SECTION 07 95 00

EXPANSION JOINT ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior and interior nonrated and fire rated prefabricated expansion joint assemblies for floor, wall, and ceiling surfaces expansion joint cover assemblies.
2. Exterior and interior prefabricated seismic joint assemblies.

1.2 ACTION SUBMITTALS

A. Product Data: Technical data for including construction details, material descriptions, dimensions of individual components and profiles, and finishes for expansion joint cover assemblies.

B. Shop Drawings: Submit plans, elevations, sections, details, splices, block out requirement, attachments to other work, and line diagrams showing entire route of each expansion joint.

1. Indicate joint assembly profiles, dimensions, special end conditions, affected adjacent construction, and anchorage.
2. Where expansion joint cover assemblies change planes, provide isometric or clearly detailed drawing depicting how components interconnect.

C. Samples: Submit sample for each color and texture specified, full width by 6 inches (150 mm) long in size.

D. Expansion Joint Cover Assembly 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 joint cover assembly.
2. Expansion joint cover assembly location cross-referenced to Drawings.
3. Nominal, minimum, and maximum joint width.
4. Movement direction.
5. Materials, colors, and finishes.
6. Product options.
7. Fire resistance ratings.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Submit report for each fire resistance rated expansion joint cover assembly, for tests performed by a qualified testing agency.

1.4 QUALITY ASSURANCE

A. Coordination: Coordinate recesses required for floor to floor or floor to wall joints where recesses are required for installation.

B. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
   1. Build mockup of typical expansion joint cover assembly as shown on Drawings.
   2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
   3. Subject to compliance with requirements, approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. The Contractor shall coordinate with the Owner and Architect for all floor joints along the travel route of heavy equipment and determine the loading conditions necessary for all such joints. All such joints shall be clearly indicated on the Shop Drawings and alternate assemblies proposed where loading conditions described herein are insufficient.

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

C. Fire Resistance Ratings: Provide expansion joint cover assemblies with fire barriers identical to those of systems tested for fire resistance according to UL 2079 or ASTM E 1966 by a qualified testing agency.
   1. Hose Stream Test: Wall to wall and wall to ceiling assemblies shall be subjected to hose stream testing.

D. Expansion Joint Design Criteria Common:
   1. Type of Movement: Thermal.
      a. Nominal Joint Width: Indicated on Drawings.
      b. Minimum Joint Width: Indicated on Drawings.
      c. Maximum Joint Width: Indicated on Drawings.
   2. Load Capacity:
      a. Uniform Load: Minimum 50 lb/sq. ft. (244 kg/sq. m).
      b. Concentrated Load: Minimum 300 lb (136 kg).
      c. Maximum Deflection: Minimum 0.0625 inch (1.6 mm).

3. Type of Movement: Seismic.
    a. Joint Movement: Indicated on Drawings.

E. Expansion Joint Design Criteria Interior Heavy Duty Floor Joints for Equipment Travel
1. Type of Movement: Thermal
    a. Nominal Joint Width: Indicated on Drawings.
    b. Minimum Joint Width: Indicated on Drawings.
    c. Maximum Joint Width: Indicated on Drawings.
2. Installation: Recessed No Bump Joint trafficable.
3. Load Capacity:
    a. Concentrated Load: Minimum 6,000 pounds wheel load moving across the joint.
    b. Maximum Deflection: Minimum 0.0625 inch.
4. Type of Movement: Seismic.
    a. Joint Movement: Indicated on Drawings.
5. Basis of Design: SJS-FR Seismic Joint System by Emseal

F. Joint Cover Assemblies: Permit unrestrained movement of joint without disengagement of cover.

G. Assembly Description: Provide units in longest practicable lengths to minimize field splicing including factory fabricated closure materials and transition pieces, T joints, corners, curbs, cross connections, and other accessories as required to provide continuous expansion joint cover assemblies.

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 protective coating on aluminum surfaces in contact with cementitious materials.

