

SECTION 08111 STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Fire rated and non-rated rolled steel doors, panels and frames.
2. Interior light frames, sound doors and frames

B. Related Work Described Elsewhere:

- | | |
|----------------------------|---------------|
| 1. Reinforced Unit Masonry | Section 04230 |
| 2. Carpentry: | Section 06100 |
| 3. Metal Flashing and Trim | Section 07620 |
| 4. Joint Sealers | Section 07900 |
| 5. Finish hardware: | Section 08700 |
| 6. Glazing | Section 08800 |
| 7. Painting: | Section 09900 |

C. References:

1. American Society for Testing and Materials ASTM :
 - a) E152-81a Methods for Fire Tests of Door Assemblies.
 - b) A525-86 General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
2. Door Hardware Institute (DHI) : The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
3. National Fire Protection Association (NFPA) :
 - a) 80 Fire Doors and Windows
 - b) 252 Fire Tests for Door Assemblies.
4. Steel Door Institute (SDI):
 - a) 100-85 Recommended Specifications for Standard Steel Doors and Frames
 - b) 105-82 Recommended Erection Instructions for Steel Frames.
 - c) 111 Recommended Standard Details Steel Doors and Frames
 - d) 113-79 Test Procedure and Acceptance Criteria for Apparent Thermal Performance of Steel Door and Frame Assemblies.
5. Underwriters' Laboratories, Inc. (UL) : 10B Fire Tests of Door Assemblies.
6. National Association of Architectural Metal Manufacturers (NAAMM): Hollow Metal Technical and Design Manual.

1.02 QUALITY ASSURANCE

- A. Conform to requirements of SDI-100 and NAAMM.

- B. Fire rated door and frame construction: Conform to UL 10B. Fabricate fire rated assemblies in accordance with requirements of Underwriter's Laboratories Inc. (UL).
- C. Installed frame and door assembly: Conform to NFPA 80 for fire rated class indicated in Schedule. Refer to Drawings for Class requirements.
- D. Provide rated double doors tested and approved without astragals.

1.03 SUBMITTALS

- A. Submit complete materials list and shop drawings for all doors and frames, in compliance with Section 01340.
- B. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, and finish.
- C. Indicate door elevations, internal reinforcement, closure method, insulation, and cutouts for glazing.
- D. Submit manufacturer's certification under provisions of Section 01400. Submit manufacturer's certification that insulated door and frame assemblies proposed have been tested and meet or exceed requirements of SDI-113.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Protect products under provisions of Section 01620.
- B. Provide packaging such as cardboard or other containers, separators, banding spreaders, and paper wrappings to protect hollow metal items. Protect doors and frames with resilient packaging sealed with heat shrunk plastic.
- C. Break seal at site to permit ventilation.
- D. Deliver, store and handle hollow metal work in manner to prevent damage and deterioration and in accord with any special storage and handling requirements of manufacturer.
- E. Store doors upright, in a protected dry area, at least 1 in. or more off the ground or floor and at least 1 in. between individual pieces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. General: Following products are for general reference only and are subject to compliance with specified requirements.
- B. Exterior Doors:
 - 1. Curriers Series: 707N
 - 2. Amweld Series: 2700
 - 3. CECO Series Imperial
 - 4. Steelcraft Series L-16 (Foam Core)

KLUGE & ASSOCIATES, ARCHITECTS

- C. Interior Doors (except sound doors)
- | | | | |
|----|------------|---------|------------------|
| 1. | Curriers | Series: | 707N & L707N |
| 2. | Amweld | Series: | 1700 |
| 3. | CECO | Series: | Imperial/Fuego |
| 4. | Steelcraft | Series: | L-18 (Foam Core) |
- D. Interior Sound Doors:
- | | | | |
|----|------------|---------|------------------|
| 1. | Curriers | Series: | 707N & L708N |
| 2. | Amweld | Series: | 5300 |
| 3. | CECO | Series: | Imperial/Fuego |
| 4. | Steelcraft | Series: | L-16 (Foam Core) |
- E. Exterior Frames
- | | | | |
|----|------------|---------|--------------|
| 1. | Curriers | Series: | Flush Frames |
| 2. | Amweld | Series: | 400 |
| 3. | CECO | Series: | CF34 |
| 4. | Steelcraft | Series: | F14 F16 |
- F. Interior Frames in Gypsum Board Partitions:
- | | | | |
|----|------------|---------|-------------|
| 1. | Curriers | Series: | Flush Frame |
| 2. | Amweld | Series: | 400 |
| 3. | CECO | Series: | F34 |
| 4. | Steelcraft | Series: | F14, F-16 |
- G. Substitutions: Under provisions of Section 01630.

2.02 DOORS AND FRAMES

- A. Exterior and Vestibule Doors: SDI-100 Grade III Model 4, NAAMM 18 ga. minimum face thickness, galvanized, G60 coating designation in accordance with ASTM A525, and insulated. All doors shall have welded seams and backing plates for closers.
- B. Interior Doors: SDI-100 Grade II Model 4, NAAMM 18 ga. minimum face thickness.
All doors shall have welded seams and backing plates for closers.
- C. Exterior and Vestibule Frames: Full miter welded 16 ga. galvanized, G90 coating designation.
- D. Interior Frames: Full miter welded 16 ga. A60 galvanized.

2.03 DOOR CORE

- A. Exterior Doors:
1. Core: Polystyrene or polyurethane foam.
 2. Maximum "U" factor: .014.
- B. Interior Doors:
1. Core: Polystyrene or polyurethane foam where acceptable for rated and non-rated doors, except provide mineral fiberboard cores where required for fire rating.

2.04 ACCESSORIES

- A. Metal Filler Panels: SDI-100 Grade III Model 2, 16 ga. minimum face thickness, 1-3/8 in. panel thickness, galvanized to G60 coating designation in accordance with ASTM A525, with polystyrene or polyurethane foam core.
- B. Rubber Silencers: Products of door manufacturer, Glynn Johnson, Builders Brass, Quality, Ives, or Russwin.
 - 1. Provide three for each single door frame; two for each pair of door frames without mullion; and three for each door in a pair of doors frame with a mullion.
 - 2. Type: Removable, suitable for metal frames, similar and equal to Glynn Johnson GJ64.
 - 3. Install prior to grouting frames, or make provisions to accommodate installation of silencers.
- C. Filler Panel and Applied Glazing Stops: Rolled steel channel shape, 18 Ga. mitered corners made to a close neat fit; secured with countersunk tamperproof sheet metal screws at minimum 12 in. intervals at glass lites, secured with countersunk style tamperproof sheet metal screws at minimum 6 in. intervals at filler panels. Provide stops with UL label in rated doors and frames.
- D. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat phillips heads for exposed screws and bolts.
- E. Provide anchor types as required for positive fastening to adjacent construction and to comply with scheduled fire label requirements.
- F. Provide Curries/Essex 6" high Terminated Stops at all hollow metal doors.

2.05 PROTECTIVE COATINGS

- A. Primer: Manufacturer's standard baked-on primer, suitable for finish paint specified under Section 09900.

2.06 FABRICATION

- A. Fabricate frames as follows:
 - 1. Exterior frames shall be thermal break type, fabricated with closed cell polyethylene foam, polyvinyl chloride, or other thermal barrier material standard with manufacturer between interior and exterior frame surfaces. Frame connection between jamb and head shall be fully welded, ground smooth and galvanizing touch-up. Frames shall be prepared for plate and pipe or butterfly existing opening type anchors. Coordinate with Section 07214.
 - 2. Fabricate galvanized frames as full miter welded unit type. Frame connection between jamb and head shall be fully welded and seamless. Accurately cope and securely weld butt joints of mullions of glazed lights.

Grind welded joints to smooth uniform finish. Provide with 4 in. face at head as required for masonry wall coursing.

- B. Fabricate frames and doors with hardware reinforcement plates welded in place. Provide mortar guard boxes, minimum 26 ga.
 - 1. Hinge reinforcement: Minimum 10 ga.
 - 2. Closer reinforcement: Minimum 12 ga.
 - 3. Lock reinforcement: Minimum 14 ga.
 - 4. Finish Hardware Preparation: Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final finish hardware schedule and templates provided by hardware supplier, surface applied hardware preparations provided with function holes, drilling and tapping to be done in field. Comply with applicable requirements of ANSI A115 for door and frame preparation for hardware.
 - 5. Locate finish hardware as shown on final shop drawings.
 - 6. Removable mullions for double doors specified in Section 08700. Reinforce head sections where mullions occur.
- C. Prepare frame for silencers, three single rubber silencers for single doors on strike side, and two single silencers on frame head at double doors without mullions.
- D. Attach fire rated metal label to each rated frame and door unit where visible when doors are in open position.
 - 1. Provide labeled frames with integral or applied smoke gaskets in accordance with UBC. Coordinate with Section 08700.
 - 2. Refer to Drawings for class requirements.
 - 3. Where oversize metal doors and frames are required, provide certification and information required by applicable authorities for approval.
- E. Close top edge of exterior door flush with inverted steel channel closure. Seal joints watertight. Close bottom edge of exterior door with steel channel closure.
- F. Anchor metal filler panels in place and seal with continuous beads of sealant specified in Section 07900, by "interior dry method", specified in Section 08800, to provide waterproof and weathertight installation.
- G. Doors beveled 1/8 in. in 2 in. at lock edge only.

2.07 FINISH

- A. Exterior Units: Galvanized, ASTM A525, G60 coating designation. Galvanize after fabrication and hardware preparation. Shop prime.
- B. Interior Units: Shop prime.
 - 1. Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces and back side of frames, with one coat

factory applied baked on rust inhibitive primer paint. Touch up areas where factory coating has been removed due to sanding, welding, or handling.

2. Fill surface depressions with metallic paste filler and grind to smooth uniform finish, ready to receive gloss finish.
- C. Primer: Baked on, compatible with finish coat.
- D. Field painting specified under Section 09900.

PART 3 EXECUTION

3.01 INSPECTION

- A. Installer must examine substrate and conditions under which steel doors and frames are to be installed and must notify Contractor in writing of any conditions detrimental to proper and timely completion of work.
- B. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.02 INSTALLATION

- A. General: Install steel doors, frames and accessories in accordance with final shop drawings and manufacturer's data, and as herein specified.
1. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instruction for Steel Frames," and as otherwise indicated.
 2. Install rated doors and frames in accordance with NFPA 80.
- B. Install frames in accordance with Drawings, SDI-100, SDI-105, SDI-111, and manufacturer's accepted shop drawings.
- C. Install non-rated doors in accordance with DHI.
- D. Coordinate with all construction for anchor placement.
- E. Coordinate installation of glass and glazing.
- F. Install stiffening roll formed steel reinforcement channels between two abutting frames. Anchor to structure above and to floor.
1. Install steel splice plate reinforcement between abutting frames as required for field splicing.
 2. Secure a metal clip angle at bottom of each jamb and permanent mullion member of anchoring to floor, with a minimum of 2 fasteners.
- G. Frames in drywall: Seal frames at sound walls. Provide base anchors for all frames with openings more than 3'-0" wide, plus one compression anchor per jamb for "slip-on" type frames, three anchors per jamb for welded frames, and

mullion section base and head anchors. Provide anchors at jambs of borrow lites and sidelites as above, plus two sill anchors. Attach base anchor to floor with power tool.

- H. Frames in CMU: To extent practicable, install concurrently with installation of CMU, with minimum three T-strap, adjustable or wire masonry anchors per jamb. Masonry anchors shall be required for rated frame installation, and a minimum of 7 ga. mild temper steel for wire anchors. In masonry construction, locate three wall anchors per jamb at approximately hinge and strike levels. Building-in of anchors and grouting of frames is specified in Section 04230.
- I. Frames in In-Place CMU:
 - 1. Anchor frame jambs and head with minimum 3/8 in. concealed bolts into expansion shields or inserts as required for rated frame installation. Provide at jamb at 6 in. from top and bottom and at 26 in. o.c. between, unless otherwise shown. Provide relite jamb anchors as specified above, plus two head and three sill anchors.
 - 2. Fill head and jambs completely with grout. Fill all anchor dimples with appropriate filler and grind smooth prior to painting. Grind smooth finish cap over grout filling holes prior to painting. If frame is grout-filled prior to installation, provide continuous sealant between masonry and frame. Coordinate with Section 04230.
- J. Frames in exterior walls shall be completely filled with polyurethane foam insulation per Section 07214. Sealant per Section 07900.
 - 1. Install exterior and interior vestibule frames with base anchors plus three anchors per jamb, mullion section base and head anchors.

3.02 TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 in. measured with straight edge, corner to corner.
 - 1. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.
 - 2. Place fire-rated doors with clearances specified in NFPA 80.

3.03 ADJUSTING AND CLEANING

- A. Adjust hardware for smooth and balanced door movement.
- B. Sound Doors:
 - 1. After finish hardware is installed, adjust operating parts for smooth operation and continuous contact between seals and adjoining surfaces.
 - 2. Assure no gaps occur between head, jamb and threshold seals. Visually inspect sound door assemblies in closed position for light leaks to identify potential acoustic leaks. Adjust to achieve light seal.

3. Adjust threshold seal to be in full contact with floor or threshold, as appropriate.
- C. Prime Coat Touch Up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- D. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION

SECTION 08305

ACCESS DOORS

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Non-rated access doors and frames. Provide access doors shown on Drawings.
2. Provide four additional 24 x 32 in. access doors for installation where directed.
3. Products installed by not Furnished under this Section:
Install Cylinders furnished under Section 08700.

B. Related Work Described Elsewhere:

- | | |
|----------------------------|---------------|
| 1. Reinforced Unit Masonry | Section 04230 |
| 2. Gypsum Wallboard | Section 09250 |
| 3. Painting: | Section 09900 |

1.02 SUBMITTALS

- A. Submit product data under provision of Section 01340.
- B. Include sizes, types, finishes, scheduled locations, and details of adjoining work.
- C. Submit manufacturer's installation instructions under provisions of Section 01340.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. In Walls:

- | | | |
|--|----------|----------------|
| 1. Milcor | Product: | Style MS |
| 2. Karp Associates, Inc. | Product: | Model DSC-214M |
| 3. JL Ind. | Product: | Model TMS |
| 4. William Brothers Corp. | | |
| 4. Substitutions: Under provisions of Section 01630. | | |

2.02 ACCESS UNITS

- A. Provide number and sizes indicated, with all necessary accessories for complete installation.

2.03 FABRICATION

- A. Fabricate frames and flanges of access doors for walls of 16 ga. stainless steel and door panels of 14 ga. stainless steel.
- B. Hardware:
 - 1. 165 degree concealed spring hinges or continuous stainless steel piano hinge.
 - 2. Cylinder lock materkeyed to rest of building.
 - 3. Cylinder furnished under Section 08700.

2.04 FINISH

- A. Walls: Manufacturer's standard No. 4 satin polish finish.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify rough openings for door and frame are correctly sized and located.
- B. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

- A. Install frames, plumb and level in wall openings.
- B. Position to provide convenient access to concealed work requiring access.
- C. Secure rigidly in place in accordance with manufacturer's instructions.

END OF SECTION

SECTION 08410 ENTRANCE & WINDOWWALL

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

Entrances and windowwall are indicated in the Drawings and include but are not necessarily limited to Entrance doors, glazing support members, and metal framed windows.

1. Furnish all necessary materials, labor and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein.

B. Related Work Described Elsewhere:

- | | |
|----------------------------|---------------|
| 1. Gypsum Drywall Systems: | Section 09250 |
| 2. Glass and Glazing: | Section 08800 |
| 3. Joint Sealants: | Section 07900 |
| 4. Finish Hardware | Section 08700 |

1.02 QUALITY ASSURANCE

A. Supervision:

Employ at least one supervisor; thoroughly familiar with the products and methods required for this Work, who shall be present at all times during the operations of, and who shall direct, the work of this section.

B. Qualification of Installers:

For actual installation of special doors, employ only personnel who are thoroughly trained and experienced in the skills required, and who are completely familiar with the requirements of this Work.

C. Performance:

Air infiltration shall be tested in accordance with ASTM E 283. Infiltration shall not exceed .06 CFM per square foot ($.0003 \text{ m}^3/\text{s-m}^2$) of fixed area.

1. Water infiltration shall be tested in accordance with ASTM E 331. No water penetration at a test pressure of 6.24 P.S.F. (300 Pa).

Structural performance shall be based on:

Maximum deflection of 1/175 of the span, and allowable stress with a safety factor of 1.65.

