaths to allow for full cure.

3.6 CLEANING

A. Clean unscheduled surfaces receiving waterproofing in accordance with manufacturer's instructions.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. The extent of each form and type of joint sealer is indicated on drawings and by provisions of this section.
B. The applications for joint sealers as work of this section include the following:
   1. Wall control joints in non-fire rated walls.
   2. Joints between metal door and window frames and adjacent construction.
   3. At locations where dissimilar metals and/or materials come together.
   4. Other locations indicated.
C. Related Sections include the following:
   1. Division 7 Section “Firestopping” for sealant for fire rated partitions

1.2 SUBMITTALS

A. Product Literature
   1. Submit product data sheets and the manufacturer's installation instructions. If two or more different sealants are to be in physical contact with each other, obtain from each manufacturer confirmation that its product is compatible with the proposed and adjacent products, including any other products which may be used by other sub-contractors. Include primer literature with the submittal document unless the manufacturer's sealant submittal specifically eliminates the need for a primer.
   2. If a stain type primer is required for the sealant selected, such information shall be specifically included on submittal documents calling attention to the need for such staining type primer and noting the planned precautions to prevent exposed stain residue.
   3. Include Safety Data Sheets for sealants.
B. Color Samples: Submit manufacturer's standard color chart. Submit cured samples of each chosen color for verification of actual color to be installed. Multiple cured samples may be required for selection.

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver in manufacturer's original unopened container, clearly identifying each product specified, relating it to the product literature submitted.
B. Store in accordance with manufacturer's recommendation, with proper precautions concerning shelf life, temperature, humidity, and similar storage factors to ensure the fitness of the material when installed.

PART 2 PRODUCTS

2.1 MATERIALS

A. General Sealer Performance Requirements
   1. Provide colors indicated or, if not otherwise indicated, as selected by Contracting Officer from manufacturer's standard colors. Select materials for compatibility with joint surfaces and other indicated exposures, and except as otherwise indicated, s elect modulus of elasticity and hardness or grade recommended by manufacturer for each application indicated.
B. Type 1: Non-Elastomeric Sealants (Caulking)

1. Single component siliconized acrylic latex caulking compound: ASTM C834, gun grade; flexible, paintable, non-staining, non-bleeding, acrylic emulsion.
2. Use: Interior sealing around doors and gypsum board.
3. Acceptable Manufacturers/Products:
   a. GE Silicones RCS 20
   b. Bostik, Chem-Calk 600
   c. DAP, Inc., DAP ALEX PLUS Acrylic-latex Caulk Plus Silicone
   d. Pecora, AC-20 + Silicone
   e. Sonneborn, Sonolac
   f. Tremco, Tremflex 834 Acrylic Latex Caulk

C. Type 2: Non-Elastomeric Sanitary Sealant
1. Single component, mildew resistant acetoxy silicone sealant: ASTM C920, gun grade; non-staining.
2. Use: Interior sealing around toilet fixtures, counters, vanities and joints in tile finishes.
3. Acceptable Manufacturers/Products:
   a. GE Silicones Sanitary SCS1700
   b. Dow Corning 786
   c. Tremco Tremsil 200
   d. Pecora Corporation 898

D. Type 3 – Elastomeric Sealant:
1. Single component, low-modulus, silyl-terminated elastomeric sealant: ASTM C 920, Type S, Grade NS, Class 25.
2. Use: Sealing exterior joints at door/window frames, EIFS joints.
   a. Sonneborn, Sonolastic 150
   b. Equal as approved

2.2 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
B. Joint Primer/Sealer: Provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.
C. Sealant Backer Rod: Compressible rod stock of open or closed cell polyethylene or polyurethane as recommended by sealant manufacturer for compatibility with sealant.
D. Bond Breaker Tape: An acceptable polyethylene or similar type bond breaker tape used to prevent three-sided adhesion in locations where backer rod cannot be used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect substrate surface to assure that no bond breaker materials contaminate the surface to which the sealant is to adhere and to ensure that unsound substrates are repaired. Installation of sealant shall be evidence of acceptance of the substrate.
B. Verify joint dimensions prior to installation of the sealant to ensure that all dimensions are within tolerance established in the manufacturer's literature. Unacceptable variations shall be called to the Contracting Officers attention for resolution prior to installing any material.

3.2 PREPARATION

A. Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which could interfere with bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer.

B. Prime or seal joint surfaces where indicated, and where not indicated if recommended by sealant manufacturer, prior to installation of any backer rod or bond breaker tape. Do not allow primer/sealer to spill or migrate onto adjoining surfaces.

3.3 INSTALLATION

A. General: Comply with manufacturer's printed instructions, except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.
B. Set joint filler units full depth of joint or position in joint to coordinate with other work, including installation of backer rods and sealants. Do not leave voids or gaps between ends of joint filler units.
C. Install sealant backer rod for liquid elastomeric sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for application indicated in which case a bond breaker tape shall be used to prevent 3 sided adhesion. Apply backer rod using blunt or rounded tools which will ensure a uniform depth without puncturing the material. Use a rod oversized a minimum of 33% for closed cell and 50% for open cell, unless otherwise required by the manufacturer.
D. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces, with a smooth, even finish.
E. Install sealant to depths as shown or, if not shown, as recommended by sealant manufacturer but within the following general limitations, measured at center (thin) section of bead.
    1. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
    2. For joints sealed with non-elastomeric sealants, fill joints to a depth in range of 75% to 125% of joint width.
F. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces or to migrate into voids of adjoining surfaces. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.
G. Curing: Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.

END OF SECTION

SECTION 08 11 13

STEEL DOORS AND FRAMES

PART 1GENERAL

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)

1.2 UL 10C (2009) Standard for Positive Pressure Fire Tests of Door Assemblies 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 DOORS

A. SDI/DOOR A250.8, except as specified otherwise. Prepare doors to receive door hardware as specified in Section 08 71 00. Exterior doors shall have top edge closed flush and sealed to prevent water intrusion. Doors shall be 1-3/4 inch thick, unless otherwise indicated.
   1. Classification - Level, Performance, Model
      a. Standard Duty Doors
         1) SDI/DOOR A250.8, Level 1, physical performance Level C, of size and design indicated and core construction as required by the manufacturer.

2.2 STANDARD STEEL FRAMES

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

2.3 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 gage 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.

2.4 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.

2.5 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.

2.6 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.

2.7 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 galvannealed 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.

2.8 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 41 13

ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.1 SUMMARY

A. Extent of entrance and storefront work is indicated on the Drawings
B. Work includes, but is not limited to the following:
   1. Impact Resistant aluminum storefront
   2. Impact Resistant aluminum entrance units including hardware
C. Related Sections include the following:
   1. Division 7 Section “Joint Sealants”
   2. Division 8 Section “Door Hardware”
   3. Division 8 Section “Glazing”

1.2 SYSTEM DESCRIPTION

A. Storefront system, copings, entry doors, interior trim and punched windows: Factory pre-finished tubular aluminum sections with self-supporting framing, factory pre-finished aluminum panels; related joint sealers, flashings, sheet metal weather and vapor barriers, anchorage and attachment devices.
B. Thermally broken systems with interior tubular section insulated from exterior glass retaining member; matching stops and glass retaining member of sufficient size and strength to provide minimum recommended bite on glass as recommended by the manufacturer and as required by authorities having jurisdiction; drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system; internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
C. Reinforced mullion: Extruded aluminum cladding with internal reinforcement of shaped steel structural section. Provide reinforced mullions where required by design criteria and at locations where secondary supporting steel does not occur.

1.3 PERFORMANCE REQUIREMENTS

A. Wind loads: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall, including building corners, in accordance with code requirements.
B. Building dynamics:
   1. Definition: Building dynamics is defined as any building movement or deflection caused by effects of wind, thermal, seismic, live or impact loads.
   2. Curtain wall assemblies shall accommodate the building dynamics, and the following, including the tolerances of related Work. The following deflections shall be taken concurrently:
      a. Vertical floor deflection: 0 inches up at all locations, and 3/4 inches down at all locations, additive to any accommodation for erection and fabrication.
      b. Building lateral deflection: Not less than 3/4 inches in all directions as measured between equivalent points of typical adjacent floors.
C. Wind Design Data:
   1. Basic Wind Speed: 140 mph
   2. Wind Importance Factory & Category: 1.0
   3. Wind Exposure: Exposure C
   4. Internal Pressure Coefficient: Enclosed – 0.18

5. Design pressure: in no case less than 65 psf
6. Impact Resistance: Small and Large Missile

D. System adjustment: Provide provision for 3-dimensional adjustment of components to accommodate field conditions.
E. Sealants: Provide elastomeric joint sealants as specified in Division 7 Section “Joints Sealants” that have been produced and installed to establish and maintain weather tight and airtight continuous seals without causing staining or deterioration of joint substrates.
   1. Sealants used for weather seals shall not experience adhesive or cohesive failure.
   2. Sealants shall withstand movements up to the limits prescribed by the manufacturer.
   3. Exposed sealant surface shall not crack, bubble or stain adjacent materials.
F. Movable joints: Provide to accommodate the full range of manufacturing tolerance, field tolerance, thermal movement, seismic movement, floor sag, beam sag and column settlement. Joints shall accommodate the worst possible combination of effects so as to prevent internal stress, failure, deterioration, or failure of weather seals.
G. Performance requirements for glass:
   1. Glass Installation: Glazing details shall permit glass replacement after initial construction, shall permit reuse of original gaskets, shall permit replacement glass of the same nominal size as original glass, and shall not require cutting of framing members.
H. Air infiltration: Limit air infiltration through assembly to 0.06 cubic feet per minute per square foot of wall area, measured at a reference differential pressure across assembly of 6.24 pounds per square foot as measured in accordance with ASTM E283.
I. Condensation resistance factor: CRF of 68 for the frame and 54 for the glazing when measured in accordance with AAMA 1503.1 and ASTM C 236.
J. Water leakage: None, when measured in accordance with AAMA 501.3-83, ASTM E 331 and ASTM E 1105 with a test pressure difference of 12 pounds per square foot minimum.
K. System internal drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network. System shall not weep directly onto glass surfaces.
L. Not permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening or fracturing of attachments or components of system.

1.4 SUBMITTALS

A. Product Data:
   1. Submit manufacturer's descriptive literature and product specifications.
      a. Submit component dimensions; describe components within assembly, anchorage and fasteners, glass, internal drainage details and water flow drainage diagrams.
   2. Include information for factory finishes, hardware, accessories, and other required components.
   3. Calculations: Submit calculations and loads, signed by a Structural Engineer registered in the State of Mississippi.
B. Shop Drawings:
   1. Submit all data developed by the contractor for the purposes of fabrication and assembly of assemblies. Include framing system and all associated components of the system used for preparation of the documents described above.
   2. Indicate system dimensions, framed opening requirements and tolerances, anticipated deflection under load, affected related work, weep drainage network, expansion and contraction joint location and details, and field welding required.
   3. Provide full elevations at a minimum scale of 1/4 inch to 1 foot.
   4. Provide full-size joint details illustrating details, including flashing.
   5. Indicate means of adjustment to accommodate field conditions.
   6. Indicate locations and details for attachment of components to building structure including primary and secondary steel.
C. Samples:
   1. Submit 18” long sample of all profiles for approval before starting fabrication.

2. Submit manufactures samples indicating quality of finish in required colors.
3. Where normal texture or color variations are expected, include additional samples illustrating range of variation.

D. Test reports: Indicate substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with the following. Maintain 1 copy of each document on site during construction:
   1. AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
   2. AWS (American Welding Society) D 1.0.
B. Manufacturer's Qualifications: To ensure quality of appearance and performance, obtain materials for systems from either a single manufacturer or from manufacturer approved by systems manufacturer.
C. Engineer Qualifications: Professional Structural Engineer registered in State of Mississippi.
D. Installer Qualifications: Certified in writing by system manufacturer as qualified for specified systems.
E. Pre-installation Conference:
   1. Arrange with Contracting Officer and representatives of storefront, glazing, and sealant manufacturer to visit Project site before beginning to analyze site conditions, and inspect surfaces and joints to be sealed in order that recommendations may be made should adverse conditions exist.
   2. Discuss following items:
      a. Weather conditions under which work will be done.
      b. Anticipated frequency and extent of joint movement.
      c. Joint design.
      d. Glazing procedures.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Handle Work of this Section in accordance with AAMA - Curtain Wall Manual #10. In addition, store in a dry location and protect from exposure to contaminants and temperature extremes.
B. Protect pre-finished aluminum surfaces with wrapping or strippable coating and store in a dry location. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.
C. Immediately replace materials that become damaged or are otherwise unsuitable for installation, and replace with new materials.

