SECTION 07900 - JOINT SEALANTS

1.1 GENERAL

A. Preconstruction Joint Sealant-Substrate Tests: Submit substrate materials representative of actual joint surfaces to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.

B. Submittals: In addition to product data submit the following:

1. Samples of each type and color of joint sealant required.

2. Certified test reports for joint sealants evidencing compliance with requirements.

1.2 PRODUCTS

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.

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

C. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated complying with ASTM C 920 requirements.

1. One-Part, Nonsag Polysulfide Sealant: Type S; Grade NS; Class 12-1/2; Uses T, M, G, A, and O.

2. One-Part, Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.

D. Butyl Sealant: Manufacturer's standard one-part, nonsag, solvent-release-curing, polymerized butyl sealant complying with ASTM C 1085 and formulated with minimum of 75 percent solids to be nonstaining, paintable, and have a tack-free time of 24 hours or less.

E. Acrylic-Emulsion Sealant: One-part, nonsag, mildew-resistant, paintable, acrylic-emulsion sealant complying with ASTM C 834.

F. Silicone-Emulsion Sealant: Product complying with ASTM C 834 and, except for weight loss measured per ASTM C 792, with ASTM C 920, that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 50 percent.

G. Acoustical Sealant: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.

H. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

I. Tape Sealant: Solvent-free, butyl-based tape sealant with a solids content of 100 percent formulated to be nonstaining, paintable, and nonmigrating in contact with nonporous surfaces with or without reinforcement thread to prevent stretch and packaged on rolls with release paper on one side.

J. Preformed Foam Sealant: Preformed, precompressed, open-cell, high-density urethane foam sealant impregnated with a nondrying, water-repellent agent; in precompressed size and in roll or stick form to fit joint widths indicated; permanently elastic, mildew-resistant, nonmigratory, nonstaining, compatible with joint substrates and other joint sealants; and as follows:

1. Impregnating Agent: Manufacturer's standard.

2. Density: Manufacturer's standard.

3. Backing: Pressure-sensitive adhesive factory applied to one side, with protective wrapping.

K. Sealant Backings, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

1. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonwaxing, nonextruding strips of plastic foam of material indicated below, and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

a. Open-cell polyurethane foam.

b. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.

c. Proprietary, reticulated, closed-cell polymeric foam, nonoutgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623, and with water absorption less than 0.02 gram/cubic centimeter per ASTM C 1083.

d. Any material indicated above.

2. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to -26 deg F (-32 deg C).

3. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back of joint.

L. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

1.3 EXECUTION

A. General: Comply with joint sealant manufacturer's instructions applicable to products and applications indicated. Clean (and/or prime) joints in accordance with manufacturers recommendations prior to start of application of joint sealant. Comply with ASTM C1193 for use of joint sealants as applicable to materials, applications and conditions indicated.

B. Sealant Installation Standard: Comply with ASTM C 1193.

C. Acoustical Sealant Application Standard: Comply with ASTM C919 for use of joint sealants in acoustical applications.

D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile per Figure 8A in ASTM C1193, unless otherwise indicated.

END OF SECTION 07901

SECTION 08110 - STEEL DOORS AND FRAMES

1.1 GENERAL

A. Submit Product Data for each type of door and frame

specified.

B. Quality Assurance: Comply with ANSI/SDI 100.

C. Fire-Rated Door Assemblies: NFPA 80, identical to assemblies tested per ASTM E 152, and labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1.2 PRODUCTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Amweld Building Products, Inc.

2. Ceco Door Products.

3. Fenestra Corp.

4. Kewanee Corp.

5. Republic Builders Products.

6. Steelcraft.

B. Hot-Rolled Steel Sheets: ASTM A 569 (ASTM A 569M).

C. Cold-Rolled Steel Sheets: ASTM A 366 (ASTM A 366M), commercial quality, or ASTM A 620 (ASTM A 620M), drawing quality.

D. Galvanized Steel Sheets: ASTM A 526 (ASTM A 526M), commercial quality, or ASTM A 642 (ASTM A 642M), drawing quality, with A 60 or G 60 (Z 180 or ZF 180) coating designation, mill phosphatized.