The system shall perform to these criteria under a windload of 25 PSF.

1.03 SUBMITTALS

After award of the contract, and before any of the entrance or windowwall for this project has been procured, submit for review by the Owner's Representative, in accordance with Section 01340, the following product data:

A. Manufacturer's Data:

Manufacturer's specifications standard details and recommendations for each type of window and door unit required. Include information on fabrication methods, finish hardware, glazing, and accessories.

B. Submit shop drawings for the fabrication and installation of fixed and operative aluminum windows and door units and associated components of the work. Include wall elevations, unit elevations, and half-size section details of every typical composite members, including glazing.

1.04 PRODUCT HANDLING

A. Storage and Protection:

Do not deliver any of the products of this section to the jobsite until sheltered dry facilities, away from traffic, are available for their storage. Store doors upright off the floor with appropriate dunnage to prevent warpage due to stresses. Maintain factory packaging until necessary to remove for installation. Use all means necessary to protect all materials at all times and to protect installed work and material for all other trades.

B. Replacements:

In the event of damage make all replacements necessary. Minor damage may be repaired upon authorization of the Owner's Representative and repairs or replacements shall be subject to his additional expense to the Owner.

PART 2 PRODUCTS

2.01 DESIGN

Design is based upon the TRIFAB II 451 framing systems and 350 Medium Stile doors, natural anodized aluminum as manufactured by the Kawneer Company. The specified product and the Drawings reflect the desired configurations and the manufacturer's recommended installation methods.

Comparable products will be considered upon submittal in accordance with Section 01340.

A. Aluminum Extrusions:

Extrusions shall be 6063-T5 alloy. Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164-71. Perimeter anchors shall be aluminum or steel, providing the steel is properly insulated from the aluminum.

Mullion configurations shall allow for pockets at the inside glazing face to receive fixed resilient elastomeric glazing spline. Where indicated mullions and horizontals shall have flexible (PVC) thermal break material located on exterior side of glass pane. Exterior glazing seal shall be synthetic polymer tape applied to main grid members. Provisions shall be made at all sealed horizontals to lead moisture accumulation to exterior.

B. Finish:

All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum molding shall be given a caustic etch followed by an anodic oxide treatment to obtain a natural anodized aluminum anodic coating conforming to Aluminum Association Standard AA-MI2 C22 A31.

C. Fabrication:

TRIFAB II 451:

The framing system shall provide for flush glazing on all sides with no projecting stops. Vertical and horizontal framing members shall have a nominal face dimension of 2". Overall depth shall be 4 1/2". Entrance framing members shall be compatible with glass framing in appearance. All single acting entrance frames shall include the Sealair positive barrier weathering.

350 Medium Stile

Doors and door frames shall be fabricated complete by the entrance manufacturer including the application of, or the preparation for, all operating hardware.

Door stiles and rails shall be 2" in depth, and the sections shall have a minimum wall thickness of 3/16" in sidewalls enclosing the basic tube.

The door stiles and rail face dimensions shall be:

Vertical Stiles: 3 1/2"

Top Rail: 3 1/2"

Bottom Rail: 10"

Weatherstripped aluminum moldings, fitted to each door and frame, shall form continuous interlocks between the hinge and lock jambs and the closed door. Each door opening shall be weather-stripped at jambs, head and threshold. Glazing moldings and trim inserts shall not be less than 1/16" thick.

Mortised hardware shall be fitted flush with finished trim moldings and applied directly to recessed sidewalls of the door and/or frame tubing. Cut-outs in door or frame moldings shall not require separate screw-applied tabs or straps on which to mount hinging hardware. Where shims and spacers are required for finished appearance, they shall provide full and solid bearing for the hardware.

D. Weather-stripping:

Provide manufacturer's standard nonferrous spring metal, or vinyl gasket, designed for permanently resilient sealing under bumper or wiper action completely concealed when closed. Provide manufacturer's standard door sweeps.

2.02 FRAMING AND DOOR SYSTEMS

A. Single Glazed Entrances:

Framing and doors shall be based upon the "TRIFAB II 451" system in natural anodized aluminum as manufactured by the Kawneer Company. Vertical and horizontal framing members shall have a nominal dimension of 2" x 4-1/2" and shall be flush glazed.

B. Double Glazed Entrances:

Framing and doors shall be based upon the "TRIFAB II 451T" system in natural anodized aluminum as manufactured by the Kawneer Company. Vertical and horizontal framing members shall have a nominal dimension of 2" x 4 1/2" and shall be flush glazed.

C. Aluminum Doors:

Aluminum doors shall be Kawneer 350 MEDIUM STILE with 10" high bottom rail in natural anodized aluminum. Cylinder locks as noted on Hardware Schedule.

D. All windows and storefronts shall receive head receptor/compensation channels.

F. Hardware: See pertinent Hardware Group.

1. Provide CPN pull typical.

2. Remainder of finish to be natural anodized aluminum.

2.03 MATERIALS

Other materials not specifically described but required for a complete and proper installation of entrance and window systems, shall be new first quality of their respective kinds, as selected by the Contractor and subject to the approval of the Owner's Representative.

PART 3 EXECUTION

3.01 FABRICATION

A. General:

Verify control measurements at jobsite prior to fabrication. Shop fabricate all components.

B. Workmanship:

1. Fabricate in strict accordance with the original Design and the approved submittals.
2. Accurately miter and fit all members to hairline joints.
3. Mechanically fasten aluminum frames along entire line of contact on the unexposed side.
4. Discoloration on the face after anodizing will not be acceptable.

3.02 INSTALLATION

A. Surface Conditions:

Determine that all prior work is complete and surfaces are acceptable for subsequent operations. Promptly notify Owner's Representative of discrepancies and do not proceed until fully resolved.

B. Replacements:

Make all replacements necessary to ensure that only new, undamaged components are incorporated into the work. Field repairs will be acceptable only where replacement of components is involved. Field repair of individual components will not be acceptable. Replacements and repairs shall be subject to Owner's Representative's approval and shall be accomplished at no additional expense to the Owner.

C. Setting:

Set all members with adequate provision for settling expansion, or contraction without distortion of components or breaking of glass. Set all frames in sealant.

D. Anchoring:

Firmly anchor members using all devices required to ensure attachment of members for long life under hard use.

E. Protection:

Where aluminum is in contact with concrete, steel or other dissimilar metal, or other material conducive to electrolytic action, provide physical isolation or cathodic protection of all components.

Protect all finished surfaces as necessary to prevent damage during progress of the work.

3.03 CLEANING

Immediately prior to turning work over to Owner, remove all protective materials from the framing members and other components and clean with materials recommended by manufacturer of the system components. Do not use abrasives.

END OF SECTION

SECTION 08520

ALUMINUM WINDOWS

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Extruded aluminum windows with fixed and operating sash.
2. Glass and glazing
3. Operating hardware
4. Screens
5. Installation of perimeter sealant.

B. Related Work Described Elsewhere:

- | | |
|------------------------------|---------------|
| 1. Reinforced Unit Masonry | Section 04230 |
| 2. Framing and Sheathing | Section 06112 |
| 3. Wood Blocking and Curbing | Section 06114 |
| 4. Vapor Retarders | Section 07190 |
| 5. Joint Sealers | Section 07900 |
| 6. Glazing: | Section 08800 |

C. References:

1. American Society for Testing and Materials (ASTM):
 - a) A36-84a Structural Steel
 - b) A167-86 Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - c) A123-84 Zinc (Hot Dip Galvanized Coatings) on Iron and Steel Products.
 - d) A283-85 Low and Intermediate Strength Carbon Steel Plates, Shapes, and Bars.
 - e) B136-84 Stain Resistance of Anodic Coatings on Aluminum.
 - f) B137-45 (1979) Weight of Coating on Anodically Coated Aluminum.
 - g) B209-86 Aluminum and Aluminum Alloy Sheet and Plate.
 - h) B221-85a Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
 - i) B244-79 Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments.
 - j) C236-87 Steady State Thermal Performance of Building Assemblies by means of a Guarded Hot Box.
 - k) G23-81 Operating Light - and Water Exposure Apparatus (Carbon-Arc Type) for Exposure of Nonmetallic Materials.
 - l) E283-84 Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors.
 - m) E330-84 Structural Performance of Exterior Window, Curtain Wall, and Doors by Uniform Static Air Pressure Difference.
 - n) E331-86 Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

- B. American National Standards Institute (ANSI): A117.1 Specifications for Making Building Accessible to and Usable by Physically Handicapped People
- C. Architectural Aluminum Manufacturers Association (AAMA): 1502 Voluntary Test Method for Condensation Resistance of Windows, Doors, and Glazed Wall Sections.

1.02 QUALITY ASSURANCE

- A. Award aluminum window work to a single firm specializing in this type of work for undivided responsibility.
- B. Manufacturers must have been regularly engaged in the manufacture of like work for a period of not less than 5 years.

1.03 SUBMITTALS

- A. Submittals shall comply with Section 01340.,
- B. Shop Drawings: Show typical details of all conditions for every member, joint, anchorage, and glazing system.
- C. Submit samples for finish and color required on specified alloy, temper, extrusion or 12 in. square sheet or plate, showing the maximum range or variation in color and shade. Sample submittal and review will be for color, texture, and reflectivity. Compliance with all other requirements is the exclusive responsibility of the Contractor.
- D. Manufacturer's Data:
 - 1. Submit manufacturer's, finisher's and fabricator's specifications, instructions, and installation instructions for each item or component part, and completely fabricated aluminum units.
 - 2. Include certificate copies of laboratory test reports for the sealing (ASTM B136), weight of coating (ASTM B137), thickness of coating (ASTM B224), and resistance to weathering (ASTM E42) of anodized finishes.
 - 3. Include copies of manufacturer's and fabricator's certifications and other data required to show compliance with Contract Documents.
- E. Guarantee:
 - 1. General: Submit written guarantee for a period of 5 years at no additional cost to the Owner. State in guarantee that the Contractor agrees to repair or replace any part of the work, and to correct leaks or other defects in material or workmanship during the guarantee period. Guarantee signed by the Contractor and the single firm awarded the Work of this Section.
 - 2. Anodized Coatings: Submit written guarantee for a period of 5 years signed by the Manufacturer, by the single firm awarded the Work of this Section, and by the Contractor, guaranteeing that the anodized aluminum will not develop excessive fading or excessive nonuniformity of color or shade and will not crack, peel, pit, or corrode; all within limits defined as follow:
 - a) Excessive Fading: means that change in color does not exceed 10 percent or a value of 4, whichever is greater, above or below the

original limits of acceptable color range as color is expressed in units of color measurement (Delta E) derived by photoelectric tristimulus colorimetry as described by Circular C-429 of the National Bureau of Standards.

- b) Excessive Nonuniformity: means nonuniform fading to the extent that adjacent panels have a color difference greater than the original acceptable range of color expressed in the same system of color measurement described above.
- c) Will Not Pit or Otherwise Corrode: means no pitting or other type of corrosion discernible from a distance of 10 feet, resulting from the natural elements in the atmosphere at the Project Site.

1.04 PRODUCT HANDLING

- A. Comply with Section 01610 and 01620. Deliver fabricated units and/or component parts to project site completely identified on accordance with shop drawings.
- B. Store in accordance with manufacturer's instructions, properly protected from the weather and construction activities.

1.05 PERFORMANCE

- A. Window components to provide for expansion and contraction caused by a cycling temperature range of 170 F degrees without causing detrimental effects to components.
- B. Design and size members to withstand dead loads and live loads caused by pressure and suction of wind to a design pressure of 62.3 lb/sq ft within 10 ft. of building corners and 37 lb/sq ft and a suction of 32 lb/sq ft elsewhere, as measured in accordance with ASTM E330 for minimum 10 seconds each.
- C. Limit mullion deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.
- D. Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior.
- E. Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of assembly surface area, measured at a reference differential pressure across assembly of 0.3 in. water gage as measured in accordance with ASTM E283, with max. 0.3 cfm per linear foot at 6.24 psf.
- F. Water Penetration test per ASTM E331 with no water penetration in 15 min. test with 5 ga./hr./sq. ft. at 8.99 psi differential pressure.
- G. Thermal performance test per ASTM C236 and AAMA 1502.6 with a condensation resistance factor of 50 and max. U-value of 0.68.
 - 1. U-values or R-values for windows shall be certified by laboratory thermal performance tests. Testing shall be conducted by independent certified testing laboratories using AAMA 1503.1-1980 test procedure of ASTM C-

236 or C-972 test procedures, provided a 15 mile per hour wind is applied perpendicular to the exterior window surface during testing.

2. ASHRAE- calculated R-values are not acceptable.
3. Window units used for testing shall be random sized and randomly pulled from standard production runs. No additional adjustments shall be made to these window units than would normally be made in the field.
4. Test reports shall be valid for a period not to exceed two years.
5. U-values for products installed shall be equal to or better than those tested.
6. Test reports shall be submitted to applicable building officials upon request.

1.06 CORRECTION OF WORK

- A. Any work under this Section found defective in materials or workmanship shall be corrected in accord with the following provisions:
 1. If, within five years after the Date of Substantial Completion, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so.
 2. The Owner shall give such notice promptly after discovery of the condition. If exploratory work is required to determine cause of defects, cost of this work shall be borne by the contractor only in case, and in proportion to the extend that, his work is found to be at fault.
 3. Contractor shall be responsible for continuing corrections to defective work beyond the five year guarantee period of initial corrective measures were executed per the requirements as noted above but later found to be inadequate and not acceptable after the specific five year guarantee period.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. General: All operable windows shall be "Project-out" type. Following products are for general reference only and are subject to compliance with specified requirements.
- B. Kawneer Series: GLASSvent
- C. Substitutions: Under provisions of Section 01630.

2.02 MATERIALS

- A. Extruded Aluminum: ASTM B221; alloy and temper recommended by manufacturer or fabricator to develop required strength of assembly.
 1. Aluminum Angles, Plates, Bars, and Other Aluminum Members, required to join or reinforce assembly of aluminum components.

2. Weathering and miscellaneous members minimum 1/8 in. thick. Tubular cross members minimum 3/32 in. thick. Minor members such as stops, caps and drips, minimum .063 in. thick.
 3. Provide casement type operating sash where shown, all double weather stripped.
- B. Sheet Aluminum: ASTM B209; alloy, temper recommended by manufacturer or fabricator to develop required strength of assembly.
- C. Steel Channels Angles, Plates, Bars, Rods, and Other Steel Accessories, required to join or reinforce assembly of aluminum components: ASTM A36 and ASTM A283, galvanized or, if galvanized is not compatible with alloy of component parts, shop painted with zinc chromate primer after cutting to size.
- D. Touch-Up Primer for Galvanized Surfaces: Similar and equal to Zincilate ZRC Coating.
- E. Protective Coating: As recommended by the aluminum manufacturer, varnish and other fluid applied not permitted.
- F. Bituminous Paint: Super Service Black; Koppers Co., Inc. or equal.
- G. Insect Screens: Wicket type extruded aluminum frames, rigidly joined at corners. Screen cloth shall be 18 x 16 mesh aluminum, cleaned thoroughly to provide uniform color. Finish of screen frames to match aluminum windows. Screens shall be re-wireable.

2.03 FABRICATED COMPONENTS

- A. Frames: Manufacture's standard profile to meet performance requirements specified, thermally broken with interior portion of frame insulated from exterior, inside applied glass stops of snap-on type.
1. Provide frames, sash, muntins and mullions in shape, size and depth shown. Suitable alloy for extruding with adequate structural characteristics, temper and alloy compatible with finish specified.
 2. Drawings indicated desired profile, dimension, and extent of aluminum members and delineate the scope of the work. Profile adjustments in the interest of economy, fabrication, erection, weatherability or ability to satisfy the performance requirements may be made after written approval, provided general design and intent of Contract Documents are maintained.
- B. Sills: .090 in. thick, brake formed aluminum; sloped for positive wash; slope depth for under sash leg to 1/2 in. beyond wall face; one piece full width of opening; jamb angles to terminate sill length. Provide anodized finish after fabrication.
- C. Operable Sash Westherstripping: Resilient PVC; permanently resilient, profiled to effect westherseal.
- D. Operable Sash Hardware: Corrosion resistant; nylon pivot bearings; extruded aluminum friction hinges with positive position stop, and two cam-action casement handles per operator. Operating windows shall meet or exceed the requirements of ANSI A117.1

- E. Fasteners: Stainless steel type 300 series with nylok type locking device. Where exposed in finished surfaces, use oval-head counter-sunk phillips heads with head diameter one screw size smaller than the shank diameter and color to match adjacent surfaces.

