

**SECTION 079513**

**EXPANSION JOINT COVER ASSEMBLIES**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Section specifies floor, wall and ceiling, seismic and building expansion joint assemblies.
- B. Types of assemblies:
  - 1. Metal Plate Cover
  - 2. Elastomeric Joint Covers
  - 3. Preformed Elastomeric Sealant Joint

**1.2 QUALITY ASSURANCE**

- A. Project Conditions:
  - 1. Check actual locations of walls and other construction, to which work must fit, by accurate field measurements before fabrication.
  - 2. Show recorded measurements on final shop drawings.
- B. Fire tests performed by Factory Mutual, Underwriters Laboratories, Inc., Warnock Hersey or other approved independent testing laboratory.

**1.3 DELIVERY STORAGE AND HANDLING**

- A. Take care in handling of materials so as not to injure finished surface and components.
- B. Store materials under cover in a dry and clean location off the ground.
- C. Remove materials which are damaged or otherwise not suitable for installation from job site and replace with acceptable materials.

**1.4 SUBMITTALS**

- A. Submit in accordance with Section 013323, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
  - 1. Submit copies of manufacturer's current literature and data for each item specified.
  - 2. Clearly indicate movement capability of cover assemblies and suitability of material used in exterior seals for ultraviolet exposure.
- C. Certificates: Material test reports from approved independent testing laboratory indicating and interpreting test results relative to compliance of fire-rated expansion joint assemblies with requirements specified.
- D. Shop Drawings:
  - 1. Showing full extent of expansion joint cover assemblies; include large-scale details indicating profiles of each type of expansion joint cover assembly, splice joints between sections, joiners with other type

assemblies, special end conditions, anchorages, fasteners, and relationship to adjoining work and finishes.

2. Include description of materials and finishes and installation instructions.

E. Samples:

1. Samples of each type and color of metal finish on metal of same thickness and alloy used in work.
2. Samples of each type and color of flexible seal used in work .

**1.5 APPLICABLE PUBLICATIONS**

- A. Publications listed form part of this specification to extent referenced. Publications are referred to in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):

A36/A36M-08.....Structural Steel

A167-99 (R2009).....Stainless and Heat-Resisting Chromium-Nickel  
Steel Plate, Sheet, and Strip

A283/A283M-07.....Low and Intermediate Tensile Strength Carbon  
Steel Plates

A786/A786M-05(R2009)....Rolled Steel Floor Plates

B36/B36M-08.....Brass, Plate, Sheet, Strip, and Rolled Bar

B121-01(R2006).....Leaded Brass Plate, Sheet, Strip and Rolled Bar

B209M-07.....Aluminum and Aluminum-Alloy Sheet and Plate  
(Metric)

B221M-08.....Aluminum and Aluminum-Alloy Extruded Bars, Rods,  
Wire, Shapes, and Tubes (Metric)

B455-10.....Copper-Zinc Lead Alloy (Leaded Brass) Extruded  
Shapes

C864-05.....Dense Elastomeric Compression Seal Gaskets,  
Setting Blocks, and Spacers

C920-11.....Elastomeric Joint Sealants

D1187-97(R2002).....Asphalt Base Emulsions for Use as Protective  
Coatings for Metal

D2287-96(R2010).....Non-rigid Vinyl Chloride Polymer and Copolymer  
Molding and Extrusion Compounds

E119-10.....Fire Tests of Building Construction and  
Materials

E814-11.....Fire Tests of Through-Penetration Fire Stops

C. Federal Specifications (Fed. Spec):

TT-P-645B.....Primer, Paint, Zinc-Molybdate, Alkyd Type

D. The National Association of Architectural Metal Manufacturers (NAAMM):

AMP 500 Series.....Metal Finishes Manual.

E. National Fire Protection Association (NFPA):

251-06.....Tests of Fire Endurance of Building Construction  
and Materials

F. Underwriters Laboratories Inc. (UL):

263-11.....Fire Tests of Building Construction and Materials

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

A. Stainless Steel: ASTM A167, Type 302 or 304.

B. Structural Steel Shapes: ASTM A36.

C. Steel Plate: ASTM A283, Grade C.

D. Rolled Steel Floor Plate: ASTM A786.

E. Aluminum:

1. Extruded: ASTM B221, alloy 6063-T5.

2. Plate and Sheet: ASTM B209, alloy 6061-T6.

F. Bronze:

1. Extruded: ASTM B455.

2. Plate: ASTM B121.

G. Brass: ASTM B36.

H. Elastomeric Sealant:

1. ASTM C920, polyurethane.

2. Type.

3. Class 25.

4. Grade P or NS.

5. Shore A hardness 25, unless specified otherwise.

I. Thermoplastic Rubber:

1. ASTM C864.

2. Dense Neoprene or other material standard with expansion joint  
manufacturers having the same physical properties.

J. Vinyl Invertor Sealant Waterstops: Manufacturers' standard shapes and  
grade.

K. Fire Barrier:

1. Designed for indicated or required dynamic structural movement without  
material degradation or fatigue.

2. Tested in maximum joint width condition as a component of an expansion joint cover assembly in accordance with UL 263 NFPA 251, or ASTM E119 and E814, including hose steam test at full-rated period.