E. Steel Doors: Provide 1-3/4-inch- (44-mm-) thick doors of materials and ANSI/SDI A250.4, A250.8 and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:

1. Interior Doors: Level II, heavy-duty, Model 2, seamless design, minimum 0.0478-inch- (1.2-mm-) thick cold-rolled steel sheet faces.

2. Exterior Doors: Level III, extra heavy-duty, Model 2, seamless design, minimum 0.0635-inch- (1.6-mm-) thick galvanized steel sheet faces.

F. Frames: Provide frames for doors, sidelights, borrowed lights, and other openings that comply with ANSI/SDI 100; fabricate to be rigid, neat in appearance, and free from defects, warp, or buckle.

1. For interior frames provide units of the knock-down type, formed from 0.0478- inch- (1.2-mm-) thick cold-rolled steel for openings 48 inches (1220 mm) or less in width and from 0.0598-inch- (1.5-mm-) thick steel for openings over 48 inches (1220 mm) in width.

2. For exterior frames provide units with mitered or coped and continuously welded corners, formed from 0.0635-inch- (1.6-mm-) thick galvanized steel sheet.

3. Door Silencers: 3 on strike jambs of single-door frames and 2 on heads of double-door frames

G. Tolerances: Comply with SDI 117.

H. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot- rolled steel sheet.

I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to SDI 107.

J. Glazing Stops: Minimum 0.0359-inch- (0.9-mm-) thick steel or 0.040-inch- (1.0-mm-) thick aluminum.

1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass in doors.

2. Provide screw-applied, removable, glazing beads on inside of glass in doors.

K. Finishes, General: Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

1. Apply primers and organic finishes to doors and frames after fabrication.

L. Galvanized Steel Sheet Finishes: Comply with SDI 112 and the following:

1. Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified to comply with ASTM A 780.

2. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight.

3. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning

M. Steel Sheet Finishes: Comply with SSPC-PA 1, "Paint Application Specification No. 1."

1. Surface Preparation: Solvent-clean surfaces according to SSPC-SP 1. Remove mill scale and rust to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).

2. Pretreatment: Immediately after surface preparation, apply a conversion coating suited to organic coating applied over it.

3. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.

1.3 EXECUTION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.

1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings and after finish flooring installation.

2. Install at least 3 anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.

3. Install fire-rated frames according to NFPA 80.

C. Door Installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.

1. Fire-Rated Doors: Install with clearances specified in NFPA 80.

D. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

E. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110

SECTION 08211 - FLUSH WOOD DOORS

1.1 GENERAL

A. Submittals: In addition to product data, submit the following:

1. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, and other pertinent data.

2. Samples of actual materials in small sections for each face material and finish.

B. Quality Standards:

1. Comply with the following standards:

a. NWWDA Quality Standard: I.S.1-A, "Architectural Wood Flush Doors," of the National Wood Window and Door Association.

b. AWI Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute.

c. WIC Quality Standard: "Manual of Millwork" of the Woodwork Institute of California.

2. Performance Grade:

a. Heavy Duty unless otherwise indicated.

b. Extra heavy Duty: public restrooms, exits, staging entrance.

c. Standard Duty: Closet, Washer/Dryer Closet.

1.2 PRODUCTS

A. Manufacturers Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body. Subject to compliance with requirements, provide doors by one of the following (or approved equal):

1. Algoma Hardwoods Inc.

2. Fenestra Corporation.

3. Mohawk Flush Doors, Inc.

4. Weyerhauser Co.

B. Interior Solid Core Doors for Opaque Finish: As follows:

1. Faces: Medium-density overlay over standard thickness hardwood face veneers.

2. Grade: Premium.

3. Construction: 7 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

C. Fire Rated Doors: Doors complying with NFPA-80 that are listed and labeled by a qualified testing agency, for fire protection rating where indicated.

D. Fabricate flush wood doors to comply with following requirements.

1. In sizes indicated for job-site fitting.

E. Shop prime exposed portions of doors for paint finish with one coat of wood primer specified in Division 9 Section "Painting."

1.3 EXECUTION

A. Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.