1.7 PROJECT CONDITIONS

A. Inspect substrates to which work of this section adjoins. Field check all dimensions and elevations on the connecting work affecting the work of this section to insure a proper fit and weather tight construction.

1.8 WARRANTY

A. General: Warranty period 5 years. Longer warranties apply as noted below and in other sections of these Specifications where components are specified which are part of the assemblies. Replace components with deficiencies such as:
   1. Discoloration, fading, chalking, staining, pitting, corrosion or other deterioration or inconsistency in surface finish.
   2. Aging or weathering that does not match extra materials in storage.
   3. Penetration of water into the building exceeding specified limits.
   4. Air infiltration exceeding specified limits.

5. Structural failure of components resulting from forces within specified limits.
6. Failure of operating parts to function normally.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Kawneer Co., Inc.
B. Vistawall (Oldcastle Glass)
C. YKK Corporation of America

2.2 MATERIALS

A. Aluminum:
   1. Extrusions: ASTM B221, alloy 6063-T5; T6 for structural members
B. Inserts and Anchorage Devices:
   1. Manufacturer's standard formed or fabricated assemblies, steel or aluminum, of shapes, plates, bars or tubes.
   2. Hot-dip galvanize steel assemblies after fabrication, comply with ASTM A123, 2.0 ounce minimum coating.
C. Flashing: All aluminum flashing (where required) shall be of a sufficient gauge and chemical composition to satisfy the conditions as described in “aluminum” paragraph above with a minimum thickness of 1/16” (for painted finishes, minimum 3/32”)
D. Fasteners:
   1. Clamping bars shall be attached to glazing bars by ¼ - 20 stainless steel machine screws.
   2. Non-magnetic stainless steel or cadmium plated steel coated with yellow or silver iridescence plating, compatible with materials being fastened.
   3. Series 300 stainless steel for exposed locations. Cadmium plated steel with 0.0005 inch plating thickness and color chromate coated for concealed locations.
   4. Provide nuts or washers of design having means to prevent disengagement; deforming of fastener threads is not acceptable.
   5. Provide concealed fasteners wherever possible.
   6. For exposed locations, provide countersunk flathead fasteners with finish matching item fastened.
E. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled-in, expansion bolt anchors.
F. Shims: Non-staining, non-ferrous, type as recommended by system manufacturer.
G. Protective Coatings: Cold applied asphalt mastic complying with SSPC-Paint 12, compounded for 30 mil thickness for each coat; or alkyd type zinc chromate primer complying with FS TT-P-645.
H. Glass: Provide glazing as specified in Division 8 Section “Glazing”.
I. Gaskets: Glazing gaskets shall comply with ASTM C 864 and be extruded of a silicone compatible EPDM rubber that provides for silicone adhesion.
J. Sealant materials: Provide sealants materials complying with requirements specified in Division 7 Section “Joint Sealants”.

2.3 EXTERIOR STOREFRONT COMPONENTS

A. Provide at all aluminum framing except that which is indicated to be curtainwall or interior storefront
B. Impact Resistant Storefront:
   1. Provide Kawneer IR501 Framing System, Vistawall FG-5100, or YKK YHS 50 FI.
   2. Framing Member Profile: 2-1/2" x 5" nominal dimension.
C. Provide all necessary components for complete installation including glazing gaskets for flush glazing and adapters as required to accommodate the following:
   1. 1-5/16” impact glazing as specified in Division 8 Section “Glazing”.

2.4 ENTRANCE COMPONENTS

A. Impact Resistant Entrances:
   1. Provide Kawneer 350 IR, Vistawall MSD-375, or YKK 35H.
B. Aluminum Doors:
   1. All door sections shall be of extruded aluminum alloy and temper to meet or exceed finishing and structural criteria as specified.
   2. All weathering shall be a hardbacked silicone treated polypropylene.
   3. Provide all necessary components for complete installation including glazing gaskets for flush glazing and adapters as required to accommodate the following:
   4. 9/16” impact glazing as specified in Division 8 Section “Glazing”.
C. Fasteners:
   1. Aluminum alloys or stainless steel. Exposed fasteners, if any, shall be finished to match door and frame sections.
D. Hardware:
   1. Operating hardware shall be furnished by the aluminum door manufacturer unless otherwise indicated, in accordance with the following schedule:
   2. Hinges: Continuous “geared” hinge incorporating stainless steel bearings between the knuckles, aluminum finish.
   3. Exit Device: Sargent HC8800 or Von Duprin 98 Rim Device. Stainless steel (US32D) finish.
   4. Closers: LCN 4041 or approved equal, aluminum finish. Coordinate with Division 8 Section “Door Hardware” for door operators.
   5. Locks: cylinder provided by supplier of finish hardware for other doors. See Division 8 Section “Door Hardware” for additional information.
   6. Threshold: Equal to Pemko Aluminum Saddle Threshold 271 with applied 290_SStop.
   7. Weathering: Double acting weathering system and the door bottom rail will be weathered with EPDM blade gasket sweep strip applied with concealed fasteners, adjustable.
   8. Exposed hardware finish shall match doors and frames unless noted otherwise.

2.5 STOREFRONT FABRICATION

A. Aluminum framing:
   1. Provide members of size, shape and profile indicated, designed to provide for glazing from exterior.
   2. Fabricate frame assemblies with joints straight and tight fitting.
   3. Reinforce internally with structural members as necessary to support design loads.
   4. Maintain accurate relation of planes and angles, with hairline fit of contacting members.
   5. Seal horizontals and direct moisture accumulation to exterior.
   6. Provide flashings and other materials used internally or externally that are corrosive resistant, non-staining, non-bleeding and compatible with adjoining materials.
   7. Provide manufacturer's extrusions and accessories to accommodate expansion and contraction due to temperature changes without detrimental to appearance or performance.
   8. Make provisions in framing for minimum edge clearance, nominal edge cover and nominal pocket width for thickness and type of glazing or infill used in accordance with recommendations of manufacturer and fgma glazing manual.
B. Welding:
   1. Comply with recommendations of the American Welding Society.
   2. Use recommended electrodes and methods to avoid distortion and discoloration.
   3. Grind exposed welds smooth and flush with adjacent surfaces; restore mechanical finish.
C. Flashings: form from sheet aluminum with same finish as extruded sections. Material thickness as required to suit condition without deflection or "oil canning".

2.6 ENTRANCE FABRICATION

A. Entrance System Fabrication:

1. Door corner construction shall consist of mechanical clip fastening, SIGMA deep penetration plug welds and 1-1/8" long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with EPDM glazing gaskets reinforced with non-stretchable cord.
2. Accurately fit and secure joints and corners. Make joints hairline in appearance.
3. Prepare components with internal reinforcement for door hardware.Arrange fasteners and attachments to conceal from view.
4. All glazing shall be flush, including the horizontal muntins and sills. Glass shall be held in place by EPDM glazing gaskets on both sides. No applied stops shall be permitted.
5. All door frames shall have door stops at jambs and head with continuous weathering.

2.7 FINISHES

A. All exposed surfaces shall be free of unsightly scratches and blemishes.
B. Organic Coating (high performance fluorocarbon):
   1. Comply with requirements of AAMA 2605.
   2. Surfaces cleaned and given conversion coating pre-treatment prior to application of 0.3 mil dry film thickness of epoxy or acrylic primer following recommendations of finish coat manufacturer.
   3. Finish coat of 70% minimum fluorocarbon resin fused to primed surfaces at temperature recommended by manufacturer, 1.0 mil minimum dry film thickness.
   4. Color shall be as selected by Contracting Officer from manufacturer's standard colors.

PART 3 EXECUTION

3.1 PREPARATION

A. Dissimilar Metals
   1. In addition to the finish specified, aluminum surfaces against masonry, concrete, wood or steel shall be protected from contact by use of a coat of bituminous paint to prevent galvanic or corrosive action, or as recommended by the manufacturer and approved by the Contracting Officer.

3.2 INSTALLATION

A. Install wall system in accordance with AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual and in accordance with manufacturer's recommendations.
B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
C. Provide alignment attachments and shims to permanently fasten system to building structure.
D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances.
E. Install sill flashings. Turn up ends and edges; seal to adjacent Work to form water tight dam. Provide joints between flashing pieces as required to accommodate the thermal movement of the flashing material while maintaining a weathertight seal. Use only non-curing sealant.
F. Sealant installation standard: Comply with recommendations of ASTM C 1193 for use of joint sealant as applicable to materials, applications, and conditions indicated.
G. Installation of sealant backings: Install sealant backings to comply with the following requirements:
   1. Install joint backers to provide support of sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
      a. Do not leave gaps between ends of joint backer.
      b. Do not stretch, twist, puncture or tear joint backer.
      c. Remove absorbent joint backer that have become wet prior to sealant application and replace with dry material.

2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint backer or back of joints.

H. Installation of sealants: Install all sealants by proven techniques that result in sealants directly contacting and fully wetting the joint substrates, completely filling recess provided for each joint configuration, and providing uniform cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability:
   1. Fill the sealant rabbet to a slightly concave surface. Tool joints as necessary to assure continuous bonding, obtain a uniform appearance free from defects.
   2. Install sealants to depths as recommended by sealant manufacturer.
   3. Use sealing materials in strict accordance with sealant manufacturer's printed instructions.

I. Glazing: Comply with "Glazing Manual" by Glass Association of North America except as shown and specified otherwise, and except as specifically recommended otherwise by the manufacturer of the glass and the manufacturer of the glazing materials.
   1. Comply with Division 8 Section "Glazing".
   2. Do not mark on installed glass.
   3. Comply with glass manufacturer's instructions and recommendations for possible use of setting blocks.
   4. Before installing glass, check the setting to verify that it is plumb with no edge damage and in a perfect plane suitable for installing.
   5. Do not proceed unless glazing surfaces are dry and free of frost.
   6. Do not attempt to cut, seam, nip, or abrade any fully tempered, heat- strengthened, or coated glass.
   7. Unify appearance of each series of lights by setting each glass piece to match others as nearly as possible. Inspect each glass piece and set with the pattern, draw and bow oriented in the same direction as other pieces.

J. Sealant curing and protection:
   1. Cure sealants in compliance with manufacturer's recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.
   2. Ensure procedures required for cure and protection of joint sealants are followed during construction period, so that they will be without deterioration or damage.
   3. Cure and protect sealants in a manner which will minimize increases in modulus of elasticity and other accelerated aging effect. Replace or restore sealants which are damaged or deteriorated during construction period.

K. Entrance Door Installation:
   1. Doors shall be hung plumb, level and square, and properly secured in accordance with manufacturer's approved shop drawings. Hardware shall be properly installed and adjusted. Final adjustment shall be made for proper and easy operation of the doors after glazing and after air conditioning is in operation.

3.3 TOLERANCES

A. Maximum variation from plumb: 0.06 inches every 3 feet non-cumulative or 0.5 inches per 100 feet, whichever is less. Maximum misalignment of two adjoining members abutting in plane: 1/32 inch.

B. Work shall have sharp, clean profiles, be straight and free from defects, dents, marks, waves or flaws.

C. Glazing rabbets shall be aligned between horizontal and vertical mullions to a tolerance of 1/32 inch total misalignment.

D. Removable glass stops shall be centered in openings with no more than 1/32 inch gap on each side.

3.4 MANUFACTURERS FIELD SERVICES

A. Curtain wall manufacturer to provide field surveillance of the installation of their products. Provide site surveillance at start-up, 20% completion and 60% completion of the Work. Monitor installation procedures and report unacceptable conditions in writing to the Contracting Officer.

3.5 ADJUSTING

A. Test door operating functions. Adjust closing and latching speeds and other hardware in accordance with manufacturer's instructions to ensure smooth operation. Adjusting wrenches and small tools furnished with operating hardware shall be turned over the Owner, properly tagged and identified.

3.6 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.
B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. For glass, comply with glass manufacturer's cleaning recommendations. Take care to remove dirt from corners. Wipe surfaces clean.
C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and glass manufacturer.

