SECTION 079500 - EXPANSION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Architectural joint systems for building interiors.
2. Architectural joint systems for building exteriors.

B. Related Sections include the following:

1. Division 07 Section "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for roof joint systems as part of the roofing work.

1.3 DEFINITIONS

A. Maximum Joint Width: Widest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

B. Minimum Joint Width: Narrowest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

C. 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 (plus or minus) of nominal value of joint width.

D. Nominal Joint Width: The width of the linear opening specified in practice and in which the joint system is installed.

1.4 ACTION SUBMITTALS

A. Shop Drawings: For each expansion control system specified. Include plans, elevations, sections, details, splices, blockout requirement, attachments to other work, and line diagrams showing entire route of each expansion control system. Where expansion control systems change planes, provide isometric or clearly detailed drawing depicting how components interconnect.

B. Samples: For each exposed expansion control system and for each color and texture specified, full width by 6 inches long in size.

C. Product Schedule: Prepared by or under the supervision of the supplier. Include the following information in tabular form:

1. Manufacturer and model number for each expansion control system.
2. Expansion control system location cross-referenced to Drawings.
3. Nominal joint width.
4. Movement capability.
5. Classification as thermal or seismic.
6. Materials, colors, and finishes.
7. Product options.
8. Fire-resistance ratings.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each fire barrier provided as part of an expansion control system, for tests performed by a qualified testing agency.

1.6 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of architectural joint systems and are based on the specific systems indicated. Refer to Division 01 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.

1.7 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: Where indicated, provide expansion control systems with fire barriers identical to those of systems tested for fire resistance per UL 2079 or ASTM E 1966 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Hose Stream Test: Wall-to-wall and wall-to-ceiling systems shall be subjected to hose stream testing.

B. Seismic Performance: Expansion control systems shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the system will remain in place without separation of any parts when subjected to the seismic forces specified and the system will be fully operational after the seismic event."
2. Component Importance Factor is 1.0.

1.8 COORDINATION

A. Coordinate installation of exterior wall joint systems with roof expansion assemblies to ensure that wall transitions are watertight. Roof expansion assemblies are specified in Division 07.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum: ASTM B 221, Alloy 6063-T5 for extrusions; ASTM B 209, 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.
2. Mill Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

B. Elastomeric Seals: Preformed elastomeric membranes or extrusions to be installed in metal frames.

C. 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 and to meet performance criteria for required fire-resistance rating.

D. Moisture Barrier: Flexible elastomeric material, Santoprene.

E. Accessories: Manufacturer's standard anchors, clips, fasteners, set screws, spacers, and other accessories compatible with material in contact, as indicated or required for complete installations.

2.2 ARCHITECTURAL JOINT SYSTEMS, GENERAL

A. General: Provide architectural joint systems of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.

1. Furnish units in longest practicable lengths to minimize field splicing. Install with hairline mitered corners where joint changes direction or abuts other materials.
2. Include factory-fabricated closure materials and transition pieces, tee-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous joint systems.

B. Design architectural joint systems for the following size and movement characteristics:

1. Nominal Joint Width: As indicated.
2. Maximum Joint Width: As indicated.
3. Minimum Joint Width: As indicated.
4. Movement Capability: As indicated.
5. Type of Movement: As indicated.

2.3 ARCHITECTURAL JOINT SYSTEMS FOR BUILDING INTERIORS

A. Basis-of-Design Product: Subject to compliance with requirements, provide the products specified in individual subparagraphs below as basis-of-design products or a comparable product by one of the following:

1. Architectural Art Mfg., Inc.
2. Balco, Inc.
3. JointMaster/InPro Corporation.
4. MM Systems Corporation.

B. Floor-to-Floor Joint Systems:

1. Basis-of-Design Product: Construction Specialties type GTR-400HD MOD. for floor conditions or a comparable product.
2. Design Criteria:

    a. Nominal Joint Width: 4 inches.
    b. Minimum Joint Width: 4 inches.
    c. Maximum Joint Width: 4 inches.
    d. Type of Movement: Seismic.

3. Type: Center plate.

    a. Cover-Plate Design: Plain, recessed to accept field-applied finish materials.

        1) Cover-Plate Recess Depth: 5/8 inch.

    b. Metal: Aluminum.

        1) Finish: Clear anodic, Class I.

    c. Seal Material: Manufacturer's standard.

        1) Color: As selected by Architect from manufacturer's full range.

C. Wall-to-Ceiling Joint Systems:

1. Basis-of-Design Product: Construction Specialties type GTWC-400 w/ RFX4WC for floor-to-wall conditions or a comparable product.
2. Design Criteria:

    a. Nominal Joint Width: 4 inches.
    b. Minimum Joint Width: 4 inches.
    c. Maximum Joint Width: 4 inches.
    d. Type of Movement: Seismic.
    e. Fire-Resistance Rating: Provide expansion control system and fire-barrier assembly with a rating not less than that indicated.