B. Align and fit doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining and pretreatment.

1. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.

SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

1.1 General:

A. System Performance Requirements: Comply with structural performance, air infiltration, and water penetration requirements indicated, as demonstrated by testing stock assemblies according to test methods indicated.

B. Accessibility Requirements: Entrance to comply with ADA/ABA Accessibility Guidelines: US Architectural and Transportaion Barriers Compliance Boards, American's with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guildelines for buildings and facilities, and ANSI A117.1, current version.

C. Thermal Movement: Provide for expansion and contraction resulting from an ambient temperature range of 180 deg F (100 deg C) without buckling, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or stress on glass. Doors shall function normally over specified range.

1. Wind Loads: Provide assemblies capable of withstanding pressures of 20 psf inward and outward, acting normal to plane of the wall.

D. Structural Performance: Test in accordance with ASTM E 330. There shall be no glass breakage or permanent damage to fasteners, anchors, hardware or actuating mechanism or permanent deformation of framing members in excess of 0.2 percent of their clear span.

1. Deflection Normal to the Plane of the Wall: Test pressure shall be wind load specified. Deflection shall not exceed 1/175 of clear span, when subjected to uniform load deflection test.

2. Deflection Parallel to the Plane of the Wall: Test pressure shall be 1.5 times wind pressure. Deflection of members carrying full dead load shall not exceed amount that will reduce glass bite below 75 percent of design dimension or edge clearance between member and fixed glass or other fixed member above to less than 1/8 inch. Clearance between the member and operable door or window shall be at least 1/16 inch.

3. Wind loads as per local jurisdictional and code requirements.

4. Seismic loads, where applicable.

5. Windbone, debris, impact resistance, where applicable.

E. Air Infiltration: Not more than 0.06 CFM per sq. ft. of fixed area (excluding operable door edges) when tested in accordance with ASTM E 283 at inward test pressure differential of 1.[illegible] lbf.

F. Water Penetration: No uncontrolled water penetration (excluding operable door edges) when tested in accordance with ASTM E 331 at an inward test pressure differential of [illegible] lbf per sq. ft.

G. Condensation Resistance: Provide units showing condensation resistance factor (CRF) of not less than 45 when tested in accordance with AAMA 1503.

H. Thermal Transmittance: Provide U-value of not more than 0.[illegible] BTU/(hr x sq. ft. x deg F) at 15-mph exterior wind velocity when tested in accordance with AAMA 1503.

I. Submittals: Submit the following:

1. Product Data: Include fabrication methods, data on finishes, hardware and accessories and surface maintenance recommendations.

2. Shop Drawings: Include layout, installation details, 1/4-inch scale elevations, detail sections of composite members, anchors and reinforcement, hardware mounting heights and glazing details.

3. Hardware schedule organized into sets. Include item and manufacturer's name and designation of each item required.

4. Samples: Pairs of samples of each finish on 12-inch-long sections. Where normal color variations are anticipated, include sets indicating full range of color variations.

5. Certified test reports showing systems have been tested and comply with requirements.

J. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this project and an installer who has completed installations similar to those required and whose work has resulted in a record of successful in-service performance.

K. Manufacturer's Qualifications: A firm experienced in manufacturing systems similar to those indicated and has a record of successful in-service performance.

L. Design Criteria: Drawings indicate size, profile, and dimensional requirements and are based on specific types and models indicated. Aluminum entrance and storefront by other manufacturers may be considered provided deviations do not change the design concept.

1.2 Products:

A. Aluminum Members: Alloy and temper recommended; comply with ASTM B 221 for extrusions, ASTM B 209 for sheet or plate, and ASTM B 211 for bars, rods, and wire. Kawneer screw spline

B. Carbon Steel Reinforcement: 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.

C. Glazing Materials: Comply with "Glass and Glazing" section.

D. Panel Core Material: Rigid, closed-cell polyurethane insulation.

E. Fasteners: Aluminum, nonmagnetic stainless steel, zinc plated steel, or material warranted to be non-corrosive and compatible with aluminum components, hardware, anchors, and other components.

1. Do not use exposed fasteners except for application of hardware. For hardware, use Phillips flat-head machine screws that match finish of member or hardware being fastened.

