

TO:

**SUPERSEDED BY EI 92-027
EFFECTIVE 7/30/92**

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

OBJECT: BRIDGE DESIGN MANUAL; DESIGN CRITERIA
FOR BRIDGES. INTERIM SPECIFICATION - MODULAR
JOINT SYSTEMS.

Subject Code: 7.35-6; 7.27-1-567

Distribution:

31 Main Office 33 Regions 34 Special

Code: 85-8

Date: 1/31/85

APPROVED:



E.V. HOURIGAN, Deputy Chief Engineer (Structures)

Supersedes:

Attached is a copy of the most current specification for Modular Joint Systems.

Items 16567.920601 through 16567.920604 - Modular Expansion Joint System-1 Cell through 4 Cell, cover joint systems which allow for movements up to 12" (One cell = 3" movement).

Until further notice no other items for modular joint systems will be acceptable for inclusion in State bridge projects. The item text will be stocked as a main office insert.

Requests for modular joint system specifications other than those covered by this Engineering Instruction should be directed to V. Kazakavich (518-457-3462).

These items become effective with the letting of June 6, 1985 (P.S.&E. March 14, 1985).

PREP.	DATE
DESIGN	LAUSAPE
RECEIVED	
FACILITY DIVISION	
FEB 03 1985	
CIRC.	FILE

ITEM 16567.920601 - MODULAR EXPANSION JOINT SYSTEM-1 CELL
ITEM 16567.920602 - MODULAR EXPANSION JOINT SYSTEM-2 CELL
ITEM 16567.920603 - MODULAR EXPANSION JOINT SYSTEM-3 CELL
ITEM 16567.920604 - MODULAR EXPANSION JOINT SYSTEM-4 CELL

Description: The work shall consist of fabricating, furnishing, and installing a modular expansion joint system at the locations indicated on the Contract Plans.

Modular expansion joint systems are manufactured in various sizes, defined by their total movement capability. The correct movement capability required at any one location is indicated on the Contract Plans.

Modular joint systems supplied for this work shall be one of the following:

a). Wabo-Maurer - as furnished by:

Watson-Bowman, ACME Associates
95 Pineview Drive
Amherst, NY 14120

b). Maurer - as furnished by:

D.S. Brown Company
P.O. Box 158
North Baltimore, Ohio 45872

c). Equi-Span as furnished by:

A.H. Harris & Sons
55 Sicker Road
Latham, NY 12110

Only a modular joint system supplied by one of the foregoing suppliers will be acceptable. No supplier other than those listed will be considered. Only one type of joint system will be permitted to be installed at all locations. The installation of two different types at separate locations (e.g. Wabo-Maurer and Acme-Beta MSB series) will not be permitted under any circumstances.

Materials: Materials used for this work shall conform to the following requirements:

The modular joint system and all its component parts, including stiffening plates and anchorages, shall be supplied by the manufacturer. The manufacturer shall certify that the following components meet the listed requirements:

Hollow Beams and Steel Extrusions	ASTM A588 or A242
Sealer	705-09*
Lubricant Adhesive	567-2.03A6
Headed Studs	709-05
Connecting & Sliding Plates 3/8" thickness	ASTM A588 or A242
Parapet Cover Plates 1/2" thickness	ASTM A36**

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*Shape approval by the Director of Materials is not required. Hardness, Type A Durometer shall be 60 ± 5 ; ASTM Method D2240. A three foot sample of the seal shall be submitted for testing to the Materials Bureau. No splices shall be permitted in permanent seals for any reason whatsoever.

**Parapet cover plates shall be painted three coats of paint in accordance with 740-01. The final coat shall be 708-12 - Light Gray Paint.

Shop drawings shall be required. They shall meet the requirements of subsection 567-2.04. They shall be submitted to the D.C.E.S. within ninety days after the award of the Contract.

The modular joint system manufacturer's instructions for the proper installation method of installing the joint system including field splicing methods, if required, shall be entered on the shop drawings. Shop drawings which lack manufacturer's installation instructions may be returned without examination.

All metal surfaces to come in contact with the neoprene sealer shall be blast cleaned in accordance with the requirements of Steel Structures Painting Council Surface Preparation No. 6 (SSPC-SP6) - Commercial Blast Cleaning. After cleaning, all cleaned surfaces shall exhibit a clean quality of CSa2, or better, as defined by Steel Structures Painting Council Standard SSPC Vis 1.

The cleaned metal surfaces shall be protected from rusting until such a time as the sealer, and lubricant adhesive are placed against the metal surface. Any cleaned metal surface upon which rusting appears shall be recleaned in accordance with the foregoing, at no additional expense to the State.

The curb and parapet sliding plates, if required, shall be shop assembled to fit the modular joint system. The plates may be disassembled from the joint system for shipment to the project site.

Unless otherwise noted, each modular expansion joint system shall be fabricated as a single entity. It shall fit the full width of the structure as indicated on the Contract Plans. The system shall be preset by the manufacturer prior to shipment. Presetting shall be done in accordance with the joint opening at 68°F which is indicated on the Contract Plans. Should the plans indicate that segmental fabrication is permissible, or required, each segment shall be fabricated to exactly fit that portion of the superstructure under construction, including sidewalks. Segments shall be fitted with temporary seals. Temporary seals will not require lubricant adhesive.