2.04 GLASS AND GLAZING MATERIALS

- A. Glass and Glazing Materials: Specified in Section 08800, except that glazing gaskets shall be manufacturer's standard materials for performance indicated.
- B. Glass: Type A glass.

2.05 FABRICATION

- A. Fabricate windows allowing for minimum clearances and shim spacing around perimeter of assembly, yet enabling installation.
- B. Rigidly fit and weld joints and corners. Accurately fit and secure corners tight. Make corner joints flush, hairline, and weatherproof. Seal corner joints with sealant.
- C. Weld with electrodes and by methods recommended by manufacturer of material being welded, and in accordance with appropriate recommendations of the AWS. Use only methods which will avoid distortion or discoloration of exposed faces. Grind exposed welds smooth, using clean wheels and compounds free of iron or iron compounds and restore mechanical finish condition of component parts after welding and grinding before proceeding with other treatment.
- D. Solder and braze only to fill or seal joints (not to form structural joints), and in accordance with component part manufacturer's recommendations. Grind smooth and restore finish.
- E. Develop drainage holes with moisture pattern to exterior.
- F. Prepare components to receive anchor devices. Fabricate anchorage items.
- G. Prepare components with internal reinforcement for operating hardware.
- H. Provide internal reinforcement in mullions with galvanized or stainless steel members to maintain rigidity.
- I. Complete welding, cutting, drilling, and fitting of joints prior to chemical treatment, anodication and the application of other coatings.
- J. Conceal all fastenings unless otherwise shown or specified.
- K. Reinforce members and joints with steel shapes, bars, rods, or angles for rigidity and strength as needed to fulfill performance requirements. Use concealed stainless steel fasteners for jointing which cannot be welded.

- L. Separate unlike metals or alloys with a heavy coating of bituminous paint or other suitable permanent separation as required to prevent galvanic action.

2.06 FINISHES

- A. Exterior and Interior Exposed Aluminum Surfaces: Natural anodized aluminum finish.
- B. Concealed Steel Items: Galvanized in accordance with ASTM A123.
- C. Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious dissimilar materials.

PART 3 EXECUTION

3.01 ERECTION

- A. Examine substrate. Verify dimensions of supporting structure by field measurements so work will be accurately designed, fabricated, and fitted to the structure. Use Contractor's approved bench marks as basis for measurements. Verify adjoining air and vapor seal materials are ready to receive work of this Section. Beginning of installation means installer accepts existing conditions.
- B. Dimensions shown on Drawings are based on an assumed design temperature of 70 degrees F. Fabrication and erection procedures shall take into account the ambient temperature range at the time of the respective operations.
- C. Coordinate with work of other Sections and provide items to be placed during the installation of other work at the proper time to avoid delays in the work. Place such items, including inserts and anchors, accurately in relation to the final location of aluminum components.
- D. Erect all component parts in accordance with the manufacturer's written instructions and recommendations. Cut and trim component parts during erection only with approval of manufacturer or fabricator, and in accordance with his recommendations. Do not cut through reinforcing or structural members. Restore finish completely to protect material and remove all evidence of cutting and trimming. Remove and replace members where cutting and trimming has impaired strength or appearance, as directed.
- E. Do not erect members which are observed to be warped, bowed, deformed or otherwise damaged or defaced to such extent as to impair strength or appearance. Remove and replace members damaged in the process of erection.
- F. Set units level, plumb, and true to line, with uniform joints. Support on metal shims and secure in place by bolting through shims and similar supports anchored to supporting structure. Use only the types of equipment, ropes,

wedges, spacers, shims and other items during erection which will not stain or mark the finish of units.

- G. All exposed work shall be carefully matched to produce continuity of line, design and finish. Joints in exposed work, unless otherwise shown or required for thermal movement; accurately fitted, rigidly secured with hairline contacts and sealed watertight.
- H. Where two or more sections of metal are used in building up members, the surface in contact shall be brought to a smooth, true, and even surface and secured together so joints are absolutely tight without the use of any pointing material. Exposed sealants except where shown will not be permitted.
- I. Unless otherwise noted, all aluminum, sleeves shall be extruded sections designed to accurately interlock with adjacent sections with serrated surfaces for the secure bedding of sealant between parent metal and sleeve.
- J. Do not use horseshoe or "U" shaped shims, washers, or separators at dynamic connections or at static connections where there is any possibility of misalignment or loss of shim, washer, or separator. Provide nylon separators at all dynamic joints.
- K. Prime paint concealed clip angles and other ferrous metal parts with zinc chromate paint. Touch up abraded surfaces as required upon completion of installation.
- L. Paint concealed contact surfaces of dissimilar materials with heavy coating of bituminous paint, or provide other separation per manufacturer's recommendations.

3.02 SETTING AND SEALING

- A. Coordinate installation of sealant with EIFS work. Sealant shall be applied between window and base coat prior to finish coat.
- B. Do not install sealants when the temperature is below 40 degrees F, unless manufacturer recommends application at lower temperatures in writing.
- C. Do not proceed with installation during inclement weather unless all requirements and manufacturer's instructions can be complied with.
- D. Clean surfaces and remove protective coatings which might fail in adhesion or interfere with bond of compound and so that surfaces are free of deleterious substances which might impair the Work.
- E. Compressible Rod: Install as required for proper performance of sealant in specific joint as recommended by sealant manufacturer. Select shape and size of joint filler, in consultation with the manufacturer, for proper performance in the specific conditions of use in each case.
- F. Silicone Sealant: As specified in Section 07900.

- G. Butyl Rubber: As specified in Section 07900.
- H. Prime or seal substrate and install materials in accordance with manufacturer's instructions.
- I. Apply sealants in continuous beads, without open joints, voids, or air pockets, providing watertight and airtight seal for the entire joint length, and as specified in Section 07900.
- J. Remove excess compound promptly as the work progresses and clean the adjoining surfaces marred by the work of this Section.

3.03 FIELD QUALITY CONTROL

- A. After curing exterior compounds, test assemblies for leaks by applying a stream of water perpendicularly from a 3/4 in. hose at normal city water pressure. Test system in not less than 5 percent of the construction components, where directed. Conduct tests in the presence of Owner's Representative who will determine actual areas to be tested. Repair leaks or other defects and retest as directed. Repair or replace other work damaged by such leaks.

3.04 PROTECTION AND CLEANING

- A. Protect exposed anodized surfaces and screens until final acceptance of building.
- B. Temporary coating, coverings and cleaning provided to protect the work during shipment, storage, erections and construction, carefully selected, applied and maintained so that finishes will not become uneven or otherwise impaired as a result of unequal exposure to light and weathering conditions.
- C. Remove protection when requested for inspection of finishes, and replace.
- D. Remove mortar, plaster, and any other deleterious material from surfaces of aluminum immediately.

END OF SECTION

SECTION 08700

FINISH HARDWARE

PART 1 GENERAL

1.01 SCOPE

- A. Work under this section includes the complete finish hardware requirements for the project. Quantities listed are for the contractor's convenience only and are not guaranteed. Items not specifically mentioned but necessary to complete the work shall be furnished, matching the items specified in quality and finish.
- B. Refer to the following sections for related work:
 - 1. Metal Doors and Frames
 - 2. Wood Doors
 - 3. Cabinet Hardware
 - 4. Operable Panel Partitions
 - 5. Security Grille
 - 6. Counter Door
 - 7. Access Doors

1.02 QUALITY CONTROL

- A. Supplier: Finish hardware shall be supplied by a factory authorized builder's hardware distributor for products as specified, or approved and who has been furnishing hardware in the same area as the project for a period of not less than two years. The supplier's organization shall include a member of the American Society of Architectural Hardware Consultants who is available at all reasonable times during the course of work to meet with the Owner, Architect or Contractor for project hardware consultation.
- B. Installer: Finish hardware shall be installed only by experienced tradesmen in compliance with trade union jurisdictions, either at the door and frame fabrication plant or at the project site.
- C. Codes:
 - 1. All finish hardware shall comply with applicable local and/or current building codes.
 - 2. Hardware for fire-rated openings shall also be in compliance with all fire building codes applicable to the district in which the building is located. Provide only hardware which has been tested and listed by UL for the types and sizes of doors required and which complies with the requirements of the door and door frame labels.
 - 3. Provide hardware which meets or exceeds handicap accessibility per local building codes. Conform to the Americans with Disabilities Act (ADA) of 1990.
 - 4. Lever handle locks and latches to have levers return within 1/2" of the face of the door.
 - 5. Knobs or handles or other operating hardware on doors leading to loading platforms, stages, mechanical equipment rooms or other areas hazardous to the blind shall be knurled or otherwise rough to the touch.

- 6. Closer adjustment shall not exceed the following opening force:
 - a. Interior doors 5 pounds pressure
 - b. Exterior doors 8.5 pounds pressure
 - c. Fire doors 15 pounds pressure

1.03 SUBMITTALS

- A. Product Data: Submit six (6) copies of manufacturer's data for each item of finish hardware along with hardware schedules submitted. Data to be used to assist Architect in reviewing schedule.
- B. Samples: If requested by the Architect, submit one sample of each exposed hardware category, finished as required, and tagged with full description for coordination with the hardware schedule. Samples will be reviewed by the Architect for design and finish only, and compliance with other requirements is the responsibility of the contractor. Units which are acceptable and remain undamaged through submittal procedures may be used on the project.
- C. Hardware Schedule:
 - 1. At the earliest possible date, submit six (6) copies of the finish hardware schedule, organized into "hardware Sets" and indicating complete designation of every item required for each door opening. Each door must have a complete hardware set for that door. No multiple doors or headings using a "typical" hardware set will be approved. Approval of the hardware schedule does not relieve the contractor of the responsibility to fulfill the project requirements in accordance with the contract documents.
 - 2. Submit a keying schedule in accordance with the instructions from the Owner and/or Architect.
 - 3. After the schedules have been approved by the Architect, submit two (2) copies of the corrected schedules to the contractor for use and distribution.
 - 4. Format for Schedule (Sample Only):

HEADING 101 - HW1

ONE SGL DOOR 101 CORRIDOR 100 FROM OFFICE 101 LHR 90
 3'0" X 7'0" X 1-3/4 WD X HM 20 Min

1-1/2 PR. Butts	BB1279 652 4-1/2 X 4-1/2
1 Lockset	35H7J14C
1 Closer	4111 EDA
1 Kickplate	#285 - 10 x 34 - COLOR ____
1 Wall Bumper	W9 626
3 Silencers	64

- D. Templates: Furnish approved hardware schedule and templates for each fabricator of doors, frames and other work to be factory prepared for the installation of hardware. Upon request, check the shop drawings of such other work to confirm that adequate provisions will be made for the proper installation of hardware.

1.04 PRODUCT HANDLING AND STORAGE

- A. Packaging: Each item or package is to be separately tagged with identification related to the final hardware schedule. Basic installation instructions shall be included in the packages.
- B. Storage: The General Contractor shall provide a locked room at the jobsite for the storage of hardware.
- C. Inventory: At the Contractors option it shall be the hardware suppliers responsibility to inventory the hardware with a representative of the Contractor at or shortly after the hardware is delivered to the jobsite for the purpose of verifying quantities shipped and applied to particular headings of the approved hardware schedule/packing list. If the hardware is to be stored per heading it is the Contractors responsibility to provide adequate room and shelving for this purpose.

1.05 GUARANTEE

- A. Unless otherwise stated Finish Hardware shall carry a limited warranty against defects in material, workmanship and operation for a period of at least one year, backed by a factory warranty of the hardware manufacturer, except the door closers shall have a minimum five year warranty. Exit devices shall have a minimum three year warranty. No liability shall be assumed by the hardware supplier where faulty operation is due to abuse, improper usage, improper installation or failure to exercise normal maintenance.

1.06 SUBSTITUTIONS

- A. No substitutions of material listed will be allowed without written consent of the Architect, except approved substitutions as listed. When substitutions are requested, they shall be in writing and accompanied by catalog cuts of the proposed item, as well as the specified item. Request for substitutions to be made no less than ten (10) days prior to bid date.
- B. The Architect will notify all plan holders in writing of approved substitutions.

PART 2 PRODUCTS

2.01 KEYING

- A. All cylinders shall be keyed to a SCHLAGE Master Key System. Permanent keying shall be as directed by the Architect and/or the Owner. All cylinders shall be provided with removable cores.
- B. All cylinders shall be construction keyed and the Contractor provided six (6) construction keys.
- C. All keys shall be stamped "DO NOT DUPLICATE."

D. Furnish:

- 4 Master keys
- 2 Control Keys - (Construction)
- 2 Control Keys - (Permanent)
- 2 Keys each KD lock, 6 keys each KA Group
- 12 Blanks of keyway used on this project.

2.02 FINISH

- A. Exposed surfaces of all hardware shall be 626 DULL CHROME and / or 630 STAINLESS STEEL unless otherwise stated in this finish hardware specification.
- B. Surface Door Closers to be sprayed to match adjacent hardware.

2.03 MATERIALS

The use of hardware manufacturers product numbers and designs is for the purpose of identifying type, function and quality. Request for permission to bid other products of the same type, function and quality is to be made in accordance with instructions described in Section 1.06 Substitutions.

A. Butts Hinges

- 1. Manufacturer Listed: MCKINNEY, HAG, TA
- 2. Acceptable Substitutions: BOMMER
- 3. Sizes: Unless specified in the hardware groups differently hinge height to be:
 - 4 1/2 " for doors 1 3/4 " thick and up to 36" in width.
 - 5" for doors 1 3/4 " thick, over 36" in width.
- 4. Quantity: 1-1/2 pair up to and including 90" in height. For doors over 90" in height supply one additional butt for each additional 30" in height, or fraction thereof.
- 5. For unusual size or weight doors, furnish type, size and quantity recommended by the butt manufacturer.
- 6. All exterior and interior reverse bevel locked doors to have nonremovable pins (NRP set screw in barrel).
- 7. Exterior hinges to be stainless steel 630.

B. Lockset:

- 1. Manufacturer Listed: SCHLAGE
- 2. Acceptable Substitutions: NONE
- 3. Design: Athens 626 D-Lock with Vandlgard lever locks.
- 4. Provide curved lip strikes of minimum length to protect trim with wrought boxes
- 5. All locksets and cylinders to be provided with Removable Cores.

C. Exit devices:

- 1. Manufacturer Listed: VON DUPRIN
- 2. Acceptable Substitutions: NONE
- 3. Furnish Steel Channel Reinforcement.

4. Glass Bead Fillers shall be supplied for Panic Hardware where interference with glass light frame occurs.
5. Exit devices to carry a 3 year warranty against defects in material or workmanship.

D. Door Closers:

1. Manufacturer Listed: LCN
2. Acceptable Substitutions: NONE
3. Closers to meet ADA requirements for maximum opening force of 8.5 lbs. for the exterior doors and 5 lbs. for the interior doors.
4. Size as recommended by manufacturer.
5. Spray Closers to match adjacent hardware.
6. Whether specified or not provide the proper feet to suit the conditions and the proper length arm to allow fullest degree of opening allowed by wall conditions.
7. Provide drop plates where required.
8. Contractor shall install all the screws required for the foot.
9. Provide special closer mounting as required where interference with weatherstrip or sound seal occurs.
10. Door closer foot brackets shall be rabbet applied where soffit width is not wide enough to clear the door seal.
11. Door closers to carry a ten year warranty against defects material and workmanship.

E. Push & Pulls:

1. Manufacturer Listed: QU
2. Acceptable Substitutions: HAGER, BBW
3. Finish: To be 630 STAINLESS STEEL or as specified in Section 2.02 FINISH.
4. Push Plates and Pull Plates shall be mounted with oval head screws of matching finish.

F. Kick Plates:

1. Manufacturer Listed: BBW
2. Acceptable Substitutions. HAGER, QUALITY
3. Finish: 630 STAINLESS STEEL
4. Gage to be .050
5. Plates shall be mounted with trusshead screws of matching finish.
6. Sizes: All plates shall be furnished with width 1 1/2" less than door width except pairs of doors without mullions shall be 1" less than door width. The height shall be 10" or as specified in the detailed hardware list.
7. Where door seal, sound seal or weatherstrip is installed on the jamb stop adjust kickplate width to allow 1/8" - 1/4" clearance each side.
8. Where kickplate width will interfere with installation of other hardware adjust width for proper clearance.

