

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of **standard steel doors and frames** is indicated and scheduled on drawings.

See drawings for louvered HM exterior access door to steeple base.

Finish hardware is specified elsewhere in Division 8.

Building in of anchors and grouting of frames in masonry construction is specified in Division 4.

QUALITY ASSURANCE:

Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.

Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

Comply with UL-10C requirements for Positive Pressure Fire Testing.

Provide fixed metal label at each fire assembly component.

SUBMITTALS:

Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.

Shop Drawings: Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.

Indicate coordination of glazing frames and stops with glass and glazing requirements.

DELIVERY, STORAGE AND HANDLING:

Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.

Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Manufacturer: Subject to compliance with requirements, provide steel doors and frames by one of the following:

Steel Doors and Frames, (General):

Allied Steel Doors
Amweld/Div. American Welding & Mfg. Co.
Ceco Corp.
Curries
D & D Specialties
Pioneer Industries, Inc.
Steelcraft/Div. American Standard Co.
Republic Builders Products Corp./Subs. Republic Steel.

MATERIALS:

Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

Stainless-Steel Sheets: austenitic stainless steel, Type 304, complying with ASTM A 666.

Supports and Anchors: Fabricate of not less than 18- gage galvanized sheet steel.

Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable. (Stainless steel in stainless steel applications.)

SHOP APPLIED PAINT:

Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

FABRICATION, GENERAL:

Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory- assembled before shipment, to assure proper assembly at project site. Comply with SDI-100 requirements as follows:

Interior Doors: SDI-100, Grade II, heavy-duty, Model 1, minimum 18-gage faces.

Exterior Doors: SDI-100, Grade III, insulated, extra heavy-duty, Model 2, minimum 16-gage, A60 galvanized faces.

Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel.

Fabricate frames, concealed stiffeners, reinforcement, edge channels, and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236 or ASTM C 976 on fully operable door assemblies.

Unless otherwise indicated, provide thermal rated assemblies with "U" factor of 0.41 BTU (hr x sq. ft. x deg F.) or better.

Finish Hardware Preparation: Prepare doors and frames to receive finish hardware in accordance with final Finish Hardware Schedule and templated provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware. Where heavyweight hinges are scheduled in sets, furnish full width hinge reinforcements, welded top and bottom at both rabbets.

Reinforce doors and frames to receive surface-applied hardware.

Locate finish hardware as indicated on final shop drawings or, if not shown, in accordance with "Recommended Locations for Builder's Hardware," published by Door and Hardware Institute.

FINISHES:

SHOP PAINTING (HOLLOW METAL DOORS AND FRAMES)

Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

STANDARD STEEL DOORS:

Provide metal doors of types and styles indicated on drawings or schedules. Refer to SDI/ANSI A250.8 for acceptable clearances. Door undercut shall be 5/8"

Bevel lock edge of single leaf and active leaf of pairs of doors 1/8" in 2". Hinge edges and lock edge of inactive leaf of pairs of doors shall be square.

Astragal at inactive leaf of pairs of doors shall be 16 gauge "Z" type attached to inactive leaf.

Louvers: See drawings for metal ventilation louver in Steeple Access door. Provide framed metal louvers of the same metal thickness as the door that sheds water to the exterior face of the door. Provide insect screen on interior face of door louver.

FRAMES:

Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 16-gage cold-rolled furniture steel.

Fabricate exterior frames and CMU wall frames with mitered corners, welded construction for exterior applications and interior applications. Weld face, rabbets and stop continuously, grind faces smooth and touch up with shop primer.

Fabricate interior door frames installed in drywall partitions as knock-down frames with the diagonal corner joint and exposed screws field filled and sanded smooth prior to painting.

Where perimeter gaskets are required for exterior, smoke and fire rated or sound rated frames, furnish kerf-type frame profile with manufacturer's standard integral gasket design for the application.

Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.

Plaster Guards: Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

PART 3 - EXECUTION

INSTALLATION:

General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction at enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.

At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.

Install fire-rated frames in accordance with NFPA Std. No. 80.

