



## SECTION 717

### NEOPRENE AND SILICONE JOINT SYSTEMS

#### SECTION 717.10 PREFORMED COMPRESSION SEAL.

**717.10.1 Description.** This work shall consist of furnishing and installing a preformed compression seal for joints as shown on the plans or as directed by the engineer. Structural steel for the joints shall be furnished and installed as shown on the plans.

**717.10.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Preformed Compression Seals	1073

#### 717.10.3 Construction Requirements.

**717.10.3.1 Shop Drawings.** Shop drawings for structural steel for expansion devices shall be prepared in accordance with [Sec 1080](#). The dimensions of the seal shall be shown on the shop drawings for the armored joint. Shop drawings will not be required when the seal is placed against concrete or existing armor steel.

**717.10.3.2 Installation.** The preformed compression seal shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet. The area of steel armor to come in contact with preformed compression seal lubricant adhesive shall be sand blasted prior to installing the seal. Sand blasting will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness. The lubricant adhesive shall be applied in a continuous film to the sides of the seal and to the joint surfaces just prior to placing the seal in the joint. The seal shall be installed with an installation tool recommended by the manufacturer, in a manner that prevents the seal from being damaged and from being in tension. Twisting, curling and nicking the seal will be prohibited. Lubricant adhesive on top of the installed seal shall be removed before drying. Unless the installation tool is capable of installing the seal without elongation prior to placement, the seal shall be pre-cut to the exact length for the joint plus ends as shown in the contract documents. The pre-cut seal shall be installed and measured for stretch. The seal shall be removed and reinstalled if the seal stretch length exceeds five percent of the pre-cut length.

**717.10.4 Method of Measurement.** Final measurement will not be made except for authorized changes during construction or where significant errors are found in the contract quantity. Where required, the preformed compression seal will be measured to the nearest linear foot based on measurement from roadway face of curb to roadway face of curb along the centerline of the joint. The revision or correction will be computed and added to or deducted from the contract quantity. No measurement will be made of portions of the joint that extend past the roadway face of curbs.

**717.10.5. Basis of Payment.** Preformed compression seals, including all material, coating, equipment, labor, fabrication, installation and any other incidental work necessary to complete this work, will be paid for at the contract unit price.

## SECTION 717.20 STRIP SEAL.

**717.20.1 Description.** This work shall consist of furnishing and installing a watertight strip seal for joints as shown on the plans or as directed by the engineer. The structural steel for the joints shall be furnished and installed as shown on the plans.

**717.20.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Strip Seal	1073

### 717.20.3 Construction Requirements.

**717.20.3.1 Shop Drawings.** Shop drawings shall be prepared for the armored joint in accordance with [Sec 1080](#). The drawings shall show in detail the type, size, location of anchors, and sequence of installation. The extrusion in the steel armor shall be of a dimensional tolerance that prevents the gland of the strip seal from slipping loose. The upper lip of the extrusion shall extend over the bottom lip to avoid pinching the gland when the expansion device is in a closed position. Shop drawings will not be required when the seal is placed in existing steel extrusions.

**717.20.3.2 Installation.** The area of steel armor to come in contact with strip seal lubricant adhesive shall be sand blasted prior to installing the seal. Sand blasting will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness. The strip seal shall be made watertight with a lubricant adhesive for bonding the neoprene gland to the steel extrusion as recommended by the manufacturer. The contractor shall obtain the services of a qualified technical representative, approved by the manufacturer of the expansion system and acceptable to the engineer, to assist during the installation. The installation shall not occur without the technical representative being present.

**717.20.4 Method of Measurement.** Final measurement will not be made except for authorized changes during construction, or where appreciable errors are found in the contract quantity. Where required, the strip seal will be measured to the nearest linear foot, based on measurement from the roadway face of curb to roadway face of curb along the centerline of the joint. Portions of the joint that extend past the roadway face of curbs will not be measured for payment. The revision or correction will be computed and added to or deducted from the contract quantity.

**717.20.5. Basis of Payment.** Strip seals, including all material, coating, equipment, labor, fabrication, installation, technical assistance, and any other incidental work necessary to complete this work, will be paid for at the contract unit price.

## SECTION 717.30 SILICONE EXPANSION JOINT SEALANT.

**717.30.1 Description.** This work shall consist of furnishing and installing the backer rod and silicone expansion joint sealant for joints as shown on the plans or as directed by the engineer. Structural steel for the joints shall be furnished and installed as shown on the plans.

**717.30.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Silicone Expansion Joint Sealant	1057

**717.30.3 Construction Requirements.** The contractor shall furnish to the engineer the manufacturer's written product information, installation procedures and instructional information at least two weeks prior to installation. The contractor shall obtain the services of a qualified technical representative approved by the manufacturer of the expansion system and acceptable to the engineer, to assist during the installation. The contractor, the technical representative and the engineer shall meet to review and clarify installation procedures and requirements prior to starting the work. The start of surface preparations and sealant installation shall not occur without the technical representative being present. The technical representative shall be present for at least one day at the start of surface preparations and sealant installation.

**717.30.3.1 Shop Drawings.** Shop drawings for structural steel for expansion devices shall be prepared in accordance with [Sec 1080](#). The dimensions of the seal shall be shown on the drawings for the armored joint. Shop drawings will not be required when the sealant is placed against concrete or existing armor steel.