G. Stops & Holders:

1. Manufacturer Listed: QU

2. Acceptable Substitutions: HAGER, BBW
 3. There shall be stops to protect all walls, cabinet work or hardware operation. Wall Stops shall be used wherever possible, unless otherwise called for in the hardware types. Where floor stops are used they shall be installed no farther than 8" from the latch edge of the door.
- H. O H Stops and Holders:
1. Manufacturer listed: GLYNN JOHNSON
 2. Acceptable substitutions: RIXSON, ABH
 3. Utilize series specified in hardware groups and size as per manufacturer's recommendation.
 4. At labeled openings provide surface mounted OH stops GJ 90 Series in lieu of concealed.
- I. Weatherstrip and Thresholds:
1. Manufacturer Listed: PEMKO
 2. Acceptable substitutions: HAGER, NATIONAL GUARD
 3. Where it occurs weatherstrip shall be applied to both sides of a mullion.
 4. All thresholds to have 450SL Sil-lok anchor where indicated in the detailed hardware list.
 5. The Hardware Supplier shall advise the General Contractor concerning floor preparation for the Sil-lok anchors and shall order for immediate shipment on receipt of approved Hardware Schedule.
 6. Door seal shall be adjusted to allow closing and latching of the door without slamming.
- J. Door Silencers:
1. Manufacturer Listed: TRIMCO
 2. Acceptable Substitutions: HAGER, GJ
 3. Quantity: Furnish three (3) for each single door frame and four (4) for each.
 4. Provide W07 For HM Frames; W08 For Wood Frames.
- K. Flush Bolts & Dustproof Strikes:
1. Manufacturer: IVES
 2. Acceptable Substitution: GJ
 3. Bolts shall be installed top and bottom inactive leaf of pair of doors. Dustproof strike -mounted in floor or threshold to accept bolt at bottom of inactive leaf. Supply 12" standard length for doors up to 84" in height. Doors over 84" will have top rod extension to place center line of bolt no more than 72" from floor.
- L. Spring Hinges:
1. Manufacturer: BOMMER
 2. Acceptable Substitution: HAGER

M. Automatic Flushbolts/Coordinators:

1. Manufacturer: DOOR CONTROLS
2. Acceptable Substitution: GLYNN JOHNSON

2.04 HARDWARE GROUPS

HW 1 Doors 104B, 108B, 112B and 116B

3ea. Hinges	MC TA 2714 4 1/2" x 4 1/2"	US26D
1ea. Lockset	SC AL10S NEP	626
1ea. Kick Plate	TR KOO05 10 x 34	630
1ea. Wall Stop	TR 1270 WV	630
3ea. Silencers	TR 1229	

HW 2 Doors 104A, 108A, 111B, 112A, 113B, 116A, 117B, 121, 122, 123 and 124

3ea. Hinges	MC TA 2714 4 1/2" x 4 1/2"	US26D
1ea. Lockset	SC AL73PD NEP	626
1ea. Door Closer	LCN 4041-REG 90°	ALUM
1ea. Kick Plate	TR KOO05 10 x 34	630
3ea. Silencers	TR 1229	

HW 3 Doors 107, 109, 115 and 119

3ea. Hinges	MC TA 2714 4 1/2" x 4 1/2"	BB1279 NEP	652
1ea. Lockset	AL405 NEP		626
1ea. Kickplate	TR KOO05 10 x 34	ALUM	
1ea. Wall Stop	TR 1270 WV		630
3ea. Silencers	TR 1229		

HW 4 Doors 100B and 120

3ea. Hinges	MC TA 2714 4 1/2" x 4 1/2"	NRP BB1279	US32D
1ea. Lockset	AL70RD NEP		626
1ea. Door Closer	SURFACE CLOSER		4111EDA689
1ea. Overhead Stop	410S		630
1ea. Kick Plate	TR KOO05 10 x 34		
1ea. Door Seal	315CN 36"		
1ea. Threshold	252X3AFG 36"		

HW 5 Doors 105A, 111A, 113A and 117A

6ea. Hinges	MC TA 2714 4 1/2 X 4 1/2 X NRP BB1279	US32D
1ea. Lockset	AL70RD NEP	630
1ea. Removable Mullion	4954 - 7'-2"	
2ea. Closers	4041 EDA	AL
1ea. Threshold	273 x 3 AFG 72"	
2ea. Door Sweeps	18-041 CP-36	
2ea. Cylinders	20-022	626
2ea. Overhead Stop	410S	

HW 6 Door 105B

6ea. Hinges	MC TA 2714 4 1/2" x 4 1/2"BB1279 NPR	652
1ea. Lockset	SCH AL73RD NEP	626
1ea. Flush Bolts	842	626
1ea. Coordinator	672 X 2C PC	
1ea. Strike	5048	626
1ea. Closer	4111 689 LH	
1ea. Closer	4111 689 RH	
2ea. Wall Stop	W9XT	626
2ea. Kickplate	#37X 10" x 35"	630
2ea. Meeting Stile	297AS 84" SMS	
1ea. Smoke Seal	S88D 20"	

Door Numbers 100A, 101, 102 and 104 shall have hardware by manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide solid blocking for all wall stops and bumpers.
- B. Fasteners: Check all conditions and use fastening devices as needed to secure or anchor All hardware as per manufacturer's published templates. Self-tapping sheet metal screws are not acceptable. All closers and exit devices on wood doors shall be thru-bolted. The Contractor shall be responsible for drilling wood or metal with the recommended hole sizes.
- C. Extra Hardware: Furnish the following
 - 1. Five extra Cylinders
 - 2. One extra Door Closer

3.02 INSTALLATION

- A. The General Contractor shall be responsible for proper installation and operation of hardware in locations specified. DOOR CLOSERS SHALL BE INSTALLED AND ADJUSTED TO CLOSE AND LATCH THE DOOR WITHOUT SLAMMING.

- B. The General Contractor shall protect exposed hardware surfaces during construction period from damage to products and finishes.
- C. In the absence of other hardware installation requirements in this Section or indicated, the following recommendations shall be used as a guide:
 - 1. Top hinge: 5-inch, header rabbet to top of hinge.
 - 2. Bottom hinge: 10-inch, finish floor to bottom of hinge.
 - 3. Center hinge: Centered between top and bottom hinges.
 - 4. Mortise locks: 40-5/16-inch, finish floor to center of lock case and strike.
 - 5. Deadlocks and deadlatches: 48-inch, finish floor to center of cylinder.
 - 6. Exit devices: 38-inch, finish floor to center of cross bar.
 - 7. Push plates: 45-inch, finish floor to center of plate.
 - 8. Door pulls: 42-inch, finish floor to center of pull.
- D. All other hardware shall be installed as recommended by the manufacturer.

3.03 ADJUSTMENT

- A. Adjust and check each operating item of hardware at each door to ensure proper operation or function of every unit.
- B. Clean adjacent surfaces soiled by hardware installation and/or adjustment.
- C. Whenever hardware installation is made more than one month prior to acceptance or occupancy, make a final check and adjustment of all hardware items during the week prior to acceptance or occupancy. Clean and lubricate operating items necessary to restore proper function and finish of hardware.
- D. Adjust door control devices to compensate for final operation for heating and ventilating equipment.
- E. Instruct owner's personnel in proper operation and maintenance of hardware and hardware finishes.
- F. Replace units which cannot be adjusted to operate properly.

END OF SECTION

SECTION 08800 GLAZING

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Glass and glazing for hollow metal work.

B. Related Work Described Elsewhere:

- | | |
|---------------------------|---------------|
| 1. Finish Carpentry | Section 06200 |
| 2. Joint Sealers | Section 07900 |
| 3. Steel Doors and Frames | Section 08111 |
| 4. Aluminum Windows | Section 08520 |

C. References:

1. American National Standards Institute (ANSI): ANSI Z97.1-1984 Glazing Material Used in Buildings, Performance Specifications and Methods of Test for Safety.
2. American Society for Testing and Materials (ASTM):
 - a) E283-84 Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
 - b) E331-86 Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - c) E774-84a Sealed Insulating Glass Units.
3. Federal Specifications (FS):
 - a) DD-G-451 Glass, Float or Plate, Sheet, Figured (Flat, for Glazing, Mirrors and Other Uses).
 - b) DD-G-1403 Glass, Plate (Float), Sheet, Figured and Spandrel (Heat Strengthened and Fully Tempered).
4. Flat Glass Manufacturer's Association (FGMA): Glazing Manual and Glazing Sealing System Manual.
5. Sealed Insulating Glass Manufacturers Association (SIGMA): 70-7-1 Recommended Practices for Vertical Field Glazing of Organically Sealed Insulated Glass Units.

1.02 QUALITY ASSURANCE

- A. Conform to FGMA Glazing Manual and Glazing Sealing Systems Manual for glazing installation methods.

B. Certification:

Manufacturer of secondary sealant for insulating glass shall test glass and glazing materials and accessories for compatibility with secondary sealant; furnish test results and certification that materials furnished meet or exceed specified requirements and that use of products will not adversely affect performance of other products in combination.

C. Design Criteria:

Wind Load: Verify that glass thickness indicated shall resist minimum 30 psf uniform pressure acting inwardly or outwardly without exceeding deflection limits specified.

- 1) Normal-to-wall deflection: Maximum 1/200 of span.
- 2) Parallel-to-wall deflection: less than 75 percent of glass edge clearances.
- 3) Where required to meet the above limits, provide heat strengthened glass where float is scheduled. Do not increase glass thickness.

1.03 SUBMITTALS

- A. Submit manufacturer's specifications and installation instructions for each type of glazing sealant and compound gasket, and associated miscellaneous material required under provisions of Section 01340. Include manufacturer's published data, or letter of certification, or certified test laboratory report indicating that each material complies with the requirements, and is intended generally for the applications shown.
- B. Provide structural, physical and environmental characteristics, size limitation, special handling or installation requirements.
- C. Submit 12 x 12 in size, illustrating specified glass unit.
- D. Submit 12 in. long bead of glazing sealant in color selected.
- E. Submit sealed glass unit manufacturer's certificate indicating units meet or exceed specified requirements.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver to site and handle products under provisions of Section 01610.
- B. Store and protect products under provisions of Section 01620.

1.05 WARRANTY

- A. Provide manufacturer's warranty under provisions of Section 01740.
- B. Warranty:
 - 1) Include coverage of sealed glass units from seal failure, interpane dusting or misting, replacement of same for a period of ten years.
 - 2) Include coverage of laminated glass units from edge separation or material defects such as bubbling, discoloration, loss of physical and mechanical properties, and obstruction of vision through the glass surface, and replacement of same for a period of five years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Primary Glass:
 1. PPG Industries, Inc.
- B. Substitutions: Under provisions of Section 01630.

2.02 GLASS MATERIALS

- A. Insulating Glass: Tempered glass: Clear and tinted 1/4 inch thick glass as indicated, fully tempered as required by ANSI Z97.1. Tong-free with roll marks in horizontal plane. Perform required cutting, shaping, boring and grinding prior to tempering. ASTM E774, Class A. Two 1/4 in. thick glass lites with sealed dry air or gas filled space having -40 degree F. or lower dew point. Total 1 in. thick, with keyed corner galvanized steel spacers filled with desiccant.

Outboard glass shall be :

Type A: 1/4 "Azurlite" tempered tinted.

Inboard Glass shall be 1/4" tempered clear. Provide PPG #500 Low E on #3 surface clear.

- B. Wire glass: UL Listed, FS DD-G-451, Type II, Form 1, Mesh m2, Clear, 1/4 in. thick.

2.03 GLAZING ACCESSORIES

- A. Glazing Sealant: As specified Section 07900.
- B. Provide glazing accessories, for use with insulating glass units, compatible with products of, and recommended by, manufacturer of secondary seal. Dow Corning Custom Extractions or acceptable substitute. Include setting blocks, space shims, glazing tape, and compressible filler rods.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify surfaces of glazing channels and recesses are clean, free of obstructions, and ready for work of this Section.
- B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Matching: Unify appearance of each series of lites by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, draw and bow oriented in same direction as other pieces. Install tempered glass with roll marks in horizontal plane.

3.03 INSULATING GLASS

- A. Install insulating glass units in accordance with requirements of SIGMA 70-7-1.

3.04 INTERIOR COMBINATION METHOD AT EXTERIOR STEEL DOORS AND FRAMES

- A. Cut glazing tape to length; install against permanent stops, projecting 1/16 in. above sight.
- B. Place setting blocks at 1/4 points.
- C. Rest glass on setting blocks and push against fixed stop with sufficient pressure to attain full contact at perimeter of pane.
- D. Install removable stops without displacement of glazing spline. Exert pressure for full continuous contact.
- E. Fill gap between pane and stops with silicone type sealant to depth equal to bite of frame on pane, but not more than 3/8 in. below sightline.
- F. Trim protruding tape edge.
- G. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surfaces with solvent for smooth appearance.

3.05 INTERIOR DRY METHOD AT INTERIOR RELITES AND DOORS

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 in. above sightline.
- B. Place setting blocks at 1/4 points.
- C. Rest glass on setting blocks and push against tape for full contact at perimeter of pane.
- D. Place glazing tape on free perimeter of pane in same manner described above.
- E. Install removable stop without displacement of tape. Exert pressures on tape for full continuous contact.
- F. Knife trim protruding tape.

3.06 GLAZING METHOD AT ALUMINUM WINDOWS

- A. Specified under Section 08520.

3.08 CLEANING

- A. Clean glazing under provisions of Section 01710.
- B. After installation, mark pane with an "X" on interior of frame by using plastic tape or streamers. Do not apply markers directly to glass.
- C. Remove glazing materials from finish surfaces.
- D. Remove labels after work is completed.

- E. Wash and polish glass on exposed surfaces not more than four days prior to Substantial Completion, under provisions of Section 01710.
- F. Clean glass in accordance with manufacturer's recommendations. Do not use abrasive materials or broken razor blades for cleaning.

END OF SECTION

SECTION 09120 CEILING SUSPENSION SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included:
 - 1. Suspended gypsum wallboard ceiling system framing.

- B. Related Work Described Elsewhere:
 - 1. Cold Formed Metal Framing Section 05400
 - 2. Gypsum Wallboard Section 09250
 - 3. Suspended Acoustical Ceiling Section 09511

- C. References:
 - 1. American Society for Testing and Materials (ASTM):
 - a. A641-82 Zinc-Coated (Galvanized) Carbon Steel Wire
 - b. C645-83 Non-Loadbearing Steel Studs, Runners, and Rigid Furring Channels.
 - c. C754-82 Installation of Steel Framing Members to Receive Screw Attached Gypsum Wall board, Backing Board, or Water Resistant Backing Board.

 - 2. Gypsum Association (GA): 219-78 Recommendations for Installation of Steel Door Frames in Steel Stud Gypsum Board Fire Rated Partitions.

1.02 QUALITY ASSURANCE

- A. Perform the work in accordance with ASTM C754. Maintain one copy of document on site for Owner Representative's review.

1.03 SUBMITTALS

- A. Submit materials list and product data under provisions of Section 01340.

- B. Indicate and provide data on materials for framing, openings, bracing, blocking and reinforcement.

1.04 REGULATORY REQUIREMENTS

- A. Comply with requirements of applicable codes for fire rated suspended ceiling framing.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fasteners:

1. Gypsum Board to Furring: Refer to Section 09250.
2. Hanger Wire to Concrete: Eye bolt with drilled-in expansion anchor sized for 432 lbs each, or 3 x calculated 12 lb. /sq.ft. total loads, whichever is the larger load. Similar and equal to Diamond Blue-Cut 06-00732 or 06-00532.

B. Furring Members: Cold-rolled hat-shaped furring members, .3 lb./ft. minimum, galvanized, refer to Section 09250.

C. Ceiling Suspension Main Runners:

1. 1-1/2 inch steel channels, .0475 lb. per ft. cold-rolled.
2. Hanger Wire: ASTM A641, soft, Class 1 galvanized, prestretched; 12 ga. minimum wire size.
3. Optional Ceiling Suspension Framing: Similar and equal to Chicago Metallic Fire-Front 650 Furring System, UL Listed for use in construction indicated.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install main carrying runner channels and furring to height indicated. Erect after above ceiling work is complete. Coordinate location of hangers with other work.
- B. Install main carrying runner channels and furring independent of walls, columns, and above ceiling work. Securely anchor hangers to structural members or concrete deck. Do not attach to plywood roof deck.
- C. Space hangers not over 4 ft. in direction of 1-1/2 inch main carrying runner channels and not over 3 ft. at right angles to main carrying runner channels, and within 6 in. of ends of main runner runs and of boundary walls, girders or similar interruptions of ceiling continuity.
- D. Place main carrying runner channels not over 3 ft. o.c., properly positioned, leveled and saddle tied to hanger wires. Locate main carrying runner channels within 6 in. of walls to support ends of cross furring. Lap splice securely.
- E. Securely fix main carrying runner channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- F. Provide two loops at hanger wire/eye bolt connection at top and two loops at hanger wire/main carrying runner channels at bottom.
- G. Place cross furring perpendicular to carrying channels, not more than 2 in. from perimeter walls, and rigidly secure. Lap splice securely. Space metal furring members 16 in. o.c. and saddle tie with two strands of 16 ga. tie wire to main

runners. Provide end splices by nesting channels of studs no less than 8 in., securely wire tied.