3.7 PROTECTION

A. Protect doors and frames from damage during subsequent construction activities. Replace damaged materials at no additional cost to the Owner.
B. Maintain glass units in a reasonably clean condition during construction to prevent damage by corrosive action. Replace broken, cracked or damaged glass.

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. Electronic locks
   5. Lock and latch sets
   6. Bolts
   7. Closers
   8. Overhead stops and holders
   9. Miscellaneous door control devices
   10. Viewers
   11. Door trim units
   12. Protection plates
   13. Astragals or meeting seals on pairs of doors
   14. Thresholds
   15. Gate latch closet lock
   16. Wall Mount Exit Alarm
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 leafs.
      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
m. Closers and Door Control Devices:

3. Acceptable manufacturers:
   a. LCN Closers 4041*
   b. Sargent 281
   c. Corbin Russwin DC8000
4. 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:
5. Acceptable manufacturers:
   a. Glynn Johnson*
   b. Architectural Builders Hardware
6. 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.

F. Viewers:
1. Equal to Trimco 975U (160 degree, UL Listed).
2. Provide 1 at each corridor door into private rooms.

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.

L. Gate Hasp Locksets and Stainless Steel Blank Door Wraparound
1. Acceptable manufacturers:
a. Stanley-National Hardware
b. EQUAL to
2. Products/Systems: Locksets including the following:
a. Stanley SP1271 Slide Action Bolt STA-S760-840 or approved equal.
3. Products/Systems: Blank Door Wraparound including the following:
a. Don-Jo Blank Wraparound with trim screws, 80-CW stainless steel or approved equal

M. Exit Alarms (Battery Powered Wall Mounted)
1. Acceptable manufacturers:
a. Detex
b. EQUAL TO Detex EAX-500 BK MC65 SK3 SI Battery powered wall mounted exit alarm.
2. Products/Systems: Exit Alarms including the following:
a. Patented plastic template allowing for foolproof alignment of internal magnetic door contact and accurate installation.
b. Tapered cover allowing for installation on narrow stile doors, 2" minimum.
c. Intelligent circuit able to sense the external magnet location automatically and set the correct door handing.
d. Patented cam assembly that automatically adjusts for different sizes of cylinders without the use of spacers.
e. Alarm can only be silenced by proper control key.
f. Extended bypass to allow alarm to remain bypassed when door is open and automatically rearm upon door closing.
g. 100 dB piezo alarm.
h. Modern graphics on cover to demonstrate key rotation and operation
i. 9VDC battery operated with Low Battery Alert.
j. LED visual and audible arming indicators.
k. Field selectable 2-minute auto rearm.
l. Field selectable status indicators.
m. Orderable in kit configurations.
n. Kit to allow for wall mounting and include (1) brown door contact
o. 3 year limited Manufacturer's Warranty.

2.2 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.

2.3 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 gypsum tile backer board
   3. Interior screw type support systems
   4. Wallboard finishing (joint tape-and-compound treatment)
   5. Gypsum wallboard accessories including control joints
   6. Levels of Gypsum Board Finish
B. Related Sections include the following:
   1. Division 9 Section “Tile”
   2. Division 9 Section “Painting”

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. Tile Backer Board
1. Install tile backer board vertically or horizontally in accordance with manufacturer's recommendations. Install tile backer board over concrete block where scheduled using sheet lamination procedure and mechanical attachment. Apply and maintain pressure to hold in place until adhesive has set including nailing at 16 inches on center.
2. At tile: Apply glass mesh joint tape over joints. Embed tape in setting material for specified tile finishes. Allow joints to dry prior to installing tile systems. Fill joints in accordance with tile backer and tile manufacturer's recommendations.

D. 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: all Tile Backer gypsum surfaces to receive tile.
a. All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
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 13

TILE

PART I GENERAL

1.1 DESCRIPTION

A. The work required under this Section consists of ceramic tile, ceramic mosaic tile, setting materials and related items to complete the work as indicated on the Drawings and described in the Specifications.

1.2 MANUFACTURERS

A. For purposes of designating type and quality for the work under this Section, Drawings and Specifications are based on products manufactured or furnished by American Olean Tile Co., Inc. for tile and MAPEA Corporation for setting materials.
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. Samples must have selection range of colors and finishes equal to American Olean Tile Co., Inc.
C. Products for use on this project shall be of one manufacturer unless noted specifically otherwise herein.

1.3 SUBMITTALS

A. Submit samples in accordance with Section 013300 - Submittals.
B. Submit wall and floor tile sample boards of all tile of variety of tile specified for tile intended.
C. Furnish prior to installation ceramic tile in the amount of 5 percent of the area of each type in the project for use as maintenance materials.
D. Furnish Master Grade Certificate signed by manufacturer and installer stating type and quantity of material.

1.4 ENVIRONMENTAL CONDITIONS

A. Install tile only when temperatures are 55 F or above during and for seven days after installation.

1.5 HANDLING AND STORAGE

A. Products shall be delivered to the job site in manufacturer's original wrapping and packaging. Handling, storage and installation of tile, marble and accessory materials shall conform to the instructions supplied by the manufacturer.
B. Store and handle products in a clean, dry, covered area to prevent damage, wetting, soiling or staining.

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. Tile: Full-size units equal to 5 percent of amount installed for each type installed.

PART 2 MATERIALS

2.1 FLOOR TILE

A. Floor tile shall be glazed floor tile conforming to ANSI A137.1-1980 Standard Grade glazed tile equal to "ColorBody Porcelain Tile" as manufactured by American Olean Tile. Tile shall match existing facial and height dimensions. Furnish matching cove base and trim shapes.

2.2 GROUTING AND SETTING MATERIALS

A. Portland Cement ASTM C-150, Type I.
B. Hydrated Lime ASTM C-206 or C-207, Type S.
C. Sand ASTM C-144.
D. Water clean and drinkable.
E. Dry-Set Mortars TCA 3-63, White-American Olean, L & M, Upco or Kaiser.
F. Latex Mortars ANSI AIIB.4, L & M Polycrete.
G. Grout for walls or floors shall be commercial color, to be select Portland Cement type grout, wet or dry-cure formulation as appropriate, American Glean, L & M, Upco, Kaiser or Custom.
H. Mortar - one part Portland Cement, 6 parts damp sand by volume.

2.3 SEALANTS AND WATERPROOFING

A. Sealants shall be white, fungicidal, one-part silicone rubber meeting Federal Specification TT-001543, Class A or B (COM-NBS).
B. Waterproofing shall be One-Kote elastomeric liquid membrane as manufactured by Karnock Corporation (800) 526-4236 or equal.

2.4 PROTECTIVE MATERIALS

A. Neutral cleaner such as Hillyard Super Shine-All.
B. Heavy-duty, non-staining construction paper with compatible masking tape. PART 3 - EXECUTION

3.1 ACCEPTABILITY OF SURFACES

A. Set no tile until variations in substrate have been leveled so that maximum floor variation is ¼ inch in 10 feet and maximum wall variation is ¼ inch in 8 feet.
B. All surfaces to receive tile shall be free of curing membranes, oil, grease, wax, and dust.

3.2 LAYOUT

A. Determine locations of all porcelain accessories before starting tile work.
B. Lay out all tile work so as to minimize cuts less than one-half tile in size.
C. Locate cuts in both walls and floors so as to be least conspicuous.
D. Align all wall joints to give straight uniform grout lines, plumb and level.
E. Align all floor joints to give straight uniform grout lines, parallel with walls.

3.3 EXPANSION JOINTS

A. Determine locations of all movement joints before starting tile work.
B. Install no less than ¼ inch joints in the following locations:
C. Where tile work abuts restraining surfaces such as perimeter walls, curbs, pipes, etc.
D. Directly over joints in structural floor including construction joint or cold joints.
E. At 12 feet o.c. each way in ceramic tile fields.
F. Install joints in accordance with Tile Council of America Method EJ 171.

3.4 SETTING METHODS

A. Set floor tile with Tile Council of America method F112 in accordance with ANSI A108.1 and ANSI A108.10.
B. Set wall tile on concrete masonry units with Tile Council of America method W202 in accordance with, ANSI Al08.5, and ANSI A108.10.
C. After tile is sufficiently set, force maximum grout into the joints by trowel, squeegee, brush or finger application. Before grout sets, tool the joints of cushion edge tile to the depth of cushion. Fill all joints of square edged tile to flush with the tile surface. Fill all skips or gaps in grouting, and where white grout is used, do not permit dark adhesive or cement to show. During grouting, clean off excess grout with clean cloths or sponges. After grout has stiffened, thoroughly sponge and wash tile with clean water. Then clean surfaces by rubbing with damp cloths or sponges and finally polish with clean dry cloths.
D. Joints between metal door frames and ceramic tile and all expansion joints shall be filled with sealant.

3.5 CLEANUP

A. Clean tile surfaces as thoroughly as possible on completion of grouting.
B. Remove all grout haze, observing tile manufacturer's recommendations as to use of acid and chemical cleaners.
C. Rinse tile work thoroughly with clean water before and after using chemical cleaners.
D. Polish surface of tile work with soft cloth.

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 and scheduled 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 mouldings 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 10

RESILIENT TILE FLOORING

PART 1 GENERAL

1.1 SUMMARY

A. Extent of resilient flooring and accessories is shown on Drawings and in schedules. Work includes the following: Vinyl Composition Tile Patterns and locations of all flooring and accessories are as indicated on the Drawings. Colors shall be selected by the Contracting Officer.
B. Related Sections include the following: Division 9 Section “Tile”
Division 9 Section “Carpeting”

1.2 SUMBITTALS

A. Product Data: Provide Safety Data Sheets for floor tile and adhesives.
B. Samples: Submit sample of each type, color and finish of resilient flooring and accessory required, indicating full range of color and pattern variation. Provide full-size tile units for VCT.
C. Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

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.

B. Provide resilient flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

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 flooring and accessories after other finishing operations, including painting, have been completed. Moisture content of concrete slabs and environmental conditions must be within limits recommended by manufacturer of products being installed. Moisture that results must be submitted in writing to the Owner prior to installation.

1.5 WARRANTY

A. Provide manufacturer’s standard finish and wear warranties for all products.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Vinyl Composition Tile:
1. Mannington Commercial
2. Armstrong World Industries

3. Equal as approved – provide samples prior to bid to match Contracting Officer's control sample.

B. Substitutions:
4. Subject to compliance with requirements, products of other manufacturers may be substituted upon matching Contracting Officer's control sample in color, texture, and size.

2.2 MATERIALS

A. Vinyl Composition Tile (VCT):
1. Gauge/Thickness – 1/8 inch
2. References: Thru-color products conforming to the requirements of ASTM F 1066, Class 2 – through pattern, through chip.
3. Product Descriptions:
a. Provide "Safety Zone" Tile Flooring as manufactured by Armstrong, composed of polyvinyl chloride resin binder, plasticizers, fillers, and pigments with colors and texture dispersed uniformly throughout its thickness.

2.3 ACCESSORIES

A. Adhesives (Cements):
1. Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.
a. Use adhesives applicable for flooring being installed. Submit adhesives coordinated with flooring types.
B. Concrete Slab Primer:
1. Non-staining type as recommended by flooring manufacturer.
C. Leveling and Patching Compounds:
1. Latex type as recommended by flooring manufacturer

PART 3 EXECUTION

3.1 EXAMINATION

A. Installer must examine sub-floor surfaces to determine that they are satisfactory. A satisfactory sub-floor surface is defined as one that is smooth and free from cracks, holes, ridges, and coatings preventing adhesive bond, and other defects impairing performance or appearance.
B. Perform bond and moisture tests on concrete sub-floors to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing compounds. Moisture that results must be submitted in writing to the Owner.
C. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

A. Prepare sub-floor surfaces as follows:
1. Sand or grind substrate, if required to provide smooth surface and to remove foreign materials which could interfere with adhesion.
2. Use leveling and patching compounds as recommended by resilient flooring manufacturer for filling small cracks, holes and depressions in sub-floors.
3. Broom clean or vacuum surfaces to be covered, and inspect sub-floor.
B. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer's directions.
C. Start of flooring installation indicates acceptance of sub-floor conditions and full responsibility for completed work.

