

FABRICATION
A. General: Gutters, downspouts and miscellaneous sheet metal items shall be shop fabricated to conform to profiles and sizes indicated on Drawings, in accordance with SMACNA's Architectural Sheet Metal Manual, approved shop drawings and Contract documents, including but not limited to the following:
1. For Roofing Work: Coordinate with NRCA-Roofing Manual.
2. Dimensions: Verify on site prior to shop-fabrication.
3. Form sections square, true and accurate to size, free from distortion and other effects detrimental to appearance or performance.
4. Form sections in lengths required to establish joints at locations indicated on Drawings. Make allowances for expansion at joints.
5. Exposed Butt Joints: Shall be hairline, flush and smooth.
6. Exposed Edges: Grind smooth.
7. Exposed Soldered Connections: Grind smooth to match adjacent smooth surface, free of grinding marks.
8. Corner Pieces: Minimum 18" x 18" mitered, soldered.
9. Expansion Joints: Shall be a watertight design.
10. Grinding Marks on Exposed Surfaces: Not acceptable.
11. Identification Marks: Sections shall be clearly marked for coordinated installations.

FLASHING
A. Sheet Metal Flashing: Hot-dip galvanized sheet steel. Electro-galvanizing is not acceptable.
B. Extruded Aluminum Tee: Profile and size as indicated on Drawings.
C. Lead Flashing: Coordinate with plumbing work.

VENTS
A. Dryer Vent: Aluminum of size required and as shown on Drawings.
1. Vent covers on outside of buildings shall be installed with galvanized sheet metal screws and sealant.
2. Finish: Field-painted in accordance with Section 09900, color to be selected by Owner.
B. Side Wall Vents: Hot-dip galvanize sheet steel complete with galvanized insect screens.
1. Finish: Field-painted in accordance with Section 09900.
C. Soffit Vents: 3" Aluminum screen vent.

INSTALLATION
A. Perform flashing and sheet metal work in accordance with approved shop drawings, SMACNA and Contract Documents.
1. Coordinate sheet metal work with roofing work specified in Division 7.
2. Seams and End Joints: Flat-lock type required.
3. Exposed Fasteners: Shall be complete with neoprene washers.
4. For Corners: Use shop-fabricated units.
B. Fit flashings tight in place with surfaces true and straight in planes, and lines accurate to profiles.
1. Separate incompatible materials to prevent electrolysis.
2. Secure flashings with specified fasteners.

GUTTERS AND DOWNSPOUTS - SECTION 07631
Provide and install pre-finished aluminum gutters and downspouts as indicated on Construction Documents.

DESIGN REQUIREMENTS
A. Conform to SMACNA Architectural sheet Metal Manual for sizing components for rainfall intensity determined by a storm occurrence of 1 in 10 years.
B. Conform to BOCA code for size and method of rainwater discharge.

SUBMITTALS
A. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, location and installation details.
B. Product Data: Provide data on prefabricated components.
C. Samples: Submit two samples, 6-inch long illustrating component design, finish, color and configuration.

MANUFACTURERS
Gutters and Downspouts:
1. ATAS International, Inc.
2. Cheney Flashing Co.
3. Perimeter Systems.

MATERIALS
A. Pre-finished Aluminum Sheet: ASTM B 209 (ASYM B 209M); 0.032 inch thick.
1. Finish: Plain, shop pre-coated with modified silicone coating.
2. Color: As selected from manufacturer's standard colors.
3. Protective Backing Paint: FS TT-C 494, bituminous.

COMPONENTS
A. Gutters: Profile as indicated.
B. Downspouts: SMACNA Rectangular profile.
C. Anchors and Supports: Profiled to suit gutters and downspouts.
1. Anchoring Devices: In accordance with SMACNA requirements.
2. Gutter Supports: Straps.
3. Downspout Supports: Straps.
D. Fasteners: Same material and finish as gutters and downspouts.