Door Installation:

Fit hollow metal doors accurately in frames, within clearances specified in SDI-100. **Completely fill the exterior HM frame interior with non corrosive spray foam insulation to disrupt thermal hot and cold transfer thru frame.**

Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

ADJUST AND CLEAN:

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.

Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.

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 08110

SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of aluminum entrances and storefronts is shown on drawings and schedules.

Types of aluminum entrances and storefronts required include the following:

Exterior Entrance Doors and Frames.

Glazing: Refer to "Glass and Glazing" section of Division 8 for glazing requirements for aluminum entrances and storefronts. **Note Section 08800 includes requirements for removeable mullion grid's for glazing.**

SYSTEM PERFORMANCES:

General: Provide exterior entrance and storefront assemblies that have been designed and fabricated to comply with requirements for system performance characteristics listed below as demonstrated by testing manufacturer's corresponding stock systems according to test methods designated.

Thermal Movement: Allow for expansion and contract resulting from ambient temperature range of 180 degrees F (100 degrees C) without buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, stress on glass, or other detrimental effects.

Wind Loading: Provide aluminum entrance and storefront assemblies capable to withstand loading indicated below, tested per A23 STM E 330.

Uniform pressure of 25 pounds per square foot inward and 25 pounds per square foot outward, and to withstand 90 MPH wind design criteria for Forsyth County, North Carolina

Air infiltration: maximum 0.37 cfm per foot of crack length at 6.24 psf pressure differential when tested in accordance with ASTM E283.

Water resistance: No uncontrolled water leakage 8.00 psf pressure differential with water rate of 5 gallon/hr. when tested in accordance with ASTM E331.

QUALITY ASSURANCE:

Drawings are based on one manufacturer's standard aluminum entrance and storefront system. Another standard system of a similar and equivalent nature will be acceptable when differences do not materially detract from design concept or intended performances, as judged solely by Architect.

SUBMITTALS:

Product Data: Submit manufacturer's specifications, standard details, and installation recommendations for components of aluminum entrances and storefronts required for project, including test reports certifying that products have been tested and comply with performance requirements.

Shop Drawings: Submit shop drawings for fabrication and installation of aluminum entrances and storefronts, including elevations, detail sections of typical composite members, hardware mounting heights, anchorages, reinforcement, expansion provisions, and glazing.

Hardware Schedule: Submit complete hardware schedule organized into sets based on hardware specified. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish. Include item name, name of the manufacturer and complete designations of every item required for each door opening.

Samples of Initial Color Selection: Submit pairs of samples of each specified color and finish on 12 inch long sections of extrusions or formed shapes. Where normal color variations are anticipated, include 2 or more units in each set of samples indicating extreme limits of color variations.

WARRANTY

Warranty: Submit a written warranty, executed by the manufacturer, agreeing to repair or replace units that fail in materials or workmanship within the specified warranty period. Failures include, but are not necessarily limited to:

- Structural failures including excessive deflection, excessive leakage or air infiltration.
- Faulty operation.
- Deterioration of metals, metal finishes and other materials beyond normal weathering.

Warranty Period: 3 years after the date of Substantial Completion.

The warranty shall not deprive the Owner of other rights or remedies the Owner may have under provisions of the Contract Documents, and is in addition to and runs concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products, which may be incorporated in the work, include, but are not limited to, the following:

- Kawneer Company, Inc.
- Vistawall Architectural Products.
- United States Aluminum Corp.
- YKK America, Inc.
- Arch / Amarlite Architectural Products
- Efco Aluminum

COMPONENTS:

Storefront Framing System: Provide storefront and entrance framing systems fabricated from extruded aluminum members of size and profile indicated. Include sub frames and other reinforcing members of the type indicated. Provide for flush glazing storefront from the exterior on all sides without projecting

stops. Shop fabricate and preassemble frame components where possible. Provide storefront frame sections without exposed seams.

Mullion Configurations: Provide pockets at the inside glazing face to receive resilient elastomeric glazing. Mullions and horizontals shall be one piece. Make provisions to drain moisture accumulation to the exterior.