L. Zinc-Molybdate Primer: Fed. Spec. TT-P-645.

M. Accessories:

1. Manufacturer's standard anchors, fasteners, set screws, spacers, flexible secondary water stops or seals and filler materials, drain tubes, adhesive and other accessories as indicated or required for complete installations.
2. Compatible with materials in contact.
3. Water stops.

## **2.2 FABRICATION**

A. General:

1. Use ceiling and wall expansion joint cover assemblies of same design as floor to wall and floor to floor expansion joint cover assemblies. Unless shown otherwise.
2. Provide expansion joint cover assemblies of design, basic profile, materials and operation indicated required to accommodate joint size variations in adjacent surfaces, and as required for anticipated structural movement.
3. Deliver to job site ready for use and fabricated in as large sections and assemblies as practical. Assemblies identical to submitted and reviewed shop drawings, samples and certificates.
4. Furnish units in longest practicable lengths to minimize number of end joints. Provide mitered corners where joint changes directions or abuts other materials.
5. Include closure materials and transition pieces, tee-joints, corners, curbs, cross-connections and other assemblies.
6. Fire Performance Characteristics:
  - a. Provide expansion joint cover assemblies identical to those of assemblies whose fire resistance has been determined per ASTM E119 and E814, NFPA 251, or UL 263 including hose stream test at full-rated period.
  - b. Fire rating: Not less than rating of adjacent floor or wall construction.
7. Seal Strip factory - formed and bonded to metal frames and anchor members.
8. Compression Seals: Prefabricate from thermoplastic rubber or dense neoprene to sizes and approximate profiles shown.

B. Floor-to-Floor Metal Plate Joints:

1. Frames on each side of joint designed to support cover plate of design shown.
  - a. Continuous frame designed to finish flush with adjacent floor of profile indicated with seating surface and raised floor rim to accommodate flooring.
  - b. Provide concealed bolt and steel anchors for embedment in concrete.

- c. Designed for filler materials between raised rim of frame and edge of cover plate where shown.
- d. Frame and cover plates of some metal where exposed.
  - 1) Design cover plates to support 180 Kg (400 lbs) per 0.3 square meters (1 square foot).
  - 2) Cover plates free of rattle due to traffic.
  - 3) No gaps or budes occur on filler material during design movement of joint.
  - 4) Provide manufacturer's continuous standard flexible vinyl water stop under floor joint cover assemblies.
- C. Floor-to-Wall Metal Plate Joints:
  - 1. Provide one frame on floor side of joint only. Provide wall side frame where required by manufacturer's design.
  - 2. Angle Cover Plates: Provide angle cover plates for joints to wall with countersunk flat-head exposed fasteners for securing to wall unless shown otherwise.
  - 3. Space fasteners as recommended by manufacturer.
  - 4. Match cover of adjacent floor to floor cover.
- D. Interior Wall Joint Cover Assemblies:
  - 1. Surface Mounted Metal Cover Plates:
    - a. Concealed frame for fastening to wall on one sides of joint.
    - b. Extend cover to lap each side of joint and to permit free movement on one side.
    - c. Provide concealed attachment of cover t frame cover in close contact with adjacent finish wall surfaces.
    - d. Use angle cover plates at intersection of walls.
    - e. Use smooth surface cover plates matching floor plates.
    - f. Use expansion fire inserts in fire rated walls, rated same as hour rating of wall.
- E. Ceiling and Soffit Assemblies:
  - 1. Variable movement vinyl insert in metal frame on both sides of joint.
  - 2. Designed for flush mounting with no exposed fasteners.
  - 3. Vinyl insert locked into metal frame.
  - 4. Vinyl and metal finish as selected by Architect from manufacturer's full range.
  - 5. Vinyl insert semi rigid either flush face or accordion shape as showed to span joint width without sagging.
- F. Preformed Sealant Joint: Factory installed elastomeric sealant between extruded aluminum angle frame both sides.
  - 1. Elastomeric Sealant: Two part polyurethane sealant with movement capability of +/- 25% of joint width per ASTM-C-920, Type M, Grade P, Class 25, Shore A hardness of 25+/-5.
  - 2. Frame: Extruded Aluminum: Clear anodized.

