



Erie Metal Specialties, Inc.  
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## SPECIFICATION

### Section 07 95 13

#### Erie Metal Specialties, Interior Architectural Systems

Model(s) "ESFNB", "ESFNB-W"

#### Seismic Expansion Control System

##### PART 1 - GENERAL

###### 1.01 Work Included

- A. The work shall consist of furnishing and installing expansion joints in accordance with the details shown on the plans and the requirements of the specifications. The joints are proprietary designs utilizing extruded elastomeric seals, base members and support plates.
- B. Related Work
  - Cast-in-place concrete
  - Miscellaneous and ornamental metals
  - Flashing and sheet metal
  - Sealants and caulking

###### 1.02 Submittals

- A. Template Drawings - Submit typical seismic joint cross-section indicating pertinent dimensioning, general construction, component connections, and anchorage methods.

###### 1.03 Product Delivery, Storage and Handling

- A. Deliver products in each manufacturer's original, intact, labeled containers and store under cover in a dry location until installed. Store off the ground, protect from weather and construction activities.

###### 1.04 Acceptable Manufacturer

- A. All joints shall be supplied by; Erie Metal Specialties, Inc. • 13311 Main Road • Akron • New York • 14001 • Phone (716) 542-3991 • Fax (716) 542-3996 • [sales@eriemetal.com](mailto:sales@eriemetal.com) • [www.eriemetal.com](http://www.eriemetal.com) .
- B. Alternate manufacturers and their products will be considered, provided they meet the design concept and are produced of materials that are equal to or superior to those specified.



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- C. Any proposed alternate systems must be submitted and receive approval 21 days prior to the bid. All post bid submittals will not be considered. This submission shall be in accordance with MATERIALS AND SUBSTITUTIONS.

- Any manufacturer wishing to submit for prior approval must provide the following:

A working 6" sample of the proposed system with a letter describing how system is considered superior to the specified system.

A project proposal drawing that illustrates the recommended alternate system installed in the floor construction that is specific to the project. Typical catalog cut sections will not be considered.

A Verifiable list of prior installations showing prior and successful experience with the proposed Systems.

Any substitution products not adhering to all specification requirements within, will not be considered.

#### 1.05 Quality Assurance

- A. Warranty: The expansion control system's performance shall be warranted for a period of 1 year. Installation shall be in strict accordance with manufacturer's technical specifications, details, installation instructions and general procedures in effect for normal intended usage and suitable applications under specified design movements and loading conditions.
- B. Manufacturer: Shall have a minimum ten (10) years experience specializing in the design and manufacture of Architectural Expansion Control Systems.
- C. Products: Expansion Control Systems must be installed with manufacturer's block out repair and infill material(s).
- D. Maintenance: The manufacturer shall provide the owner-operator a preventive maintenance guideline for Expansion Control Systems.

## PART 2 - PRODUCT

### 2.01 General

A. Provide seismic joint system with minimal exposed aluminum surfaces incorporating colorable elastomeric seals to facilitate movement. The system shall be capable of accommodating multi-directional seismic movement without stress to its components. Throughout the normal thermal movement, the system shall be capable of vertical displacement while providing a smooth transition and walking surface between opposing slabs. During seismic movement and closure of the structural opening, the slide plate shall incorporate and make integral, a seismic displacement seal that is designed to make rotational contact with and vertically clear adjacent aluminum base members.

Furnish Erie Metal Specialties, model "ESFNB" (Floors) for interior locations as indicated on drawings.



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2.02 Components and Materials

- A. Aluminum Extrusions - Material to conform to properties of ASTM B221, alloy 6063-T5 or 6063-T6.
- B. Aluminum Shapes - Material to conform to ASTM B209, alloy 6061-T6 or 5005-H34.
- C. Slide Plate - Provide minimum 3/16" thick aluminum plate conforming to alloy 6061-T6 (model "ESFNB"). Slide plate to be secured to joint assembly utilizing a pre-engineered seismic-centering bar that freely rotates in all directions. Preformed metal devices that utilize tension or compression to maintain and secure slide plate will not be allowed. Increase thickness of plate for model "ESFNB" as follows for systems accommodating wider openings:

Nominal Opening	Minimum Plate Thickness
2" – 10"	3/16"
12"	1/4"
18"	5/16"
24"	3/8"

- D. Seismic-Centering Bar - Shall exhibit circular sphered ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Bar shall be molded or manufactured incorporating corrosion resistant nylon components with sphered ends and 1" wide standard cross member for standard applications. Provide 1 1/2" wide cross member where heavy-duty application is required. Spacing shall be a maximum of 18" o.c. at floors ("ESFNB").