1. Storefront Framing 2" x 4-1/2" (for 1" glass).

Generally, center glazed 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"** with a glass pocket width to accommodate **1" glazing**. Framing shall be thermally broken. Entrance framing members shall be compatible with glass framing in appearance.

STILE-AND-RAIL TYPE ALUMINUM DOORS:

Frame: Provide tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts, or fabricate with structurally welded joints, at manufacturer's option.

Design: Provide doors 1-3/4" thick and of design indicated.

Wide stile (5" nominal width).
Options: 10" High Bottom Rail
Color: **Flourpon "White"**

Glazing: Fabricate doors to facilitate replacement of glass or panels, without disassembly of door stiles and rails. Provide snap-on extruded aluminum glazing stops, with exterior stops anchored for non-removal.

MATERIALS AND ACCESSORIES:

Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish; ASTM B 221 for extrusions, ASTM B 209 for sheet/plate, and ASTM B 211 for aluminum bars, rods, and wire.

Carbon steel reinforcement of aluminum framing members shall comply with ASTM A 36 for structural shapes, plates and bars, ASTM A 611 for cold rolled sheet and strip, or ASTM A 570 for hot rolled sheet and strip.

Fasteners: Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum components.

Do not use exposed fasteners except where unavoidable for application of hardware. Match finish of adjoining metal.

Provide Phillips flat-head machine screws for exposed fasteners.

Concealed Flashing: Dead-soft stainless steel, 26 gage minimum, or extruded aluminum, 0.026" minimum, of an alloy and type selected by manufacturer for compatibility with other components.

Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible; otherwise, nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 123.

Concrete/Masonry Inserts: Cast iron, malleable iron, or hot-dip galvanized steel complying with ASTM A 123.

Bituminous Coatings: Cold-applied asphalt mastic complying with SSPC - PS 12, compounded for 30-mil thickness per coat.

Compression Weather-stripping: Manufacturer's standard replaceable stripping of either molded neoprene gaskets complying with ASTM D 2000 or molded PVC gaskets complying with ASTM D 2287.

Sliding Weather-stripping: Manufacturer's standard replaceable stripping of wool, polypropylene, or nylon woven pile, with nylon fabric or aluminum strip backing, complying with AAMA 701.2.

Glass and Glazing Materials: Provide glass and glazing materials which comply with requirements of "Glass and Glazing" section of these specifications.

HARDWARE:

General: Refer to hardware section of Division 8 for requirements for hardware items.

Provide all hardware (in addition to pieces specified in Section 08700 for each door if necessary) that is required to provide full complete functioning doors for the use they were intended. Aluminum Door provider to provide all door gasketing.

FABRICATION:

General:

Sizes and Profiles: Required sizes for door and frame units, including profile requirements, are indicated on drawings. Any variable dimensions are indicated, together with maximum and minimum dimensions required to achieve design requirements and coordination with other work.

Prefabrication: To greatest extent possible, complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.

Perform fabrication operations, including cutting, fitting, forming, drilling and grinding of metal work in manner which prevents damage to exposed finish surfaces. For hardware, perform these operations prior to application of finishes.

Sequence: Complete cutting, fitting, forming, drilling, and grinding of metal work prior to cleaning, finishing, surface treatment, and application of finishes. Remove arises from cut edges and ease edges and corners to radius of approximately 1/64".

Welding: Comply with AWS recommendations to avoid discoloration; grind exposed welds smooth and restore mechanical finish.

Reinforcing: Install reinforcing as necessary for performance requirements; separate dissimilar metals with bituminous paint or other separator, which will prevent corrosion.

Continuity: Maintain accurate relation of planes and angles, with hairline fit of contacting members.

Fasteners: Conceal fasteners wherever possible. Provide non corrosive exposed fasteners.

Weather-stripping: For all aluminum door applications at exterior and wet areas, provide compression weather-stripping against fixed stops; at other edges, provide sliding weather-stripping retained in adjustable strip mortised into door edge.

Provide EPDM/vinyl blade gasket weather-stripping in bottom door rail, adjustable for contact with threshold.