F. Concealed Flashing: 0.0179-inch (26 gage) minimum dead-soft stainless steel, or 0.026-inch-thick minimum extruded aluminum of alloy and type selected for compatibility with other components.

G. Brackets and Reinforcements: High-strength aluminum; where use of aluminum is not feasible provide nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 123.

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

I. Compression Weatherstripping: Replaceable molded neoprene gaskets complying with ASTM D 2000 or molded PVC complying with ASTM D 2287.

J. Sliding Weatherstripping: Replaceable wool, polypropylene, or nylon woven pile weatherstripping, with nylon fabric or aluminum strip backing, complying with AAMA 701.2.

K. Hardware: Heavy-duty units required for operation; finish to match door.

1. Ball-Bearing Butts: 5-knuckle, 2-bearings, steel ball bearing butts sized to comply with ANSI A156.1, Grade 1; 2 butts for doors 7 feet 6 inches or less, 3 butts for taller heavier doors.

2. Non-removeable Pins at all exterior door locations: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while entrance door is closed.

3. Surface-Mounted Overhead Closers: Modern type with cover, for hinge side installation. Comply with ANSI A156.4, Grade 1. Comply with recommendations for closer size. Include the following:

a. Hold-open arm.

b. Delayed-action closing.

c. ADA, ANSI A117.1 for accessible entrances.

4. Door Stop: Floor or wall mounted, as appropriate, with integral rubber bumper; comply with ANSI A156.16, Grade 1.

5. Cylinders are supplied under another Division 8 Section.

6. Thumb-Turns: Inside thumb-turn cylinders of cast aluminum alloy.

7. Deadlocks: Mortised maximum security deadlock, with minimum 1-inch-long pivoted bolt and stainless steel strike box; comply with ANSI A156.5, Grade 1.

8. Deadlatches: Mortise-type deadlatch with stainless steel strike box; comply with ANSI A156.5, Grade 1.

9. Lever Handles: Cast aluminum alloy inside units.

10. Panic Hardware: Concealed-rod type actuated by full-width crash bar. Comply with UL 305.

11. Push-Pull Plates: Aluminum push-pull plates of style indicated.

12. Thresholds: Extruded aluminum in mill finish, with anchors and clips, coordinated with pivots and floor-concealed closers.

13. Silencers: At locations without weatherstripping, provide neoprene silencers on stops to prevent metal-to-metal contact.

L. Framing System: Fabricate from extruded aluminum members of size and profile indicated. Include reinforcing. Provide for flush glazing from the exterior without projecting stops. Shop-fabricate and pre-assemble. Provide frame sections without exposed seams.

1. Infill Panels: Flush-laminated panels of thickness indicated, with core material laminated with waterproof glue between two sheets of aluminum.

M. Stile-and-Rail Type Entrance Doors: Provide tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts.

1. Glazing: Fabricate to facilitate replacement of glass or panels, without disassembly. Provide snap-on extruded aluminum glazing stops with exterior stops anchored for nonremoval.

2. Design: Provide 1-3/4-inch-thick doors of design indicated.

a. Medium stile (3-1/2-inch nominal width).

N. Fabrication: Fabricate components to designs, sizes and thicknesses indicated and comply with indicated standards. Sizes and profiles are indicated on the drawings.

1. Thermal-Break Construction: Fabricate framing with an integrally concealed, low conductance thermal barrier, between exterior materials and interior members to eliminate direct metal-to-metal contact.

O. Prefabrication: Complete fabrication, assembly, finishing and hardware application before shipment to the Project. Disassemble only as necessary for shipment and installation.

1. Do not drill and tap for surface-mounted hardware items until time of installation.

2. Preglaze door and frame units to greatest extent possible.

P. Welding: Comply with AWS recommendations. Grind exposed welds smooth. Restore mechanical finish.

Q. Reinforcing: Install reinforcing for hardware and as necessary for performance requirements, sag resistance and rigidity.

R. Dissimilar Metals: Separate dissimilar metals with bituminous paint, suitable sealant, nonabsorptive plastic or elastomeric tape or gasket between surfaces. Do not use coatings containing lead.