FABRICATION
A. Form gutters and downspouts of profiles and sizes indicated.
B. Fabricate with required connection pieces.
C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance of performance. Allow for expansion at joints.
D. Hem exposed edges of metal.
E. Fabricate gutter and Downspout accessories; seal watertight.

FACTORY FINISHING
A. Modified silicone polyester coating: Baked enamel system conforming to AAMA 603.8.
B. Primer Coat: Finish concealed side of metal sheets with primer compatible with finish system, as recommended by finish system manufacturer.

INSTALLATION
A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
B. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.

FLEXIBLE FLASHING - SECTION 07650
Provide paper-faced copper flashing for face brick work.

SUBMITTALS
A. Manufacturer's Product Data: Clearly mark the technical data to identify performance requirements of flexible flashing and as required to meet Contract Documents, including manufacturer's installation recommendation.
B. Samples: Submit to include:
Flexible Flashing: Three 6" x 6" samples of specified type.
C. Contractor shall certify in writing that products, materials and methods used in flexible flashing work do not contain lead, asbestos or PCB.

MANUFACTURERS
A. General: For the purpose of establishing the minimum functional and quality standards required for flexible flashing, products of the following manufacturer are specified:
1. AFCO Products Inc / Somerville, MA (617) 623-7700
B. Other Manufacturers: Products of the following, and other flashing manufacturers, are acceptable only after full compliance with the requirements of this section, and Owner's written approval:
1. York Manufacturing Inc / Dallas, TX (214) 350-7490

INSTALLATION OF THRU-WALL FLASHING
A. Install flexible flashing in accordance with flashing manufacturer's published instructions.
1. Locations of Installation: Where shown on Drawings including foundation sill flashing, head and sill flashing, flashing at steel angle lintels.
2. Coordinate with face brick work specified in Section 04810.
3. Provide end dams to head and sill opening locations.
B. Place flashing into mortar joints. Turn up minimum 8" and extend flashing under and behind backup wall sheathing.
1. Lap end joints of flashing 6" and seal watertight.
C. Formets shall be formed at end of flashing so that water is always directed to the outside through weep holes.

FIRESTOPPING - SECTION 07840
SUMMARY
A. This Section includes tested firestop systems in specific locations as follows:
1. Penetration for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire rated vertical barriers walls/partitions), floor trenches, horizontal barriers (floor/ceilings), and vertical service shaft walls and partitions.
2. Sailing slot gaps between edge of floor slabs and curtain walls.
3. Openings between structurally separate sections of walls or floors.
4. Gaps between the top of walls and ceilings or roof assemblies.
5. Expansion joints in walls and floors.
6. Openings around structural members which penetrate floors or walls.

REFERENCES
A. Test Requirements: ASTM E-814, "Standard Method of Fire Tests of Through Penetration Fire Stops"
B. UL Fire Resistance Directory (current edition):
1. Through-Penetration Firestop Devices (XHCR).
2. Fire Resistance Ratings (BXUV).
3. Through-Penetration Firestop Systems (XHEZ).
4. Fill, Voids, or Cavity Material (XHHV).
5. Forming Materials (XHKU).
C. NFPA 101, NFPA 70.

QUALITY ASSURANCE
A. A manufacturer's direct representative (not a distributor or agent) shall be on site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This shall be done according to manufacturer's written recommendations published in their literature and drawing details.
B. Firestop System installation shall meet requirements for ASTM E-814 or UL 1479 tested assemblies that provide a fire rating equal to that of the construction being penetrated.

SUBMITTALS
A. Submit product data, specifications, and technical data for each material including documentation of UL firestop systems to be used and installation instructions.

DELIVERY, STORAGE, AND HANDLING
A. Deliver materials undamaged in manufacturers clearly labeled unopened containers, identified with brand, type and UL label.
B. Store materials under cover and protect from weather and damage.
C. Comply with recommended procedures, precautions, remedies described in material safety data sheets.