- H. Reinforce openings in suspension system which interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 2 ft. past each opening.
- I. Laterally brace suspension system.

3.03 TOLERANCES

- A. Install members to provide surface plane with maximum variation of 1/8 in. in 10 ft. in any direction.

END OF SECTION

SECTION 09250 GYPSUM DRYWALL SYSTEMS

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Gypsum Board.
2. Furring and miscellaneous light gage metal shapes.
3. Taped and sanded joint treatment.
4. Draftstops, where shown.
5. Acoustical accessories.
6. Metal Framing.

B. Related Work Described Elsewhere:

- | | |
|-------------------------------|---------------|
| 1. Batt Insulation | Section 07213 |
| 2. Joint Sealers | Section 07900 |
| 3. Steel Doors and Frames | Section 08111 |
| 4. Ceiling Suspension System | Section 09120 |
| 5. Porcelain Tile Wall Finish | Section 09300 |
| 6. Acoustical Ceilings | Section 09510 |
| 7. Toilet Accessories | Section 10800 |

C. References:

1. American Society for Testing and Materials (ASTM) :
 - A. C36-84a Gypsum Wallboard.
 - B. C442-84a Gypsum Backing Board
 - C. C475-81 Joint Treatment Materials for Gypsum Wallboard Construction.
 - D. C665-84 Mineral Fiber Blanket Thermal Insulation for Light Frame Construction
 - E. C754-82 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.
 - F. E84-84 Surface Burning Characteristics of Building Materials.
 - G. ANSI/ASTM C645 Non-Load Bearing Steel Studs, Runners, and Rigid Furring Channels for Screw Application of Gypsum Board.
2. Gypsum Association (GA) :
 - A. GA 216 Recommended Specifications for Application and Finishing of Gypsum Board.
 - B. GA 203 Installation of Screw-Type Steel Framing Members to Receive Gypsum Board.
 - C. GA 219 Recommendations for Installation of Steel Door Frames in Steel Stud Gypsum Board Fire - Rated Partitions.

1.02 QUALITY ASSURANCE

- A. Perform gypsum board systems work in accordance with recommendations of GA 216 unless otherwise specified in this Section.
- B. Keep copy of GA 216 on site for duration of Project.

1.03 REGULATORY REQUIREMENTS

- A. Fire-Rated Partitions: Listed by UL.
- B. Fire-Rated Ceilings: Listed by UL.

1.06 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions under provisions of Section 01340.

PART 2 PRODUCTS

2.01 FURRING ACCESSORIES

- A. Provide materials in accordance with GA 216.
- B. Furring Channels: Minimum 25 ga. roll-formed galvanized steel hat shaped channels, 7/8 in. deep.
- C. Resilient Channels: Formed-steel; minimum 25 ga.; size and length required, flattened "Z" profile. Manufactured by US Gypsum.
- D. Furring, Fasteners and Anchorage: ASTM C754.
 - 1. To masonry and concrete: Hammer-set or power-driven.
 - 2. To wood framing: Type W Bugle Screws, 1-1/4 in. long.
 - 3. To sheet metal studs: Type S Bugle Screws, 1-1/4 in. long.
 - 4. To steel shapes: Self-drilling fasteners similar and equal to Buildex "Tek" screws; size and type suitable for condition of use.

2.02 GYPSUM BOARD

- A. Provide gypsum board materials in accordance with recommendations of GA 216. All materials fire resistant.
- B. Fire Rated Gypsum Board: ASTM C-365 Type "X" 5/8 in. thick, except 1/2 in. thick where shown; maximum permissible length; ends square cut, tapered edges.
- C. Gypsum Backing Board: ASTM C442, Type "X"; 5/8 in. thick, except 1/2 in. thick where shown; maximum permissible length; ends square cut.
- D. Gypsum Core Board: One in. thick, ends square cut, square edges, lengths required.

2.03 GYPSUM BOARD ACCESSORIES

- A. Provide gypsum board accessories in accordance with GA 201 and GA 216.
- B. Corner Beads: Metal. GA 201; ANSI-CB-114 x 114.
- C. Edge Trim: GA 201 and GA 216; "L" Bead; ANSI-LS-58.
- D. Reinforcing Tape, Joint Compound, Adhesive, Water, Fasteners: GA 216.
- E. Fasteners: GA 216:
 - 1. To metal furring: Type S, self-drilling, self tapping, 1-1/4 in. long at single layer; 1-5/8 in. long at double layer construction.
 - 2. To wood framing: Type W, 1-1/4 in. long.
 - 3. To joists at one-hour rated roof-ceiling construction: First Layer - Type S Bugle screws, 1-5/8 in. long at 12 in. o.c. Second Layer - Type S Bugle screws, 2 in. long at 12 in. o.c. in field and 8 in. o.c. at butt edges, unless otherwise required to achieve assembly rating.
 - 4. To concrete or block walls: OSI Pro-Series Fourmula #38, per manufactures specifications.

2.04 ACOUSTICAL ACCESSORIES

- A. Acoustical Blankets:
 - 1. Meet or exceed requirements of ASTM C665 and ASTM E84, having flame spread of 10, and smoke development of 10.
 - 2. Provide acoustical wall treatment similar and equal to "Noise Barrier Batt Insulation" as manufactured by Owens Corning Fiberglass Corporation.
 - 3. Size blankets in accordance with application, full thickness of studs.
- B. Acoustical Sealant: Specified under Section 07900.

2.05 STUDS AND TRACKS

- A. Sheet steel channel or "C" shaped at least 1-1/4 inch knurled return flange suitable for nested or interlocked palled splicing and screw attachment of gypsum wallboard per ASTM C645.
- B. 3 - 5/8 inches through the wall thickness 14 feet maximum length typical unless noted otherwise in the Drawings.
- C. Metal thickness: Per Section 05400.
- D. Provide punched openings at 1-1/2 inches diameter, not more than twenty-four inches on center. Studs full, single piece for height required.
- E. Finish: Light commercial galvanized per ASTM A525.
- F. Shaft Wall Studs and Tracks per stud manufacturer's instructions: Special shapes per Performance Requirements.

2.06 FASTENERS

- A. Self-drilling, self-tapping drywall and metal screws in accordance with ASTM C1002 and GA 216. Only GWB screws allowed in GWB, no nails.
 - 1. Length to penetrate GWB and Backing.
- B. Metal Studs to Runners, Furring Channels, and Other Metal Accessories: Self-drilling, self-tapping pan head type "S" screws, size per metal stud manufacturer's written recommendations for specified fire resistance but not less than 3/8 inch long.

PART 3 EXECUTION

3.01 INSPECTION

- A. Review and coordinate sequencing of work to ensure that everything to be concealed by gypsum board has been accomplished, and that chases, access panels, openings, supplementary framing and blocking, vapor retarders and similar provisions have been completed.
- B. Beginning of installation means installer accepts condition of substrates.

3.02 WALL FURRING INSTALLATION

- A. Erect wall furring vertically, directly attached to concrete block walls at 24 in. o.c. space fasteners not more than 24 in. o.c. staggered each flange.
- B. Erect resilient channels horizontally at 24 in. o.c. fasten directly to metal framing, not more than 4 in. from abutting walls.

3.03 GYPSUM BOARD INSTALLATION

- A. Heat space to receive gypsum board as required to maintain a constant and uniform 55 degrees F. minimum for one week prior to start of installation. Maintain temperature until permanent heating system is in operations.
- B. Verify that partitions requiring thermal or sound installation are properly insulated prior to placing gypsum board.
- C. Install gypsum board per GA 216.
- D. Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
- E. For double layer applications, use gypsum backing board for first layer, placed perpendicular to framing or furring members. Place second layer perpendicular to first layer. Ensure joints of second layer do not occur over joints of first layer.
- F. Apply all gypsum board at masonry in vertical panel direction and secure in place until all has cured per manufacture recommendation.

- G. For double layer applications, use second layer through first into framing with screws fasteners specified. Spacing of fasteners in accordance with GA 201, except space fasteners in accordance with UBC at fire rated assemblies.
- H. Place corner beads at external corners. Use longest practicable lengths. Place edge trim where gypsum board abutts dissimilar materials and at reveals.
- I. Wrap gypsum board behind recessed items in rated gypsum board partitions.

3.04 JOINT TREATMENT

- A. Maintain temperature at minimum 55 degrees F.
- B. Provide adequate and continuous ventilation to ensure proper drying, setting and curing of joint treatment compounds.
- C. Mix joint treatment compounds in accordance with manufacturer's instructions.
- D. Apply joint treatment materials in accordance with GA 201, GA 216, and manufacturer's instructions.
- E. Tape, fill and sand exposed joints, edges, and corners to produce surface ready to receive surface finishes. Feather embedding and minimum two topping coats onto adjoining surfaces so that camber is maximum 1/32 in. Finishing of taping is not required in concealed spaces and above finished ceilings. Taping is not required above acoustical tile finished on ceiling in classrooms.
- F. Remove and correct defective work.
- G. All gypsum wall board shall be firetaped.

3.05 ACOUSTICAL BLANKET INSTALLATION

- A. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.
- B. Extend acoustical blankets in full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with acoustical materials. Remove projections which interfere with placement.
- C. Apply single or double layer of acoustical blankets of required thickness, as shown or required to make up total thickness.
- D. Install acoustical materials in stud cavities of sound rated partitions, friction fit, except attach at top of partitions. Attachment may be accomplished with staples or tape as recommended by acoustical materials manufacturer.

- E. Closely but blankets to form uninterrupted sound barrier.

3.06 ACOUSTICAL SEALANT INSTALLATION

- A. Place acoustical sealant within partitions in accordance with manufacturer's instructions. All walls with acoustical blanket insulation shall receive sealant at bottom plate.
- B. Apply acoustical sealant in 3/8 in. diameter continuous beads to both sides of runners, plates and end studs to seal intersection with adjoining structure.
- C. Seal perimeter of gypsum board in noted sound wall to abutting substrate. Seal penetrations of partitions and ceilings.

3.07 METAL STUD INSTALLATION

- A. Install studding in accordance with ANSI/ASTM C754, GA 201 and GA216, manufacturer's instructions and the Drawings. Set floor tracks in sill sealer insulation specified in Section 07210.
- B. Metal Stud Spacing: Sixteen inches on center. Anchor tracks top and bottom at twenty-four inches maximum and six inches from each track end.
- C. Partition Heights: Full height to floor or roof structure above.
- D. Door Opening Framing: Install double full height 20 gage studs at door frame jambs. In accordance with GA219 install stud tracks at frame head height, and between adjacent studs. Screw double studs together - with additional flat plate as necessary.
- E. Backing and Blocking: Screw to two studs minimum. Install backing for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware handrails, owner supplied and contractor installed FF&E equipment, and other GWB mounted fixtures as indicated.
- F. Bridging: Install bridging at midpoints of studs or 6 feet maximum for studs over 12 feet high. Use stud track screw attached to each stud.
- G. Coordinate installation of backing, anchors, blocking, electrical and mechanical work placed in or behind partition framing.

3.08 CLEANING

- A. Provide cleaning under provisions of Section 01569 and 01710.
- B. Remove all rubbish, excess materials, and equipment from building and site, clean surrounding surfaces and leave floors clean.

END OF SECTION

SECTION 09510 ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Fire rated suspended metal grid system complete with all trim.
2. Lay-in ceiling panels.

B. Related Work Specified Elsewhere:

- | | |
|------------------------------|---------------|
| 1. Finish Carpentry | Section 06200 |
| 2. Ceiling Suspension System | Section 09120 |
| 3. Gypsum Wallboard | Section 09250 |
| 4. Miscellaneous Specialties | Section 10925 |

C. Reference Standards:

1. American Society for Testing and Materials (ASTM) :
 - a) C635-83 Metal Suspension System for Acoustical Tile and Lay-In Panel Ceilings.
 - b) C636-76 (1981) Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - c) D1761-77 Mechanical Fasteners in Wood.
 - d) E84-84 Surface Burning Characteristics of Building Materials.
2. Uniform Building Code (UBC) : UBC Standard 47-18, including Part III - Lateral Design Requirements.

1.02 QUALITY ASSURANCE

- A. Provide acoustical panels and suspension materials bearing UL Classification marking.

1.03 SUBMITTALS

- A. Submit shop drawings of acoustical ceiling system under provisions of Section 01340.
- B. Clearly indicated grid layouts and related dimensioning, junctions with other work or ceiling finishes, inter-relation of mechanical and electrical items related to system.
1. Show insert and hanger spacing and fastening details, splicing method for main and cross runners, acoustical unit support at lighting fixtures, and installation details.
 2. Include detailed locations of lighting fixtures, sprinkler heads, detectors, ceiling diffusers, air return grilles and air volume control dampers.
- C. Submit manufacturer's information, installation instructions and product data under provisions of Section 01340.

- D. Furnish suspension system manufacturer's lateral loading capacity and displacement or elongation characteristics for proposed systems indicating:
 - 1. Bracing pattern and wire sizes.
 - 2. Tension and compression force capabilities of main runner splices, cross runner or connections and expansion devices.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not install acoustical ceiling until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead mechanical work is completed, tested, and approved.
- B. Permit wet work to dry prior to commencement of installation.
- C. Maintain uniform temperatures of minimum 61 degrees F and humidity of 20 percent to 40 percent prior to, during, and after installation.

1.05 EXTRA STOCK

- A. Furnish extra materials under provisions of Section 01750.
- B. Furnish not less than the percentage of each type acoustical ceiling material supplied as noted below. Furnish fill original, unopened, undamaged cartons only.
 - 1. Acoustical tiles: One percent, minimum.
 - 2. Acoustical panels: Two percent, minimum.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acoustical Panels and Tiles:
Armstrong World Industries, Inc.
- B. Suspension System:
Armstrong World Industries, Inc.
- C. Substitutions: Under provision of Section 01630.

2.02 SUSPENSION SYSTEM FOR ACOUSTICAL PANELS

- A. Type: Conform to ASTM C635 heavy duty system.
- B. Grids: Exposed T, 24 x 48 x 15/16 in. AND 24 X 24 X 15/16" - all components die cut and interlocking. Donn DX-26, or equal.
- C. Accessories: Stabilizer bars, furring clips, splices, edge molding; compression struts and hold down clips, as required to complete and complement suspended ceiling grid systems.

- D. Materials/Finish: Commercial quality cold rolled steel with galvanized coating; manufacturer's standard white, baked enamel finish on exposed surfaces.
- E. Carrying Channels and Hangers: Galvanized steel; size and type to suite application and to rigidly secure complete acoustical unit ceiling system, with maximum deflection of 1/360.
 - 1. Carrying channels: Minimum 1-1/2 in. cold-rolled steel.
 - 2. Hanger wire: Minimum 12 ga. galvanized, pre-straightened, soft-annealed, mild steel wire.
 - 3. Attachment devices: Minimum 100 lbs. load carrying capacity, per ASTM D1761. Threaded for screw attachment to underside of wood chord joists where required.

2.03 ACOUSTICAL MATERIALS

A. Acoustical Panels:

Fine Fussed Second Look II Tegular with Prelude 15/16" exposed 24x48 tee grid.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that existing conditions are ready to receive work.
- B. Beginning of installation means installer accepts condition of existing substrates.

3.02 INSTALLATION - SUSPENDED GRID AND LAY-IN PANELS

- A. Install acoustical ceiling systems in accordance with UBC Standard 47-18, including Lateral Design Requirements, and ASTM C 636 to produce finished ceiling true to lines and levels, and free from warped, soiled, or damaged grid and lay-in panels.
- B. Install fire rated ceiling systems in accordance with UL requirements, including light fixture protection.
- C. Install ceiling systems in manner capable of supporting all superimposed loads, with maximum deflection of 1/360 of span, and maximum surface deviation of 1/8 in. in 12 ft.
- D. Install after major above-ceiling work is complete. Coordinate location of hangers with other work. Ensure layer of hangers and carrying channel locations accommodate fittings and units of equipment to be placed after installation of ceiling grid system.