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

T. Fasteners: Conceal fasteners wherever possible.

U. Provide finger guards of collapsible neoprene or PVC gasketing securely anchored into frame at hinge-jamb of center-pivoted doors.

V. Finishes: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.

W. Class I Color Anodized Finish: AA-M12C22A42/A44. Comply with AAMA 606.1 or AAMA 608.1.

1. Color: Clear Anodized

1.3 Execution:

A. Examine substrates for compliance with requirements, installation tolerances, and conditions that affect installation. Correct unsatisfactory conditions before proceeding.

B. Installation: Comply with manufacturer's instructions. Set units plumb, level, and true to line, without warp or rack of framing members, doors, or panels. Install in proper alignment and relation to established lines and grades. Provide support and anchor securely in place.

C. Drill and tap frames and doors and apply surface-mounted hardware.

D. Set sill members in bed of sealant, or with joint fillers or gaskets.

E. Refer to "Glass and Glazing" Section for installation of glass and other panels glazed into doors and framing.

F. Adjust hardware to function properly.

G. Clean completed system after installation. Avoid damage to coatings.

H. Clean glass after installation. Comply with "Glass and Glazing" Section for cleaning and maintenance.

END OF SECTION 08410

SECTION 08710 - DOOR HARDWARE

1.1 GENERAL

A. Submit samples of hardware items, showing each required finish from each manufacturer (for acceptance of color and texture).

B. Submit "hardware schedule organized by hardware sets," to indicate specifically the product to be furnished for each item required on each door.

1. Furnish templates to the fabricator of doors and frames as required for hardware preparation.

2. Provide keying schedule showing keying and master keying requirements with tenant/landlord/owner as required.

C. For fire-rated openings provide hardware tested and listed by UL or FM (NFPA Standard 80). On panic exit devices provide UL or FM label indicating "Fire Exit Hardware."

1.2 PRODUCTS

A. Number Designations: Numbers indicating hardware items are ANSI/BHMA standard number designations.

B. Manufacturers: Subject to compliance with requirements, provide products by manufacturers for various products listed below. An asterisk (*) following manufacturer's name designates manufacturer whose products are indicated in Hardware Schedule. Such products are listed in the schedule by specific reference to manufacturer's catalog numbers. Except as otherwise indicated, products of equivalent quality, design, and function by other listed manufacturers may be used, subject to approval of Architect.

1. Butts and Hinges: Bommer, Cal Royal, Hager*, McKinney, H. Soss, Stanley, Roton.

2. Key Control System: Key Control Systems, Telkee. Verify with Owner.

3. Cylinders and Locks: Arrow, Best, Corbin & Russwin, Falcon, Sargent, Schlage*, Yale.

4. Exit/Panic Devices: Adams Rite, Arrow, Corbin & Russwin, Dor-O-Matic, Locknet*, Monarch, Precision, Reed, Sargent, Von Duprin*, Yale.

5. Overhead Closers: Arrow, Corbin & Russwin, Dorma, LCN*, International Door Closers, Monarch, Norton, Rixon-Firemark, Sargent, Yale.

6. Door Control Devices: Baldwin, Brookline, Builders Brass, Corbin & Russwin, Glynn-Johnson, Hager, Ives*, Quality, Triangle Brass.

7. Door Trim Units: Baldwin, Brookline, Builders Brass, Hager, Ives, Triangle Brass.

8. Kick, Mop, and Armor Plates: Baldwin, Brookline, Corbin & Russwin, Hager, Hiawatha, Ives Triangle Brass*.

9. Door Stripping and Seals: Hager, National Guard, Pemko, Reese, Sealeze, Ultra, Zero.

10. Thresholds: Hager, National Guard, Pemko*, Reese, Sealeze, Zero.

11. Automatic Drop Seals : Hager, National Guard, Pemko, Reese, Zero.

SECTION 08800 - GLAZING

1.1 GENERAL

A. System Performance Requirements: Provide glazing systems capable of withstanding normal thermal movement, wind loading, and impact loading, without failure including loss or glass breakage attributable to: defective manufacture, fabrication, and installation; deterioration of glazing materials; and other defects in construction.

