SECTION 079500 - EXPANSION CONTROL

3-INCH JOINT, ST. CLAIRE; 6-INCH JOINT, WARRENTON

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. Section Includes:

1. Interior expansion control systems.
2. Exterior wall expansion control systems.

B. Related Requirements:

1. Section 042000 “Unit Masonry” for masonry wall joint systems.
2. Section 077129 "Manufactured Roof Expansion Joints" for factory-fabricated roof expansion control.
3. Section 079200 "Joint Sealants" for liquid-applied joint sealants and for elastomeric sealants without metal frames.

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.

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 (150 mm) long in size.

C. Samples for Initial Selection: For each type of expansion control system indicated.

1. Include manufacturer's color charts showing the full range of colors and finishes available for each exposed metal and elastomeric seal material.

D. 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.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranties: For special warranties.

C. Test Reports: ASTM-E1399 test reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Approved by manufacturer and having experience installing joint systems that are similar in design complexity.

B. Source Limitations: Obtain all architectural joint system through one source from a single manufacturer.

C. Loading Characteristics: Standard loading refers to covers that are capable of withstanding up to 500 lb. point loads. Heavy duty refers to covers that are capable of withstanding up to 2000 lb. point loads.

1.7 WARRANTY

A. Special Warranty: Manufacturer and Installer agree to repair or replace roof expansion joints and components that leak, deteriorate beyond normal weathering, or otherwise fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. General: Provide expansion control 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 expansion control systems change direction or abut other materials.
2. Include factory-fabricated closure materials and transition pieces, T-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous expansion control systems.

B. Coordination: Coordinate installation of exterior wall expansion control systems with roof expansion control systems to ensure that wall transitions are watertight. Roof expansion joint assemblies are specified elsewhere.

2.2 PERFORMANCE REQUIREMENTS

A. 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."
2. Component Importance Factor is 1.5.

2.3 INTERIOR EXPANSION CONTROL SYSTEMS, ST. CLAIRE BRANCH:

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or a comparable product by one of the following:

1. Balco, Inc.
2. Construction Specialties, Inc.
3. MM Systems Corporation.
4. Watson Bowman Acme Corp.; a BASF Construction Chemicals business.

C. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

D. Wall-to-Wall:

1. Basis-of-Design Product: Indicated on Drawings, Model AFW-300 Wall to Wall 3” expansion joint by Construction Specialties.
2. Design Criteria:

a. Nominal Joint Width: As indicated on Drawings, 3 inches.
b. Minimum Joint Width: As indicated on Drawings, 2-1/2 inches.
c. Maximum Joint Width: As indicated on Drawings, 4-1/2 inches.
d. Movement Capability: As indicated on Drawings, -25 percent/+75 percent.
e. Type of Movement: As indicated on Drawings, Thermal and Seismic.

3. Type: Snap-on cover.

a. Metal Exposed: Aluminum.

1) Finish: Manufacturer's standard, Class II, clear anodic.

b. Fire-Resistance Rating: Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction.

c. Moisture Barrier: Manufacturer's standard.

2.4 INTERIOR EXPANSION CONTROL SYSTEMS, WARRENTON BRANCH:

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or a comparable product by one of the following:

1. Balco, Inc.
2. Construction Specialties, Inc.
3. MM Systems Corporation.
4. Watson Bowman Acme Corp.; a BASF Construction Chemicals business.

C. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

D. Wall-to-Wall:

1. Basis-of-Design Product: Indicated on Drawings, Model AFW-600 Wall to Wall 6" expansion joint by Construction Specialties.
2. Design Criteria:

a. Nominal Joint Width: As indicated on Drawings, 6 inches.
b. Minimum Joint Width: As indicated on Drawings, 5-1/2 inches.
c. Maximum Joint Width: As indicated on Drawings, 7-1/2 inches.
d. Movement Capability: As indicated on Drawings, -25 percent/+75 percent.
e. Type of Movement: As indicated on Drawings, Thermal and Seismic.

3. Type: Snap-on cover.

a. Metal Exposed: Aluminum.

1) Finish: Manufacturer's standard, Class II, clear anodic.

b. Fire-Resistance Rating: Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction.

c. Moisture Barrier: Manufacturer's standard.

2.5 EXTERIOR WALL EXPANSION CONTROL SYSTEMS, ST. CLAIRE BRANCH:

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or a comparable product by one of the following:

1. Balco, Inc.
2. Construction Specialties, Inc.
3. MM Systems Corporation.
4. Watson Bowman Acme Corp.; a BASF Construction Chemicals business.

C. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

D. Wall-to-Wall:

1. Basis-of-Design Product: Indicated on Drawings, Model HS-300 Wall to Wall 3" expansion joint by Construction Specialties.
2. Design Criteria:

a. Nominal Joint Width: As indicated on Drawings, 3 inches (76 mm).
b. Minimum Joint Width: As indicated on Drawings, 2.25 inches (57 mm).
c. Maximum Joint Width: As indicated on Drawings, 3.75 inches (95 mm).
d. Movement Capability: As indicated on Drawings, -25 percent/+75 percent.
e. Type of Movement: As indicated on Drawings, Thermal and Seismic.

3. Type: Closed Cell Ethylene Vinyl Acetate Foam.

a. Seal Material: Monolithic piece of foam, manufacturer's standard.

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

b. Seal: Water-tight, dustproof, airtight, UV stable, chemically resistant urethane primary seal.
c. Environmentally safe, contains no chloroflorocarbons (CFC's).
d. Made from a monolithic piece of foam that will not delaminate like multi-layer products.

2.6 EXTERIOR WALL EXPANSION CONTROL SYSTEMS, WARRENTON BRANCH:

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or a comparable product by one of the following:

1. Balco, Inc.
2. Construction Specialties, Inc.
3. MM Systems Corporation.
4. Watson Bowman Acme Corp.; a BASF Construction Chemicals business.

C. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

D. Wall-to-Wall:

1. Basis-of-Design Product: Indicated on Drawings, Model HS-600 Wall to Wall 6" expansion joint by Construction Specialties.
2. Design Criteria:

a. Nominal Joint Width: As indicated on Drawings, 6 inches (152 mm).
b. Minimum Joint Width: As indicated on Drawings, 4.50 inches (114 mm).
c. Maximum Joint Width: As indicated on Drawings, 7.50 inches (191 mm).
d. Movement Capability: As indicated on Drawings, -25 percent/+75 percent.
e. Type of Movement: As indicated on Drawings, Thermal and Seismic.

3. Type: Closed Cell Ethylene Vinyl Acetate Foam.

a. Seal Material: Monolithic piece of foam, manufacturer's standard.

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

b. Seal: Water-tight, dustproof, airtight, UV stable, chemically resistant urethane primary seal.
c. Environmentally safe, contains no chloroflorocarbons (CFC's).
d. Made from a monolithic piece of foam that will not delaminate like multi-layer products.

2.7 ACCESSORIES

A. Moisture Barriers: Manufacturer's standard moisture barrier consisting of a continuous, waterproof membrane within joint and attached to substrate on sides of joint below the primary cover.

2.8 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. Stainless Steel: ASTM A 240/A 240M or ASTM A 666, Type 304 for plates, sheet, and strips.

1. Remove tool and die marks and stretch lines or blend into finish.

C. Elastomeric Seals: ASTM E 1783; preformed elastomeric membranes or extrusions to be installed in metal frames.

D. Compression Seals: ASTM D2000; preformed rectangular elastomeric extrusions having an internal baffle system and designed to function under compression.

E. Cellular Foam Seals: Extruded, compressible foam designed to function under compression.

F. Elastomeric Concrete: Modified epoxy or polyurethane extended into a prepackaged aggregate blend, specifically designed for bonding to concrete substrates.

G. Moisture Barrier: Flexible elastomeric material, PVC, minimum 7-ply laminate reinforced.

H. 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.

2.9 GENERAL FINISH REQUIREMENTS

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. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.10 ALUMINUM FINISHES

A. Mill finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces where expansion control 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 expansion control system manufacturer's written instructions.

B. Repair concrete slabs and blockouts using manufacturer's recommended repair grout of compressive strength adequate for anticipated structural loadings.

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

D. Cast-In Frames: Coordinate and furnish frames to be cast into concrete.

3.3 INSTALLATION

A. Comply with manufacturer's written instructions for storing, handling, and installing expansion control systems and materials unless more stringent requirements are indicated.

B. Metal Frames: Perform cutting, drilling, and fitting required to install expansion control 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 expansion control system installation and performance.
3. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
4. Repair or grout blockout as required for continuous frame support using nonmetallic, shrinkage-resistant grout.
5. Install frames in continuous contact with adjacent surfaces.

    a. Shimming is not permitted.

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.

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. Compression Seals: Apply adhesive or lubricant adhesive as recommended by manufacturer to both before installing compression seals.

E. Terminate exposed ends of expansion control systems with field- or factory-fabricated termination devices.

F. Moisture Barrier: Provide at all exterior joints and where indicated on Drawings. Provide drainage fittings at a maximum of 50 feet (15.2 m) or 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 expansion control systems. Reinstall cover plates or seals prior to Substantial Completion of the Work.

END OF SECTION 079500