ALUMINUM FINISHES

General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes. All exposed framing surfaces shall be free of scratches and other serious blemishes.

Aluminum doors, framing and trim shall be "Fluropon" coated to meet or exceed test requirements of AAMA #605.2-92, Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels. "Fluropon" shall contain a minimum of 70% Kynar 500, fluorocarbon resin (polyvinylidene fluoride, PVDF). Doors and frames shall be custom color "White" as selected by the architect.

PART 3 - EXECUTION

PREPARATION:

Field Measurement: Wherever possible, take field measurements prior to preparation of shop drawings and fabrication, to ensure proper fitting of work. However, proceed with fabrication and coordinate installation tolerances as necessary when field measurements might delay work.

INSTALLATION:

Comply with manufacturer's instructions and recommendations for installation of aluminum entrances and storefronts.

Set units plumb, level, and true to line, without warp or rack of framing members, doors, or panels. Anchor securely in place, separating aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

Drill and tap frames and doors and apply surface-mounted hardware items, complying with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

Set sill members and other members in bed of sealant as indicated, or with joint fillers or gaskets as shown to provide weather tight construction. Comply with requirements of Division 7 for sealants, fillers, and gaskets.

Refer to "Glass and Glazing" section of Division 8 for installation of glass and other panels shown to be glazed into doors and framing, and not preglazed by manufacturer.

ADJUST AND CLEAN:

Adjust operating hardware to function properly, without binding, and to provide tight fit at contact points and weather-stripping.

Clean completed system, inside and out, promptly after erection and installation of glass and sealants. Remove excess glazing and joint sealants, dirt, and other substances from aluminum surfaces.

Remove protective coating when completion of construction activities no longer requires its retention.

Institute protective measures and other precautions required to assure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at time of acceptance.

End of SECTION 08410

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to the work of this section.

DESCRIPTION OF WORK:

Definition: "Finish Hardware" includes items known commercially as builders hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. Types of items in this section include (but are not necessarily limited to):

- Hinges
- Lock cylinders and keys
- Lock and latch sets
- Bolts
- Exit Devices
- Closers
- Overhead holders
- Miscellaneous door control devices
- Door trim units
- Protection plates
- Weatherstripping
- Thresholds
- Door stops

QUALITY ASSURANCE:

Manufacturer: Obtain each kind of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity (within 100 miles of site) for a period of not less than 5 years, and who is, or employs an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

Supplier to be selected after the bid. See Hardware Allowance for inclusion in General Contractor's bid. The hardware schedule is attached to assist General Contractor in determining the labor involved in installing hardware.

Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80. Provide only hardware which has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.

SUBMITTALS:

Product Data: Submit manufacturers technical information for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for

installation and for maintenance of operating parts and finish. Transmit copy of applicable data to Installer.

Hardware Schedule: Submit final hardware schedule in manner indicated below. Hardware schedules are intended for coordination of work.

Final Hardware Schedule Content: Based on builders hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

Type, style, function, size and finish of each hardware item.

Name and manufacturer of each item. If scheduled items are not used, provide a side-by-side comparison list of each item of hardware.

Fastenings and other pertinent information.

Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, codes, etc. contained in schedule.

Mounting locations for hardware.

Elevation and riser diagrams for openings scheduled to receive electronic hardware.

Door and frame sizes and materials.

Keying information.

Keying Schedule: Submit detailed schedule indicating clearly outlining Owner's instructions on keying of locks. **Locks must be keyed with existing church key system in compliance with Owner's instructions.**

PRODUCT HANDLING:

Packaging of hardware, on a set by set basis, is the responsibility of the supplier. As material is received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number.

JOB CONDITIONS:

Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

Templates: Furnish hardware templates to 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 are made for the proper installation of hardware.

PART 2 - PRODUCTS

Submittals: Provide required Product Data, Final Hardware Schedule, Keying Schedule, and samples as specified in Part 1 - General of this section, unless otherwise indicated.

Construction Schedule: Coordinate earliest dates to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing Finish Hardware for purposes of including in construction progress schedule and then comply with this schedule.