MANUFACTURERS
A. Subject to compliance with these specifications and through penetration firestop systems (XHEZ) listed in volume II of the UL Fire Resistance Directory, provide products from one of the following manufacturers:
1. Hilti Construction Chemicals, Inc. Tulsa, Oklahoma. 1-800-879-8000
2. Dow Corning Corporation, Midland, Michigan (517) 496-6000
3. 3M Fire Protection Products, St. Paul, Minnesota. 1-800-328-1687
4. International Protective Coatings, Oakhurst, NJ 1-800-334-8796
5. Specified Technologies, Inc., Somerville, NJ 1-800-992-1180.
6. Tremco Incorporated, Beachwood, OH 1-800-321-7906

MATERIALS
A. Use only firestop products that have been UL 1479 or ASTM E-814 tested for specific fire rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each instance.
B. For penetrations by non-combustible items including steel pipe, copper pipe, rigid steel conduit, and EMT:
1. Hilti FS ONE: Elastomeric Firestop Sealant
2. 3M Fire Barrier CP25-WB+
3. Firesafe FST 900
4. SpecSeal LC 150 sealant
5. Nelson CLK Firestop Silicone Sealant
6. Nelson LBC Firestop Intumescent Latex-based Caulk
7. Nelson CMP Firestop Compound
8. Nelson FSP Firestop Intumescent Putty
9. Tremco TREMstop
10. Tremco FYRE-SHIELD
11. Tremco FYRE-SIL
C. For fire-rated construction joints and other gaps:
1. Hilti FS 601 Elastomeric Firestop Sealant
2. Hilti FS 604 (self-leveling) sealant
3. Hilti FS OME sealant
4. Flamesafe FST 900
5. SpecSeal SSS 100 sealant
6. Pen 300 silicone sealant
7. 3M Fire Barrier; 2000 series
8. Nelson CLK Firestop Silicone Sealant (non-sag or self-leveling).
9. Nelson FSC Firestop Coating
10. Tremco Dymeric
11. Tremco THC-900
12. Tremco FYRE-SIL

D. For penetrations by combustible items including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe:
1. Hilti FS ONE Intumescent Firestop Sealant
2. 3M Fire Barrier CP25-WB+
3. 3M Fire Barrier FS-195 Wrap/Strip
4. Flamesafe FSD Series
5. SpecSeal SSS 100 sealant
6. SpecSeal SSV 12 wrapstrip
7. SpecSeal collars
8. Hilti CP 642 collars
9. Nelson LBC Firestop Intumescent Latex-based Caulk
10. Nelson FSP Intumescent Firestop Putty
11. Nelson PCS Intumescent Pipe Chock System
12. Nelson WRP Intumescent Wrap Strip.
13. Tremco TREM-stop Wrap Strip
14. Tremco FYRE-SIL
15. Tremco FYRE-Shield
E. For large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, floor trenches, electrical busways or raceways:
1. Hilti FS 635 Fireable Firestop Compound
2. Dow Corning Firestop Foam 201
3. 3M Fire Barrier CS-195 Composite Sheet
4. Flamesafe FST-601
5. SpecSeal SS 106 firestop mortar
6. Pen 200 silicone foam
7. Hilti FS 657 Firestop Blocks
8. Nelson CMP Firestop Compound.
9. Nelson CPS Composite Sheet
10. Nelson PLW Firestop Pillows.
11. Tremco Pillow System
12. Tremco Trem-stop Flowable Putty

INSTALLATION
A. Install firestop materials in accordance with "Through-Penetration Firestop Systems" in the UL Fire Resistance Directory.

B. Comply with manufacturer's written and graphic instructions for installation of firestop material and assemblies.
1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
2. Consult with mechanical engineer prior to installation of firestop systems that might hamper the performance of fire dampers as it pertains to duct work.

CLEANING
A. Remove equipment, material and debris, leaving areas in undamaged, clean condition.

JOINT SEALANTS - SECTION 07920
Provide and install joint sealants as applicable for locations indicated on the Construction Documents and in industry standard applications
A. This section covers general building joint sealers.