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

C. Brass: ASTM B 36/B 36M, UNS Alloy C26000 for half hard sheet and coil.

D. Bronze: ASTM B 455, Alloy C38500 for extrusions; Alloy C23000 red brass for plates.

E. Elastomeric Seals: Manufacturer's recommended preformed elastomeric membranes or extrusions to be installed in metal frames.

F. Compression Seals: ASTM E1612; preformed elastomeric extrusions having an internal baffle system and designed to function under compression.

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

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

I. 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 comply with performance criteria for required fire resistance rating.

J. Nonmetallic, Shrinkage Resistant Grout: ASTM C 1107/C 1107M, factory packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30 minute working time.

K. Threaded Fasteners: Aluminum, cadmium plated steel, galvanized steel or stainless steel as recommended by expansion joint manufacturer.

L. Moisture Barriers: Continuous, waterproof membrane within joint and attached to substrate on sides of joint.
   1. Drain Tube Assemblies: Equip moisture barrier with drain tubes and seals to direct collected moisture to exterior wall expansion control system.
   2. Provide where indicated on Drawings.

M. Attachment Devices: Stainless steel attachment devices, including anchors, clips, fasteners, set screws, spacers, and other accessories compatible with material in contact, as indicated or required for complete installations.

2.3 EXTERIOR EXPANSION JOINT COVERS

A. Exterior Metal Plate Joint Cover: Assembly consisting of sliding metal cover plate in continuous contact with gaskets mounted on metal frames fixed to sides of joint gap.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Balco
      d. Construction Specialties, Inc.
      e. Emseal Joint Systems, Sika Company.
      f. InPro Corporation (IPC).
      g. Permatite, Metal-Era Engineered Roof Solutions.
      h. MM Systems Corporation.
      i. Nystrom, Inc.
   2. Application: Wall to wall Wall to soffit Soffit to soffit.
   3. Installation: Surface mounted.
   4. Fire Resistance Rating: Not less than that of adjacent construction.
   5. Exposed Metal:
      a. Aluminum: Clear anodic, Class I.

B. Exterior Elastomeric Seal Joint Cover: Assembly consisting of elastomeric seal anchored to surface mounted frames fixed to sides of joint gap.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Architectural Art Manufacturing Inc.
   b. BASF Corp. - Watson Bowman Acme Corp.
   c. Balco
   d. Construction Specialties, Inc.
   e. Emseal, Sika Company.
   f. InPro Corporation (IPC).
   g. MM Systems Corporation.
   h. Nystrom, Inc.
2. Application: Wall to wall Wall to soffit Soffit to soffit.
3. Installation: Recessed.
4. Fire Resistance Rating: Not less than that of adjacent construction.
5. Exposed Metal:
   a. Aluminum: Clear anodic, Class I.
6. Seal: Preformed elastomeric membrane or extrusion.
   a. Color: As Selected by Architect.

C. Silicone Foam Expansion Joint: Factory cured silicone seal fused to a cellular polyurethane/polyester binary backer block creating a monolithic seal Preformed, elastomeric extrusions having internal baffle system in sizes and profiles shown or recommended by manufacturer. Provide lubricant and adhesive for installation recommended by the manufacturer.
   1. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
      a. BASF Corp. - Watson Bowman Acme Corp.
      b. Emseal Joint Systems, a Sika Company.
      c. MM Systems Corporation.

2.4 INTERIOR FLOOR EXPANSION JOINT COVERS

A. The Contractor shall coordinate with the Owner and Architect for all floor joints along the travel route of heavy equipment and determine the loading conditions necessary for all such joints. All such joints shall be clearly indicated on the Shop Drawings and alternate assemblies proposed where loading conditions described herein are insufficient.

B. Metal Plate Floor Joint Cover: Metal cover plate fixed on one side of joint gap and free to slide on other.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Balco
      d. Emseal Joint Systems, a Sika Company.
      e. InPro Corporation (IPC).

f. MM Systems Corporation.
g. Nystrom, Inc.

