

SECTION 079500 - ARCHITECTURAL JOINT SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Types of joints for which architectural joint systems are specified include the following:

- 1. Exterior wall joints
- 2. Interior wall joints
- 3. Interior wall and ceiling joints
- 4. Interior Floor Joints (2nd Floor)
- 5. Fire/Smoke Seals

- B. Related Sections include the following:

- 1. Division 4 Section "Masonry" for exterior and interior walls.

1.3 DEFINITIONS

- A. Architectural Joint System: Any filler or cover used to span, fill, cover, or seal a joint, except expanding foam seals and poured or foamed in-place sealants.
- B. Cyclic Movement: Periodic change between widest and narrowest joint widths in an automatically mechanically controlled system.
- C. Fire Barriers: Any material or material combination, when fire tested after cycling, designated to resist passage of flame and hot gases through a movement joint.
- D. Maximum Joint Width: Widest linear gap a joint system tolerates and performs its designed function without damaging its functional capabilities.
- E. Minimum Joint Width: Narrowest linear gap a joint system tolerates and performs its designed function without damaging its functional capabilities.
- F. Movement Capability: Value obtained from the difference between widest and narrowest widths of a joint opening typically expressed in numerical values (mm or inches) or a percentage of nominal value of joint width.

- G. Nominal Joint Width: Width of linear gap indicated as representing the conditions existing when architectural joint systems will be installed or, if no nominal joint width is indicated, a width equal to the sum of maximum and minimum joint widths divided by two.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide factory-fabricated architectural joint systems capable of withstanding the types of loads and of accommodating the kinds of movement, and the other functions for which they are designed including those specified below, without failure. Types of failure include those listed in Appendix X3 of ASTM E 1399.
1. Exterior Joints: Maintain continuity of weather enclosure.
 2. Joints in Fire-Resistance-Rated Assemblies: Maintain fire-resistance ratings of assemblies.
 3. Joints in Smoke Barriers: Maintain integrity of smoke barrier.
 4. Other Joints: Where indicated, provide joint systems that prevent penetration of water, moisture, and other substances deleterious to building components or content.
 5. Joints in Surfaces with Architectural Finishes: Serve as finished architectural joint closures.

1.5 SUBMITTALS

- A. Product Data: Include manufacturer's product specifications, construction details, material and finish descriptions, and dimensions of individual components and seals. Provide certification for fire rated expansion joints.
- B. Shop Drawings: For each joint system specified, provide the following:
1. Placement Drawings: Include line diagrams showing entire route of each joint system, plans, elevations, sections, details, joints, splices, locations of joints and splices, and attachments to other Work. Where joint systems change planes, provide Isometric Drawings depicting how components interconnect to achieve continuity of joint covers and fillers.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each exposed metal and elastomeric material of joint system indicated.
1. Include similar Samples of material for joints and accessories involving color selection.
- D. Samples for Verification: Full-size units 6 inches (150 mm) long of each type of joint system indicated; in sets for each finish, color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain architectural joint systems through one source from a single manufacturer.

- B. Fire-Test-Response Characteristics: Where indicated, provide joint systems incorporating fire barriers that are identical to those of assemblies tested for fire resistance per ASTM E 119, ASTM E 814 and UL 2079, including hose-stream test of vertical wall assemblies, by a testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of architectural joint systems and are based on the specific systems indicated. Other manufacturers' systems complying with requirements may be considered.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Products: The design for each architectural joint system specified in Part 2 "Architectural Joint Systems" Article below is based on the products named. Subject to compliance with requirements, provide either the named products or comparable products by one of the other manufacturers listed.