- E. Support main runners from hangers attached directly to structure.
 - 1. When obstructions preclude direct attachment to structure use trapeze suspension for spans exceeding 48 in. Form trapeze from two carrying channels back to back.
 - 2. Provide lateral force bracing in conformance with UBC Standard 47-18, Part III.
 - 3. Anchor hangers with .216 in. diameter shaft screw-eyes attached to bottom chord of wood joists; minimum 2 in. penetration of screw shaft into underside of wood chord where acceptable to Owner's Representative, unless otherwise required for assembly rating.
 - 4. Do not screw into plywood roof deck.
- F. Hang independently of walls, columns, ducts, pipes, and conduit. Where carrying members are spliced avoid visible displacement of longitudinal axis or face plane of adjacent member.
- G. Center ceiling systems on room axis leaving equal border pieces, unless indicated otherwise.
- H. Do not support fixtures from or on main runners or cross runners if weight of fixture exceeds 56 lbs. or causes total dead load to exceed deflection capability, whichever weight is less.
 - 1. Space hanger wire 48 in. o.c. maximum.
 - 2. Install additional hangers at terminal ends of each suspension member, 8 in. from vertical surfaces.
 - 3. Support fluorescent lighting fixture safety chains independent of grid and grid suspension system.
 - 4. Do not splay wires more than 5 in. in 4 ft. vertical drop without countersplaying.
- I. Install edge moldings at intersection of ceiling and vertical surface, using maximum lengths, straight, true to line and level. Miter corners. Provide edge moldings at junctions with other ceiling finishes.
- J. Fit acoustical ceiling materials in place, free from damaged edges and other defects detrimental to appearance and function. Fit border units neatly against abutting surfaces.
- K. Install acoustical ceiling materials level, in uniform plane and free from twist, warp and dents.

3.03 ADJUSTMENTS

- A. Adjust any sags and twists which develop in ceiling system and replace any part damaged or faulty.

END OF SECTION

SECTION 09651 RESILIENT BASE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included:
 - 1. Preparation of substrate surfaces
 - 2. Application of rubber base.
 - 3. Cleaning of all surfaces and areas of work.

- B. Related Work Described Elsewhere:
 - 1. Cast-In-Place Concrete Section 03300
 - 2. Finish Carpentry Section 06200
 - 3. Resilient Flooring Section 09650
 - 4. Carpeting Section 09688

- C. References:
 - 1. FF SS-W-40, Wall Base: Rubber and Vinyl Plastic

1.02 SUBMITTALS

- A. Submit samples and product data under provisions of Section 01340.
- B. Include duplicate 2 in. long samples of base selected.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Maintain minimum 70 degrees F air temperature at installation area for three days prior to, during, and for 48 hours after installation.
- B. Store flooring materials in area of application. Allow three days for material to reach equal temperature as area.

1.04 EXTRA STOCK

- A. Provide not less than 5% for fewer than 100 sq. ft. and 3% for over 100 sq. ft. for each type, color, pattern and size installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. General: Following products are for general reference only and are subject to compliance with specified requirements.

BASE:

- | | |
|---------------|-------------------------------------|
| 1. Johnsonite | Product: Rubber Cove Base |
| 2. Flexco | Product: Flex-Cove |
| 3. Burke | Product: Thermal-Molded Rubber Cove |
| 4. Roppe | Product: Rubber Cove Base |

2.02 BASE MATERIALS

- A. Rubber Base: Conforming to FS SS-W-40,

Rubber; top set coved, 4 in. high; with premolded end stops and external corners where appropriate..

Rubber; top set coved, 6 in. high; with premolded end stops and external corners where appropriate.
- B. Colors as selected by Owners Representative.

2.03 ADHESIVES

- A. Primers and Adhesives: Waterproof; of types recommended by manufacturer for specified material.

PART 3 EXECUTION

3.01 PREPARATION

- A. Remove substrate ridges and bumps. Fill low spots, cracks, joints, holes and other defects with filler.

3.02 INSTALLATION

- A. Fit joints tight and vertical. Maintain minimum measurement of 18 in. between joints.
- B. Miter internal corners. Use premolded sections for exposed ends and external corners, except wrap base around corners of bullnosed CMU.
- C. Install base on solid backing. Adhere tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other obstructions.
- E. Install straight and level to variation of plus or minus 1/8 in. over 10 ft.
- F. Install coved base in carpeted areas.

3.03 CLEANING

- A. Remove excess adhesive from base, and wall surfaces without damage.
- B. Clean base surfaces in accordance with manufacturer's instructions.

END OF SECTION

SECTION 09666 RESILIENT LINOLEUM SHEET FLOORING

PART 1 GENERAL

1.01 SUMMARY

- A. Extent and location of homogeneous linoleum sheet flooring is shown on the Drawings, and includes adhesive and heat welded seams installation.
- B. Refer to Div. 09650 for resilient wall bases, reducer strips, metal edge strips, stair treads and risers, and other resilient flooring accessories.

1.02 SUBMITTALS

- A. Submit product data, warranty documents, and verification samples for colors and patterns for linoleum specified. Submit material safety data sheets for all products used in installation.
- B. Submit maintenance data to the General Contractor for installed materials for inclusion in "Operating and Maintenance Manual" specified in Div. 01700 Project Closeout section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
- C. Provide Owner with any extra stock of each color of material installed.

1.03 QUALITY ASSURANCE

- A. Installer is to be experienced in performing work of this section, who has specialized in the installation of work similar to that required for this project, and who is acceptable to product manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Store rolls vertically in fully enclosed areas, protected from exposure to harmful weather conditions and at uniform temperature and at uniform temperature conditions recommended by manufacturer (68°F for 72 hours prior to installation).

1.05 PROJECT CONDITIONS

- A. In accordance with manufacturer's recommendations, areas to receive flooring shall be clean, fully enclosed, weathertight and maintained at a uniform temperature of at least 68°F for 72 hours prior to, during, and after installation. Condition flooring materials for the same uniform temperatures.

- B. Install resilient flooring after finishing operations, including painting and ceiling operations, have been completed.
- C. Do not install resilient flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by flooring manufacturer's recommended bond and moisture test.

1.06 EXTRA STOCK

- A. Provide not less than 5% for fewer than 100 sq. ft. and 3% for over 100 sq. ft. for each type, color, pattern and size installed.

PART 2 PRODUCTS

2.00 SHEET LINOLEUM

- A. Provide homogeneous sheet linoleum consisting of all natural materials consisting of linseed oil, cork, wood flour, rosin binders, dry pigments, mixed and calendared onto natural jute backing, with pattern and color extending throughout the total thickness of material. Use heat welding rods from the same manufacturer as sheet product.
- B. Provide resilient sheet linoleum flooring with the following fire performance characteristics: Critical Radiant Flux: Class 1 Rating per NFPA 253/ASTM E-648
Smoke Density: Less than 450 per ASTM E 662 (NFPA-258).
- C. Acceptable Manufacturers:
Forbo Industries, Inc., Humboldt Industrial Park, P.O. Box 667, Hazleton, PA 18201, (800) 842-7839
Gerbert Ltd., 715 Fountain Ave., P.O.Box 4944, Lancaster, PA 17604-4944, (717) 299-5035.
- D. Substitutions: Under provision of Section 01630.
- E. Pattern: Marmoleum Dual.
- F. Adhesive: No-VOC emitting adhesive acceptable to the linoleum manufacturer.

PART 3 EXECUTION

3.01 WASTE MANAGEMENT

- A. Separate and recycle offcuts and waste materials in accordance to the maximum extent economically feasible. -area at moderate temperature. Place used sealant and adhesive tubes and containers in areas designated for hazardous waste.

3.02 EXAMINATION

- A. Verify substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.

3.03 PREPARATION

- A. Protect adjacent work areas and finish surfaces from damage during product installation.
- B. Prepare floor substrate in accordance with manufacturer's instructions for warranty requirements to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dust, paint, grease, oils, solvent, curing and hardening compounds, sealers, asphalt and old adhesive residue.

3.04 INSTALLATION

- A. Comply with manufacturer's product data, including product technical bulletins, product catalog and carton installation instructions.
- B. Cut required length of linoleum flooring from roll, allowing enough material to extend up the wall 4" to 6" at either end. Layout and position sheet flooring so that any seams will fall at least 6" from saw cuts in concrete substrate. Apply adhesive, using trowel as recommended by flooring manufacturer for specific adhesive. Spread at a rate of approximately 150 sq.ft./gal.as recommended by flooring manufacturer. Lay sheet flooring into wet adhesive within 10 to 15 minutes and roll with a 100 lb. roller. Install sheet flooring square with room axis.
- C. Rout out seams and heat weld together with complimentary composition in accordance with resilient flooring manufacturer's recommendations. Do not use chemical welding.
- D. Scribe, cut, fit flooring to butt tightly to vertical surfaces, permanent fixtures and built-in furniture, including pipes, outlets, edgings, thresholds, nosings, and cabinets. Extend flooring into toe spaces, door reveals, closets, and similar openings. Adhere resilient flooring to substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.

3.04 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
- B. Remove visible adhesive and other surface blemishes using cleaning methods recommended by resilient flooring manufacturer. Sweep and vacuum floor. Do not wash floor until after time period recommended by resilient flooring

manufacturer. Damp-mop to remove black marks and soil.

- C. Protect installed flooring finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of Substantial Completion.
- D. Execute initial maintenance procedures after flooring installation as recommended by flooring manufacturer.
- E. Expose installed linoleum to either natural or artificial light to allow "drying" (the yellow film is a natural occurrence of the oxidation of the linseed oil in linoleum products) on installed linoleum flooring to disappear prior to initiating temporary protection procedures.

END OF SECTION

- B. Store and protect materials under provisions of Section 01620.
 - 1. Store adhesives at working temperatures per label instruction. Do not begin installation until a sufficient quantity of materials to complete all spaces is received.
 - 2. At earliest opportunity, open packaging and visually inspect sufficient carpet material to detect obvious deviations from required material including:
 - a. face yarn color
 - b. pattern
 - c. type of construction
 - d. backing type
 - e. pile height
 - f. gauge or pitch
 - g. stitches per inch
 - 3. Replace packaging and report deviations to Owner's Representative at time of detection.

1.05 MAINTENANCE DATA

- A. Submit maintenance manual under provisions of Section 01730.
- B. Maintenance Manual: Printed maintenance manual written by carpet manufacturer's technical service department. Submit two hard covered copies to Owner's Representative.
- C. Furnish as-built shop drawings indicating direction of lay and locations of all seams. (especially cross seams).

1.06 EXTRA MATERIALS

- A. Furnish extra stock under provision of Section 01750.
- B. Maintenance materials: Furnish for replacement and maintenance five percent overrun of carpet used on Project and sufficient specified adhesive to apply overrun of carpet.
 - 1. Overrun on full width, uncut rolls.
 - 2. Upon delivery of carpet, furnish verification of total yardage delivered by mill showing exact amount of overrun.
 - 3. In addition, carpet remnants larger than one foot square shall be bundled (carpet remnants larger than four foot square shall be rolled), tied, marked for size and delivered in accordance with Owner Representative's directions.

1.07 GUARANTEE

- A. Furnish manufacturer's written Lifetime of Carpet guarantee under provisions of Section 01740.

- B. Furnish services required to correct material or installation defects at no additional cost to Owner for a period of five years after date of final acceptance.
- C. Guarantee carpeting for Lifetime of Carpet against wear.

1.08 JOB CONDITIONS

A. Environmental Requirements:

1. Maintain minimum temperature of 70 degrees F to 85 degrees F and humidity of 20 percent to 40 percent three days before, during, and four days after installation of carpet.
 - a. Following this period maintain minimum room temperature at not less than 55 degrees F and humidity conditions similar to those normally expected to exist when occupied by Owner.
 - b. Sequencing: Do not install carpet until work of acoustical ceilings, resilient flooring and fixed casework is complete.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. General: Following products are for general reference only and are subject to compliance with specified requirements.
- B. Manufacturer: MOHAWK COMMERCIAL
- C. Substitutions: Under provision of Section 01630.

2.02 MATERIALS

- A. Mohawk "SIENA MCO22"

STYLE NAME	Siena
PRODUCT TYPE	Broadloom
COLOR	546 Laguna
CONSTRUCTION	Ultra Performance System
SURFACE APPEARANCE	Textured Patterned Loop
NYLON TYPE	Antron® Lumena SD Nylon
GAUGE	1/12 (47.00 rows per 10 cm)
PILE WEIGHT	28.0 oz. per sq. yd. (949 g/m ²)
PILE THICKNESS	.141" (3.58 mm)
STITCHES PER INCH	11.0 (43.31 per 10 cm)
DYE METHOD	Solution Dyed
PROTECTIVE TREATMENT	DuraTech® Soil Release Technology
DENSITY	7,149
WEIGHT DENSITY	200,172

PRIMARY BACKING	Not Applicable
BACKING FOUNDATION	Composite Foundation
SECONDARY BACKING	None
PATTERN REPEAT	18" (W) x 20.4" (L)
WIDTH	12' (3.66 m)
FLAMMABILITY	ASTM E 648 Class 1 (Glue Down)
SMOKE DENSITY	ASTM E 662 Less than 450
STATIC PROPENSITY	AATCC-134 Under 3.5 KV
IAQ GREEN LABEL	40904952
WARRANTIES	Lifetime Ultra Performance System Warranty, Lifetime Static

- B. Gripper Tape: As recommended by manufacturer and approved by Owner's Representative, to allow flush, tight joining of rolls and pieces.
- C. Edge & Divider Strips: Vinyl, of shapes and sizes indicated, and as appropriate to condition of use where not otherwise indicated. Include accessories as detailed and required. Coordinate installation of edge strips with edge strips specified under Section 09650.
 - 1. At Vinyl Composition Tile and Sheet Vinyl: Mercer Plastics Co. Model 150; Johnsonite Model CE-XX-B x CDB-XX-B; Roppe #153 X 155, or equal.
 - 2. At changes in direction of carpet and other locations: As shown, or as otherwise appropriate to condition of use.
- D. Sub-Floor Filler: White premix latex, mix with water to produce cementitious paste.
- E. Primers and Adhesives: Carpet and seam adhesives; "NU BROADLOK PREMIUM PLUS". Apply per manufacturers recommendations.
- F. Edge Sealer: "NU BROADLOK" EDGE SEALER. Apply per manufacturers recommendations.
- G. Solvent: Acceptable to carpet manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Carefully check all field conditions, measurements and dimensions of areas to receive carpet to assure proper fit.
- B. Clean floors of dust, dirt, solvents, oil, grease, paint, plaster, and other substances detrimental to proper performance of adhesive and carpet. Allow floors to thoroughly dry.

- C. Ensure floors are level, with maximum surface variation of 1/4 in. in 10 ft. noncumulative.
- D. Ensure concrete floors are free from scaling and irregularities and exhibit neutrality relative to acidity and alkalinity.
- E. Use an approved cementitious filler to patch cracks, small holes, and for leveling.
- F. Do not proceed with installation until unsatisfactory conditions have been corrected.
- G. Prohibit traffic until filler has cured.
- H. Vacuum floor surface.
- I. Coordinate with installation of resilient base specified under Section 09651.

3.02 CARPET LAYOUT

- A. Layout in accordance with reviewed layout drawings and as supplemented below.
- B. Layout rolls of carpet. Verify carpet edge match before cutting to ensure minimal color variation. Minimize number of carpet seams.
- C. Do not locate seams at high traffic pivot points, and perpendicular to doors.
 - 1. Locate seams at doorways parallel to and centered directly under doors in closed position.
 - 2. Neatly cut and securely fit cutouts at interruptions.
- D. All carpet shall be laid out with the seams in the same north-south direction.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's installation instructions, reviewed layout drawings and as supplemented below.
- B. Apply primer in recommended manner in quantity recommended by manufacturer, and as required by adhesive manufacturer to ensure proper adhesion.
- C. Spread adhesive in quantity recommended by manufacturer after primer application where required by adhesive manufacturer to ensure proper adhesion over full area of installation. Apply only enough adhesive to permit proper adhesion of carpet before initial set. Roll lightly to eliminate air pockets and ensure uniform bond.
- D. Double cut carpet as required for intended butt seam and pattern match. For length seams, cut carpet seams between two rows of yarn for full length of

seam, making sure not to jump over either side yarn. Make cuts straight, true to lines and unfrayed.