3. Type: Center plate.

    a. Cover-Plate Design: Plain, recessed to accept field-applied finish materials.

        1) Cover-Plate Recess Depth: 5/8 inch.

    b. Metal: Aluminum.

        1) Finish: Clear anodic, Class I.

c. Seal Material: Manufacturer's standard.

1) Color: As selected by Architect from manufacturer's full range.

D. Wall-to-Wall Joint Systems:

1. Basis-of-Design Product: Construction Specialties type FWS-400 for flat wall conditions or a comparable product.
2. Nominal Joint Width: 4 inches.
3. Movement Capability: Plus 4 inches and minus 3 inches.
4. Type of Movement Capability: Expansion and contraction.
5. Retainer Material: Mill finish aluminum.
6. Preformed Seal Material: Santoprene.

a. Seal Color: As selected by Architect.

E. Wall-to-Ceiling Joint Systems:

1. Basis-of-Design Product: Construction Specialties type HC-400 or a comparable product.
2. Nominal Joint Width: 4 inches.
3. Movement Capability: Plus or minus 4 inches.
4. Type of Movement Capability: Expansion and contraction.
5. Retainer Material: Mill finish aluminum.
6. Preformed Seal Material: Santoprene.

a. Seal Color: White.

F. Wall-to-Ceiling Joint Systems:

1. Basis-of-Design Product: Construction Specialties type GTWC-400 w/ RFX4WC for floor-to-wall conditions or a comparable product.
2. Design Criteria:

a. Nominal Joint Width: 4 inches.
b. Minimum Joint Width: 4 inches.
c. Maximum Joint Width: 4 inches.
d. Type of Movement: Seismic.
e. Fire-Resistance Rating: Provide expansion control system and fire-barrier assembly with a rating not less than that indicated.

3. Type: Center plate.

a. Cover-Plate Design: Plain, recessed to accept field-applied finish materials.

1) Cover-Plate Recess Depth: 5/8 inch.

b. Metal: Aluminum.

1) Finish: Clear anodic, Class I.

c. Seal Material: Manufacturer's standard.

1) Color: As selected by Architect from manufacturer's full range.

G. Fire Barriers: System of insulation layers encapsulated in stainless steel mesh. Provide Multiflex by Construction Specialties or approved substitute.

1. Fire-Resistance Rating: Provide expansion control system and fire-barrier assembly with a rating not less than that indicated.

2.4 ARCHITECTURAL JOINT SYSTEMS FOR BUILDING EXTERIORS

A. Basis-of-Design Product: Subject to compliance with requirements, provide the products specified in individual subparagraphs below as basis-of-design products or a substitute product by one of the following:

1. Architectural Art Mfg., Inc.
2. Balco, Inc.
3. JointMaster/InPro Corporation.
4. MM Systems Corporation.

B. Architectural Joint Systems for Exterior Walls:

1. Basis-of-Design Product: Construction Specialties type SC-600 or a comparable product.
2. Nominal Joint Width: 6 inches.
3. Movement Capability: Plus 6 inches and minus 4.25 inches.
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. Preformed Seal Material: Santoprene.

a. Seal Color: As selected by Architect.

7. Moisture Barrier: Provide manufacturer's standard unit.

2.5 FINISHES

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.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces where architectural joint systems will be installed for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to architectural joint system manufacturer's written instructions.

B. Coordinate and furnish anchorages, setting drawings, and instructions for installing joint systems. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.

3.3 INSTALLATION

A. Comply with manufacturer's written instructions for storing, handling, and installing architectural joint assemblies and materials unless more stringent requirements are indicated.

B. Metal Frames: Perform cutting, drilling, and fitting required to install joint systems.

1. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
2. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation. Notify Architect where discrepancies occur that will affect proper joint installation and performance.
3. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
4. Locate in continuous contact with adjacent surfaces.
5. Locate anchors at interval recommended by manufacturer, but not less than 3 inches from each end and not more than 24 inches o.c.

C. Seals in Metal Frames: Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with minimum number of end joints.

1. Provide in continuous lengths for straight sections.
2. Seal transitions according to manufacturer's written instructions. Vulcanize or heat-weld field-spliced joints as recommended by manufacturer.
3. Installation: Mechanically lock seals into frames or adhere to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.

D. Terminate exposed ends of joint assemblies with field- or factory-fabricated termination devices.

E. Fire-Resistance-Rated Assemblies: Coordinate installation of expansion control system materials and associated work so complete assemblies comply with assembly performance requirements.

1. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and field splices.

F. Moisture Barrier: Provide at all exterior joints and where indicated on Drawings.

3.4 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.

B. Protect the installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over joints. Reinstall cover plates or seals prior to Substantial Completion of the Work.

END OF SECTION 079500