

ITEM 567.9609XX25 - VERMONT JOINT

1. DESCRIPTION:

- 1.01 This work shall consist of furnishing and installing expansion devices in conformance with the contract drawings or as directed by the Engineer.

2. MATERIALS:

- 2.01 Materials shall meet the requirements of the following Subsections of section 700 - Materials of the New York State Standard Specifications.

Zinc Rich Coating	719-01
Structural Steel	715-01
High Strength Bolts, Nuts & Washers	715-14
Welded Stud Shear Connectors	709-05
Epoxy Bonding Compound	721-03

- 2.02 **PERFORMED FABRIC MATERIAL.** Preformed fabric material shall be a multi-layered sheet composed of multi-ply of 15 oz. per square yard $\pm 5\%$ polyester fabric laminated with butadiene acrylonitrile, vulcanized to form an integral laminate. Physical properties of the laminate shall meet the following requirements:

	Number of Plies		
	2	3	5 to 8
Min. Weight of Laminate In psf	0.75	0.85	4.0
Min. Thickness in millimeters	1/8	5/32	3/4
Min. Ultimate Tensile Strength of Laminate in lbs./inch of width	800	1,200	2,000
Max Elongation at Ultimate Tension	30%	30%	30%
Max. Elongation at 1/10 Ultimate Tension	3%	3%	3%

- 2.03 **JOINT SEALER, BUTYL RUBBER TAPE.** Joint Sealer, Butyl Rubber Tape, shall be a rubber based extrusion conforming with Military specification MIL-C-18969A - Type II. The sealant shall be in roll form with release paper backing dimensioned to the width and thickness specified.

Basis of Acceptance - Certification shall be prepared by the manufacturer and shall certify that the component materials, manufacturing operations and/or finished products conform to all requirements of the pertinent project plans and specifications for the contract item or items indicated.

- 2.04 Galvanizing shall be applied in conformance with AASHTO M111 or AASHTO M232. Metalizing shall be applied in conformance with the contract plans and specification.
- 2.05 Unless otherwise specified all materials shall conform with the AASHTO or ASTM specifications prescribed herein and alternate substitutions will not be allowed unless approved on the fabrications drawings.

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2. MATERIALS (cont'd)

- 2.06 **FABRICATION DRAWINGS.** The fabricator of expansion devices furnished under this section shall submit detailed shop drawings, welding procedure specifications and welder qualification test records in accordance with the New York State Standard Specifications and the New York State Steel Construction Manual.

3. CONSTRUCTION DETAILS:

3.01 FABRICATION

- A. General. Material furnished under this section shall conform with all applicable provisions of this specification, the New York State Standard Specifications, the 4th Edition AASHTO LRFD Bridge Design Specifications and the New York State Steel Construction Manual.

Expansion devices shall be fabricated in a plant having as a minimum an AISC Small Bridge Certification or in a plant approved by the Authority **prior to the award of the contract.**

All corners and edges of steel plates shall be ground to a 1/16" radius.

Unless otherwise specified, expansion device components shall be constructed of either structural steel or high strength low alloy structural steel.

- B. Surface Protection. All steel components shall be galvanized or metalized as shown on the contract plans.

Weldments may be stress relieved during galvanizing, therefore, the Fabricator is responsible for straightening the unit to conform with specified tolerances.

- C. Preformed fabric trough shall be furnished in one continuous piece without splices.

- D. Tolerances. Assemblies shall be fabricated to the designed roadway cross-section within 1/8" tolerance of the theoretical dimensions at any point.

3.02 Marking, Storing & Shipping

- A. Marking. Each member shall be identified with an erection mark corresponding with the member identification mark on the approved shop drawings.

Identification marks on unpainted steel shall be impressed into the member (with a low stress stamp) in a non-stressed or low stressed area of the member. The Fabricator shall identify to the Contractor his procedure for marking material.

- B. **Storing.** Material at the Fabricator's plant shall be stored above ground on platforms, skids or other suitable supports. It shall be kept clean, properly drained and protected from unwanted corrosion. Free circulation of air shall be provided around all surfaces.

- C. Shipping. The Fabricator shall not ship any material, either to the project or to another manufacturer, without the Authority's approval. The Authority's inspector will place his seal of approval on all material that has been accepted and will approve the loading, positioning and anchorage of all material being shipped.

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3. CONSTRUCTION DETAILS: (cont'd)

3.03 Field Handling & Storage

- A. The Contractor is responsible for providing equipment that is adequate for safely lifting and placing without damage, all material furnished. Permanent distortion caused by handling or storage will be cause for rejection.
- B. The edges of nicks or bumps caused by handling shall be carefully ground to a 1/16" radius.
- C. Storage requirements in Subsection 3.02 shall be applicable for all material stored in the field.

3.04 Installation

- A. Parts shall be accurately assembled as shown on the plans. Material shall be carefully handled so that no members or pieces will be bent, broken or damaged. Hammering that will injure or deform members will not be permitted. Contact surfaces shall be clean. Members shall be erected to the position specified and externally supported until all connections have been completed.
- B. Expansion devices shall be installed in conformance with all applicable provisions of the New York State Steel Construction Manual.
- C. Final gap adjustments of an expansion joint assembly shall be made during installation in accordance with the movement chart shown on the plans, shop drawings or as directed by the Engineer.
- D. Joint assemblies shall be properly positioned within 1/8" of theoretical crown and straightness and attached to the structure by anchorages furnished with the assembly or as specified in the contract. Prior to the placement of the concrete, all steel surfaces that will be embedded in concrete shall be coated with epoxy bonding compound. Application of the epoxy bonding compound shall be done in accordance with the applicable provisions of Section 555 - Structural Concrete of the New York State Standard Specifications.
- E. Field welding shall conform to all applicable requirements of the New York State Steel Construction Manual.

4. METHOD OF MEASUREMENT:

- 4.01 The quantity to be measured for payment will be the number of linear feet of expansion device complete in place in the accepted work, measured along its centerline. The measurement shall be rounded to the nearest meter.

5. BASIS OF PAYMENT:

- 5.01 The accepted quantities will be paid for at the contract unit price for the Items specified, which price shall be full compensation for detailing, furnishing, handling, transporting and placing the material specified, including non-destructive testing of welds, surface preparation, protective coating, epoxy bonding compound and the furnishing of all labor, tools, equipment and incidentals necessary to complete the work.