SUBMITTALS
A. Product Data: Submit manufacturer's product description indicating conformance with specified requirements. Submit installation instructions for each type of sealant. Indicate preparation/priming requirements for each substrate condition present.
B. Color Samples: Submit manufacturer's standard caulking material colors. Samples shall be actual materials depicting actual colors. Submit samples of manufacturer's standard colors for standard color sealants. Submit samples custom color sealant materials matching color sample provided by architect. Architect reserves the right to reject work not in conformance with selected colors, based upon control samples submitted and approved.
C. FDA Certification: Submit letter of certification from sealant manufacturer indicating that specified FDA Approved Sealant complies with FDA regulations and certifiable grades.

JOB CONDITIONS
A. Weather Conditions
1. Do not proceed with installation of sealants under unfavorable weather conditions. Install no material when ambient temperatures are above or below manufacturer's standard range. Install no material when substrate moisture content is above manufacturer's recommended levels.
2. Proceed with installation of material only when forecasted weather conditions are favorable for proper joint cure and development of bond.
B. Protection of adjacent surfaces:
1. Protect by applying masking material or manipulating application equipment to keep materials in joint. If masking materials are used, allow no time to touch cleaned surfaces. Remove masking materials immediately after caulking, before surface skin begins to form.
2. Remove misapplied materials from surfaces by using solvents and methods per manufacturer.
3. At surfaces from which materials have been removed, restore to original condition and appearance.

QUALITY ASSURANCE
A. Applicable standards as referenced:
1. ASTM International (ASTM)
2. Food and Drug Administration (FDA)
B. Adhesion Compatibility Tests:
1. Perform tests on actual samples of materials to determine that materials are compatible and that adhesion is acceptable. Identify requirements for primers or special preparation.
2. Test structural sealants in accordance with ASTM C1135-00.
3. Test sealants used in conjunction with cementitious products in accord with ASTM C1382-05.
C. Substrate Staining Tests:
1. Perform test on actual samples of each type of material to receive sealant material to determine that sealant is non-staining.
2. Test structural sealants for primers or any special preparation required to meet non-staining requirements.
3. Test porous substances in accordance with ASTM C1248-06.
3. Test non-porous substances in accordance with ASTM D2203-01.

WARRANTIES
A. Installer's warranty: Warrant work to be watertight and free from defects in materials and workmanship, including joint failure, for a period of five years.
B. Exterior silicone sealant material warranty: Warrant exterior silicone sealants to be free from defects in materials and to provide structural adhesion, watertight weatherseal and non-staining of adjacent materials for a period of twenty years.
C. Warranties shall begin at Date of Material Completion.

SILICONE SEALANT-TYPE 1: All Exterior Joints
A. Acceptable product:
1. Dow Corning Corp. : #790.
2. General Electric Company, Silpru
3. Tremco, Inc.: SpecTrem 1
4. Pecora Corp. : #890
B. Colors: As selected by Architect from manufacturer's standard selection.
C. Characteristics: One-part low modulus silicone rubber, meeting ASTM C920-05.

SILICONE SEALANT-TYPE2:
A. Acceptable products:
1. Dow Corning Corp. : #795.
2. Tremco, Inc.: SpecTrem 2.
3. Pecora Corp. : #895

B. Colors: As selected by Architect from manufacturer's standard selection.
C. Characteristics: One-part low modulus silicone rubber, meeting ASTM C920-05.

SILICONE SEALANT-TYPE 3: Joints between Plumbing Fixtures and Adjacent Surfaces.
A. Acceptable products:
1. Dow Corning Corp: #786 Mildew resistant silicone sealant.
2. GE: Sanitary 1700 silicone sealant
3. Pecora Corp. : #898 Silicone sanitary sealant
B. Colors: As selected by Architect from manufacturer's standard selection
C. Characteristics: One-part silicone rubber, stain and mildew resistant.