During seismic activity design centering bar to permit vertical displacement of metal cover during accelerated inward and outward movement without evidence of fatigue and permanent deformation. Concurrently provide secure connection between plate and underlying system components to maintain proper positioning and contact to adjoining surfaces.

Bar shall exhibit the following physical properties to demonstrate ability to resist corrosion and fatigue.

**PHYSICAL PROPERTIES**

Molded End Profile:

Material:	Nylon
Color:	Black
Tensile Strength @ break:	ASTM D638 25,500 psi

Cross-Member:

Material:	Pre-tempered spring steel
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Damage Mitigation - Test Requirements: Seismic-centering bar must exhibit ability to disengage (controlled release) from expansion joint edge member(s) when seismic movement exceeds the specified maximum allowable opening. Submit independent test report demonstrating required design of seismic-centering bar.

Requirements;

- a) Equipment: Instron Machine
- b) Orientation: Specimen subjected to tensile load with cross member parallel to direction of load.
- c) Specimens: Test 4(min)- select at random
- d) Disengagement range (lbs.) 800 (min.) – 1250 (max.)

E. Elastomeric Seals - Individual profiles shall be extruded and consist of multiple internal cells. Having a boundary of an upper and lower serrated surface web structure. Individual seal profiles shall demonstrate a minimum movement capability of: 1½” inch (min.) while remaining flat throughout the complete thermal movement cycle. Profiles that exhibit an upward projection causing concern for trip hazards or lack of seal’s ability to accommodate movement without stress to adjacent components will not be allowed. Elastomeric seal lugs shall mechanically lock into all adjacent and corresponding aluminum components without use of adhesives.

Material shall be PVC;

- a. Or manufacturer’s alternate material exhibiting a shore A hardness of 70 +/- 5.
- b. Standard colors: black, beige, gray.

F. Moisture Barrier (optional) - Shall be a fabric reinforced tear resistant clean vinyl sheet material. Minimum thickness shall be .026”.

G. Anchorage: For Model “ESFNB” provide minimum 1/4” diameter concrete expansion anchors at 24” o.c. maximum spacing to secure aluminum base member to floor slab.

H. Accessories - Provide necessary fasteners and related parts required for complete installation.

I. Block out Repair - Utilize a manufacturer’s single component rapid strength repair mortar meeting the following data requirements.

Compressive strength, psi (ASTM C 109)

2 hours	1,500
24 hours	4,500
7 days	8,000
28 days	9,000

J. Block out Infill - Utilize manufacturer’s non-catalyzed, non-shrink grout containing mineral aggregate



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meeting the following data requirements.

Compressive strength at plastic consistency, psi	
3 days	6,000
7 days	7,000
28 days	8,500

- K Fire Barrier Assembly - Designed for indicated or required dynamic structural movement without material degradation or fatigue. Tested in maximum joint width conditions with a field splice as a component of the expansion joint cover in accordance with UL-2079 and ASTM E-1966 at full rated period by a nationally recognized testing and inspecting organization.
- L. Supply Fire Barrier System as governed by joint opening and fire rating.

#### 2.03 Fabrication

- A. Aluminum extrusions and generic profiles to be shipped in standard 10 ft. lengths and shall be cut to length on jobsite where required. Extrusions shall be miter cut in the field to conform to directional changes unless otherwise contracted with expansion joint manufacturer.
- B. Elastomeric seals shall be shipped in the longest practical continuous length in manufacturer's standard shipping carton.
- C. Fire Barriers - Ship manufacturer's standard assembly including splice sealants and transitions (if applicable) and hardware for the required hourly rating. Assemblies shall be miter cut in the field to accommodate changes in direction.

#### 2.04 Finishes

- A. Aluminum extrusions shall be supplied in standard mill finish unless noted otherwise.
- B. Elastomeric seals shall be supplied in standard color offering: black, beige and gray.
- C. Optional custom colors available.

### **PART 3 - EXECUTION**

#### 3.01 Installation

- A. Install Expansion Joint System utilizing manufacturer's written procedures. Do not begin work without first reviewing procedures and confirmation that all components have been shipped and are ready for installation.
- B. Expansion joint systems shall be installed in strict accordance with the manufacturer's typical details and/or shop drawings along with the advice of their qualified technical representative.



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- C. Install all Expansion Control Systems utilizing manufacturer's block out repair and infill material(s).
  - D. Protect all expansion joint component parts from damage during installation, placement of concrete and thereafter until completion of structure.
  - E. Expansion joint systems shall be set to the proper width for the ambient temperature at the time of installation. This information is indicated in the contract plans.
- 3.02 Clean and Protect
- A. Protect system and its components during construction and placement of adjacent finishes and materials by other trades. After work is complete in adjacent areas clean exposed surfaces with a suitable cleaner that will not harm or attack the elastomeric material.