3. Anticipated movement: +/- 25%.

### **2.3 METAL FINISHES**

#### **A. General:**

1. Apply finishes in factory after products are fabricated.
2. Protect finishes on exposed surfaces with protective covering before shipment.

#### **B. Aluminum Finishes:**

1. Finish letters and numbers for anodized aluminum are in accordance with the NAAMM AMP 501, Aluminum Association's Designation System.
  - a. Clear anodized finish: AA-C22A41 Chemically etched medium matte, clear anodic coating, Class I Architectural, 0.7 - mil thick.
2. Fluorocarbon Finish: NAAMM AMP 503 AAMA 605.2, high performance organic coating.

#### **C. Stainless Steel: NAAMM AMP 503, finish No. 2B.**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Manufacturer's representative shall make a thorough examination of surfaces receiving work of this section.
- B. Before starting installation, notify Prime Contractor of defects which would affect satisfactory completion of work.

### **3.2 PREPARATION**

- A. Verify measurements and dimensions at job site and cooperate in coordination and scheduling of work with work of related trades.
- B. Give particular attention to installation of items embedded in concrete and masonry so as not to delay job progress.
- C. Provide templates to related trade for location of support and anchorage items.

### **3.3 INSTALLATION**

- A. Install in accordance with manufacturers installation instructions unless specified otherwise.
- B. Provide anchorage devices and fasteners for securing expansion joint assemblies to in-place construction including threaded fasteners with drilled-in fasteners for masonry and concrete where anchoring members are not embedded in concrete. Provide metal fasteners of type and size to suit type of construction indicated and provide for secure attachment of expansion joint cover assemblies.
- C. Perform cutting, drilling and fitting required for installation of expansion joint cover assemblies.
- D. Install joint cover assemblies in true alignment and proper relationship to expansion joint opening and adjoining finished surfaces measured from established lines and levels.
- E. Allow for thermal expansion and contraction of metal to avoid buckling.

- F. Set floor covers at elevations flush with adjacent finished floor materials unless shown otherwise.
- G. Material and method of grouting floor frames set in prepared recesses in accordance with manufacturer's instructions.
- H. Locate wall, ceiling and soffit covers in continuous contact with adjacent surfaces. Securely attach in place with required accessories.
- I. Locate anchors at interval recommended by manufacturer, but not less than 75 mm (3- inches) from each ends, and, not more than 600 mm (24-inches) on centers.
- J. Maintain continuity of expansion joint cover assemblies with end joints held to a minimum and metal members aligned mechanically using splice joints.
- K. Cut and fit ends to produce joints that will accommodate thermal expansion and contraction of metal to avoid buckling of frames or plates.
- L. Flush Metal Cover Plates:
  - 1. Secure flexible filler between frames so that it will compress and expand.
  - 2. Adhere flexible filler materials to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.
- M. Waterstops:
  - 1. Install in conjunction with floor joints and where shown, run continuously to prevent water damage to finish spaces.
  - 2. Provide seal with frame to prevent water leakage.
  - 3. Provide outlet tubes from waterstops to drain to prevent damage to finish spaces.
- N. Fire Barriers:
  - 1. Install in compliance with tested assembly.
  - 2. Install in floors and in fire rated walls.
  - 3. Use fire barrier sealant or caulk supplied with system.
- O. Sealants:
  - 1. Install to prevent water and air infiltration.
- P. Vertical Exterior Extruded Thermoplastic Rubber.
  - 1. Install side frames mounted on sealant or butyl caulk tape with appropriate anchors 600 mm (24 inches) on center complete with independent continuous PVC back seal.
  - 2. Install primary seals retained in extruded aluminum side frames.
- Q. Installation of Extruded Thermoplastic Rubber or Seals:
  - 1. For straight sections, provide preformed seals in continuous lengths.
  - 2. Vulcanize or heat-seal field splice joints to provide watertight joints using manufacturer's recommended procedures.
- R. Installation of Preformed Elastomeric Sealant Joint:
  - 1. Locate joint directly over joints in wall or floor substrates.
  - 2. Full length shall be fastened to substrate using a construction adhesive.
  - 3. Install flush or slightly below finish material.

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**3.4 PROTECTION**

- A. Take proper precautions to protect the expansion joint covers from damage after they are in place.
- B. Cover floor joints with plywood where wheel traffic occurs.

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