1. Glass Design: Provide glass lites in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria based on analysis of Project loads and in-service conditions:

a. Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm (0.23 inch).

b. Minimum glass thicknesses of lites composed of annealed or heat-treated glass are selected so the worst-case probability of failure does not exceed the following:

1) 8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action.

c. Provide safety glazing in all hazardous locations as defined by code requirements. Provide labeling at all tempered and/or safety glazing locations.

B. Submittals: In addition to product data, submit 12-inch-square samples of each type of glass indicated, except for clear monolithic glass products, and 12-inch-long samples of each color required (except black) for each type of sealant or gasket exposed to view.

C. Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.

D. Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants.

E. Compatibility test report from insulating glass edge sealant manufacturer indicating glass edge sealants were tested for compatibility with other glazing materials.

F. Glazing Publications: Comply with published recommendations of glass product manufacturers, "FGMA Glazing Manual," and publications of AAMA, LSGA, and SIGMA as applicable to products indicated, except where more stringent requirements are indicated.

G. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.

1. Insulating Glass Certification Council (IGCC).

2. Associated Laboratories, Inc. (ALI).

3. National Certified Testing Laboratories (NCTL).

1.2 PRODUCTS

A. Float Glass: ASTM C 1036, Type I, Class as indicated below, and Quality q3:

1. Class 1 (clear) unless otherwise indicated.

B. Heat Treated Float Glass, Fabrication: Fabricate heat-treated float glass by the following method:

1. Vertical (tong-held) or horizontal (roller-hearth) process, at manufacturer's option, except provide horizontal process where indicated as tongless or free of tong marks.

C. Heat-Treated Float Glass Products: As follows:

1. Uncoated, Clear, Heat-Treated Float Glass: ASTM C 1048, Condition A, Type I, Class 1, Quality q3, kind as indicated below:

a. Kind HS where indicated.

b. Kind FT where indicated.

D. Sealed Insulating Glass Units: Preassembled units complying with ASTM E 774 and with other requirements indicated.

1. For properties of individual glass lites making up units, refer to requirements specified elsewhere in this Section applicable to glass products comprising lites of insulating glass units.

2. Performance characteristics designated for coated insulating glass are nominal values based on manufacturer's published test data for units with lites 6.0 mm (0.23 inch) thick and nominal 1/2-inch dehydrated space between lites, unless otherwise indicated.

3. U-values are expressed as Btu/hour x sq. ft. x deg F.

E. Elastomeric Glazing Sealants: Products complying with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, in colors indicated, compatible with other materials they will contact.

1. Additional Movement Capability: Provide products, when tested per ASTM C 719, with the capability to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

F. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape, with or without spacer rod as recommended by tape and glass manufacturers for application indicated, and complying with AAMA 800 for products indicated below:

G. Expanded Cellular Glazing Tape: Closed-cell, polyvinyl chloride foam tape, factory coated with adhesive on both surfaces, and complying with AAMA 800 for product 810.5.

H. Dense Compression Gaskets: Molded or extruded, gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:

1. Neoprene, ASTM C 864.

2. EPDM, ASTM C 864.

3. Silicone, ASTM C 1115.

4. Thermoplastic polyolefin rubber, ASTM C 1115.

5. Any material indicated above.

I. Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:

1. Neoprene.

2. EPDM.

3. Silicone.

4. Thermoplastic polyolefin rubber.

5. Any material indicated above.

J. Miscellaneous Glazing Materials: Products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.

K. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing publications as required to comply with system performance requirements.

1. Clean cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

1.3 EXECUTION

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in "FGMA Glazing Manual."

B. Protect glass from edge damage during handling and installation.

C. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

D. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

E. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter.

F. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

G. Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

H. 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.

SECTION 09250 - GYPSUM BOARD ASSEMBLIES

1.1 GENERAL

A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

B. Fire-Test-Response Characteristics: Where fire-resistance- rated gypsum board assemblies are indicated, provide gypsum board assemblies that are identical to assemblies tested for fire resistance according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1.2 PRODUCTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Grid Suspension Assemblies:

a. Armstrong World Industries, Inc.

b. Chicago Metallic Corp.

c. USG Interiors, Inc.

d. Worthington Steel Company (formerly National Rollinzeg Mills).

