

SECTION 05810  
ARCHITECTURAL JOINT SYSTEMS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary Conditions and Division 1 - General Requirements, apply to work specified in this Section.

1.02 SUMMARY

- A. Types of joints for which architectural joint systems are specified include the following:
  - 1. Exterior wall joints.
  - 2. Interior pedestrian traffic joints.
  - 3. Interior wall and ceiling joints.
- B. Related Work Specified in Other Sections: Roof expansion joint cover systems are specified in Section 07530.

1.03 REFERENCED STANDARDS

- A. American Society for Testing and Materials (ASTM): ASTM E 1399, Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems
- B. Underwriters Laboratories Inc., UL 2079-98, Tests for Fire Resistance of Building Joint Systems.

1.04 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. Pedestrian Traffic Joints: Support pedestrian traffic across joint.
  - 3. Joints in Fire-Resistance-Rated Assemblies: Maintain fire-resistance ratings of assemblies.
  - 4. Seismic Joints: Remain in place on exposure to seismic activity (movement).

1.05 SUBMITTALS

- A. Product Data: Include manufacturer's product specifications, construction details, material and finish descriptions, and dimensions of individual components and seals.
- B. Shop Drawings: For each joint system specified, prepare and submit 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: For selection of elastomeric seal colors, submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
- 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.

## 1.06 QUALITY ASSURANCE

- A. Source Limitations: Obtain architectural joint systems through one source from a single manufacturer. Coordinate compatibility with adjoining joint systems specified in other Sections.
- 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 UL 2079, including hose-stream test of vertical wall assemblies, by a testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Seismic Performance: Where assemblies are indicated to perform under seismic conditions, provide joint systems which have been tested for cyclic -movement-test-response Characteristics in accordance with ASTM E 1399, including Appendix X3, and which show 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.
- D. 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. Refer to Division 1 Section "Product Requirements."
  - 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

### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products from Balco Metalines, Construction Specialties (C/S), or MM Systems Corporation
- B. Basis-of-Design Products: Provide either the named products or comparable products by one of the other manufacturers named above.

## 2.02 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. Preformed Seals: Single or multicellular extruded elastomeric seals, formed to be installed in frames or with anchored flanges.
  - 1. Color to be selected by Architect from manufacturer's standard colors.
- C. Fire Barrier Systems: Prefabricated fire barrier assemblies tested in accordance with ANSI/UL 2079 for two-hour certification, and in compliance with ASTM E 1399. Furnish material which displays the UL label, and is subject to Underwriters Laboratories follow-up service for quality assurance.
  - 1. Type: Intumescent blankets layered to provide a flame and insulation barrier and to accommodate the specified dynamic movement.
  - 2. Furnish fire-barrier material in maximum lengths to minimize field splicing.
  - 3. For joints within enclosed spaces such as chase walls, include .032" thick galvanized steel cover where conventional expansion joint cover is not used.
- D. 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.

## 2.03 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.
- B. Exterior joints in walls: Preformed elastomeric seals in extruded aluminum frames, designed to fit joint 2-inches wide and to accommodate movement of  $\pm 50\%$ :
  - 1. Basis-of-Design Product: C/S Model SF-200.
  - 2. Type of Movement Capability: Seismic.
  - 3. Aluminum Finish: Class 1 clear anodized where exposed; mill finish where concealed.
  - 4. Moisture Barrier: Manufacturer's standard.
- C. Interior pedestrian traffic joints: Preformed elastomeric seals in extruded aluminum frames, designed to fit joint 2-inches wide and to accommodate movement of  $\pm 25\%$ :
  - 1. Basis-of-Design Product: C/S Model GFT-200 and GFTW-200 at floor-to-wall intersection.

2. Aluminum Finish: Class 2 clear anodized where exposed; mill finish where concealed.
- D. Interior joints on walls and ceilings: Preformed elastomeric seals in extruded aluminum frames, designed to fit joint 2-inches wide and to accommodate movement of  $\pm 25\%$ :
1. Basis-of-Design Product: C/S Model FWF-200 and FWFC-200 at corners.
  2. Aluminum Finish: Class 2 clear anodized where exposed; mill finish where concealed.
- E. Fire Barrier: Intumescent blankets layered to provide a flame and insulation barrier for concealed interior joints on walls and ceilings.
1. Basis-of-Design Product: C/S Model WW-D-1019 and FB-97.
  2. Joint Width and Movement Capability: Nominal 2 inch width,  $\pm 1$  inch movement.
  3. Type of Movement Capability: Seismic.
  4. Fire Barrier Material: Manufacturer's standard to meet 2-hour rating.
  5. Exposed Cover Material: 0.032 inch thick galvanized steel. Provide where material is not covered by an architectural joint cover.

#### 2.04 ALUMINUM FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.
- D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

### PART 3 - EXECUTION

#### 3.01 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 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.

### 3.02 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 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.
  - 7. Do not use mechanical fasteners at precast concrete. Install retainers with urethane adhesive.
- 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.

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.

### 3.03 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.

### 3.04 EXPANSION JOINT COVER SCHEDULE

A. Provide expansion joints of type and with movement capabilities scheduled for each application.

Application	Type of Assembly	Joint Width/ Joint Movement	Acceptable Products
Exterior masonry	Exterior wall joint cover assembly.	2 inches $\pm$ 1 inch	C/S Model SF-200
Interior floors	Metal floor-to-floor.	2 inches $\pm$ 1 inch	C/S Model GTF-200
Interior floor to wall, exposed.	Metal floor to wall covers.	2 inches $\pm$ 1 inch	C/S Model GFTW-200
Interior gypsum board walls, ceilings, soffits	Interior wall, ceiling & soffit metal joint cover.	2 inches $\pm$ 1 inch	C/S Model FWF-200
Interior wall corner condition	Interior wall, ceiling & soffit metal joint cover.	2 inches $\pm$ 1 inch	C/S Model FWFC-200

END OF SECTION 05810