**717.30.3.2 Surface Preparation.** The concrete or steel surface shall be prepared for priming and sealant placement. New Portland cement concrete shall be fully cured and allowed to dry a minimum of seven days. The joint shall be cleaned of all gravel, loose material and other contaminants before sand blasting. Areas that will be in contact with the sealant shall be sand blasted with a clean, hard aggregate that will leave little to no dust residue. Sand blasted concrete surfaces will be considered acceptable when areas that will be in contact with the sealant have a roughened surface with clean, exposed aggregate. The surface shall be free of foreign matter or plastic residue. Sand blasted steel surfaces will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness. After sand blasting is completed, the joint shall be cleaned of debris using oil-free and water-free compressed air or a vacuum, either being at least 90 psi.

**717.30.3.3 Priming.** Priming shall immediately follow sand blasting and cleaning and will only be permitted to proceed when the air and substrate temperatures are at least 40 F and rising. Sand blasting, priming and sealing shall be performed on the same day. The entire sand blasted surface shall be primed. Application and drying times for primers shall be in accordance with the manufacturer's recommendations. All leftover primer shall be properly disposed.

**717.30.3.4 Joint Installation.** The backer rod shall be installed as specified on the plans and in accordance with the manufacturer's recommendations. All voids in the installed backer rod shall be filled to prevent sealant leakage.

**717.30.3.5 Sealant Placement.** The sealant thickness and recess depth shall be as shown in the contract documents and shall be measured during installation at approximately 2 foot intervals. Adjustments to correct sealant thickness to within  $\pm 1/8$ -inch tolerance shall be made before the sealant begins to set. Sealant placement will only be permitted when the air and substrate temperatures are above 40 F, below 90 F and 5 F above the dew point. The joint surfaces shall be kept clean and dry during sealing. The joint shall remain clean and dry during the sealing operation. Sealing shall be performed using a pneumatic gun in accordance with the manufacturer's recommendations. End of seal treatment at vertical faces of curbs, sidewalks or parapets shall be as recommended by the manufacturer and as shown in the contract documents. Sealant placed incorrectly shall be removed and replaced at the contractor's expense.

**717.30.4 Method of Measurement.** Final measurement will not be made except for authorized changes during construction, or where appreciable errors are found in the contract quantity. Where required, the silicone expansion joint sealant will be measured to the nearest linear foot based on measurement from the roadway face of curb to roadway face of curb along the centerline of the joint. The revision or correction will be computed and added to or deducted from the contract quantity. Portions of the joint that extend past the roadway face of curbs will not be measured for payment.

**717.30.5 Basis of Payment.** Silicone expansion joint sealant, including all materials, coating, equipment, labor, fabrication, installation, technical assistance and any other incidental work necessary to complete this work, will be paid for at the contract unit price.

**SECTION 717.40 SILICONE JOINT SEALANT FOR SAW CUT AND FORMED JOINTS.**

**717.40.1 Description.** This work shall consist of sealing the saw cut and formed joints as shown in the contract documents.

**717.40.2 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as follows:

Item	Section
Silicone Joint Sealant for Saw Cut and Formed Joints	1057

**717.40.3 Construction Requirements.**

**717.40.3.1 Saw Cut Joints.** Joints shall be sawed as shown on the plans as soon as the concrete has hardened sufficiently to permit sawing of a neat straight joint with minimal raveling, and before uncontrolled shrinkage cracking occurs. All joints shall be sawed to the required dimension and cleaned by sand blasting, wire brushing or other methods approved by the engineer in accordance with the manufacturer's recommendations. Joint interfaces shall be fully cured and dry, or free of moisture at the time of installation. All loose particles shall be removed by oil-free and water-free compressed air or a vacuum of at least 90 psi before the application of the backer rod and sealant.

**717.40.3.2 Formed Joints.** Any joints 0.25 inch or greater shall be cleaned and packed with backer rod and silicone joint sealant. Any joints less than 0.25 inch shall be cleaned and caulked with silicone joint sealant as shown on the plans. All joint interfaces shall be cleaned by grinding, saw cutting, sand blasting, wire brushing or other methods approved by the engineer in accordance with the manufacturer's recommendations. New Portland cement concrete shall be fully cured and allowed to dry a minimum of seven days. The joint interfaces shall be free of moisture at the time of installation. All loose particles shall be removed by oil-free and water-free compressed air or vacuum of at least 90 psi before the application of the backer rod and sealant.

**717.40.3.3 Joint Backer Rod.** The backer rod shall be used in the joint slot to ensure the sealant adheres to the sidewalls or interface of the joint. All joint areas requiring a backer rod shall be packed with a closed-cell, expanded polyethylene foam to obtain the appropriate depth of the sealant. The backer rod shall be slightly oversized for the joint width, and shall be resilient, compressible in nature, nonabsorbent, non-shrinking and compatible with the sealant.

**717.40.3.4 Sealant Placement.** Sealant shall be placed in the proper configuration as shown on the plans. Joint sealer shall be protected from dust and other foreign matter until cured to a

tack-free condition. The sealant shall fill the joint from the bottom to slightly below the surface currently being applied. Immediately after placement and before a skin forms, the sealant shall be tooled to force the sealant against the joint face and to recess the bead approximately 1/8 inch.

**717.40.4 Method of Measurement.** No measurements will be made.

**717.40.5 Basis of Payment.** No direct payment will be made for this work.