Shop inspection shall be conducted at the discretion of the Department.

Construction Details: During the initial stages of joint system installation, the Contractor shall have present at the installation site, a representative of the joint system manufacturer. This person shall be competent in all respects regarding the proper installation procedures to be used. The representative shall advise the Contractor of, and certify to the Engineer that, the proper procedures are being followed. All certifications to the Engineer shall be in writing.

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Unless otherwise noted, each modular expansion joint system shall be fabricated as a single entity. It shall fit the full width of the structure as indicated on the Contract Plans. The system shall be preset by the manufacturer prior to shipment. Presetting shall be done in accordance with the joint opening at 68°F which is indicated on the Contract Plans. Should the plans indicate that segmental fabrication is permissible, or required, each segment shall be fabricated to exactly fit that portion of the superstructure under construction, including sidewalks. Segments shall be fitted with temporary seals. Temporary seals will not require lubricant adhesive.

Shop inspection shall be conducted at the discretion of the Department.

Construction Details: During the initial stages of joint system installation, the Contractor shall have present at the installation site, a representative of the joint system manufacturer. This person shall be competent in all respects regarding the proper installation procedures to be used. The representative shall advise the Contractor of, and certify to the Engineer that, the proper procedures are being followed. All certifications to the Engineer shall be in writing.

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The modular expansion joint system shall be installed in strict accordance with the manufacturer's instructions, and the advice of their official representative. Two weeks prior to the intended installation the Engineer shall be supplied with two copies of the written instructions. The permanently installed joint system shall match exactly the finished roadway profile and grades. After the joint system has been permanently installed, a water tight integrity test shall be done in accordance with the requirements of subsection 567-3.01D and the following modification:

The words "permanently installed" as used above shall be interpreted to mean that any work necessary to be done to any other part of the structure, in order to achieve a truly complete permanent installation, has been done. This will apply even if the other work is to be paid for under other items of the contract.

Immediately prior to installation, the joint system shall be inspected by the Engineer, for proper alignment, and complete bond between the neoprene sealer and the steel, and proper stud placement and effectiveness. No bends or kinks in the joint system steel shall be allowed (except as necessary to follow the roadway grades). Nor shall the straightening of such bends or kinks be allowed. Any joint system exhibiting bends or kinks shall be removed from the work site, and replaced by a new joint system, at the expense of the Contractor. Neoprene sealer not fully bonded to the steel shall be fully bonded at the expense of the Contractor. Studs shall be inspected visually, and shall be given a light blow with a hammer. Any stud which does not have a complete end weld, or does not emit a ringing sound when struck a light blow with a hammer, shall be replaced. Studs located more than one inch, in any direction, from the location shown on the shop drawings, shall be carefully removed and a new stud placed in the proper location. All stud replacements shall be at the expense of the Contractor.

The modular expansion joint system shall be set to the proper width for the ambient temperature at the time of setting. This information is indicated on the Contract Plans.

Any mechanical devices, supplied by the joint system manufacturer, used to set the joint system to the proper width will remain the property of the manufacturer. When no longer required, the devices shall be returned to the manufacturer.

In order to perform the work of installing the joint systems in a proper manner, some portions of the curb and parapet cannot be constructed until after the sliding plates of the joint system are installed. At such times that the necessary concrete is placed (after joint system plate installation), existing surfaces shall receive a coating of epoxy polysulfide grout (721-03). The grout shall be placed no sooner than two hours prior to concrete placement. The cost of the grout shall be included in the unit price bid for the concrete.

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If the joint system has been fabricated in segments, they shall be field spliced to create a single, unbroken system, after the segments are in place over the full structure width. After the joint system has been field spliced and completely installed over the full width of the structure, including sidewalks, the temporary seals shall be removed and replaced with permanent seals. After the temporary seals are removed the Engineer will inspect the exposed steel for signs of rust, or other bond breaking material. If the Engineer determines such material exists, the exposed steel shall be sandblast cleaned until the material is completely removed. The Engineer will be the sole judge regarding the efficacy of the cleaning operations.

After the modular joint system has been set to its final line and grade, the recess opening shall be filled with Class E concrete. Prior to concrete placement, all existing concrete surfaces shall be primed with epoxy polysulfide grout (721-03). The grout shall be applied no sooner than two(2) hours previous to the concrete placement. The uppermost surface of the concrete placement shall be finished in accordance with the requirements of subsection 555-3.08D, Finishing Integral Wearing Surfaces on Structural Slabs and Structural Approach Slabs, except that machine finishing will not be required. The cost of this work including grout placement shall be included in the unit price bid for Class E concrete.

After the joint system is permanently installed, including plates and all concrete placements, a watertight integrity test shall be performed. The test shall be done in accordance with the requirements of subsection 567-3.01D.

Method of Measurement: The work will be measured as the number of linear feet of modular expansion joint system, completely installed, measured along the horizontal projection of the centerline of the joint system between the outer limits indicated on the Contract Plans.

The words "completely installed" shall be interpreted to mean the joint system in place with the following operations completed:

1. Concrete placed and finished.
2. Watertight integrity test performed.

Basis of Payment: The unit price bid per linear foot shall include the cost of all labor, materials and equipment necessary to complete the work.

No payment will be made for any work noted to be done at the expense of the Contractor, or any work noted to be paid for under other items of the Contract.