3.3 INSTALLATION

A. General:
   1. Install resilient flooring using method indicated in strict compliance with manufacturer's current printed instructions and recommendations. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.
      a. Install resilient edge strips as resilient flooring work progresses.
   2. Scribe, cut, and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets, and permanent columns, walls, and partitions.
   3. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on sub-floor. Use chalk or other non-permanent marking device.
   4. Tightly cement resilient flooring to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

B. Installation of Tile Floors:
   1. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise indicated on Drawings.
   2. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable.
      a. Lay tile with grain running in one direction.
   3. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

C. Accessories:
   1. Apply edge strips where shown on drawings and at all exposed edges of resilient flooring. Secure units to substrate in compliance with manufacturer's recommendations.

3.4 CLEANING

A. Perform following operations immediately upon completion of resilient flooring:
   1. Sweep or vacuum floor thoroughly.
   2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive.
   3. Damp-mop floor being careful to remove black marks and excessive soil.
   4. Remove any excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient flooring manufacturers.

3.5 After completion of project and just prior to final inspection of work, apply polish and buff, with type of polish, MINIMUM 5 COATS, and buffing procedures in compliance with flooring manufacturer's instructions. PROTECTION

A. Comply with resilient flooring manufacturer's current written directions and recommendations.
B. Protect resilient flooring against damage from rolling loads for initial period following installation by covering with plywood or hardboard in high traffic areas and heavy Kraft paper in others. Use dollies to move stationary equipment or furnishings across floors.

END OF SECTION

SECTION 09 65 13.23

RESILIENT RUBBER STAIR TREADS

PART 1 GENERAL

1.1 THIS SECTION INCLUDES

A. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.
B. ASTM D2240 Standard Test Method for Rubber Property – Durometer Hardness
C. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
D. ASTM-2169 “Standard Specification Resilient Stair Treads”.

1.3 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

A. Installer must be competent in the installation of Approved Manufacturer Rubber/Vinyl Stair Treads with acrylic adhesive.
B. Provide rubber/vinyl stair treads and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
C. Provide rubber/vinyl stair treads material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
   1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
   2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

1.4 SUBMITTALS

A. Refer to Section 00 13 00 for submittal procedures.
B. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance for flooring and accessories.
C. Submit the manufacturer's standard samples showing manufacturer’s standard colors for rubber tile flooring and applicable accessories.

1.5 ENVIRONMENTAL CONDITIONS

A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store rubber/vinyl stair treads, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.
B. Maintain a minimum temperature in the spaces to receive the rubber/vinyl stair treads and accessories of 65ºF (18ºC) and a maximum temperature of 85ºF (29ºC) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55ºF (13ºC) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.
C. Install rubber/vinyl stair treads and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture tests.

PART 2 PRODUCTS

2.1 MANUFACTURER

D. STAIR TREAD, RISER AND TILE MATERIALS
1. Mannington Mills Inc.
2. Armstrong Company
3. Roppe Corporation
4. Johnsonite
5. Or Approved Equal

E. PRODUCTS- RESILIENT RUBBER FLOORING MATERIALS
1. ColorScape Stair Tread **or Equal**
   a. Manufacturer/Product: Mannington Mills Inc; ColorScape Stair Tread
   b. Product Description: Thermoset Rubber Type TS
      1) Thickness: 1/8 inch
      2) Lengths: 5’ and 6’
      3) Profile: Round or Square (to be selected by Contracting Officer)
      4) Nose: Square profile
      5) Color: Selection from manufacturer’s standard array (to be selected by Contracting Officer).
2. ColorScape Rubber Tile **or Equal**
   a. Manufacturer/Product: Mannington Commercial; ColorScape Rubber Tile
   b. Product Description: Thermoset Rubber Type TS
      1) Thickness: 1/8 inch gauge
      2) Size: 18 1/8” x 18 1/8”
      3) Profile: Round or Square (to be selected by Contracting Officer)
      4) Nose: Square profile
      5) Color: Selection from manufacturer’s standard array (to be selected by Contracting Officer).
      6) Flooring shall meet composition, size, thickness, squareness, flexibility, dimensional stability, and resistance to chemicals requirements of ASTM F-1344 Class 1-A (ColorScape™) “Standard Specification for Rubber Tile.”
3. ColorScape Rubber Riser **or Equal**
   a. Manufacturer/Product: Mannington Commercial; ColorScape Rubber Tile
   b. Product Description: Thermoset Rubber Type TS
      1) Thickness: 1/8 inch gauge
      2) Lengths: 4’, 5’, & 6’
      3) Height: 7” Coved
      4) Color: Selection from manufacturer’s standard array (to be selected by Contracting Officer).
4. ColorScape Rubber Stringer **or Equal**
   a. Manufacturer/Product: Mannington Commercial; ColorScape Rubber Tile
   b. Product Description: Thermoset Rubber Type TS
      1) Thickness: 1/8 inch gauge
      2) Lengths: 12” x 36” slabs
      3) Color: Selection from manufacturer’s standard array (to be selected by Contracting Officer).

2.2 ADHESIVES

A. Provide Mannington MR-911 Acrylic Adhesive **or Equal** for installation of the stair treads.

2.3 ACCESSORIES

A. For patching, smoothing, and leveling monolithic subfloors (concrete) provide Mannington MVP-2023 Cement-Based Underlayment **or Equal**.

B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
C. Provide transition/reducing strips tapered to meet abutting materials.
D. Provide threshold of thickness and width as shown on the drawings.
E. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
B. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.2 PREPARATION

A. Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Cement-Based Underlayment as recommended by the flooring manufacturer.
B. Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.
C. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.3 INSTALLATION OF FLOORING

A. Install flooring in strict accordance with Manufacturer’s Installation Instructions.
B. Install flooring wall to wall. Extend flooring door recesses, and similar openings as shown on the drawings.
C. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, and outlets.
D. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.4 INSTALLATION OF ACCESSORIES

A. Apply top set wall base to walls, columns, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.

C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
D. Apply overlap edge strips where shown on the drawings, after flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.5 CLEANING AND PROTECTION

A. Perform initial maintenance according to the latest edition of the manufacturer’s maintenance and warranty literature. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

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:
   5. Rubber base. Rubber base shall conform to the requirements of Federal Specification SE-W-40a, Type 1, Style B (cove). Rubber base shall have a height of 4" and a thickness of 1/8". Color shall be selected by Contracting Officer.

1.2 SUMBITTALS

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 to

2.2 ACCESSORIES

A. Rubber Base (RB):
   1. References: The base shall conform to the requirements of ASTM F 1861, Type TS, Group I (solid).
   2. Product Description:
      a. Products shall be constructed of first quality materials properly vulcanized, and shall be smooth and free from imperfections which detract from its appearance.
   3. Height: 4".
   4. Gauge/Thickness: 1/8 inch
   5. Style: Standard top-set cove

a. Provide prefabricated inside and outside corners.
b. Base over carpet: coved bottom

6. Lengths: In coils / rolls to limit joints

B. Adhesives (Cements):
2. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
3. 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. 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.

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 – Vector “Refract Light #I0288”
B. Related Requirements:
   1. Section 096513 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Conner Manor.
   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 weathertight, 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.

1.11 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 warrantied by same manufacturer.
4. Warranty Period: Lifetime Commercial Limited Warranty.

PART 2 PRODUCTS

NOT USED

PART 3 PRODUCTS

3.1 CARPET TILE – EQUAL TO: Patcraft – Vector “Refract Light #I0288”

A. Basis-of-Design Product: Subject to compliance with requirements, provide Patcraft Vector Modular Collection (Reveal Color Modular I0287 and Refract Light Modular I0288):
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: As selected by Contracting Officer from manufacturer's full range.
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 precoat 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 manufacturered 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. Exterior Primer.
D. Exterior Paint.
E. Wall Preparation.

1.2 RELATED SECTIONS

A. Section 06200 - Finish Carpentry: Preparation of wood surfaces to receive finishes.
B. Section 072400 – EIFS: Preparation of exterior wall to receive finishes.
C. Section 09200 - Plaster and 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 EXTERIOR PRIMERS - PREVIOUSLY PAINTED SURFACES

A. Concrete, Masonry, Stucco:
   1. Alkyd:
      a. One (1) Coat - Super Spec® 100% Acrylic Masonry Sealer #N066
B. Ferrous Metals:
   1. Alkyd:
      a. One (1) Coat - Super Spec® HP Alkyd Metal Primer #P06.
C. Galvanized Metals:
   1. Latex:
      a. One (1) Coat - Fresh Start All Purpose 100% Acrylic Primer #023 (MPI Listed Product Categories 6, 17, 39 and 137).
D. Aluminum
   1. Zinc Chromate Primer One (1) Coat.

2.6 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.

2.7 EXTERIOR FINISH COATS

A. Satin Finish:
   1. Latex:

a. Two (2) Coats – Cryli Cote 100% Acrylic Satin #410

2.8 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 manufacture'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 manufacture’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 10 26 00

HANDRAILS

PART I - GENERAL

1.01 DESCRIPTION

A. The work required under this Section consists of corner guards and handrails and related items to complete the work as indicated on the Drawings and described in the Specifications.

B. Related Requirements Specified Elsewhere: Section 01300 - Submittals.

1.02 QUALITY ASSURANCE

A. For the purpose of designating type and quality for the work under this Section, Drawings and Specifications are based on items manufactured or furnished by Decoguard Products Division of Construction Specialties, Inc., Muncy, PA.

B. Products other than those specified will be considered for approval as equals after submittal of pertinent technical data for review.

1.03 SUBMITTALS

A. Submit brochures in accordance with the provisions of Section 01300 - Submittals.

B. Submittal data shall include, but not be limited to:
1. Details of construction
2. Mounting and installation details
3. Finishes
4. SPEC-DATA sheets
5. Plan location sheets

1.04 DELIVERY AND STORAGE

PART 2 - PRODUCTS

2.01 HANDRAILS

A. Handrails as detailed and scheduled on Drawings shall be C/S Acrovyn handrail Model HRB-4 as manufactured by Construction Specialties, Inc.

B. Handrails shall be manufactured from high-impact vinyl/acrylic material with an Izod impact strength of 24.1 ft/lb per inch of notch conforming to ASTM B-256-79.

C. Colors to be selected by the Architect from manufacturer's full range of available colors.

D. Color shall be integral throughout depth of material.

E. Material shall be Class A or I rating in accordance with ASTM-E 84-75.

F. Furnish continuous aluminum retainer of a minimum .081" (2.06 mm) thickness to be attached to wall through mounting brackets and fasteners.

G. Furnish color coordinated end caps of Hi-Impact "Acromite" material which are designed for mechanical attachment directly to the aluminum retainer.

PART 3 - EXECUTION

3.01 LOCATION

A. Handrails shall be 36 inches from floor to top of rail.

3.02 INSTALLATION

A. All handrails will be mounted to existing construction.

B. Provide suitable anchors for each existing construction type and condition as per Drawings and details.

C. Install all items according to manufacturer's recommendations.

D. H shall be securely locked in place yet provide for shock absorbing action under heavy impact without damage to guard, retainer, brackets, or adjacent wall.

E. Provide templates of actual field conditions on odd angles if required by manufacturer to insure proper fit.

F. Handrails shall be straight and true over full length.

3.03 PROTECTION

A. Protect all existing surfaces including but not limited to vinyl wall covering, door frames, carpet, and plastic laminate casework from damage during installation of guards and handrails.

B. Repair or replace damaged surfaces of items, including existing surfaces damaged from installation of corner guards and handrails.