SILICONE SEALANT-TYPE 4: Joints at Horizontal Traffic Bearing Pavement.
A. Acceptable products:
1. BASF: Sonolastic SL-2.
2. Pecora: Urexpan NR-200.
3. Tremco: Vulkem 245/255.
4. Tremco: THC-900/THC-901.
B. Colors: As selected by Architect from manufacturer's standard selection.
C. Characteristics: Two-part polyurethane sealant for horizontal traffic bearing surfaces. Self leveling for flat surfaces and non-sag for sloped surfaces. Meets ASTM C290-05 criteria.

SILICONE SEALANT-TYPE 5: Acrylic Sealants
A. Acceptable products:
1. BASF: Sonolastic Sonolac
2. Pecora Corp.: AC-20.

SILICONE SEALANT-TYPE 6: Acrylic Latex Caulking, Paintable
A. Acceptable products:
1. BASF: Sonolastic Sonolac
2. Pecora Corp.: AC-20.

3. Tremco: Tremflex B34.
4. Bostik: Chem-calk Painter's caulk.
B. Characteristics: Flexible, paintable, non-staining, non-bleeding acrylic emulsion.
C. Color: As selected by Architect from manufacturer's standard selection.
SILICONE SEALANT-TYPE 7: Kitchen and Food Service Areas
A. Acceptable products:
1. GE: Construction 1200 Silicone Sealant.
2. Pecora Corp. : #863 Silicone.
3. Tremco: Proglaze Silicone Construction Sealant.
B. Characteristics: One-part moisture-curing silicone rubber. FDA approved for use in indirect food contact areas.
C. Color: As selected by Architect from manufacturer's standard selection, approved by FDA.
ACCESSORIES
A. Joint cleaner: as recommended by manufacturer for substrates as indicated.
B. Joint primer/sealer: as recommended by manufacturer for substrates, conditions and exposures as indicated.
C. Bond Breaker Tape: Plastic tape applied to contact surfaces where bond to substrate or joint filler must be avoided for material performance.
D. Backer rod: Provide compressible rod stock in joints over 1/4" wide as recommended by sealant manufacturer for back-up of and compatibility with sealant.
E. Tooling: Agent recommended by manufacturer to ensure contact of material with inner joint faces.

JOINT PREPARATION
A. Clean joint surfaces immediately before installation of sealants or caulking compounds. Remove dirt, insecure coatings, moisture and other substances which could interfere with seal of sealant or caulking compound.
B. Etch concrete and masonry joint surfaces to remove excess alkalinity.
C. Roughen joint surfaces of non-porous materials unless manufacturer's product data indicates equal bond strength as porous surfaces. Rub joint with fine abrasive cloth to produce dull sheen.

INSTALLATION
A. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified.
B. Prime joint surfaces where recommended by manufacturer.
C. Set joint filler units at depth or position in joint as indicated to coordinate with other work. Do not leave voids or gaps between ends of joint filler units. Maintain appropriate thickness, width, and depth of material per manufacturer's product data.
D. Employ installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Fill sealant rabbit to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
E. Install sealant to depths as recommended by sealant manufacturer but within the following general limitations, measured at center (thin) section of beads.
1. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
F. Spillage: Do not allow sealants or compounds to overflow from confines of joints, or to spill onto adjoining work, or to migrate into voids of exposed finishes. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage. Remove excess materials as work progresses.
G. Tool joints of non-sag sealant to concave profile and smooth, uniform surface, flush with edges of substrate. Maintain appropriate sealant depth-to-width ratio as directed in product data.

CURE AND PROTECTION
A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Cure and protect sealants in a manner which will minimize increases in modulus of elasticity and other accelerated aging effects. Replace or restore sealants that are damaged or deteriorated during construction period.

STEEL FRAMES - SECTION 08110
Provide and install steel door frames as indicated in Construction Documents.

SUBMITTALS:
A. Product Data and Shop Drawings for each type of door and frame indicated.
B. Door Schedule using standard reference designations indicated on Drawings in preparing schedule for frames.
CARD READER SYSTEM:
A. Coordinate frame fabrication with card reader/security system requirements (by others).