2.2 MATERIALS

- A. Aluminum: ASTM B 221 (ASTM B 221M), alloy 6063-T5 for extrusions; ASTM B 209 (ASTM B 209M), alloy 6061-T6 for sheet and plate.
 - 1. Apply manufacturer's standard protective coating on aluminum surfaces to be placed in contact with cementitious materials.
- B. Strip Seals: Elastomeric membrane or tubular extrusions with a continuous longitudinal internal baffle system throughout complying with ASTM E 1783; used with compatible frames, flanges, and molded-rubber anchor blocks.
- C. Compression Seals: Preformed, elastomeric extrusions having internal baffle system complying with ASTM E 1612 in sizes and profiles indicated or as recommended by manufacturer.
- D. Fire Barriers: Any material or material combination, when fire tested after cycling, designated to resist the passage of flame and hot gases through a movement joint.
- E. Accessories: Manufacturer's standard anchors, clips, fasteners, set screws, spacers, flexible moisture barrier and filler materials, drain tubes, lubricants, adhesives, and other accessories compatible with material in contact, as indicated or required for complete installations.

2.3 ARCHITECTURAL JOINT SYSTEMS

- A. General: Provide joint systems of design, basic profile, materials, and operation indicated. Provide units with the capability to accommodate joint widths indicated and variations in adjacent surfaces.
1. Furnish units in longest practicable lengths to minimize number of end joints. Provide hairline mitered corners where joint changes directions or abuts other materials.
 2. Include closure materials and transition pieces, tee-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous joint systems.
 3. Frames for Strip Seals: Designed with semiclosed cavity that provides a mechanical lock for seals of type indicated.
- B. Architectural Joint System at interior walls: Metal frames and gaskets for interior joints on walls.
1. Basis-of-Design Product: C/S Group Model FWF-200 and FWFC-200 or a comparable product of one of the following:
 - a. MM Systems; VSW
 - b. Balco; GP
 - c. *Inpro*^(Addendum 4)
 2. Nominal Joint Width: 2".
 3. Movement Capability: 25-50%
 4. Type of Movement Capability: Expansion and contraction.
 5. Cyclic-Movement-Test-Response Characteristics: No evidence of visual fatigue, inability to cycle between designated joint widths, or other types of failure as determined by testing products identical to those indicated per ASTM E 1399 including Appendix X3.
 6. Exposed Gasket: Color to be selected from manufacturer's standards.
 7. Exposed Frame Material: Aluminum.
 8. Fire-Resistance Ratings: Provide manufacturer's standard fire barrier with a rating not less than that of adjacent construction.
- C. Architectural Joint System at exterior masonry walls: Metal frames and thermoplastic seals for exterior joints on walls.
1. Basis-of-Design Product: C/S Group Model SF-200 or a comparable product of one of the following:
 - a. Balco; FCWW
 - b. MM Systems Corporation;
 - c. Inpro – Joint Master
 2. Nominal Joint Width: 2".
 3. Movement Capability: 50-100%
 4. Type of Movement Capability: Expansion and contraction.
 5. Cyclic-Movement-Test-Response Characteristics: No evidence of visual fatigue, inability to cycle between designated joint widths, or other types of failure as determined by testing products identical to those indicated per ASTM E 1399 including Appendix X3.
 6. Exposed Gasket: Color to be selected from manufacturer's standards.
 7. Exposed Frame Material: Aluminum.

8. Fire-Resistance Ratings: Provide manufacturer's standard fire barrier with a rating not less than that of adjacent construction.
- D. Architectural Joint System at exterior masonry wall to roof: Bellows roof cover system capable of four way movement.
1. Basis-of-Design Product: C/S Group Model BRJW-200 or a comparable product of one of the following:
 - a. Balco; BRBG - SE
 - b. MM Systems Corp; ERFL
 - c. Inpro - Joint Master
 2. Nominal Joint Width: 2".
 3. Continuous neoprene sheet bellows complete with foam support membrane and continuous galvanized attachment flanges, mechanically fastened to curb member 24" o.c. Cover to be one-piece unit with optional back seal. All transitions and end caps to be factory fabricated with butt joints sealed with site applied flexible splice covers.
 4. Provide 2" diameter expanded closed cell neoprene grade rubber meeting ASTM D-1056 within bellow as indicated on drawings. Everlastic No. 15. other acceptable manufacturers are:
 - a. Alhambra Rubber and Gasket Co. Inc.
 - b. Aero
- E. Architectural Joint System at exterior roof to roof: Bellows roof cover system capable of four way movement.
1. Basis-of-Design Product: C/S Group Model BRJ-200 or a comparable product of one of the following:
 - a. MM Systems; ERJ
 - b. Balco; BRBG
 2. Nominal Joint Width: 2".
 3. Continuous neoprene sheet bellows complete with foam support membrane and continuous galvanized attachment flanges, mechanically fastened to curb member 24" o.c. Cover to be one-piece unit with optional back seal. All transitions and end caps to be factory fabricated with butt joints sealed with site applied flexible splice covers.
 4. Provide 2" diameter expanded closed cell neoprene grade rubber meeting ASTM D-1056 within bellow as indicated on drawings. Everlastic No. 15. Other acceptable manufacturers are:
 - a. Alhambra Rubber and Gasket Co., Inc.
 - b. Aero