C. Leave all new and existing surfaces clean and free from marks, dust and debris.

D. Remove all rubbish from site upon completion.

END OF SECTION

SECTION 10 26 13

HIGH IMPACT CORNER GUARD

PART 1 GENERAL

1.1 SUMMARY

A. Corner guard system for wall protection

1.2 SECTION INCLUDES

A. High Impact Surface Mount Corner Guard System

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)
B. National Building Code of Canada (NBC)
C. National Fire Protection Association (NFPA)
D. Society of Automotive Engineers (SAE)
E. Underwriters Laboratory (UL)
F. Underwriters Laboratory of Canada (ULC)
G. Uniform Building Code (UBC)

1.4 SYSTEM DESCRIPTION

A. A. Performance Requirements: Provide corner guard system that conform to the following requirements of regulatory agencies:
   2. Fire Performance Characteristics: Provide UL Classified corner guards conforming with NFPA Class A fire rating. Surface burning characteristics, as determined by UL-723 (ASTM E-84), shall be flame spread of 10 and smoke development of 350 - 450. Provide ULC (Canada) listed corner guards conforming to the requirements of the National Building Code of Canada 2010, Subsection 3.1.13. Surface burning characteristics, as determined by CAN/ULC-S102.2, shall be flame spread of 15 and smoke developed of 35.
   3. Self -Extinguishing: Provide corner guards with a CC1 classification, as tested in accordance with the procedures specified in ASTM D-635-74, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position, as referenced in UBC 52-4-1988.
   4. Impact Strength: Provide rigid vinyl profile materials that have an Impact Strength of 30.2 ft-lbs/inch of thickness as tested in accordance with the procedures specified in ASTM D-256-90b, Impact Resistance of Plastics.
   5. System Impact Resistance: Provide a corner guard system that resists an impact of 153.9 ft-lbs while producing no visual blemishes upon the vinyl cover surface and no deformations in the vinyl retainers, as tested in accordance with the applicable provisions of ASTM F 476-84, paragraph 18, Impact Test.
   6. GREENGUARD Certified: Provide GREENGUARD Certified material. Profiles shall meet the requirements of GREENGUARD Certification Standards for Low-Emitting Products and GREENGUARD Product Emission Standard for Children & Schools.
   7. Chemical and Stain Resistance: Provide corner guards that show resistance to stain when tested in accordance with applicable provisions of ASTM D-543.
   8. Fungal and Bacterial Resistance: Provide rigid vinyl that does not support fungal or bacterial growth as tested in accordance with ASTM G-21 and ASTM G-22.

9. Color Consistency: Provide components matched in accordance with SAE J-1545 - (Delta E) with a color difference no greater than 1.0 units using CIE Lab, CIE CMC, CIE LCh, Hunter Lab or similar color space scale systems.

1.5 SUBMITTALS

A. Product Data: Manufacturer's printed product data for each type of corner guard specified.
B. Detail Drawings: Mounting details with the appropriate fasteners for specific project substrates.
C. Samples: Verification samples of corner guard, 8" (203mm) long, in full size profiles of each type and color indicated.
D. Manufacturer's Installation Instruction: Printed installation instructions for each corner guard.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in unopened factory packaging to the jobsite
B. Inspect materials at delivery to assure that specified products have been received.
C. Store in original packaging in a climate controlled location away from direct sunlight.

1.7 PROJECT CONDITIONS

A. Environmental Requirements: Products must be installed in an interior climate controlled environment.

1.8 WARRANTY

A. Standard IPC Limited Lifetime Warranty against material and manufacturing defects.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer: IPC Door and Wall Protection Systems, InPro Corporation, PO Box 406 Muskego, WI 53150 USA; Telephone: 800-222-5556, Fax: 888-715-8407, Internet address: http://www.inprocorp.com
B. OR EQUAL
C. Provide all corner guards and wall protection from a single source.

2.2 MANUFACTURED UNITS

A. Corner Guard System EQUAL TO:
   1. 160BN BluNose High Impact Corner Guard Profile
   2. 2" (51mm) x 2" (51mm), 90 degree
   3. 3' (.91m), 4' (1.22m), 8' (2.44m) and 9' (2.74m) standard heights
   4. Custom heights available
   5. Custom Angles – Provide vinyl covers and retainers with custom angles. Custom angles shall be between 112.5° and 157.5°.
   6. Provide flexible top caps to bend to retainer angle.

2.3 MATERIALS

A. Vinyl Covers: Snap on cover of .080" (2mm) thickness shall be extruded from chemical and stain resistant polyvinyl chloride with the addition of impact modifiers. No plasticizers shall be added (plasticizers may aid in bacterial growth).
B. Vinyl Retainers: Continuous vinyl retainers of .070" (1.8mm) thickness with a Biopolymer Flex PVC apex shall be fabricated from polyvinyl chloride with the addition of impact modifiers.

2.4 COMPONENTS

A. Top caps and bottom caps shall be made of injection molded thermoplastics.
B. Fasteners: All mounting system accessories appropriate for substrates indicated on the drawings shall be provided.
C. Optional flexible top caps shall be made of injection molded Biopolymer Flex PVC.

2.5 FINISHES

A. Vinyl Covers: Colors of the corner guard to be selected by the architect from the IPC finish selection. Surface shall have a pebblette texture.
B. Molded Components: Top caps and bottom caps shall be of a color matching the corner guards. Surface shall have a pebblette texture.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions in which the corner guard systems will be installed.
   1. Complete all finishing operations, including painting, before beginning installation of corner guard system materials.
B. Wall surface shall be dry and free from dirt, grease and loose paint.

3.2 PREPARATION

A. General: Prior to installation, clean substrate to remove dust, debris and loose particles.

3.3 INSTALLATION

A. General: Locate corner guard as indicated on the approved detail drawings for the appropriate substrate and in compliance with the IPC installation instructions. Install corner guard level and plumb at the height indicated on drawings.
B. Installation of High Impact Surface Mount Corner Guard:
   1. Retainer Installation Position the vinyl retainer against the wall, allowing 5/16" (8mm) from the bottom of the retainer to the top of the cove base or baseboard for the bottom cap. Drywall: Secure the retainer to the wall using #8 x 1-1/4" Phillips round head, self-tapping screws. Stagger the fasteners on each wing of the retainer. Use 4 screws per 3' (.91m) length, 6 screws per 4' (1.22m) length, 10 screws per 8' (2.44m) length, or 12 screws per 9' (2.74m) length. Concrete: Drill 1/4" (6.5mm) holes into the ends of the retainer for the top and bottom caps. Stagger the holes on each wing of the cap. Use the slotted tabs on the top and bottom cap to transfer hole location to the retainer. Drill 1/4" (6.5mm) holes on the two wings of the retainer. Stagger the fasteners on each wing of the retainer. Drill 4 holes per 3' (.91m) length, 6 holes per 4' (1.22m) length, 10 holes per 8' (2.44m) length, or 12 holes per 9' (2.74m) length. Transfer the location of all mounting holes to the wall. Drill 1/4" (6.5mm) holes and position ALLIGATOR anchors into the holes on the wall. Mount the retainer with #10 x 1-3/4" Phillips pan head screws and tighten to secure the retainer to the wall.
   2. Top and Bottom Cap Installation: Drywall: Overlap the retainer with the mounting tabs of the top and bottom caps and attach them to the retainer using two, #8 x 1-1/4" phillips flat head, self-tapping screws per cap. Stagger the fasteners on each wing of the cap. Concrete: Overlap the retainer with the mounting tabs of the top and bottom caps and attach them to the retainer and into the ALLIGATOR anchors using two, #8 x 1-1/2" phillips flat head screws per cap. When installing flexible top caps on custom angle corner guards, use cup washers and flat head screws to fasten the top caps to the retainer.
   3. Position the vinyl cover on the retainer to check the fit. Adjust the top cap on the retainer to obtain a tight fit with the vinyl cover. Starting at the top, push the vinyl cover over the retainer pressing over the entire length until the cover snaps securely into place.

INSTALLATION NOTE: Vinyl retainers can be field bent to angles 10° wider or 10° tighter than 90°. When doing so top and bottom caps cannot be used and the installation should be full height from floor to ceiling. When doing so use flexible top and bottom caps or the installation should be full height from floor to ceiling.

3.4 CLEANING

C. At completion of the installation, clean surfaces in accordance with the IPC clean-up and maintenance instructions.

END OF SECTION

SECTION 10 40 00

IDENTIFYING DEVICES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Room identification signs, to match new signage in renovated dorms 6950 (Conner Manor) & 7404 (Winters Manor).
   2. Building dimensional signage.

1.2 SUBMITTALS

A. Submit product data for all signage.
B. Submit one full size sample sign of type and style Specified, including method of attachment.
C. Submit schedule of room identification signs and shop drawings listing sign size, letterform, and letter heights.
D. Provide patterns as needed for installation.

1.3 QUALITY ASSURANCE

A. All identifying devices shall comply with requirements of 36 CFR 1191 "Americans with Disabilities Act Accessory Guidelines for Buildings and Facilities".
B. Manufacturer specializing in manufacturing the products specified in this section. Obtain signs from one source and a single manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Interior Room ID Panel Signs:
   1. Basis of Design as manufactured by SA Signs LLC, (Contact: Scotty Jurich at 228 354 8002).
   2. Approved equal.
B. Dimensional Characters:
   1. Gemini, Inc.
   2. Approved equal.

2.2 ROOM IDENTIFICATION SIGNS

C. It is the intent of these specifications to establish a sign standard for the primary dorm room identification signage only. While the Owner may or may not obtain other signs or sign types, the signage contractor, if required, shall design and submit for approval.
D. Material: All interior signage to match material & overall design of new signage at 6965 & 7404. Sign design consists of:
   1. Backer Piece: 0.125” thick Single-ply modified acrylic. Size: 13” H x 7.25” W with four (4) .1875” holes at 0.4” radius corners.
   2. Face Piece: 0.125” thick Single-ply modified acrylic. Size: 11” H x 5” W with .4” radius corners, attached and centered on Backer piece.
   3 Tactile numbers / lettering: precision machined, raised 1/32” thick Single-ply modified acrylic applique. Size: 1” H centered at top of Face piece.
   4 Grade II Braille dots: Acrylic sphere, pressure fit in high tolerance drilled holes and protruding a minimum of 0.025”. Centered below copy.

5 Colors: Selected by Designer of Record from manufacturers range of colors.
6 Mounting: Mount with four (4) tamper resistant stainless steel screws.
7 Location: At each dorm room & as shown on drawings.

2.3 EXTERIOR BUILDING CHARACTERS

A. Cast Aluminum Letters and Numbers: Cast aluminum letters and numbers. Comply with requirements indicated for finish, style and size.
   1. Metal: Cast Aluminum.
   2. Height: 12 inch – Upper Case.
   3. Style: Arial Bold or as selected by Designer of Record.
   4. Finish: Painted – Color selected by Designer of Record from manufacturers range of colors.
   5. Letter Copy: CONNER MANOR
   6. Number Copy: 6950
   7. Location: As shown on drawings.

PART 3 EXECUTION

3.1 INSTALLATION

A. Room Identification Signs: Mount on wall by opening adjacent to latch side of door in accordance with referenced standard, centered 60" above the finished floor. Attach to wall with tamper resistant stainless steel screws with anchors, if necessary, for mounting.
B. Dimensional Letters and Numbers: Mount letters and numbers using standard fastening methods recommended by the manufacturer for letter form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish letter spacing and to locate holes for fasteners.

3.2 CLEANING

A. Upon completion all identifying devices shall be undamaged, level, plumb, true to line and securely anchored.
B. Clean all exposed surfaces and protect to prevent damage during remainder of construction period.

END OF SECTION

SECTION 10 80 10

TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Provide toilet and other accessory items in locations as indicated on the Drawings and as specified herein.

1.2 SUBMITTALS

A. Product Data
   1. For each accessory item specified, including details of construction relative to material, dimensions, gauges, profiles, method of mounting, specified options, and finishes.

1.3 QUALITY ASSURANCE

A. Inserts and anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
C. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Contracting Officer.
D. Comply with 36 CFR 1191 "Americans with Disabilities Act Accessory Guidelines for Buildings and Facilities" including requirement regarding location and installed structural strength of grab bars.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Bobrick Washroom Equipment
B. American Specialties Inc (ASI) – Profile Collection only
C. Bradley Corporation
D. Equal as approved

2.2 MATERIALS

A. Stainless Steel: AISI Type 304, with polished No. 4 finish, 22 gauge minimum thickness, unless otherwise indicated.
B. Mirror Glass: Nominal 6.0 mm thick, conforming to ASTM C1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating. Provide with continuous edge sealer prior to installation in frame.
C. Fasteners: Screws, bolts, and other devices of same materials as accessory unit or of galvanized steel where concealed.
D. Keys: Unless otherwise indicated, provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of 6-keys to Government and obtain receipt.