- E. Fit seams straight, not crowded or peaked, free of gaps. Treat seams with seam adhesive.
- F. Install edge strips at intersections of differing flooring materials, where carpet changes directions and at exposed edges where carpeting terminates, full length pieces only. Butt ends tight to vertical surfaces. Where splicing cannot be avoided, butt ends tight and flush. Miter corners where required and fit joints tightly. Provide edge moldings at junctions with other interruptions and where shown.
- G. Scribe carpeting to walls, columns, cabinets, floor outlets and other appurtenances to produce tight joints. Fit tight to vertical surfaces without gaps where no base is scheduled.
- H. Do not place heavy objects such as furniture on carpeted surfaces for minimum of 24 hours or until adhesive is set.
- I. Entire carpet installation is to be laid tight and flat to substrate, well adhered, and present a uniform pleasing appearance. Ensure monolithic color, pattern, and texture match within any one area.

3.04 PROTECTION

- A. Prohibit traffic from carpeting for 24 hours after installation, and do not place heavy objects such as furniture on carpet surfaces until at least seven days after installation.

3.05 CLEANING

- A. Immediately remove with solvent all adhesive spots and smears from carpet and adjacent exposed surfaces as they occur. Remove excess adhesive from floor, wall and base surfaces without damage.
- B. Remove from site all rubbish, wrapping paper, selvages and debris.
- C. Thoroughly vacuum clean carpet. Protect from soiling and construction damage until accepted by Owner under provisions of Sections 01620 and 01710. Package and deliver remnants as specified above.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Prepare surfaces to receive finish.
2. Finish surfaces as indicated in schedule at end of this Section.

B. Related Work in Other Sections:

1. Joint Sealers Section 07900

1.02 QUALITY ASSURANCE

- A. Container labels shall include manufacturer's name, type of paint, stock number, color, label analysis, and where applicable instructions for reducing.

1.03 MOCKUP

- A. Before proceeding with paint application, finish one complete surface of each color scheme required, clearly indicating selected colors, finish texture, materials, and workmanship. For spray application, paint surface not smaller than 100 sq.ft. as Project standard.
- B. If accepted, sample area will serve as a minimum standard for work throughout Work.

1.04 SUBMITTALS

- A. Submit materials list, product data, samples and manufacturer's instructions under provisions of Section 01340.
- B. Submit manufacturer's product data on each paint material used on project.
- C. Prepare 12 in. x 12 in. samples of finishes when requested by Owner. Transparent finishes on solid lumber may be 4 in. x 8 in. When possible, apply finishes on identical type materials to which they will be applied on job.
- D. Identify each sample as to finish, formula, color name and number, sheen name, and gloss units.
- E. Colors selected by Owner prior to commencement of work.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver paint materials under provisions of Section 01610 in sealed original labeled container.

- B. Store and protect materials under provisions of Section 01620. Provide adequate storage facilities. Store paint materials at minimum ambient temperatures of 45 degrees F in well ventilated area.
- C. Take precautionary measure to prevent fire hazards and spontaneous combustion.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture contents of surfaces are below following maximums: Refer to Section 01500.
 - 1. Plaster and gypsum wallboard: 12 percent.
 - 2. Concrete and Concrete Masonry Units: 12 percent.
 - 3. Interior Located Wood : 12 percent
 - 4. Exterior Located Wood: 19 percent
- B. Ensure surface temperatures or the surrounding air temperature is above 45 degrees F before applying finishes. Minimum application temperatures for latex paints for interior work are 60 degrees F and 50 degrees F for exterior work. Minimum application temperature for varnish finishes is 75 degrees F.
 - 1. Do not paint exterior surfaces after September 30th unless surrounding are temperature is above 45 degrees F.
- C. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 45 degrees F, and 75 degrees F, as applicable, for 24 hours before, during and 48 hours after applications of finishes.
- D. Provide minimum 25 foot candles illumination on surfaces to be finished.

1.07 MAINTENANCE DATA

- A. Submit maintenance data under provisions of Section 01730.
- B. Indicate cleaning methods, cleaning solutions recommended, and stain removal methods recommended.

1.08 EXTRA STOCK

- A. Furnish extra stock under provisions of Section 01750. Leave on premises, where directed by Owner, not less than on gallon each type and color used.
- B. Tightly seal and clearly label containers for identifications.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. ICI Paints
- B. Fuller-O'Brien Corporation
- C. Glidden Coatings and Resins
- D. PPG Industries, Inc.
- E. Pratt and Lambert, Inc.
- F. Parker Paints
- G. Clorox Corporation/Olympic
- H. MINWAX
- I. Columbia Paints
- J. Substitutions: Under provisions of Section 01630.

2.02 PAINT AND ENAMEL MATERIALS

- A. Paint and Enamel: Type and brand listed as manufactured by ICI Paints, unless otherwise noted.
 - 1. Owner's review of other acceptable manufacturer's products may include reference to "Architectural Specification Manual" published by Specifications Services and the Washington State Council Painting and Decorating Contractors of America. Provide first line materials.
- B. Paint Accessory Materials: Linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finishes specified shall be of high quality and acceptable manufacturer.
- C. Paint: Ready-mixed except field catalyzed coatings. Pigments fully ground maintaining a soft paste consistency, readily and uniformly dispersed to complete homogeneous mixture.
- D. Paint shall have good flowing and brushing properties and dry or cure free of streaks and sags.

2.03 FINISHES

- A. Refer to surface finish schedule at end of this Section.
- B. Provide finish for all exposed materials factory primed or unfinished, unless specifically stated as not requiring finish.

PAINT SYSTEMS

(Based on ICI Paints Reference #'s, unless otherwise noted)

INTERIOR PAINT SYSTEMS

On Gypsum Wallboard (IPS 20)

One Coat ICI No. 1260 Ultra Hide Airless High Build Latex Flat Primer/Finish
Two Coats ICI No. 1407 Ultra Semi-Gloss Interior Acrylic Wall and Trim
Enamel

On Ferrous and Galvanized Metal Surfaces:

One Coat ICI Devor Coatings No. 4160 Devguard Primer
One Coat ICI No. 1120 Ultra-Hide Oil/Alkyd Interior Wood Undercoater
Two Coats ICI Dulux No. 1512 Semi-gloss oil base Enamel

Softwood Trim:

One Coat ICI No. 1120 Ultra-Hide Oil/Alkyd Interior Wood Undercoater
Two Coats ICI No. 1516 Ultra-Hide Interior Wall and Trim Enamel

Concrete Floors:

Two Coats "Acrylseal" 20% or equal

EXTERIOR PAINT SYSTEMS

Galvanized and Ferrous Metal Surfaces:

One Coat ICI Devoe Coatings No. 4160 Devguard Primer
Two Coats ICI No. 2406 Dulux Professional Exterior Semi-Gloss Finish

Striping:

1st Coat: White Traffic Paint
1 Coat Blue Traffic Paint @ Handicap parking

PART 3 EXECUTION

3.01 INSPECTION

- A. Thoroughly examine surfaces scheduled to be painted prior to commencement of work. Report in writing to Owner, conditions that may potentially affect proper application. Do not commence until such defects have been properly corrected.
- B. Properly correct defects and deficiencies in surfaces which may adversely affect work of this Section.
- C. Beginning of installation means installer accepts existing substrates.

3.02 PROTECTION

- A. Adequately protect other surfaces from paint and damage. Repair damage resulting from inadequate, and unsuitable protection.
- B. Use sufficient drop cloths, shields, and protective equipment to prevent spray and droppings from fouling surfaces not being painted, surfaces within storage and preparation area.
- C. Place cotton waste, cloths, and material which may constitute fire hazards, in closed metal containers and remove daily from site.
- D. Prior to painting operations, remove electrical plates, surface hardware, fittings and fastenings. Carefully store, clean, and replace on completion of work in each area. Do not use solvent to clean hardware with permanent lacquer finish.

3.03 PREPARATION

- A. Remove mildew, by scrubbing with solutions of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry completely.
- B. Remove contamination from gypsum board surfaces and prime to show defects, if any. Paint after defects have been remedied.
- C. Remove surface contamination and oils from zinc coated surface and prepare for priming in accordance with metal manufacturer's recommendations.
- D. Remove dirt, loose mortar, scale, powder and other foreign matter from concrete and unit masonry surfaces to be painted. Remove oil and grease with solutions of tri-sodium phosphate; rinse well and allow to thoroughly dry.
- E. Remove grease, rust, scale, dirt, and dust from steel and iron surfaces. Where heavy coatings of scale are evident, remove by wire brushing, sandblasting, or other necessary method. Ensure steel surfaces are satisfactory before painting.
- F. Clean unprimed steel surfaces by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Prime surfaces to indicate defects. Paint after defects have been remedied.
- G. Sand and scrape shop primed steel surfaces to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- H. Galvanized Metals:
 - 1. Solvent clean with toluol, xylol, or lacquer thinner to remove oils, grease and other contaminants. Do not use paint thinner or turpentine.

2. Use phosphoric acid based, etching type, surface treatment compatible with painting system materials. Follow surface treatment manufacturer's instructions.
 3. Where conditions require, use strong acid treatment or sand blasting to prepare galvanized surfaces scheduled to receive paint finish.
- I. Wipe off dust and grit from miscellaneous wood items and millwork prior to priming. Sand wood, scheduled to receive transparent finish, to unblemished condition. Visible sanding scratches are unacceptable. Spot-coat knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried, and sand between coats. Remove factory applied sealers containing wax from glue laminated members finished under this Section by solvent wiping and sanding before coating. Back prime interior and exterior woodwork.

3.04 APPLICATIONS

- A. Apply products in accordance with manufacturer's instructions.
- B. Apply each coat to uniform finish, at proper consistency.
- C. Tint each coat of paint slightly darker than preceding coat unless otherwise accepted by Owner's Representative .
- D. Sand lightly between coats to achieve required finish.
- E. Do not apply finishes on surfaces not sufficiently dry.
- F. Allow each coat of finish to dry before applying following coat, unless directed otherwise by manufacturer.
- G. Where clear finishes are required, tint fillers to match wood. Work fillers well into grain before set. Wipe excess from surfaces.
- H. Prime top and bottom edges of hollow metal doors with enamel undercoat.
- I. Prime back surfaces of interior and exterior woodwork with primer paint.
- J. Prime back surfaces of interior wood work scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.
- K. Colors:
 1. Anticipate maximum 3 field colors and 4 accent colors for paint and enamel systems.
 2. Anticipate maximum 3 field colors and no accent colors for epoxy paint systems. Refer to Section 09650 for gym floor striping.
 3. Anticipate maximum 1 field color and no accent colors for each of the other paint and stain systems.

3.05 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Remove grilles, covers, and access panels for mechanical and electrical systems for locations and paint separately.
- B. Finish paint primed equipment to color selected.
- C. Paint interior surfaces of air ducts, convactor and baseboard heating cabinets visible through grilles and louvers with one coat flat black paint, to limit of sight line.
 - 1. Paint dampers exposed immediately behind louvers, grilles, convactor and baseboard cabinets to match face panels.
- D. Paint both sides and edges of plywood backboards for electrical equipment before installing backboards and mounting equipment.
- E. Paint electrical panel boards and frames. In locations other than electrical/mechanical rooms, paint color to match adjacent wall surfaces.

3.06 CLEANING

- A. As work proceeds and upon completion, promptly remove paint spills, splashes, and spatters.
- B. During progress of work keep premises free from unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Upon completion of work leave premises neat and clean.

END OF SECTION

SECTION 10522 FIRE FIGHTING DEVICES, CABINETS, AND ACCESSORIES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included:
Location and types of fire fighting devices are shown in the Drawings. Included are fire extinguishers, cabinets and mounting accessories.
- B. Related Work Described Elsewhere:
 - 1. Reinforced Unit Masonry: Section 04230
 - 2. Gypsum Wallboard: Section 09250
 - 3. Painting: Section 09900
- C. References:
 - 1. Aluminum Association(AA): Finish designations.
 - 2. National Fire Protection Association (NFPA): 10 Portable Fire Extinguishers.

1.02 QUALITY ASSURANCE

- A. Conform to NFPA 10 requirements for extinguishers.

1.03 SUBMITTALS

- A. Submit product data and installation instructions under provisions of Section 01340.
- B. Include physical dimension, operational features, color and finish, wall mounting brackets with mounted measurements, anchorage details, rough-in measurements, location, and details.

1.04 OPERATION AND MAINTENANCE DATA

- A. Submit manufacturer's operation and maintenance data under provisions of Section 01730.
- B. Include test, refill or recharge schedules, procedures, and re-certification requirements.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not install extinguishers when ambient temperatures may cause freezing.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. J.L. Industries
- B. Larsen's Manufacturing Co.
- C. Potter-Roemer
- D. Substitutions: Under provisions of Section 01630.

2.02 MATERIALS

A. Fire Extinguishers:

Dry Chemical Type: Steel tank, Larsen Model MP10 with pressure gage, 4A-60BC. UL listed and labeled.

B. Cabinets:

Semi-recessed type with vertical duo panel door and manufacturer's standard AA Architectural Class 1 anodized finish, color as selected. Larsen's 2409-6R with float glass.

C. Brackets:

Wall Mounted Brackets: Heavy gauge steel with white baked enamel finish, of same manufacturer as extinguisher. Larsen's model B-2.

2.03 OTHER MATERIALS

- A. Provide all other materials, not specifically described, but required for a complete and proper installation of fire fighting devices, as selected by the Contractor, and subject to the approval of the Owner's Representative.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify rough openings for cabinets are correctly sized and located.
- B. Beginning of installation means installer accepts existing conditions.

3.02 INSTALLATION

- A. Install cabinets and brackets plumb and level in wall openings as shown, or if not shown, at 54 in. from finished floor to top of extinguisher.
- B. Secure rigidly in place in accordance with manufacturer's instructions.
- C. Install extinguishers fully charged and operable.
- D. Wrap gypsum board behind recessed cabinet in one-hour walls.

END OF SECTION

SECTION 10800 TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Provide toilet and bath accessories listed herein.
2. Attachment Hardware.

B. Related Work Described Elsewhere:

- | | |
|------------------------------|---------------|
| 1. Ceramic Tile Wall Finish | Section 09312 |
| 2. Toilet Partitions | Section 10165 |
| 3. Miscellaneous Specialties | Section 10925 |

C. REFERENCES

1. American Society for Testing and Materials (ASTM):
 - a) A167-84 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
 - b) A366-72 (1979) Cold-Rolled Carbon Steel Sheets, Commercial Quality.

1.02 SUBMITTALS

- A. Submit manufacturers' product data and installation instructions under provisions of Section 01340.
- B. Data to illustrate each accessory at large scale and show installation method.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver accessories to site until rooms in which they are to be installed area ready to receive them.
- B. Pack accessories individually in a manner to protect accessory and its finish.

1.05 PROTECTION

- A. Protect adjacent of adjoining finished surfaces and work from damage during installation of work of this Section.

PART 2 PRODUCTS

2.01 SCHEDULE OF ACCESSORIES

- A. Toilet Paper Dispensers: American Specialties Inc. Model # 0030
- B. Mirrors: 48x36 & 24x36 American Specialties Inc. Model #0620
- C. Grab Bars: American Specialties Inc. Model 3100-Type 56

PART 3 EXECUTION

3.01 PREPARATION

- A. Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Provide templates and rough-in measurements as required.
- B. Before starting work notify Owner's Representative in writing of any conflicts detrimental to installation or operation of units.
- C. Verify with Owner's Representative exact locations of accessories.

3.02 INSTALLATION

- A. Install fixtures, accessories and items in accordance with manufacturer's instructions.
- B. Install true, plumb, and level, securely and rigidly anchored to metal studs or other solid backing.
- C. Use tamper-proof fasteners.
- D. Lock grab bars to concealed mounting plate installed in wall; anchor to withstand 200 lbs. downward pull.

