TO:

SUPERSEDED BY EB 99-025 EFFECTIVE 3/17/99

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: REVISED SPECIFICATIONS FOR MODULAR JOINT SYSTEMS

Subject Code:

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This Engineering Instruction transmits the new Specification for Modular Expansion Joint Systems. This Specification change was needed as a consequence of changes made to Section No. 567 of the New York State Standard Specifications, dated January 2, 1990. This new Specification does not alter the current approval procedure or have any affect on costs.

Item Numbers 16567.920601 through 16567.920604 are deleted and replaced with Item Numbers 16567.920701 through 16567.920706. This new Specification adds 5-Cell and 6-Cell Modular Expansion Joint Systems.

This change shall become effective with the Letting of July 30, 1992.

Attachments

FC 1575 (1/84)

ITEM 16567.920701 - MODULAR EXPANSION JOINT SYSTEM-1 CELL
ITEM 16567.920702 - MODULAR EXPANSION JOINT SYSTEM-2 CELL
ITEM 16567.920703 - MODULAR EXPANSION JOINT SYSTEM-3 CELL
ITEM 16567.920704 - MODULAR EXPANSION JOINT SYSTEM-4 CELL
ITEM 16567.920705 - MODULAR EXPANSION JOINT SYSTEM-5 CELL
ITEM 16567.920706 - MODULAR EXPANSION JOINT SYSTEM-6 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-Modular - as furnished by:
Watson Bowman, ACME Corporation
95 Pineview Drive
Amherst, NY 14228-2166

b). Maurer - as furnished by:
D. S. Brown Company
P. O. Box NO. 158
North Baltimore, Ohio 45872-0158

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-Modular and Equi-Span) 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:

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Hollow Beams, Steel Extrusions And Milled Steel Shapes	- ASTM A588
Box Seals	- 705-09*
Strip Seal	- ASTM D2628**
Adhesive	- 567-2.03A6
Stud Shear Connectors And Threaded Studs	- 709-05
Connecting And Sliding Plates- 3/8" Thickness	- ASTM A588
Parapet Cover Plates- 1/2" Thickness	- ASTM A36***

* 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.

** Recovery test not required.

*** Parapet Cover Plates shall be Galvanized in accordance with Section 719-01, Type I.

Shop Drawings shall be required for any joint system supplied as part of this work. Shop Drawings shall be prepared and reviewed in accordance with the applicable provisions of Section 2 of the SCM and this Specification and submitted to the D.C.E.S. for review and/or approval as required under Section 2. All Shop Drawings shall note the name and address of the Joint System Fabricator, including the actual location (address) where the fabrication will take place.

The Modular Joint System Manufacturer's instructions for the proper installation of the joint system shall be entered on the Shop Drawings. Shop Drawings which lack Manufacturer's installation instructions shall be returned without examination.

All steel fabrication (shop and field) shall be done in accordance with the requirements of the SCM. Mill inspection of the steel will not be required.

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Filler metal shall be qualified in accordance with Section 7 of the SCM. Welding Procedure Specifications (WPS) shall be submitted for approval to the DCES with the Shop Drawings for each combination of joint type and welding process shown on the Shop Drawings. Note: Shop Drawing Approval shall be withheld until this requirement has been met.

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 Degrees 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.

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The fabricated joint system will be accepted at the work site by the Engineer after a visual inspection and upon receipt of the Manufacturer's Certification Report (MCR) that the materials and the fabricating procedures were in accordance with the Approved Shop Drawings and this Specification. The Manufacturer shall submit, with the MCR, a Certified Copy of the Mill Test Report (MTR) for all steel used to fabricate the joint system.

Construction Details: During the initial stages of the 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.

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:

> 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 bend 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 Shop Drawing.

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 Portland Cement Bonding Grout (705-22) immediately prior to concrete placement. The cost of the grout shall be included in the unit price bid for the concrete.

If the joint system has been fabricated in segments, they shall be field spliced to create a single, unbroken system. 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, all metal surfaces which will be in contact with the permanent seals shall be commercially blast cleaned (SSPC-SP6) to visual standard CSa2 as defined in SSPC Vis 1.

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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 coated with Portland Cement Bonding Grout (705-22). 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 joint system completely installed. Measurement will be taken horizontally and vertically along 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, where applicable:

1. Nuts tightened, or retightened, as required.
2. Concrete placed and finished.
3. Watertight integrity tests 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.

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