PRODUCTS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Steel Frames:
a. Amwell Building Products, Inc.
b. Benchmark Commercial Doors; a division of General Products Co., Inc.
c. Geo Door Products; a United Dominion Company.
d. Curries Company.
e. Kewanee Corporation (The).
f. Republic Builders Products.
g. Steelcraft; a division of Ingersoll & Rand.
B. Frames: Provide steel frames that comply with ANSI A250.8 and with steel sheet thickness as indicated for door level selected below:
1. For Level 1, steel doors, 0.042 inch (1.9 mm).
2. For doors, 0.053 inch (1.3 mm).
3. For doors, 0.067 inch (1.7 mm).
4. Door Silencers: Three silencers on single door frames and two silencers on double door frames.
5. Supports and Anchors: Not less than 0.042-inch (1.0-mm) thick, zinc-coated steel sheet.
6. Wall Anchors in Masonry Construction: 0.177-inch (4.5-mm) diameter, steel wire complying with ASTM A 510 (ASTM A 510M) to be used in place of steel sheet.
7. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.
C. Fabricate steel frame units to comply with ANSI A250.8 and to be free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant.

1. Exterior Frames: Fabricate from metallic-coated steel sheet. Close top and bottom edges of doors flush.
2. Tolerances: Comply with SDI 117.
3. Prepare frames to receive hardware. Reinforce frames to receive surface-applied hardware. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for frame preparation for hardware.
4. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints. Provide temporary spreader bars.
5. Provide non-removable glazing stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
6. Tremco: Trem-stop applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.
7. Fabricate frames that are part of a fire door assembly as required by NFPA 80.
D. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting.

INSTALLATION
A. Install frames according to Shop Drawings and manufacturer's data.
1. Frames: Install steel frames for doors and other openings, of size and profile indicated.
a. Set masonry anchorage devices where required for securing frames to in-place concrete or masonry construction.
b. Provide at least three wall anchors per jamb. For openings 90 inches (2286 mm) or more in height, install an additional anchor at hinge and strike jambs.
c. Install fire-rated frames according to NFPA 80.
d. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. 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.
B. Adjusting and Cleaning:
1. Prime Coat Touchup: Sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
2. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

EXTERIOR AND INTERIOR DOORS - Section 08210
Provide and install the following type doors:
1. Exterior doors including entry doors and french doors.
2. Interior doors including prehung doors, bi-passing doors, bi-fold doors and door stops.

SUBMITTALS
A. Shop Drawings: Submit in accordance including but not be limited to:
1. All information and details indicating full compliance with Contract Documents.
2. Door schedule using same reference numbers for openings as those indicated on Architect's Door Schedule.
3. Door elevations, door thickness and door construction.
4. Locations and types of provisions in doors for attachment of door hardware scheduled on drawings.
B. Manufacturer's Product Data: Clearly mark the technical data to describe each type of door specified, including manufacturer's published installation recommendations.

DELIVERY, STORAGE, HANDLING
A. Doors shall be delivered, stored and handled in accordance with manufacturer's recommendations.
1. Store doors flat on a level surface in a dry, well-ventilated building. If doors are stored at the Project site for more than one week, all edges must be sealed with a type of sealer recommended by manufacturer.
2. Do not store doors on edge.
3. Cover doors to keep clean and avoid discoloration with an opaque covering which does not permit light to penetrate. Covering must allow air circulation.
4. Do a subject doors to extremes of heat and/or humidity conditions. Relative humidity shall not be less than 30 percent or more than 60 percent.
5. Handle doors with clean gloves. Do not drag doors when handling.