2.3 GRAB BARS

A. Provide Stainless steel grab bar, 1-1/2” outside diameter, heavy-duty grab bars as follows:
   1. Mounting: Concealed, manufacturer’s standard flanges and anchorages, with concealed mounting plate and snap flange cover to conceal mounting screws.
   2. Clearance: 1-1/2 inches clearance between wall surface and inside face of bar.
   3. Gripping Surfaces: Manufacturer’s standard nonslip texture.
   4. Locations and configurations as shown on Drawings.
   5. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
      a. 36” Grab Bar: Bobrick, No. B-6806x36
      b. 42” Grab Bar: Bobrick, No. B-6806x42

2.4 DOUBLE TOILET TISSUE DISPENSER (Public Areas Only)

A. Fabricate of stainless steel with all-welded construction; exposed surfaces shall have satin finish. Door shall be secured to cabinet with two rivets and equipped with a flush tumbler lock. Unit shall dispense two standard-core toilet tissue rolls up to 5-1/4” diameter. Extra roll shall automatically drop in place when bottom roll is depleted. Spindles shall be theft-resistant, one-piece, molded ABS.
B. Mountings: Concealed type, manufacturer’s standard.
C. Controlled delivery not permitted.
D. Mounting Height: 28” to top of unit
E. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
F. Multi Roll Toilet Tissue Dispenser: Bobrick No. B-4288

2.5 SINGLE TOILET TISSUE DISPENSER (Living/Sleeping Units)

A. Single-roll toilet tissue dispenser shall be type-304 stainless steel with bright polished finish. Unit shall accommodate one standard-core toilet paper roll up to 5-1/2" diameter (1800 sheets). Flanges and support arms shall be 22 gauge (0.8mm) and equipped with concealed, 18 gauge (1.2mm) mounting brackets that are secured to concealed, 19-gauge (1.0mm) wall plates with stainless steel setscrews
B. Mountings: Concealed type, manufacturer’s standard.
C. Controlled delivery not permitted.
D. Mounting Height: 20” to top of unit
E. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
F. Single Roll Toilet Tissue Dispenser: Bobrick No. B-7685

2.6 MIRROR UNITS

A. Stainless Steel Framed Mirror Units: Fabricate frame with angle shapes of not less than 18 gauge with square welded corners mitered and ground smooth. Provide with No. 4 satin polished finish.
B. Mountings: Concealed type, manufacturer’s standard.
C. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
D. 24 inch wide x 36 inch high: Bobrick No. B-290 2436

2.7 ROBE HOOKS

A. Surface-mounted single robe hook shall be constructed entirely of type-304 stainless steel with satin finish. Flange and support arm shall be 22-gauge and be equipped with a concealed 18-gauge mounting bracket that is secured to a concealed 20-gauge wall plate with a Phillips head locking setscrew. Cap shall be 14-gauge, welded to the support arm.
B. Mounting Height: as directed by Contracting Officer.
C. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
D. Bobrick No. B-6717

2.8 SOAP DISPENSER

A. Vertical tank with 40 fl oz capacity. Corrosion-resistant valve dispensing liquid and lotion soaps and synthetic detergents.
B. Fabrication: 22-gauge stainless steel with satin finish. Body is drawn, one-piece seamless construction. Clear acrylic refill-indicator window. Locked, hinged stainless steel lid for top filling.
C. Mountings: Concealed type, manufacturer's standard.
D. Toilet Accessory Schedule Symbol / Manufacturer / Model No.:
E. Bobrick No. B-2111

PART 3 EXECUTION

3.1 EXAMINATION

A. Installer must examine substrates, previously placed inserts and anchorages necessary for mounting of toilet accessories and other conditions under which installation is to occur, and must notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.2 INSTALLATION

A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.

3.3 ADJUSTING

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.

3.4 CLEANING

A. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION

SECTION 12 36 00

COUNTERTOPS

1.1 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:
   1. SD-02 Shop Drawings
      a. Fabrication
      b. Installation Drawings;
   2. SD-03 Product Data
      a. Solid Polyster Resin Cultured Marble;
      b. Adhesives;
      c. Filler Material;
      d. Fasteners;
      e. Service Fixtures;
      f. Accessories and Hardware;
   3. SD-04 Samples
      a. Countertop;
      b. Backsplash;
      c. Manufacturer's Standard Color Charts;
   4. SD-08 Manufacturer's Instructions
      a. Manufacturer's Instructions;

1.2 DELIVERY, STORAGE, AND HANDLING

B. Deliver, store, and handle countertops and backsplash in a manner that will prevent damage and disfigurement.

Provide temporary skids under units weighing more than 300 pounds.

1.3 DESIGN

A. Provide factory fabricated prefinished Solid Polyester Resin Cultured Marble countertops to match existing sizes and in the Manufacturer’s Standard finishes of type, design, and configuration. Construct countertops as specified and meet the requirements of KCMA A161.1 (2000 Performance & Construction Standards for Kitchen and Vanity Cabinets).

B. Accomplish fastenings to permit removal and replacement of individual units without affecting the remainder of the installation. Provide counters with watertight sink rim when indicated.

PART 2 PRODUCTS

2.1 GENERAL

A. Submit manufacturer's standard color charts for countertops showing the manufacturer's recommended color and finish selections.

B. Submit manufacturer's instructions for countertops including special provisions required to install equipment components and system packages. Include all special notices detailing impedances, hazards and safety precautions.

C. Provide the manufacturer's standard type countertops or as indicated on the drawings. Accomplish fastenings to permit removal and replacement of individual countertops without affecting the remainder of the installation.

2.2 MATERIALS

A. Provide fasteners conforming to the following:
   1. Screws: ASME B18.6.1, Group, Type and Class as applicable
   2. Anchoring Devices: FS FF-S-325, Group, Type, and Class as applicable
   3. Toggle Bolts: FS FF-B-588, Type I, Class A, Style 2
   4. Nuts: ASTM F594, corrosion-resistant steel
   5. Bolts: ASTM A325, heavy, hexagon head bolts corrosion-resistant steel
   6. Nuts: ASTM F836M, corrosion-resistant steel
   7. Bolts: ASTM A325M, heavy, hexagon head bolts corrosion-resistant steel

B. Provide service fixtures as specified in the SOW conforming to the plumbing specification requirements (contractor to ensure compatibility):

2.3 COUNTERTOP AND BACKSPLASH FABRICATION

A. Solid Polyester Resin Cultured Marble Countertops

B. Construct countertop and backsplash with integral sink and lavatory of sheet material for sink/lavatory cutout; as shown. Use material of 3/4 inch thickness minimum, cast, and filled nonporous solid surfacing composed of polyester resin crushed marble, glass frit, mineral fillers and pigments. Material is to comply with IAPMO Z124.3 and the following performance requirement; Flammability: Class I, flame spread of 25 maximum, smoke developed of 100 maximum when tested in accordance with ASTM E84.

2.4 ACCESSORIES AND HARDWARE

A. Mounting Adhesives
   1. Provide structural-grade silicone or epoxy adhesives of type recommended by manufacturer for application and conditions of use.
   2. Provide spacers, if required, of type recommended by adhesive manufacturer.

B. Joint Sealants
   1. Use clear silicone sealant of type recommended by manufacturer for application and conditions of use.
   2. Provide anti-bacterial type.

C. Solvent
   1. Use a product recommended by adhesive manufacturer to clean surface of quartz surfacing to assure adhesion of adhesives [and sealants].

D. Cleaning Agents
   1. Use non-abrasive, soft-scrub type kitchen cleaners.

2.5 COLOR, TEXTURE, AND PATTERN

A. Select color from manufacturer’s standard colors.

PART 3 EXECUTION

3.1 INSTALLATION

A. Inspect material for defects prior to installation. Ensure materials throughout bear labels with the same batch number. Visually inspect materials used for adjacent pieces to assure acceptable color match. Inspect in lighting conditions similar to those on the project. Repair or replace damaged materials in a satisfactory manner.

B. Install countertops plumb with cabinetry level to within 1/16 inch in 10 feet. Scribe and fit scribe strips to irregularities of adjacent surfaces. Gap openings exceeding 0.025 inch are not acceptable.

C. Secure countertops to cabinetry and wall construction using 1/4-inch diameter masonry anchors spaced 30 inches maximum on center.
D. Submit installation drawings for countertops. Ensure drawings include location of cabinets, details of cabinets related and dimensional positions, and locations for roughing in plumbing, including sinks, faucets, strainers and cocks.
E. Preliminary Installation and Adjustment
   2. Install materials in accordance to manufacturer's recommendations. Lift and place to avoid breakage.
   3. Position materials to verify that materials are correctly sized and prepared. Make necessary adjustments.
   4. If jobsite cutting, grinding, or polishing is required, use water-cooled tools. Protect jobsite and surfaces against dust and water. Perform work away from installation site if possible.
   5. Gypsum drywall back walls which are not fire or acoustically rated may be routed up to half the thickness of the drywall to allow countertop to fit.
   6. Shim countertop drainage adjacent to sinks and where drainage is required, slightly to insure positive drainage.
F. Permanent Installation
   7. After verifying fit, remove countertop and backsplash from position, clean substrates of dust and contamination, and clean countertop and backsplash back sides and joints with solvent.
   8. Apply sufficient quantity of mounting adhesive in accordance with adhesive manufacturer's recommendations to provide permanent, secure installation.
   9. Spacing of mounting adhesive will not exceed:
   10. Horizontal Surfaces: 3 inch on center
   11. Vertical Surfaces: 3 inch on center; provide temporary shims until adhesive cures.
   12. Install surfacing plumb, level, and square and flat to within 1/6 inch in 10 feet.
G. Joints
   13. Ensure joints between adjacent pieces of countertop are: Flush, tight fitting, level, and neat. Securely join with adhesive. Fill joints level with countertop/backsplash surface.
   14. Clamp or brace countertop/backsplash in position until adhesive sets.
   15. Joints between backsplashes and countertops: Seal joints with silicone sealer.

3.2 CLEANING

A. On completion of cabinet installation, touch up marred or abraded finished surfaces. Remove crating and packing materials from premises. Wipe down surfaces to remove fingerprints and markings and leave in clean condition.

3.3 INSPECTION

A. Examine casework grounds and supports for adequate anchorage, foreign material, moisture, and unevenness that could prevent quality casework installation.
B. Ensure that electrical and plumbing rough-ins for casework are complete. Do not proceed with installation until defects are corrected.

END OF SECTION

SECTION 15 20 00 - DOMESTIC WATER SYSTEM

PART 1 GENERAL

1.01 SOURCE

A. The water source shall be from the 6" PVC water line installed as part of this project, as indicated on the Drawings.

1.02 INTERIOR WATER PIPING

A. Materials: Piping shall be Type M, hard-drawn copper conforming to ASTM-B-88. Water piping under concrete slabs shall be Type K soft drawn without joints. Two inch water lines under slab can be Type K with silver soldered joints.
B. Fittings: Fittings for copper tubing shall be cast brass or wrought copper, sweat pattern.
C. Installation: Pipe and tubing shall be cut accurately to measurements established at the building by the Contractor and shall be worked into place without springing or forcing. Piping shall run parallel with the lines of the building unless otherwise shown or noted on the Drawings.
D. Joints: Tubing shall be cut square and burrs shall be removed. Both sides of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Joints for soldered fittings shall be made with a non-corrosive paste flux and solid string or wire solder composed of 95 percent tin and 5 percent lead. Joints for flared type fittings shall be of compression pattern. Brazed joints shall be made with silver solder, Classes 4 and 6. Swing joints shall be provided on all branch connections to mains and risers to provide for expansion and contraction of tubing. Threaded joints shall have American National screw threads, with graphite and oil compound applied to the male threads.
E. Valves: Valves shall be all brass with rough bodies and finished trimmings, except that those on chromium-plated brass pipe shall be finished and chromium plated. No valve shall be installed with its stem below the horizontal. Gate valves shall be Crane No. 1234 sweat type, Nibco No. S-126 sweat type or approved equal for tubing. Gate valves shall be Crane 400 or approved equal for threaded pipe.
F. Dielectric Unions: Where copper pipe is connected to steel pipe or steel equipment, connections shall be made with dielectric unions.
G. Unions: Unions installed in connection with ferrous piping shall be malleable-iron, zinc-coated. Unions installed in connection with non-ferrous pipe or tubing shall be brass.

PART 2 PRODUCTS

N O T U S E D

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 15 40 00

PLUMBING

PART 1 GENERAL

1.01 DESCRIPTION

A. Furnish and install plumbing fixtures equal to those specified hereinafter.

1.02 GENERAL REQUIREMENTS

A. Generally all fixtures except water closets shall have the water supply above the rim. Fixtures with the supply discharge below the rim shall be equipped with backflow preventers. Exposed traps and supply lines for all fixtures and equipment shall be connected to the rough piping systems at the wall, unless otherwise specified under the item. Floor and wall plates and escutcheons shall be specified hereinbefore.