Coordination and Templates: Coordinate hardware with other work in respect to both fabrication and installation. Furnish templates and deliver hardware to proper locations.

Product Handling: Package, identify, deliver, and inventory hardware as specified in Part 1 - General of this section.

Discrepancies: Based on requirements indicated in Contract Documents in effect at time of project bidding; furnish proper types, finishes, and quantities of builders hardware, including fasteners, and Owner's maintenance tools; and furnish or replace any items of builders hardware resulting from shortages and incorrect items, at no cost to the Owner.

Installation Information: The types and quantities of hardware required for this project are indicated at the end of this section.

SCHEDULED HARDWARE:

Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware are indicated in the "Hardware Schedule" at the end of this section. Provide only ANSI/BHMA Certified products as listed. Products are identified by using hardware designation numbers of the following.

Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer's name indicates whose product designation is used in the "Hardware Schedule" for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

MATERIALS AND FABRICATION:

General:

Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.

Manufacturer's identification will be permitted on rim of lock cylinders only.

Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units.

Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

LOCK CYLINDERS AND KEYING:

General: Supplier will meet with Owner to finalize keying requirements.

Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), integrated with Owner's existing system. Equip locks with manufacturer's standard 6-pin tumbler cylinders.

Construction Masterkey all **exterior** locks at the factory. Furnish 6 temporary construction keys.

Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

Permanently inscribe each key with number or lock that identifies cylinder manufacturer key symbol.

Key Material: Provide keys of nickel silver only.

Key Quantity: Furnish 2 change keys for each lock; 4 master keys for each master system; and 4 grandmaster keys for each grandmaster system.

Furnish one extra blank for each lock .

Deliver keys to Owner's representative.

LOCKS, LATCHES AND BOLTS

Furnish cylindrical Locksets with lever handles:

Locks and cylinders will be of the same manufacturer to preserve warranties.

Strikes: Provide manufacturer's standard curved lip extended to protect frame, finished to match hardware set.

Cylindrical locks will be provided with manufacturer's standard 10-year warranty.

Manual flush bolts shall be lever-extension type. Furnish 2 per leaf where indicated in sets.

PUSH/PULL UNITS:

Furnish push and pull plates as indicated in sets. Plates shall be .050" thickness satin stainless steel.

Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation; through-bolted for matched pairs, but not for single units.

CLOSERS AND DOOR CONTROL DEVICES:

Furnish one-piece cast body units with full, impact-resistant, plastic cover. Provide all closers with brackets, mounting plates and fasteners required for a complete installation.

Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

Mount closer on interior side (room side) of door opening. Provide regular-arm, parallel-arm, overhead concealed or top-jamb mounted closers as necessary.

Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force.

Provide wall stops or floor stops for doors without closers.

DOOR TRIM UNITS:

Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewports, knockers, mail drops and similar units); either machine screws or self-tapping screw.

Fabricate protection plates (armor, kick or mop) not more than 2" less than door width on stop side and not more than 2" less than door width on pull side, x the height indicated.

Metal Plates: Stainless Steel, 0.62" (U.S. 16 ga.). (on hollow metal door, kitchen or custodial doors)

Plastic Plates: Acrylic plastic, 1/8" (0.125") thick. Color(s) Or Clear view as selected by Architect from manufacturer's standard options. (for wood doors)

HARDWARE FINISHES:

Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed by manufacturers including coordination with the traditional U.S. Finishes shown.

Provide stainless steel finish for exterior doors.

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in "Recommended Locations for Finish Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and **except as may be otherwise directed by Architect.**

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

ADJUST AND CLEAN:

Adjust and check each operating item of hardware and each door, to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

Clean adjacent surfaces soiled by hardware installation.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

Acceptable Manufacturers:

Butts/Pivots - Hager, McKinney, Rixson (Pivots), Stanley.

Locksets/Latchsets/Dead Bolts/Cylinders - Corbin Russwin, Sargent., Schlage, Yale.

Bolts - Glynn-Johnson, Ives, Trimco, McKinney.

Push/Pull Units, Door Protection Plates - Rockwood, Ives, Trimco McKinney.