MANUFACTURERS
A. General: Doors of the following manufacturers are acceptable only after full compliance with the requirements of this section, Contract Documents and Owner's written approval:
1. Benchmark Tampa, FL (813)253-2664
2. General Products Co, Inc. Fredericksburg, VA (504) 898-5700
3. Lifetime Doors Inc. Farmington Hills, MI (610) 359-4186
4. Masonite Corp. Chicago, IL (800) 235-0785
5. Maywood Inc. Amarillo, TX (800) 879-6299
6. National Products Inc. Louisville, KY (502) 583-3038
7. Plaza Door Company West Palm Beach, FL (800) 331-1848
8. Taylor Building Products West Branch, MI (800) 248-3600

EXTERIOR DOORS
A. General: All exterior doors shall be complete with door hardware specified in Section 08700, including weather stripping and door stops where required. Fabricate doors that are part of fire door assemblies as required by NFPA 80.
B. Entry Doors: Insulated metal clad, rated as indicated on Drawings, 1-3/4" thick.
C. Exterior Closet & Sprinkler Closet Doors: Flush panel insulated metal clad rated as indicated on Drawings, 1-3/4" thick.
D. Exterior French Glass Doors: Metal clad, insulated, 1-3/4" thick.
1. Metal cladding shall be minimum 24-gauge sheet steel taper locked with 18-gauge steel channel frame.

INTERIOR DOORS
A. General: All interior doors shall be complete with door hardware specified in Section 08700 and scheduled on Drawings, including door stops where required.
B. Interior Doors: As indicated on drawings, prehung in jamb and trim assembly where possible.
C. Bi-Fold Doors: Flush panel type completely assembled with hardware for top and bottom track installation.
D. Bi-Pass Doors with Mirrors: Shall be equal to Monarch panels complete with safety mirrors, steel frame, bottom roller and top guide assemblies.

INSTALLATION
A. Door Schedule shall be complete in accordance with approved shop drawings, manufacturer's published recommendations and Contract Documents.
1. Install doors plumb and level without binding, racking or twisting.
2. Doors shall not fall open or closed after installation is complete.
B. Door Hardware: Coordinate installation with Door Schedule on Drawings.
1. Install door hardware without forcing, with proper clearances and alignment, so that operation is smooth any easy, free of binding and/or twisting.

ADJUSTMENTS, CLEANING, PROTECTION
A. Adjust doors and hardware for smooth and balanced door movement.
1. Rehang or replace doors which do not swing or operate freely.
2. Refinish or replace doors damaged during construction.

COILING DOORS AND GRILLES - SECTION 08330
SECTION INCLUDES
A. High-speed roll up doors.
B. Wiring from electric circuit disconnect to operator to control station.

SUBMITTALS
A. Submit the following:
1. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations and installation details.
2. Product Data: Provide general construction, component connections and details, and electrical equipment, operation instructions and information.
3. Samples: Submit color samples of door panels for selection by owner.
4. Manufacturer's Installation: Indicate installation sequence and procedures, adjustment and alignment procedures.

MAINTENANCE DATA
A. Recommended preventive maintenance program to be included indicating lubrication requirements and frequency, periodic adjustments required, scheduled maintenance suggested, manufacturer data sheets, and equipment interconnection diagrams.

REGULATORY REQUIREMENTS
A. Electrical components UL listed.
B. Electrical enclosure NEMA approved.

QUALITY ASSURANCE
A. Furnish high-speed roll doors and all components and accessories by one manufacturer.

FIELD MEASUREMENTS
A. Verify field measurements are as indicated on shop drawings.

WARRANTY
A. Two-year limited warranty on materials and workmanship.

