

ITEM 567.6051--25 - SILICOFLEX ARMORLESS BRIDGE JOINT SYSTEM

1. DESCRIPTION:

- 1.01 The work shall consist of furnishing and installing the joint sealing system as detailed and shown on the Plans, at the locations indicated in the Plans, and in accordance with this specification.

2. MATERIALS:

2.01 Joint Seal:

- A. The system shall consist of a preformed silicone seal adhered to the substrate by a locking adhesive as shown in the Plans. The following joint sealing system shall meet the requirements of this specification:

1. Seal/System: Silicoflex Armorless Bridge Joint System

Manufactured By: R.J. Watson, Inc.
78 John Glenn Drive
East Amherst, NY 14228

A Manufacturer's Representative shall be present during all preparation, installation, and testing of the joint sealing system.

NO ALTERNATE SYSTEMS SHALL BE ALLOWED.

2.02 Surface Primer:

- A. The joint seal shall be installed between elastomeric concrete headers as detailed on the plans. For each application, a manufacturer's representative shall be contacted to determine the correct primer to be used and the details for the primer's proper installation.
- B. An affidavit of the manufacturer's approval of the primer and written installation procedures for the primer shall be given to the Engineer-in-Charge before the primer is installed.

3. CONSTRUCTION DETAILS:

3.01 General:

- A. The joint seal shall be installed as per the manufacturer's recommendations. The joint sealing system shall be installed in three distinct steps.
1. Header Zone with Joint Preparation.
 2. Placement of Surface Primer.
 3. Placement of Joint Seal.

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3. CONSTRUCTION DETAILS: (cont'd)

3.02 Header Zone With Joint Preparation:

- A. The header zone directly supports the joint sealing system and is to be constructed as specifically shown on the Plans.
- B. The Plans will show the header zone as an elastomeric concrete header cast separately, and bonded to the substrate concrete bridge deck.
- C. The header zone shall be formed and cast to provide the clear joint opening and joint recess depth as shown in the Plans for each installation location.
- D. Concrete header zones shall be sound, fully cured, and dry before succeeding installation steps are performed.
- E. The vertical face of the header zone to which the joint sealing system is to be bonded shall be free of voids, "bug holes", moisture, oils, and laitance.
- F. Before installation of the joint system the entire recess must be free of dust, oil, grease, waste, moisture, and loose concrete. Concrete surfaces shall be sand blasted or ground to expose the concrete matrix. All laitance must be removed from new concrete surfaces. All surfaces shall be wiped clean with denatured or isopropyl alcohol. Any method of preparation or altering of the recess shall be approved by the Manufacturer's Representative, in writing, prior to modification of, preparation and installation of the seal.

Failure of the joint, as detailed in Section 3.05, Paragraph G, due to the inadequate preparation of the substrate shall be considered failure of the system to perform and be governed by the repair requirements of Section 3.05, Paragraph G.

3.03 Placement Of Surface Primer:

- A. For the application shown in the Plans, denatured alcohol shall be applied with a clean brush to the vertical faces of the joint opening within the limits to which the joint seal is to be bonded.

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3. CONSTRUCTION DETAILS: (cont'd)

3.03 Placement of Surface Primer: (cont'd)

- B. All materials shall be in the original intact manufacturer labeled containers. A copy of all invoices shall be submitted to the Engineer-in-Charge. Any materials that are damaged during shipping, storage, or installation shall be replaced at no cost to the Authority.

3.04 Placement Of The Joint Seal:

- A. The joint seal shall be prepared and installed per the manufacturer's recommendations.
- B. All splices in the seal shall be inspected for integrity prior to installation in the joint opening.
- C. Prior to placement, the joint seal shall be cleaned. Care must be taken to remove all dirt, dust, or talc from the binding surfaces of the joint seal. Denatured or isopropyl alcohol shall be used to clean the joint seal. **Mineral spirits or paint thinner shall not be used for cleaning the joint seal.**
- D. Prior to installation of the joint seal, a 3/8 inch diameter bead of locking adhesive should be applied at the point of installation as shown on the Contract Plans. Locking adhesive shall not be allowed to skin over prior to placement of joint seal.
- E. The joint seal shall be positioned at the depth shown on the Contract Plans and in contact with the bead of adhesive. An additional bead of approved locking adhesive shall be applied to each side of the joint seal as required by the joint manufacturer.
- F. The locking adhesive shall be tooled twice to ensure complete contact with the vertical edges of the joint interface.
- G. Installation at vertical curbs, directional changes, and field splices shall be accomplished using a splicing adhesive as required by the joint manufacturer.