Door Closers - Corbin/Russwin, LCN, Norton, Sargent, Yale.

Exit Devices - Corbin Ruswin, Von Duprin, Sargent

Silencers and Stops - Rockwood, Glynn-Johnson, Ives, Trimco, McKinney.

Thresholds and Gaskets – National Guard, Pemko, Mckinney.

FINISH HARDWARE SCHEDULE

101 PASSAGE
HM/HM 3 HR
RATED

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1.5	PR	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	AL70PD-JUP	626	SCH
1	EA	SURFACE CLOSER w/OVERHEAD STOP	4111 SCUSH	689	LCN
1	SET	DOOR SILENCERS			

102 HALL
HM/HM

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1.5	PR	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE LATCH	AL10S-JUP	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	DOOR SILENCERS			

201 NEW	202- NEW
NARTHEX	NARTHEX
ENTRANCE-	ENTRANCE
EXTERIOR	EXTERIOR
ALUM. STRFT	ALUM STFRFT

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	PIVOT SET	7226 SET	626	IVE
1	EA	INTERMEDIATE PIVOT	7226 INT	626	IVE
1	EA	EXIT DEVICE	CD-98-NL-OP-110MD	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	MORTISE CYLINDER	20-059	626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 12" O	630	IVE
1	EA	SURFACE CLOSER w/OVERHEAD STOP	4111 SCUSH	689	LCN
1		RAIN DRIP (TOP)	142A	AL	ZER
1		RAIN DRIP (BOTTOM)	11A	AL	ZER
1	EA	DOOR SWEEP	39A	AL	ZER
1	EA	THRESHOLD	8655A-MSLA-10	AL	ZER
		SEALS BY DOOR SUPPLIER			

203 EX. FOYER 204 EX. STAIR
HM/HM 3 HR HM/HM 90 MIN.
RATED RATED

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1.5	PR	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	EXIT DEVICE	98L-07-F	626	VON
1	EA	SURFACE CLOSER w/OVERHEAD STOP	4111 SCUSH	689	LCN
1	SET	DOOR SILENCERS			

205 GATE
PREFIN. ALUM
BLACK

PROVIDE EACH DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	PR	SPRING HINGES		BLK	
1	EA	FLOOR BOLT			
1	EA	GATE LATCH		BLK	
1	EA	GATE STOP		BLK	

301 ACCESS
DOOR
HM/HM

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	PR	HINGES	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	ND80PD-ATH	626	SCH
1		RAIN DRIP WEATHERSTRIPPING	142A	AL	ZER

END OF SECTION 08710

SECTION 08800 - GLASS AND GLAZING

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

Definitions: "Glass" includes both primary and fabricated glass products as described in FMGA "Glazing Manual". "Glazing" includes glass installation and materials used to install glass.

Extent of glass and glazing work is indicated on drawings and schedule attached at end of this section.

Types of work in this section include glass, insulating glass, and glazing for:

- Window units, not indicated as "preglazed". (clad wood windows preglazed)
- Door glass panels.
- Storefront Entrances and storefront frames with removeable grid pattern mounted on the inside face.
- Other doors, not indicated as "preglazed".

SYSTEM PERFORMANCES:

Provide glass and glazing that has been produced, fabricated and installed to withstand normal temperature changes, wind loading, impact loading (where applicable), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glass and glazing materials, and other defects in the work.

Provide insulating glass and glazing that has been produced, fabricated and installed to withstand normal temperature changes, wind loading, impact loading (where applicable), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of insulating glass and glazing materials, and other defects in the work. Deterioration of insulating glass in defined as failure of hermetic seal due to other causes than breakage which results in intrusion of dirt or moisture, internal condensation or fogging at temperatures above -20 degrees F (-28 degrees C), deterioration of protected internal glass coating, if any, resulting from seal failure, and other visual evidence of seal failure or performance.

QUALITY ASSURANCE:

Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FMGA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.

Safety Glazing Standard: Where safety glass is indicated or required by authorities having jurisdiction, provide type of products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.