1.03 CROSS CONNECTIONS

A. Fixtures and trimmings shall be designed to prevent the backflow of polluted water or waste into the water supply system.

1.04 FIXTURE CONNECTIONS

A. Connections between earthenware fixtures and flanges on soil pipe shall be made absolutely gastight and watertight with plumbing-fixture setting compound or plumbing-fixture setting gaskets. Rubber gaskets or putty will not be permitted for the connection. Closet bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers. Fixtures with outlet flanges will be set at the proper distance from floor or wall to make a first class joint with the closet setting compound or gasket and the fixture used. No fixture shall be set in place until the Contracting Officer has examined and approved such flange.

1.05 FINISH OF FITTINGS AND TRIMMINGS

A. The exposed piping, fittings and trimmings shall be chromium-plated on nickel plated brass with polished bright surfaces.

1.06 SUPPLY STOPS

A. Provide a supply stop valve for the domestic water service to each fixture.

1.07 PLUMBING FIXTURE SCHEDULE

A. Fixtures shall be Delta or equal to the manufacturer's numbers specified herein for identification of type and selection by Owner.
B. Shower Valve body shall be equal to Delta “R10000-UNBXHF (High Flow Shower only)” Multichoice Universal Rough Valve Body with the following:
   1. Forged brass body.
   2. Back-to-Back installation capabilities.
   3. Can be tested with air (200 PSI) or water
   4. (300 PSI) without valve using supplied test cap.
   5. Square plasterguard allows for right angle cuts.
   6. Thin wall mounting.
   7. For use with MultiChoice® Universal single or dual function trim. Cartridge ships with trim.

8. 1/2" outlets and connections.
9. WARRANTY:
    a. Lifetime limited warranty on parts (other than electronic parts and batteries) and finishes:
    b. Or, for commercial users, for 5 years from date of purchase.

C. Shower Faucet Trim kit shall be equal to Delta “T14238-H2O” Lahara Moniter 14 Series Shower with the following:
1. Monitor® 14 Series pressure balanced single handle mixing valve trim.
2. Maintains a balanced pressure of hot and cold water even when a valve is turned on or off elsewhere in the system.
3. For use with MultiChoice® Universal rough valve body. (R10000 Series)
4. Back-to-back installation capability.
5. Solid brass forged body.
6. Temperature only controlled with handle.
7. Field adjustable to limit handle rotation into hot water zone.
8. 120° maximum handle rotation.
9. All parts replaceable from the front of the valve.
10. H2O Kinetic Technology® 1.5 gpm max @ 80 PSI.
11. "-LHD" models have pad printed red/blue temperature indication less showerhead.
12. WARRANTY:
    a. Lifetime limited warranty on parts (other than electronic parts and batteries) and finishes:
    b. or, for commercial users, for 5 years from date of purchase.

D. Lavatory Faucet shall be equal to Delta “Lahara 25938 TP-DST”. With the following:
1. 4" (102 mm) centerset.
2. 5" (127 mm) long, 6 3/8" (162 mm) high rigid spout.
3. 1/4 turn handle stops.
4. Lever handle. Control mechanism is a diamond embedded ceramic disc cartridge.
5. Hot and cold stems are interchangeable.
6. 3/8" O.D. straight pex supply tubes - 32" (813 mm) long.
7. Models without "TP" suffix have metal drain with pop-up type fitting with plated flange and stopper.
8. Models with "TP" suffix have polypropylene pop- up type drain fitting with plated metal flange and stopper cap.
9. Maximum 1.5 gpm flowrate @ 60 PSI.
10. Maximum mounting deck thickness is 2 1/4" (57 mm).
11. WARRANTY:
    a. Lifetime limited warranty on parts (other than electronic parts and batteries) and finishes:
    b. or, for commercial users, for 5 years from date of purchase.

E. Lavatory sink shall be equal to American Standard “Ohio Oval Countertop Sink” with the following:
1. Made in U.S.A.
2. Made from vitreous china
3. Self-rimming oval lavatory
4. Front overflow
5. Faucet ledge
6. Faucet holes on 4” centers
7. Color: White
8. Bowl size: 16.5” wide & 10.5” front to back.
9. Meets or Exceeds the Following specifications:
    a. ASME A112.19.2M for Vitreous China Fixtures
    b. CAN/CSA B45 Series
    c. Buy American/ARRA Compliant

F. Flat Suction Sink Stopper with the following:
1. Sink stopper suctions over sink opening to keep water and other objects out of drain.

2. 5" diameter
3. Stainless Steel 12” detachable chain.

PART 2 PRODUCTS

N O T U S E D

PART 3 EXECUTION

NOT USED

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 s h e e t s . 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

1.1 RELATED DOCUMENTS

A. Furnish and install lighting fixtures, complete with lamps, in accordance with this section. 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 Contracting Officer. 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.

1.2 SECTION INCLUDES

A. Luminaries
B. Shielding Media
C. Lamps
D. Ballasts
E. Installation of Fixtures

PART 2 PRODUCTS

2.1 PRODUCTS

A. Entry Luminaire (quantity 7) shall be manufactured by Philip Gardco model no. 302-O-W-26QF-26QF-R-120-OC-UNIV. or approved equal.
   1. Product requirements for each luminaire are as follows:
      a. HOUSING: Housings to be cast in a single-piece cylindrical form of corrosion resistant alloy, 1/8” min wall thickness. Units to measure 7.5” in outside diameter and 25”” in height. Housings are to be secured to the wall and luminaire assembly by using a cast mounting canopy/bracket. The canopy to include a hanger bracket and a mounting bracket (secured over splice box).
      b. Reflector (R): Reflectors are to be composed of spun Alzak® components, electro-polished, anodized and sealed. Reflectors for compact fluorescent lamps are to be formed in a dual stage construction.
      c. ELECTRICAL: Internal ballast to be provided based on the specified lamp configuration.
      d. LAMPHOLDER: Pulse rated medium base lamp-holders are to be glazed porcelain with a nickel-plated screw shell. Fluorescent sockets are to be high temperature plastic (PBT) with brass alloy contacts.
      e. FINISH: Each standard luminaire to receive a fade and abrasion resistant, electrostatically applied, thermally cured, textured TGIC polyester powder-coat finish. Consult factory for special colors. The cast bracket is painted to match the housings.
      f. LABELS: All luminaires bear UL or CUL (where applicable) Wet Location labels.
      g. WARRANTY: 5 year limited warranty. Polycarbonate lenses to carry a 1 year warranty only.
B. Dormitory room luminaires as follows:
   1. Vanity light fixture (quantity 2 per room) shall be manufactured by AFX model no. VSC217E8 or approved equal.
   2. Vestibule area and Shower area light fixture (quantity 1 per area) shall be manufactured by Progress Lighting model no. P7378-30 or approved equal.

3. Closet light fixture (quantity 2 per room, 1 per closet) shall be manufactured by Progress Lighting model no. P7376-31 or approved equal.

C. 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. Surface Luminaries: Provide spacers and brackets required for mounting.

2.2 LAMPS

A. Provide lamps for all fixtures. Fluorescent lamps shall be cool white, rapid start.
B. Description:
   1. Fluorescent Lamps: Type and color as scheduled, energy saving type. Compact fluorescent lamps of type scheduled.
   2. Pulse start metal halide.

2.3 BALLASTS

A. 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.

2.4 INSTALLATION OF FIXTURES

A. Provide adequate support for all fixtures.
B. Contractor to verify facility and site voltage prior to ordering fixtures.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

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

3.2 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.
   2. Install lamps in luminaries and lamp-holders.

3.3 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. Clean paint splatters, dirt and debris from installed luminaries.
D. Re-lamp luminaries, which have failed lamps at completion of work.
E. Touch up luminaire at completion of work.
F. Adjust relays, timers, photo controls, etc. to achieve specified or directed operation.

END OF SECTION

16 72 60

PUBLIC ADDRESS AND MASS NOTIFICATION SYSTEMS

PART1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Preamplifiers.
   2. Power amplifiers.
   3. Transfer to standby amplifier.
   4. Microphones.
   5. Volume limiter/compressors.
   6. Control console.
   7. Equipment cabinet.
   8. Telephone paging adapters.
   9. Tone generator.
   10. Monitor panel.
   11. Loudspeakers.
   12. Noise-operated gain controllers.
   13. Microphone and headphone outlets.
   14. Battery backup power unit.
   15. Conductors and cables.
   16. Raceways.

1.3 DEFINITIONS

A. Channels: Separate parallel signal paths, from sources to loudspeakers or loudspeaker zones, with separate amplification and switching that permit selection between paths for speaker alternative program signals.
B. VU: Volume unit.
C. Zone: Separate group of loudspeakers and associated supply wiring that may be arranged for selective switching between different channels.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
B. Shop Drawings: For supports and control consoles, equipment cabinets and racks, and components. Include plans, elevations, sections, details, and attachments to other work.
   1. Detail equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, and location and size of each field connection.
   2. Console layouts.
   3. Control panels.
   4. Rack arrangements.
   5. Calculations: For sizing backup battery.
   6. Wiring Diagrams: For power, signal, and control wiring.
      a. Identify terminals to facilitate installation, operation, and maintenance.
      b. Single-line diagram showing interconnection of components.
      c. Cabling diagram showing cable routing.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings are shown and coordinated with each other, using input from installers of the items involved.
B. Qualification Data: For qualified Installer and testing agency.
C. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For public address and mass notification systems to include in emergency, operation, and maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Microphone: One
   2. Desk Stand: One

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
B. Testing Agency Qualifications: Qualified agency, with the experience and capability to conduct testing indicated.
   1. Testing Agency's Field Supervisor: Currently certified by NICET at Level III to supervise on-site testing.
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
D. Comply with NFPA 70.

1.9 COORDINATION

E. Coordinate layout and installation of system components and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Alpha Communications.
   2. Altec Lansing Technologies, Inc.
   3. Atlas Sound LP.
   4. Bogen Communications, Inc.
   5. Dukane Communication Systems; part of GE Infrastructure, Security.
   6. Edwards Signaling & Security Systems; part of GE Infrastructure, Security.
   7. Electro-Voice; Telex Communications, Inc.
   8. Federal Signal Corporation; Electrical Products Division.
   9. Peavey Electronics.
   10. Rauland-Borg Corporation.

11. Whelen Engineering Company, Inc.

2.2 FUNCTIONAL DESCRIPTION OF SYSTEM

A. System Functions:
   1. Selectively connect any zone to any available signal channel.
   2. Selectively control sound from microphone outlets and other inputs.
   3. "All-call" feature shall connect the all-call sound signal simultaneously to all zones regardless of zone or channel switch settings.
   4. Telephone paging adapter shall allow paging by dialing an extension from any local telephone instrument and speaking into the telephone.
   5. Produce a program-signal tone that is amplified and sounded over all speakers, overriding signals currently being distributed.
   6. Reproduce high-quality sound that is free of noise and distortion at all loudspeakers at all times during equipment operation including standby mode with inputs off; output free of non-uniform coverage of amplified sound.

2.3 GENERAL EQUIPMENT AND MATERIAL REQUIREMENTS

A. Compatibility of Components: Coordinate component features to form an integrated system. Match components and interconnections for optimum performance of specified functions.
B. Equipment: Comply with UL 813. Equipment shall be modular, using solid-state components, and fully rated for continuous duty unless otherwise indicated. Select equipment for normal operation on input power usually supplied at 110 to 130 V, 60 Hz.
C. Equipment Mounting: Where rack, cabinet, or console mounting is indicated, equipment shall be designed to mount in a 19-inch housing complying with TIA/EIA-310-D.
D. Weather-Resistant Equipment: Listed and labeled by a qualified testing agency for duty outdoors or in damp locations.

2.4 PREAMPLIFIERS

A. Preamplifier: Integral to power amplifier.
B. Total Harmonic Distortion: Less than 1 percent.
C. Frequency Response: Within plus or minus 2 dB from 20 to 20,000 Hz.
D. Input Jacks: Minimum of two. One matched for low-impedance microphone; the other matchable to cassette deck, CD player, or radio tuner signals without external adapters.
E. Minimum Noise Level: Minus 55 dB below rated output.
F. Controls: On-off, input levels, and master gain.