3.05 Quality Control:

- A. All work shall proceed in a workmanlike manner and shall be subject to the inspection of the Engineer, who shall be given all facilities required for a thorough inspection of the joints.
- B. The bridge joint system shall be installed in strict conformance with the Manufacturer's instructions, and neither this specification, nor the plan details shall be altered without written approval of the Manufacturer and the Thruway Authority.
- C. The manufacturer shall warrant the materials used as evidenced by the Letter of Certification.
- D. A Manufacturer's representative shall be present during performance of the work and approve all surface preparation and joint seal installations.

The Manufacturer and the Contractor shall be responsible for the workmanship and performance of the installed joint.

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3. CONSTRUCTION DETAILS: (cont'd)

3.05 Quality Control: (cont'd)

- E. Watertight Integrity Test: The Contractor shall test the entire installed portion of the joint system for watertight integrity, a minimum of 5 work days after the joint system has been fully installed. The Contractor shall employ a method satisfactory to the Engineer. The entire joint shall be covered with water, either ponded or flowing for a minimum duration of 15 minutes.

Water tightness shall be interpreted to be no free water dripping from any surface on the underside of the joint or adjacent slab. Should the joint system exhibit evidence of water leakage at any location, the Contractor shall locate the place(s) of leakage and shall take any and all measures necessary to stop the leakage.

A subsequent watertight integrity test(s) shall be performed subject to the same requirements as the first. This work shall be done at the Contractor's expense at no additional cost to the Authority.

Access for the Engineer to inspect the underside of the joint shall also be provided at no additional cost.

- F. The Contractor shall provide the Engineer with written evidence that the supplier/installer has complied with all details of the specifications and the Manufacturer's recommendations.
- G. The Contractor shall be required to acquire a Performance and Payment Bond insuring all materials, workmanship, and the performance of the specified product and the Suppliers/Installers for a two year period for 100% of the contract Item value. This Performance and Payment Bond shall be effective immediately after the acceptance of the Joint System as specified in the Method of Measurement, and shall extend for a two (2) year period from the acceptance date.

During this performance period any failures indicated by the Authority shall be repaired or replaced by the Contractor as determined by the Chief Engineer at no cost to the Authority.

Failure shall be interpreted to mean any visible signs of cracking or debonding of the joint or header material or lack of a watertight seal.

This Bond must be transferable to the designated Municipality or Agency as directed by the Thruway.

As a minimum, the following statements shall be included in the guarantee:

1. Before performing any work, the Manufacturer acknowledges that they have reviewed all plans, details, and project specifications and submit to the Authority documentation stating approval.
2. That all plans, details, and specifications meet the Manufacturer's requirements.
3. That the specified joint system will provide a watertight seal for the life of the Performance Bond.

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3. CONSTRUCTION DETAILS: (cont'd)

3.05 **Quality Control:** (cont'd)

G. (cont'd)

4. That the specified joint system will adhere to the specified header material in the Contract Plans under the anticipated structural movements, application of deicing chemicals, climatic conditions and traffic conditions.
5. That any joint that has failed shall be repaired or replaced within 15 days, weather permitting, of written notification by the Authority.
6. That the Contractor shall be responsible for all costs associated with all traffic control required to repair or replace the joint seal.

Standard Authority lane closure restrictions in effect at the time the repair or replacement is required shall apply. These restrictions may be more limiting than those in the original installation contract.

4. METHOD OF MEASUREMENT:

- 4.01 Measurement will be made as the number of feet of joint system completely installed, measured horizontally and vertically along the centerline of the joint.

Complete installation shall be as follows:

- A. All materials are neatly in their proper position, and show no signs of failure as described in Section 3.05, Paragraph G.
- B. Watertight integrity tests have been performed at each location and joints have been deemed watertight.

5. BASIS OF PAYMENT:

- 5.01 The unit price per foot shall include the removal of the existing joint and all placement material as indicated on the plans and all labor, materials and equipment necessary to complete the work.
- 5.02 The Contractor shall not receive any payment for this item until the joint system has completed the criteria in Section 3.05, Paragraph E and Section 4.01.
- 5.03 The Contractor shall not receive any payment for this item until delivery to the Thruway Authority of the required Performance Bond and approval of that bond by the Authority.
- 5.04 Payment shall only be made for an installed portion of joint which has met all requirements of this specification. Any failure, as detailed in this specification, shall result in no payment for that entire tested portion of joint.