2. Gypsum Board and Related Products:

a. Domtar Gypsum.

b. Georgia-Pacific Corp.

c. National Gypsum Co.; Gold Bond Building Products Division.

d. United States Gypsum Co.

B. Steel Framing Components for Suspended and Furred Ceilings: Provide components complying with ASTM C 754 for conditions indicated.

1. Wire Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.062 inch (1.6 mm) thick.

2. Wire Hangers: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.162-inch (4.1-mm) diameter.

3. Hanger Rods: Zinc coated or protected with rust-inhibitive paint.

4. Flat Hangers: Zinc coated or protected with rust-inhibitive paint.

5. Channels: Cold-rolled steel, 0.0598-inch (1.5-mm) minimum thickness of base metal and 7/16-inch- (11.1-mm-) wide flanges, and as follows:

a. Carrying Channels: 2 inches (50.8 mm) deep, 590lb/1000 feet (88 kg/100 m), unless otherwise indicated.

b. Furring Channels: 3/4 inch (19.1 mm) deep, 300lb/1000 feet (45 kg/100 m), unless otherwise indicated.

d. Finish: Rust-inhibitive paint, unless otherwise indicated.

e. Finish: ASTM A 653, G 60 (ASTM A 653M, Z 180) hot-dip galvanized coating for framing for exterior soffits and where indicated.

6. Steel Studs for Furring Channels: ASTM C 645, in depth indicated and with 0.0179-inch (0.45-mm) minimum base metal thickness, unless otherwise indicated.

a. Protective Coating: ASTM A 653, G 40 (ASTM A 653M, Z 90) hot-dip galvanized coating for framing for exterior soffits and ceiling suspension members in areas within 10 feet (3 m) of exterior walls.

7. Steel Rigid Furring Channels: ASTM C 645, hat shaped, 0.0179-inch (0.45-mm) minimum base metal thickness, unless otherwise indicated.

a. Protective Coating: ASTM A 653, G 40 (ASTM A 653M, Z 90) hot-dip galvanized coating for framing for exterior soffits and ceiling suspension members in areas within 10 feet (3 m) of exterior walls.

8. Steel Resilient Furring Channels: Standard product fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M) to form 1/2-inch- (12.7-mm-) deep channel of the following configuration:

a. Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with 1-1/2-inch- (38.1-mm-) wide face connected to flanges by double-slotted or expanded-metal legs (webs).

9. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung system.

C. Steel Framing for Walls and Partitions: Provide steel framing members complying with the following requirements:

1. Protective Coating: ASTM A 653, G 40 (ASTM A 653M, attached to and within 10 feet (3 m) of exterior walls.

2. Steel Studs and Runners: ASTM C645/ASTM C754, in depth indicated and with 0.0179-inch (0.45-mm) minimum base metal thickness, unless otherwise indicated.

a. Provide 0.0329-inch (0.84-mm) minimum base metal thickness for head runner, sill runner, jamb, and cripple studs at door and other openings.

b. Provide 0.0329-inch (0.84-mm) minimum base metal thickness in locations to receive cementitious backer units.

3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.

2) MBA Building Suppliers; FlatSteel Deflection Track, Slotted Deflecto Track.

3) Steel Network Inc. (The); VertiClip SLD, VertiTrack VTD Series.

4) Superior Metal Trim; Superior Flex Track System (SFT).

5) Telling Industries; Vertical Slip Track, [Vertical Slip Track II]

4. Steel Rigid Furring Channels: ASTM C 645, hat shaped, in depth indicated and with 0.0179-inch (0.45-mm) minimum base metal thickness, unless otherwise indicated.

5. Furring Brackets: Serrated-arm type, adjustable, fabricated from corrosion-resistant steel sheet complying with ASTM C 645, minimum thickness of base (uncoated) metal of 0.0329 inch (0.84 mm), designed for screw attachment to steel studs and steel rigid furring channels used for furring.

6. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M) to form 1/2-inch- (12.7-mm-) deep channel of the following configuration:

a. Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with 1-1/2-inch- (38.1-mm-) wide face connected to flanges by double-slotted or expanded-metal legs (webs).