2. Application: Floor to floor Floor to wall.
3. Installation: Surface mounted.
4. Load Capacity:
   a. Uniform Load: 50 lb/sq. ft. (244 kg/sq. m).
   b. Concentrated Load: 600 lb (136 kg).
   c. Maximum Deflection: 0.0625 inch (1.6 mm).
5. Fire Resistance Rating: Not less than that of adjacent construction.
6. Cover Plate Design: Abrasive covered.
7. Exposed Metal:
   a. Stainless steel: No. 4.

C. Center Plate Floor Joint Cover: Assembly consisting of center plate that slides over metal frames fixed to sides of joint gaps.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Balco
      d. Emseal Joint Systems, a Sika Company.
      e. InPro Corporation (IPC).
      f. MM Systems Corporation.
      g. Nystrom, Inc.
   2. Application: Floor to floor Floor to wall.
   3. Installation: Recessed.
   4. Load Capacity:
      a. Uniform Load: 50 lb/sq. ft. (244 kg/sq. m).
      b. Concentrated Load: 600 lb (136 kg).
      c. Maximum Deflection: 0.0625 inch (1.6 mm).
   5. Fire Resistance Rating: Not less than that of adjacent construction.
   6. Cover Plate Design: Abrasive covered.
   7. Exposed Metal:
      a. Stainless steel: No. 4.

D. Interior Heavy Duty Floor Joints for Equipment Travel: Metal Plate Floor Joint Cover with metal cover plate fixed on one side of joint gap and free to slide on other.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Balco
      d. Emseal Joint Systems, a Sika Company.

e. InPro Corporation (IPC).
f. MM Systems Corporation.
g. Nystrom, Inc.

2. Application: Floor to floor.
3. Installation: Surface mounted.
4. Load Capacity:
   a. Concentrated Load: 6,000 pounds minimum.
   b. Maximum Deflection: 0.0625 inch.
5. Fire Resistance Rating: Not less than that of adjacent construction.
6. Cover Plate Design: Abrasive covered.
7. Exposed Metal:
   a. Stainless steel: No. 4.

2.5 INTERIOR WALL EXPANSION JOINT COVERS

A. Center Plate Wall Joint Cover: Assembly consisting of center plate that slides over gaskets in metal frames fixed to sides of joint gaps.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Emseal Joint Systems, a Sika Company.
      d. InPro Corporation (IPC).
      e. MM Systems Corporation.
      f. Nystrom, Inc.
   2. Application: Wall to wall Wall to corner.
   3. Fire Resistance Rating: Not less than that of adjacent construction.
   4. Exposed Metal:
      a. Aluminum: Clear anodic, Class I.

2.6 INTERIOR CEILING EXPANSION JOINT COVERS

A. Center Plate Ceiling Joint Cover: Assembly consisting of center plate that slides over gasket in metal frames fixed to sides of joint gaps.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Architectural Art Manufacturing Inc.
      b. BASF Corp. - Watson Bowman Acme Corp.
      c. Emseal Joint Systems, a Sika Company.
      d. InPro Corporation (IPC).
      e. Nystrom, Inc.
   2. Application: Ceiling to ceiling Wall to ceiling.
   3. Fire Resistance Rating: Not less than that of adjacent construction.

4. Exposed Metal:
    a. Aluminum: Clear anodic, Class I.

B. Elastomeric Seal Acoustical Ceiling Joint Cover: Elastomeric seal assembly designed for use in acoustical ceilings.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Architectural Art Manufacturing Inc.
    b. BASF Corp. - Watson Bowman Acme Corp.
    c. Emseal Joint Systems, a Sika Company.
    d. InPro Corporation (IPC).
    e. Nystrom, Inc.
2. Application: Ceiling to ceiling.
3. Fire Resistance Rating: Not less than that of adjacent construction.
4. Exposed Metal:
    a. Aluminum: Clear anodic, Class I.
5. Seal: Preformed elastomeric membranes or extrusions.
    a. Color: As selected by Architect.