PRODUCTS
A. RapidGrille Advanced Performance Model 676 – Overhead Door Material:
1. Curtain Type: Straight Lattice 9" on center vertical links with 2" on center rods spacing. Galvanized steel link, rod, with mill aluminum spacer tube.
B. Side Frames: Structural steel angles with PowderGuard Weathered finish with black powder coat. Photoelectric sensors with commercial grade guards standard.
C. Bottom Bar: Fail-safe sensing edge tubular extruded aluminum with mill finish.
D. Drive System: Three phase, variable-speed AC Drive provides auto acceleration and deceleration. Independent opening and closing speeds provide flexibility to meet any application.
E. Electrical Controls
1. Prime Coat Touchup: Sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
2. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

INSTALLATION
A. Install door unit assembly in accordance with manufacturer's instructions.
B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or structural damage.
C. Fit and align assembly including hardware; level to plumb to provide smooth operation.
D. Coordinate installation of electrical service. Complete wiring from disconnect to unit components.
E. Adjust door and operating assemblies.
F. Test and adjust doors, if necessary, for proper operation. Clean door and components.

ENTRANCES AND STOREFRONTS - SECTION 08410
SUMMARY
A. Section includes: Aluminum Storefront Systems
1. Finish all necessary materials, labor and equipment for the complete installation of the aluminum storefront system as shown on the drawings and specified herein.

SUBMITTALS
A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
B. Product Data: Submit product data for each type storefront series specified.
C. Substitutions: Whenever substitute products are to be considered, supporting technical data, samples and test reports must be submitted ten (10) working days prior to bid date in order to make a valid comparison.
D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, elevations, detail sections, reinforcement, glazing, finish colors and textures.
E. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.
F. Quality Assurance / Control Submittals:
1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
2. Installer Qualification Data: Submit installer qualification data.
G. Closeout Submittals:
1. Warranty: Submit warranty documents specified herein.
2. Project Record Documents: Submit project record documents for installed materials in accordance with Division 1 Project Closeout (Project Record Documents) Section.

QUALITY ASSURANCE
A. Qualifications:
1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.

PROJECT CONDITIONS / SITE CONDITIONS
A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

WARRANTY
A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.
1. Warranty Period: Manufacturer's one (1) year standard warranty commencing on the material date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment.

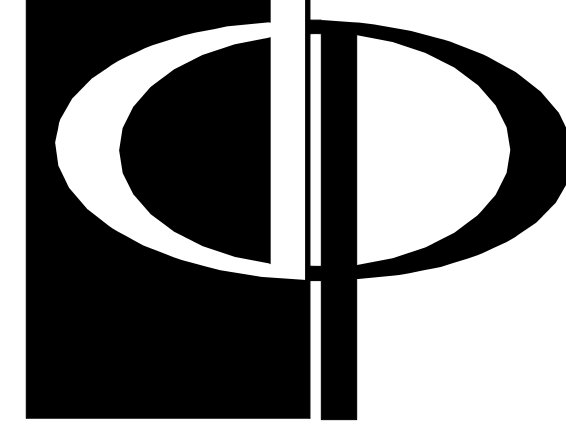
MANUFACTURERS
A. Basis of Design to establish project requirements is: Kawneer.
1. Storefront System: Kawneer Trifab VG 450.
2. Storefront Framing Systems:
a. Description: Center set, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery. Continuous and wept sill flashing.
b. Components: Manufacturer's standard extruded aluminum mullions, entrance doors, framing, and indicated shapes, perimeter anchor fillers and steel reinforcing as required.
c. Glazing: Manufacturer's standard glazing stops with EPDM glazing gaskets and sealant.
d. Exterior units to be narrow stile, color selected by Architect from manufacturer's standard color charts.
e. Interior units to be medium stile, color selected by Architect from manufacturer's standard color charts.

B. Acceptable alternate manufacturers, subject to compliance with project requirements are as follows:
1. Amarte
2. YKK AP America, Inc.
MATERIALS
A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy. B. Aluminum Sheet:
1. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050" (1.27 mm) minimum thickness.
2. Painted Finish: ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.080" (1.95 mm) minimum thickness.

ACCESSORIES
A. Manufacturer's Standard Accessories:
1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
2. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
3. 0.050 Aluminum Sill Flashing End Dams featuring 3 point attachment.

RELATED MATERIALS
A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

FABRICATION
A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly seal joints sealed in accordance with manufacturer's recommendations.
B. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.
C. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.



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