2.4 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.5 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Mill Finish: AA-M10 (Mechanical Finish: as fabricated; no other applied finish unless buffing is required to remove scratches, welding, or grinding produced in fabrication process.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to architectural joint system manufacturer's written instructions.
- B. Coordinate and furnish anchorages, Placement Drawings, and instructions for installing joint systems to be embedded in or anchored to concrete or to have recesses formed into edges of concrete slab for later placement and grouting-in of frames.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary to secure joint systems to in-place construction, including threaded fasteners with drilled-in expansion shields for masonry and concrete where anchoring members are not embedded in concrete. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for handling and installing architectural joint assemblies and materials, unless more stringent requirements are indicated.
- B. Coordinate installation of architectural joint assembly materials and associated work so complete assemblies comply with assembly performance requirements.
- C. Terminate exposed ends of exterior architectural joint assemblies with factory-fabricated termination devices to maintain waterproof system.
- D. Install factory-fabricated transitions between building expansion-joint cover assemblies and roof expansion-joint assemblies, specified in Division 7 Section "Roof Expansion Assemblies," to provide continuous, uninterrupted, watertight construction.
- E. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required to install joint systems.
 - 1. Install joint cover assemblies in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
 - 2. Allow adequate free movement for thermal expansion and contraction of metal to avoid buckling.
 - 3. Set covers in horizontal surfaces at elevations that place exposed surfaces flush with adjoining finishes.
 - 4. Locate wall and ceiling covers in continuous contact with adjacent surfaces.

5. Securely attach in place with required accessories.
 6. Locate anchors at interval recommended by manufacturer, but not less than 3 inches (75 mm) from each end and not more than 24 inches (600 mm) o.c.
- F. Continuity: Maintain continuity of joint systems with a minimum number of end joints and align metal members. Cut and fit ends to produce joints that will accommodate thermal expansion and contraction of metal to avoid buckling of frames. Adhere flexible filler materials, if any, to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.
- G. Extruded Preformed Seals: Install seals to comply with manufacturer's written instructions and with minimum number of end joints.
1. For straight sections, provide preformed seals in continuous lengths.
 2. Vulcanize or heat-weld field splice joints in preformed seal material to provide watertight joints using procedures recommended by manufacturer.
 3. Apply adhesive, epoxy, or lubricant adhesive approved by manufacturer to both frame interfaces before installing preformed seals.
 4. Seal transitions according to manufacturer's written instructions.
 5. Install foam seals with adhesive recommended by manufacturer and heat seal all splices.
- H. Joint Systems with Seals: Seal end joints within continuous runs and joints at transitions according to manufacturer's written instructions to provide a watertight installation.
- I. Seismic Seals: Install interior seals in continuous lengths. Install exterior seal in standard lengths and vulcanize or heat-weld field splice joints to provide watertight joints using manufacturer's recommended procedures. Seal transitions and end joints according to manufacturer's written instructions.
- J. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and end joints.

3.3 CLEANING AND PROTECTION

- A. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.

END OF SECTION 079500

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