Security Laminated Safety Glazing Standard: Laminated safety glazing complying with ASTM 1172 with interlayer selected with a proven record of no tendency to bubble, discolor, or lose physical or mechanical properties after laminating glass lites and installation.

Insulating Glass Certification Program: Subject to compliance with requirements, provide insulating glass units permanently marked either on spacers or on at least one component pane of units with appropriate certification label of inspecting and testing organization indicated below.

Insulating Glass Certification Council (IGCC).
Associated Laboratories, Inc. (ALI).

Single Source Responsibility: Provide materials obtained from one source for each type of glass and glazing product indicated.

DELIVERY, STORAGE, AND HANDLING:

Protect glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.

PROJECT CONDITIONS:

Comply with manufacturer's instructions for shipping, storing and handling insulating glass units, including protection of edges.

Where substantial altitude changes will be made, comply with venting-and-sealing recommendations to avoid hermetic seal ruptures.

SPECIFIED PRODUCT WARRANTY:

Manufacturer's Warranty on Insulating Glass: Provide written warranty signed by manufacturer of laminated glass agreeing to furnish f.o.b. point of manufacture, freight allowed project site, within specified warranty period indicated below, insulating glass units which develop manufacturing defects. Manufacturing defects are defined as failure of hermetic seal of air space (beyond that due to glass breakage) as evidenced by intrusion of dirt or moisture, internal condensation or fogging at temperature above -20 degrees F (-29 degrees C), deterioration of protected internal glass coatings, if any, and other visual indications of seal failure or performance; provided the manufacturer's instructions for handling, installing, protecting and maintaining units have been complied with during the warranty period.

Warranty Period: Manufacturer's standard but not less than 10 years after date of substantial completion.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following:

Manufacturers of Clear Float and Tempered Glass:

AFG Industries, Inc.
Ford Motor Co., Glass Div.
Guardian Industries Corp.
Libby-Owens-Ford Co.

Oldcastle Glass Co.
PPG Industries Inc.

Manufacturers of Insulating Glass Products:

Advanced Coating Technology.
AFG Industries, Inc.
Ford Motor Co. Glass Div.
Hordis Brothers, Inc.
Libbey-Owens-Ford Co.
PPG Industries, Inc.

GLASS PRODUCTS, GENERAL:

Primary Glass Standard: Provide primary glass which complies with FS DD-G-451 requirements, including those indicated by reference to type, class, quality, and form.

Heat-Treated Glass Standard: Provide heat-treated glass which complies with FS DD-G-1403 requirements, including those indicated by reference to grade, style, type, quality, and class.

Sizes: Fabricate glass to sizes required for glazing openings indicated, with edge clearances and tolerances complying with recommendations of glass manufacturer. Provide thicknesses indicated or, if not otherwise indicated, as recommended by glass manufacturer for application indicated.

Insulating Glass Standard: Provide preassembled sealed insulating glass units which comply with ASTM E 774 requirements for classification designated below:

Class A.

PRIMARY GLASS PRODUCTS:

Clear Float Glass: Type I, class 1 (transparent), quality q3 (glazing select).

HEAT-TREATED GLASS PRODUCTS:

Manufacturing Process: Manufacture heat-treated glass as follows:

Clear and Tinted Tempered Float Glass: Grade B (fully tempered), style I (uncoated surfaces), type I (float), quality q3 (glazing quality), class 1 (transparent).

Tinted Heat-Strengthened Float Glass: Grade A (heat strengthened), style I (uncoated surfaces), type I (float), quality q3 (glazing select), class 1 (transparent).

Laminated Safety: ASTM 1172, and complying with other requirements specified and with the following: Interlayer of polyvinyl butyral fabricated to produce glass free of foreign substances and air or glass pockets.

SEALED INSULATING GLASS UNITS:

General: Provide preassembled units consisting of organically sealed panes of glass enclosing a hermetically sealed dehydrated air space; comply with requirements indicated for glass characteristics, air space, sealing system, sealant, spacer material, corner design, and dessicant.