END OF SECTION

SECTION 10925 MISCELLANEOUS SPECIALTIES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included:
 - 1. Items scheduled under PART 2 Products.
- B. Related Work Described Elsewhere:
 - 1. Acoustical Ceilings Section 09510
 - 2. Steel Doors and Frames Section 08111

1.02 SUBMITTALS

- A. Submit product data, samples, shop drawings and manufacturer's installation instructions under provisions of Section 01340.
- B. Provide above submittals on each item scheduled under Products.
- C. Indicate framing system, sizes and spacing of hangers, braces, and components, loads, bearing and anchor details of ceiling hooks. Submit design calculations signed by professional engineer experienced in structural framing design of metal components.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Deliver products of this Section in individual packages, under provision of Section 01610.
- B. Protect products of this Section from damage or disfiguration, under provisions of Section 01620.
- C. Mask off products of this Section to protect from over spray or finishing of adjacent surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Listed under each scheduled item.
- B. Substitutions: Under provisions of Section 01630.

2.02 MATERIALS

- A. CORNER GUARDS: Equal to 1 1/2" IPC Tape on Vinyl Cornerguards; 4 ft. tall on all external corners of all gypsum board wall construction. Color as selected.

KLUGE & ASSOCIATES, ARCHITECTS

- B. JANITOR MOP AND TOOL HOLDERS: Similar and equal to Bobrick Washroom Equipment, Inc. Model B-239; shelf 18 ga. stainless steel, satin finish; 8 in. deep; Rubber mop holders: 44 in. long, 4 holders, 5 hooks; included one unit for each janitor's closet. Secure holders to wall with tamper-proof fasteners. Mount shelf at 6 ft. above floor.
- C. HANDICAP PARKING – Handicap parking signage, provide Mohawk, or equal, Exterior Graphic Signage, 4'-0" high above grade to bottom of signs. Provide Series 400 scotchlite letters with symbols of accessibility at handicap parking spaces. Signs shall have "Handicap Parking Only" text. Provide 1 3/4" x 1 3/4" x 1/8" x 7'0" Black Duranodic Aluminum post set in 8" dia. X 3'-0" sono formed concrete footing. Submit shop drawings per Section 01340.
- D. Substitutions: Under provisions of Section 01630.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install miscellaneous specialty items plumb and level, conforming with manufacturer's installation requirements, in accordance with reviewed shop drawings.

3.02 PROTECTION

- A. Protect installed items in accordance with Section 01500.

END OF SECTION

SECTION 12302

MODULAR CASEWORK

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included:
1. Shop fabricated, plastic laminate covered wood casework with hardware.
 2. Prefinished surfaces.
 3. Countertops.
 4. Prepared for utilities.
 5. Casework installation.
- B. Related Work Described Elsewhere:
- | | |
|--------------------------------|---------------|
| 1. Wood Blocking and Curbing | Section 06114 |
| 2. Finish Carpentry | Section 06200 |
| 3. Door Hardware | Section 08700 |
| 4. Miscellaneous Specialties | Section 10925 |
| 5. General Provisions | Section 15010 |
| 6. Plumbing Fixtures and Trim | Section 15400 |
| 7. Air Distribution | Section 15600 |
| 8. Basic Methods and Materials | Section 16100 |
- C. References:
1. American National Standards Institute (ANSI): A208.1-1979 Mat-Formed Wood Particleboard.
 2. Architectural Woodwork Institute (AWI): Quality Standards 1985 Edition.
 3. Commercial Standards (CS): 35 Adhesives.
 4. Federal Specifications (FS) :
 1. MM-L-736 Lumber, Hardwood.
 2. MMM-A-130 Adhesive, Contact.
 5. National Electrical Manufacturer's Association (NEMA) : LD3-1980 High Pressure Decorative Laminates.
 6. Voluntary Product Standard (PS) :
 - a. 1 Construction and Industrial Plywood
 - b. 20 American Softwood Lumber Standards
 - c. 51 Hardwood and Decorative Plywood
 - d. 58 Basic Hardboard.
 7. American Society for Testing and Materials (ASTM) : A525-83 Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip process.

1.02 QUALITY ASSURANCE

- A. Perform work to custom quality in accordance with "Quality Standards" of the Architectural Woodworking Institute (AWI).
- a. Laminate Clad Cabinets: AWI Section 1600.
 - b. Laminate Clad Tops: AWI Section 1600, Division C.
- B. Furnish all modular casework by one manufacturer.

1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01340.
- B. Include materials, components profiles, fastening methods, assembly methods, joint details, hardware, accessory listings, and schedule of finishes.
- C. Submit color samples under provisions of Section 01340.
- D. Submit samples 6 in. by 6 in. illustrating selected colors, patterns and finishes.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and protect wood materials under provisions of Section 01610 and 01620.
- B. Store indoors, in ventilated areas with constant minimum temperature of 60 degrees F and maximum relative humidity of 55 percent.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. General: All cabinetry and casework illustrated in drawings shall meet the following construction standards. Following products are for general reference only and are subject to compliance with specified requirements.
- B. Westmark Products: Series: 200 or equal shop built.
- C. Substitutions: Under provision of Section 01630.

2.02 WOOD MATERIALS

- A. Softwood Lumber: PS 20 graded in accordance with AWI. Maximum moisture content 12 percent.
- B. Hardwood Lumber: FS MM-L-736 graded in accordance with AWI. Maximum moisture content 12 content.

2.03 SHEET MATERIALS

- A. Softwood Plywood: PS 1 graded in accordance with AWI, particleboard core.
- B. Wood Particleboard: ANSI A208.1 mat-formed, 3 ply board of balanced construction, minimum Grade 1-M-3; 3/4 in. core (plus overlay thickness); 8 percent maximum moisture content.
 - 1. 45 lb./cu. ft. density particleboard, and face screw holding minimum 300 lb. withdrawal, except for hinged cabinet doors use 50 lb. cu. ft. density or Grade 1-H-3 with face screw holding minimum 350 lb. withdrawal.

2. Optional: Monolithic flakeboard, 3 ply board of balanced construction, outer layers of wood flakes. Provide 45 lb./cu ft density with face screw holding minimum 350 lb. withdrawal, surface hardness of 900 psi.
 3. Provide with resin binder, water-soluble glues and binders not acceptable; 8 percent maximum moisture content.
- C. Hardboard: PS 58 or CS 251; pressed wood fiber with resin binder; tempered grade, smooth on non-concealed surfaces. Prefinished, 1/4 in. thick minimum or as otherwise indicated, color matched to interior.
- D. Provide 3/4" Medex core material at all countertops with sinks

2.04 LAMINATE MANUFACTURERS

- A. Wilsonart Laminate
- B. Formica Corporation
- C. Nevamar Corporation
- D. Substitutions: Under provisions of Section 01630.

2.05 LAMINATE MATERIALS

- A. Plastic Laminate: NEMA LD3, general purpose type, except post forming grade for curved countertops and where forming is required, colors as specified.
1. Horizontal surfaces: GP 50 and PF 43.
 2. Vertical surfaces and horizontal non-work surfaces: GP 28.
- B. Laminate Backing Sheet: NEMA LD3 BK20 backing grade, undecorated plastic laminate.
- C. Laminate Color:
1. LAM-1: 4793-60 Windswept
 2. LAM-2: 6301 (416) Florentine
 3. LAM-3: 4587-07 Blue Topaz
 4. LAM-4: 4812-60 Radium Ev.

2.06 ACCESSORIES

- A. Adhesives:
1. Contact Adhesive: FS MMM-A-130, type recommended by accepted laminate manufacturer to suit application.
 2. Joint Adhesive: CS 35, Type 1 waterproof.

KLUGE & ASSOCIATES, ARCHITECTS

- B. Plastic Edge Trim: Heavy duty extruded 2 mm p.v.c., machine applied with waterproof hot-melt adhesive; 1/8 in. radius, all corners. Color as selected.
- C. Fasteners: Size and type to suit application.
- D. Trim, Fillers, Closures, Stands, Supports, Sleeves, Collars, Escutcheons, Ferrules, Brackets, Braces, and Other Miscellaneous Items: Manufacturer's standard of size and type to suit application, and consistent with casework design, except provide specified size and type where indicated.
- E. Vented Base: Modify casework construction and provide accessories as shown.
- F. Galvanized Steel Sheet: ASTM A525, G60 zinc coating, gage of core steel shown.
 - 1. Adhesive for application of galvanized sheet to casework backs and bottom, and to gypsum wallboard: Similar and equal to 3M's Fast-Bond 30.

2.07 HARDWARE

- A. General: Comply with the requirements of ANSI/BHMA A156.9 and A156.11 and the following:
- B. Finish: US26D
 - 1. Concealed Hinges for flush doors. Three hinges required on doors over 48 in. tall.
 - 2. Drawer and door pulls: 5/16 in. diameter stainless steel wire, 3-1/2 in. screw center, 1 in. finger clearance, through-bolted from back side. Optional: Injection molded A.B.S. semi-flush recessed plastic glued in place. Use of option permitted only with subfront panel.
 - 3. Cabinet Locks: Furnished under Section 08700.
 - 4. Catches: Heavy duty, magnetic, 7 lb. pull; BHMA B43172.
 - 5. Drawer Slider: European style bottom mounted drawer slides, cold-rolled steel, zinc-plated, sized for minimum 75 lb. loads minimum (for drawers up to 6 in. high) and sized for 150 lb. loads and full extension (for drawers 6 in. high and over) load capacity side mount ball bearing rollers. Optional: BHMA B85062, sized as above. Manufacturer's standard baked enamel finish, off white color.
 - 6. Adjustable recessed shelf brackets: 16 gauge steel ANO Double-Slot Standard equal to Knapp and Vogt KV85 standard with KV185 support. Screw attach shelving to brackets typical.

2.08 FABRICATION

- A. Casework numbers referenced on Drawings refer to Westmark Series 200. Other approved manufacturers shall provide products of equivalent function, complying with Contract Documents.
- B. Construction: AWI flush or reveal overlay or flush inset (without face frame)
 - 1. Provide base cabinets with separate continuous or unit base raised off floor minimum 1/4 in. For unit cabinet construction, provide 1/8 in. thick hardboard continuous across adjacent cabinets, attached to toeboards. Provide special construction as detailed for continuous vented bases where indicated.
 - 2. Cabinet bottom, drawer fronts and doors; body member panels: 3/4 in. minimum thickness. 24 in. maximum width, 60 in. maximum height.
 - 3. Cabinet backs and drawer bottoms: Minimum 1/4 in. hardboard or optional minimum 1/2 in. particleboard.
 - 4. Drawer sides, backs and optional subfronts: 5-ply plywood. Particleboard not acceptable, except 3/4 in. front, subfront, and backs and 1/2 in. particleboard sides may be used in conjunction with European style bottom mount drawer slides.
- C. Field verify dimensions prior to fabrication.
- D. Assemble casework for delivery to site in units easily handled and permitting passage through building openings. Coordinate fabrication with built-in equipment dimension requirements.
- E. Fabricate adjustable shelves of 3/4 in. thick particleboard for spans up to 36 in., 1 in. thickness for spans up to 48 in. GP28 plastic laminate, polyester or melamine finish on top and bottom surfaces. Leading edge finished with .024 pvc to match interior color.
- F. Door and Drawer Fronts: GP28 plastic laminate cladding on front and back surfaces. Fit shelves, doors, and exposed edges with plastic edging. Use full length, wrap-around pieces only.
- G. When necessary to cut and fit on site, provide materials with amply allowance for cutting. Provide plastic laminate clad trim for scribing and site cutting.
- H. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Make corners and joints hairline.
 - 1. Slightly bevel arises.
 - 2. Locate counter butt joints minimum 24 in. from sink cutouts.
 - 3. Cap exposed plastic laminate edges with plastic edge trim.
- I. Joinery and Fastening of case body members:
 - 1. Fixed case body members (shelves, bottoms, tops, and rails which are fastened to sides, ends and dividers) shall be joined using concealed dado, dowel or screwed construction, or interlocking mechanical fasteners.

Where concealed dado and dowel methods are employed, cases shall be assembled utilizing glue and pressure. Dado and dowel methods shall be reinforced with blind nailing or screwing. Screw methods shall utilize #6 x 2 in. deep threaded screws.

2. Nails, screws or other fastenings shall not be visible on exposed surfaces. On semi-exposed surfaces, mechanical fasteners may be visible, but they shall be color coordinated.
 3. Rails, spreaders or top panels shall be provided where case will have a separate top when required to conceal fastening of separate top.
- J. Counter tops: Manufacturer's standard butt splash tops, except rolled and coved splash tops on countertops where indicated. 4 in. splash unless otherwise noted or shown. Provide 3/4 in. radius rolled edge tops where indicated, and square edges tops where indicated.
1. Nominal thickness 3/4 in. , excluding rails.
 2. Use PF 42 plastic laminate for rolled edged and GP50 plastic laminate for square edged tops. Self edge exposed square edged countertop edges with GP 50 plastic laminate material of same finish and pattern.
 3. Tops shall have plastic laminate balancing sheet, minimum .020 in. thickness.
 4. Mechanically fasten splashbacks to countertops with screws at maximum 16 in. on center.
 5. Back splashes shall have back side laminated with a laminated backing sheet and bottom of splash shall be sealed with and set in a full bed of silicone sanitary sealant as specified in Section 07900.
 6. Where indicated provided back splashes with cove at connection to countertop and roll with scribe strip at junction with wall. Provide applied square edged splash returns at side walls coped to fit coved and rolled back splash and laminate finished ends.
 7. Edge banding on square edged tops shall be applied after face surfaces.
 8. Joints required for continuous runs or corners shall be shop prepared for bolt-type joint fasteners.
- K. Except as otherwise noted, apply laminate backing sheet to reverse side of plastic laminate finished surfaces. Apply in same machine direction in both faces.
1. Interior exposed and semi-exposed surfaces, exterior tops of wall and tall cabinets, and exterior bottoms of wall cabinets: High pressure laminate liner, 60 percent polyester laminate or melamine laminated panels. Vinyl overlays not acceptable. Backs and drawer bottoms may be painted.

2. Exterior concealed surfaces: Balanced and sealed with phenolic overlay, (for polyester), or polymer treated kraft paper (for high pressure liner).
 3. Interior concealed surfaces shall be finished with a balancing sheet.
 4. Laminated components edges: Minimum 2mm thick extruded PVC, color throughout, bonded with waterproof hot melt adhesive; for doors, drawers and end panels. Subtops, bottoms and shelves shall be edged with .024 PVC.
- L. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal contact surfaces of cut edges.
- M. Unless otherwise indicated, mechanically fasten splashbacks to countertops with screws at maximum 16 in. o.c.
- O. All cabinets except sink bases to have full subtops, or optional 3/4 in. x 4 in. plywood spreaders front and back.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and openings are ready to receive work and field measurements are as shown on shop drawings. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical and building items are in place and ready to receive work of this Section.
- C. Beginning of installation means installer accepts conditions of existing substrates.

3.02 INSTALLATION

- A. Install work in accordance with AWI custom quality standards. Set and secure casework in place rigid, plumb and level.
- B. Use purpose-designed fixture attachments at concealed locations for wall mounted components.
- C. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units and countertops.
- D. Carefully scribe casework which is against other building materials, leaving gaps of 1/16 in. maximum. Do not use additional overlay trim for this purpose.
- E. Secure cabinet and counter bases to floor using appropriate angles and anchorage's.

KLUGE & ASSOCIATES, ARCHITECTS

- F. Counter-sink anchorage devices at exposed locations used to wall-mount components, and conceal with solid plugs to match surrounding wood. Finish flush with surrounding surfaces.
- G. Secure cabinet to walls with screws at both top and bottom as required to prevent fillers and scribes from opening should settling or other substrate movement occur.
- H. Install continuous 1/8 in. thick hardboard kickboard cover on base of casework units built on unit principle, closely fitted to underside of casework bottoms and not more than 5/16 in. above substrate for floor covering.
 - 1. Located joints over solid backing.
 - 2. Set nails flush and leave ready to receive scheduled base specified in Division 9.
- I. Provide all trim, fillers, closures, stands, supports, sleeves, collars, escutcheons, ferrules, brackets, braces, and other miscellaneous items as indicated, and as required for complete installation.

3.03 ADJUSTING AND CLEANING

- A. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly and correctly.
- B. Clean casework, counters, shelves, hardware, fittings and fixtures. Thoroughly vacuum clean interiors of drawers and cabinets. Clean, lubricate and adjust hardware.
- C. Provide protection and maintain conditions in manner to ensure casework is without damage or deterioration at time of Substantial Completion.

3.4 TOLERANCES

- A. Variation from True Position: 1/16 in.
- B. Offset from True Alignment with Abutting Materials: 1/32 in.

END OF SECTION