2.5 POWER AMPLIFIERS

A. Mounting: Console
B. Output Power: 70-V balanced line. 80 percent of the sum of wattage settings of connected for each station and speaker connected in all-call mode of operation, plus an allowance for future stations.
C. Total Harmonic Distortion: Less than 3 percent at rated power output from 50 to 12,000 Hz.
D. Minimum Signal-to-Noise Ratio: 60 dB, at rated output.
E. Frequency Response: Within plus or minus 2 dB from 50 to 12,000 Hz.
F. Output Regulation: Less than 2 dB from full to no load.
G. Controls: On-off, input levels, and low-cut filter.
H. Input Sensitivity: Matched to preamplifier and to provide full-rated output with sound-pressure level of less than 10 dynes/sq. cm impinging on speaker microphone or handset transmitter.

2.6 TRANSFER TO STANDBY AMPLIFIER

A. Monitoring Circuit and Sensing Relay: Detect reduction in output of power amplifier of 40 percent or more and, in such event, transfer load and signal automatically to standby amplifier.

2.7 MICROPHONES

A. Paging Microphone:
   1. Type: Dynamic, with cardioid polar characteristic.
   2. Impedance: 150 ohms.
   3. Frequency Response: Uniform, 50 to 14,000 Hz.
   4. Output Level: Minus 58 dB, minimum.
   5. Finish: Satin chrome.
   6. Cable: C25J.
   7. Mounting: Desk stand with integral-locking, press-to-talk switch.

2.8 VOLUME LIMITER/COMPRESSOR

A. Minimum Performance Requirements:
   1. Frequency Response: 45 to 15,000 Hz, plus or minus 1 dB minimum.
   2. Signal Reduction Ratio: At least a 10:1 and 5:1 selectable capability.
   3. Distortion: 1 percent, maximum.
   4. Rated Output: Minimum of plus 14 dB.
   5. Inputs: Minimum of two inputs with variable front-panel gain controls and VU or decibel meter for input adjustment.
   6. Rack mounting.

2.9 CONTROL CONSOLE

A. Cabinet: Modular, desktop; complying with TIA/EIA-310-D.
B. Housing: Steel, 0.0478 inch (1.2 mm) minimum, with removable front and rear panels. Side panels are removable for interconnecting side-by-side mounting.
C. Panel for Equipment and Controls: Rack mounted.
D. Controls:
E. Switching devices to select signal sources for distribution channels.
F. Program selector switch to select source for each program channel.
G. Switching devices to select zones for paging.
H. All-call selector switch.
I. Indicators: A visual annunciation for each distribution channel to indicate source being used.
J. Spare Positions: 20 percent spare zone control and annunciation positions on console.
K. Microphone jack.

2.10 EQUIPMENT CABINET

A. Comply with TIA/EIA-310-D.
B. House amplifiers and auxiliary equipment at each location.
C. Cabinet Housing:
   1. Constructed of 0.0478-inch (1.2-mm) steel, minimum, with front- and rear-locking doors and standard TIA/EIA-310-D-compliant, 19-inch (483-mm) racks.
   2. Arranged for floor or wall mounting as indicated.
   3. Sized to house all equipment indicated, plus spare capacity.
   4. Include 20 percent minimum spare capacity for future equipment in addition to space required for future cassette deck and CD player.
D. Power Provisions: A single switch in cabinet shall disconnect cabinet power distribution system and electrical outlets, which shall be uniformly spaced to accommodate ac-power cords for each item of equipment.

E. Ventilation: A low-noise fan for forced-air cabinet ventilation. Fan shall be equipped with a filtered input vent and shall be connected to operate from 105- to 130-V ac, 60 Hz; separately fused and switched; arranged to be powered when main cabinet power switch is on.

2.11 EQUIPMENT RACK – not applicable

2.12 TELEPHONE PAGING ADAPTER

A. Adapters shall accept voice signals from telephone extension dialing access and automatically provide amplifier input and program override for preselected zones.
   1. Minimum Frequency Response: Flat, 200 to 2500 Hz.
   2. Impedance Matching: Adapter matches telephone line to public address equipment input.
   3. Rack mounting.

2.13 TONE GENERATOR

A. Generator shall provide clock and program interface with public address and mass notification system.
B. Signals: Minimum of seven distinct, audible signal types including wail, warble, high/low, alarm, repeating and single-stroke chimes, and tone.
C. Pitch Control: Chimes and tone.
D. Volume Control: All outputs.
E. Activation-Switch Network: Establishes priority and hierarchy of output signals produced by different activation setups.
F. Mounting: Rack.

2.14 MONITOR PANEL

A. Monitor power amplifiers.
B. Components: VU or dB meter, speaker with volume control, and multiple-position rotary selector switch.
C. Selector Switch and Volume Control: Selective monitoring of output of each separate power amplifier via VU or dB meter and speaker.
D. Mounting: Rack.

2.15 LOUDSPEAKERS

A. Cone-Type Loudspeakers:
   1. Minimum Axial Sensitivity: 91 dB at one meter, with 1-W input.
   2. Frequency Response: Within plus or minus 3 dB from 50 to 15,000 Hz.
   3. Size: 8 inches (200 mm) with 1-inch (25-mm) voice coil and minimum 5-oz. (140-g) ceramic magnet.
   4. Minimum Dispersion Angle: 100 degrees.
   5. Rated Output Level: 10 W.
   6. Matching Transformer: Full-power rated with four taps. Maximum insertion loss of 0.5 dB.
   7. Surface-Mounting Units: Ceiling, wall, or pendant mounting, as indicated, in steel back boxes, acoustically dampened. Front face of at least 0.0478-inch (1.2-mm) steel and whole assembly rust proofed and shop primed for field painting.
   8. Flush-Ceiling-Mounting Units: In steel back boxes, acoustically dampened. Metal ceiling grille with white baked enamel.
B. Horn-Type Loudspeakers:
   1. Type: Single-horn units, double-reentrant design, with minimum full-range power rating of 15 W.
   2. Matching Transformer: Full-power rated with four standard taps. Maximum insertion loss of 0.5 dB.
   3. Frequency Response: Within plus or minus 3 dB from 250 to 12,000 Hz.

4. Dispersion Angle: 130 by 110 degrees.
5. Mounting: Integral bracket.
6. Units in Hazardous (Classified) Locations: Listed and labeled for environment in which they are located.

2.16 BATTERY BACKUP POWER UNIT

A. Unit shall be rack mounted, consisting of time-delay relay, sealed lead-calcium battery, battery charger, on-off switch, "normal" and "emergency" indicating lights, and adequate capacity to supply maximum equipment power requirements for one hour of continuous full operation.
B. Unit shall supply public address equipment with 12- to 15-V dc power automatically during an outage of normal 120-V ac power.
C. Battery shall be on float charge when not supplying system and to transfer automatically to supply system after three to five seconds of continuous outage of normal power, as sensed by time-delay relay.
D. Unit shall automatically retransfer system to normal supply when normal power has been reestablished for three to five seconds continuously.

2.17 RACEWAYS

A. Conduit and Boxes: Comply with Division 16 Section 16 11 00 “Raceways”.
   1. Outlet boxes shall be not less than 2 inches (50 mm) wide, 3 inches (75 mm) high, and 2-1/2 inches (64 mm) deep.

PART 3 EXECUTION

3.1 WIRING METHODS

A. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters. Conceal raceway and cables except in unfinished spaces.
   1. Comply with requirements for raceways and boxes specified in Division 16 Section "Raceways and Boxes."

3.2 INSTALLATION OF RACEWAYS

A. Comply with requirements in Division 16 Section 16 11 00 for installation of conduits and wireways.
B. Install manufactured conduit sweeps and long-radius elbows whenever possible.

3.3 INSTALLATION OF CABLES

A. Comply with NECA 1.
B. General Cable Installation Requirements:
   1. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at outlets and terminals.
   2. Splices, Taps, and Terminations: Arrange on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures. Cables may not be spliced.
   3. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
   4. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.
   5. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.

6. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used.

C. Open-Cable Installation:
   1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
   2. Suspend speaker cable not in a wireway or pathway a minimum of 8 inches above ceiling by cable supports not more than 48 inches apart.
   3. Cable shall not be run through structural members or be in contact with pipes, ducts, or other potentially damaging items.

D. Separation of Wires: Separate speaker-microphone, line-level, speaker-level, and power wiring runs. Install in separate raceways or, where exposed or in same enclosure, separate conductors at least 12 inches apart for speaker microphones and adjacent parallel power and telephone wiring. Separate other intercommunication equipment conductors as recommended by equipment manufacturer.

3.4 INSTALLATION

A. Match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.

B. Identification of Conductors and Cables: Color-code conductors and apply wire and cable marking tape to designate wires and cables so they identify media in coordination with system wiring diagrams.

C. Equipment Cabinets and Racks:
   1. Group items of same function together, either vertically or side by side, and arrange controls symmetrically. Mount monitor panel above the amplifiers.
   2. Arrange all inputs, outputs, interconnections, and test points so they are accessible at rear of rack for maintenance and testing, with each item removable from rack without disturbing other items or connections.
   3. Blank Panels: Cover empty space in equipment racks so entire front of rack is occupied by panels.

D. Volume Limiter/Compressor: Equip each zone with a volume limiter/compressor. Install in central equipment cabinet. Arrange to provide a constant input to power amplifiers.

E. Wall-Mounted Outlets: Flush mounted.

F. Conductor Sizing: Unless otherwise indicated, size speaker circuit conductors from racks to loudspeaker outlets not smaller than No. 18 AWG and conductors from microphone receptacles to amplifiers not smaller than No. 22 AWG.

G. Speaker-Line Matching Transformer Connections: Make initial connections using tap settings indicated on Drawings.

3.5 GROUNDING

A. Ground cable shields and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

B. Signal Ground Terminal: Locate at main equipment cabinet. Isolate from power system and equipment grounding.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Schedule tests with at least seven days' advance notice of test performance.
2. After installing public address and mass notification systems and after electrical circuitry has been energized, test for compliance with requirements.
3. Operational Test: Perform tests that include originating program and page messages at microphone outlets, preamplifier program inputs, and other inputs. Verify proper routing and volume levels and that system is free of noise and distortion.
4. Signal-to-Noise Ratio Test: Measure signal-to-noise ratio of complete system at normal gain settings as follows:

a. Disconnect microphone at connector or jack closest to it and replace it in the circuit with a signal generator using a 1000-Hz signal. Replace all other microphones at corresponding connectors with dummy loads, each equal in impedance to microphone it replaces. Measure signal-to-noise ratio.
b. Repeat test for each separately controlled zone of loudspeakers.
c. Minimum acceptance ratio is 50 dB.

5. Distortion Test: Measure distortion at normal gain settings and rated power. Feed signals at frequencies of 50, 200, 400, 1000, 3000, 8000, and 12,000 Hz into each preamplifier channel. For each frequency, measure distortion in the paging and all-call amplifier outputs. Maximum acceptable distortion at any frequency is 3 percent total harmonics.
6. Acoustic Coverage Test: Feed pink noise into system using octaves centered at 500 and 4000 Hz. Use sound-level meter with octave-band filters to measure level at five locations in each zone. For spaces with seated audiences, maximum permissible variation in level is plus or minus 2 dB. In addition, the levels between locations in same zone and between locations in adjacent zones must not vary more than plus or minus 3 dB.
7. Power Output Test: Measure electrical power output of each power amplifier at normal gain settings of 50, 1000, and 12,000 Hz. Maximum variation in power output at these frequencies must not exceed plus or minus 1 dB.
8. Signal Ground Test: Measure and report ground resistance at pubic address equipment signal ground. Comply with testing requirements specified in Division 16 Section "Grounding and Bonding."

D. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Prepare a list of final tap settings of paging speaker-line matching transformers.
E. Public address and mass notification systems will be considered defective if they do not pass tests and inspections.
F. Prepare test and inspection reports.
   1. Include a record of final speaker-line matching transformer-tap settings, and signal ground-resistance measurement certified by Installer.

3.7 STARTUP SERVICE

A. Perform startup service.
   2. Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements.
   3. Complete installation and startup checks according to manufacturer's written instructions.

3.8 ADJUSTING

A. On-Site Assistance: Engage a factory-authorized service representative to provide on-site assistance in adjusting sound levels, resetting transformer taps, and adjusting controls to meet occupancy conditions.
B. Occupancy Adjustments: When requested within twelve (12) months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up two visits to Project during other-than-normal occupancy hours for this purpose.

3.9 DEMONSTRATION

A. Train Government's maintenance personnel to adjust, operate, and maintain the public address and mass notification systems and equipment.

END OF SECTION