Provide “Low-E” coating: on the #2 surface meeting the following requirements:

U-value of .31 daytime, .35 nighttime (U value = Btu/hour x sq. ft. x degrees F).

Minimum Solar Energy reflectance of 12%.

Provide heat-treated panes of grade and at locations indicated or, if not indicated, provide heat-strengthened panes where recommended by manufacturer for application indicated and tempered where indicated or where safety glass is designated or required.

GLAZING SEALANTS:

General: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants which have performance characteristics suitable for applications indicated and conditions at time of installation.

Compatibility: Select sealants with proven compatibility with surfaces contacted in the installation and under service conditions indicated, as demonstrated by testing and field experience.

Colors: Provide color of exposed sealants indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

2-Part Polysulfide Glazing Sealant: Polysulfide elastomeric sealant complying with FS TT-S-00227, Class A, Type 2; and with ASTM C 920, Type M, Grade NS, Class 25, Use G and, as applicable to use indicated, Uses A and O.

Uses: Typical glazing unless noted otherwise.

Acrylic Glazing Sealant: Acrylic terpolymer or polypropenate solvent-based thermo-plastic 1-part sealant complying with FS TT-S-00230, Class B, Type II; and with ASTM C 920, Type S, Grade NS, Class 12-1/2, Use G and, as applicable to use indicated, Uses A and O.

Use: Interior glazing conditions only.

Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

2-Part Polysulfide Glazing Sealants:

Sonolastic Two-Part; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
Chem-Calk 100; Woodmont Products, Inc.

Acrylic Glazing Sealants:

60+; Pecora Corp.
Mono; Tremco.
Chem-Calk 800; Woodmont Products, Inc.

GLAZING GASKETS:

Lock-Strip Gaskets: Neoprene extrusions of size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542; black.

Dense Elastomeric Compression Seal Gaskets: Molded or extruded neoprene or EPDM gaskets of profile and hardness required to maintain watertight seal; complying with ASTM C 864, Option 1.

MISCELLANEOUS GLAZING MATERIALS:

Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.

Cleaners, Primers, and Sealers: Type recommended by sealant or gasket manufacturer.

Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.

Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.

Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.

Compressible Filler Rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25% deflection.

PART 3 - EXECUTION

INSPECTION:

Require Glazier to inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

PREPARATION:

Clean glazing framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates.

GLAZING, GENERAL:

Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.

Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.

Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.

Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

GLAZING:

Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but no closer than 6", unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.

Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 unites inches, except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.

Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.

Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.

Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.

Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.

Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.

Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

Lock-Strip Gasket Glazing: Comply with ASTM C 716 and gasket manufacturer's printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

PROTECTION AND CLEANING:

Protect exterior glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.

Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.

Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.

Wash glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Wash glass by method recommended by glass manufacturer.

GLAZING SCHEDULE

EXTERIOR:

Aluminum Storefront Doors -

1" thick **GREY TINTED** Insulated Units:

interior light -	3/16"	Tempered , "Low 'E'"
air space -	5/8"	
exterior light -	3/16"	Tempered

Aluminum Storefront Windows-

1" thick **GREY TINTED** Insulated Units:

interior light -	3/16"	Tempered "Low E"
air space -	5/8"	
exterior light -	3/16"	Tempered

SIMULATED DIVIDED MULLION GRID ON ALUMINUM STOREFRONT GLASS;

Provide snap-in grid pattern inserted into framed sections of storefront glass that match the pattern indicated on the Building and Window Elevations. Grid shall be installed on the interior face of the glass and shall be removeable for glass cleaning. Grids shall have a full perimeter edging to stabilize the grid insert. Provide means of attachment to Aluminum frame that secures the grid in place but is removeable and reinsertable.

Material: White vinyl or white painted wood.

Width: 5/8"

Shape: Flat on glass side; contoured beveled on exposed side.

INTERIOR:

Non-rated Door vision panels - 1/4" single glazed, clear tempered glass (typical unless noted otherwise on drawings).

Rated Door vision panels: 1/4" single glazed clear tempered fire rated "firelite" appropriate to hourly rating of the door.

END OF SECTION 08800