7. Z-Furring Members: Manufacturer's standard Z-shaped furring members with slotted or nonslotted web, fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M); with a minimum base metal (uncoated) thickness of 0.018 inch (0.45 mm), face flange of 1-1/4 inch (31.8 mm), wall-attachment flange of 7/8 inch (22.2 mm), and of depth required to fit insulation thickness indicated.

D. Fasteners for Metal Framing: Type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

E. Gypsum Board Products: Types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.

1. Gypsum Wallboard: ASTM C36/C36M-01, in thickness indicated.

a. Type: Regular for vertical surfaces, unless otherwise indicated.

b. Type: Type X where required for fire-resistance-rated assemblies.

c. Type: Sag-resistant type for ceiling surfaces.

d. Edges: Tapered.

e. Proprietary Gypsum Board Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:

1) Gyprock Fireguard C Gypsum Board; Domtar Gypsum.

2) Firestop Type C; Georgia-Pacific Corp.

3) Fire-Shield G; National Gypsum Co.; Gold Bond Building Products Division.

4) SHEETROCK Brand Gypsum Panels, FIRECODE C Core; United States Gypsum Co.

5) SHEETROCK Brand Gypsum Panels, ULTRACODE Core; United States Gypsum Co.

1. Gypsum Wallboard: ASTM C 36, in thickness indicated.

a. Type: Regular for vertical surfaces, unless otherwise indicated.

b. Type: Type X where required for fire-resistance-rated assemblies.

c. Type: Sag-resistant type for ceiling surfaces.

d. Edges: Tapered.

e. Proprietary Gypsum Board Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:

1) Gyprock Fireguard C Gypsum Board; Domtar Gypsum.

2) Firestop Type C; Georgia-Pacific Corp.

3) Fire-Shield G; National Gypsum Co.; Gold Bond Building Products Division.

4) SHEETROCK Brand Gypsum Panels, FIRECODE C Core; United States Gypsum Co.

5) SHEETROCK Brand Gypsum Panels, ULTRACODE Core; United States Gypsum Co.

2. Exterior Gypsum Soffit Board: ASTM C 931, with manufacturer's standard edges, in thickness indicated.

a. Type: Regular, unless otherwise indicated.

3. Water-Resistant Gypsum Backing Board: ASTM C 630, in thickness indicated.

a. Type: Regular, unless otherwise indicated.

F. Cementitious Backer Units: ANSI A118.9 and C1325, in maximum lengths available to minimize end-to-end butt joints with manufacturer's standard edges.

G. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047, formed metal or plastic, with metal complying with the following requirement:

1. Steel sheet zinc coated by hot-dip process or rolled zinc.

H. Accessories for Exterior Installations: Cornerbead, edge trim, and control joints formed from steel sheet zinc coated by hot-dip process or rolled zinc complying with ASTM C 1047.

J. Joint Treatment Materials: Provide joint treatment materials complying with ASTM C475/C475M and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

1. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.

a. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

b. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

2. Joint Tape for Cementitious Backer Units: As recommended by cementitious backer unit manufacturer.

3. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.

a. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer.

b. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.

c. For topping compound, use sandable formulation.

4. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.

a. Ready-Mixed Formulation: Factory-mixed product.

1) All-purpose compound formulated for both taping and topping compounds.

5. Joint Compound for Cementitious Backer Units: Material recommended by cementitious backer unit manufacturer.

K. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90. Provide sealants that have VOC content of 250g/l or less when calculated according to 40 CFR 59, supart D (EPA Method 24).

L. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

M. Miscellaneous Materials: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

1. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.

2. Fastening Adhesive for Wood: ASTM C557, as recommended by manufacturer.

3. Fastening Adhesive for Metal: Special adhesive recommended for laminating by manufacturer gypsum panels to steel framing.

4. Steel drill screws complying with ASTM C 1002 for the following applications:

a. Fastening gypsum board to steel members less than 0.033 inch (0.84 mm) thick.

b. Fastening gypsum board to wood members.

Fastening gypsum board to gypsum board.

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