2.7 COMPRESSIVE SEALS

A. Preformed, Foam Joint Seals: Joint seal manufactured from urethane or EVA (ethylene vinyl acetate) foam with minimum density of 10 lb/cu. ft. (160 kg/cu. m), impregnated with nondrying, water repellent agent.
1. Size: Precompressed in roll or stick form to fit joint widths based on design criteria indicated, with factory or field applied adhesive for bonding to substrates.
2. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
    a. BASF Corp. - Watson Bowman Acme Corp.
    b. Emseal Joint Systems, a Sika Company.
    c. LymTal International Inc.
    d. MM Systems Corporation.
    e. Nystrom, Inc.
    f. Pecora Corporation.
3. Design Criteria:
    a. Nominal Joint Width: Indicated on Drawings.
    b. Minimum Joint Width: Indicated on Drawings.
    c. Maximum Joint Width: Indicated on Drawings.
    d. Movement Capability: Minus 25 percent/ plus 25 percent of joint width.
4. Joint Seal Color: Selected by Architect.

2.8 FINISHES

A. Aluminum Finishes:

1. Mill finish.
2. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
3. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

2.9 FABRICATION

A. Joint Cover Assembly: Cover plate, frame construction, retainers with resilient elastomeric filler strip, designed to permit joint movement with full recovery.
   1. Back paint components in contact with cementitious materials; minimum 20 mils dry film thickness.
   2. Galvanize embedded ferrous metal anchors and fastening devices.

B. Shop assemble components and package with anchors and fittings.

C. Provide joint components in single length wherever practical. Minimize site splicing.

D. Prefabricate special transitions, corner fittings, and end closures. Miter and weld joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces where expansion joint cover assemblies will be installed for installation tolerances and other conditions affecting performance of the work.

B. Notify Architect where discrepancies occur that will affect proper expansion joint cover assembly installation and performance.

C. Proceed with installation after correcting unsatisfactory conditions.

3.2 PREPARATION

A. Prepare substrates according to expansion joint cover assembly manufacturer's written instructions.

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

3.3 INSTALLATION

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

1. Interior Expansion Joints: Install water barrier with vulcanize or heat seal splice joints to provide water tight joints.

B. Metal Frames: Perform cutting, drilling, and fitting required to install expansion joint cover assemblies.
   1. Exterior: Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
      a. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation.
      b. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
      c. Install frames in continuous contact with adjacent surfaces.
         1) Shimming is not permitted.
      d. 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.
   2. Interior: Repair or grout block out as required for continuous frame support using nonmetallic, shrinkage resistant grout.
      a. Install frames in continuous contact with adjacent surfaces.
         1) Shimming is not permitted.
      b. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
      c. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation.
      d. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
      e. 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: 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. Vulcanize or heat weld field spliced joints 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. Install with hairline mitered corners where expansion joint cover assemblies change direction or abut other materials.

E. Terminate exposed ends of expansion joint cover assemblies with field or factory fabricated termination devices.

F. Fire Resistance Rated Assemblies: Coordinate installation of expansion joint cover assembly materials and associated work so complete assemblies comply with performance requirements.
   1. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and field splices.

G. Moisture Barrier Drainage: If indicated, provide drainage fittings and connect to drains.

3.4 CONNECTIONS

A. Transition to Roof Expansion Joint Covers: Coordinate installation of exterior wall and soffit expansion joint covers with roof expansion joint covers specified elsewhere.

3.5 ADJUSTING

A. Adjust joint cover to freely accommodate joint movement.

3.6 CLEANING

A. Do not remove strippable covering until finish work in adjacent areas is complete.

B. When protective material is removed, clean exposed metal surfaces to comply with manufacturer's instructions.

3.7 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. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over expansion joint cover assemblies. Reinstall cover plates or seals prior to Substantial Completion.

END OF SECTION

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