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LETTER OF TRANSMITTAL

TO: Steamboat Structures
Denver Metro, CO

DATE: 8/16/2021

FILE NO. 011-01

ATTN: Heather Reed

RE: Forest Lakes Bridges

WE ARE SENDING YOU:

- | | | |
|---|---|----------------------------------|
| <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Samples |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Reports | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Plans | <input checked="" type="checkbox"/> Submittal Information | |

SUBMITTED BY: Structures

COPIES	DESCRIPTION	CONTRACTOR
1	Compression Seal Device Submittal	Structures

THESE ARE TRANSMITTED:

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> For Approval | <input checked="" type="checkbox"/> For Review and Comment | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> For Your Use | <input type="checkbox"/> Approved As Submitted | <input type="checkbox"/> _____ |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Approved As Noted | |

REMARKS:

cc: File

SHOP DRAWING REVIEW

- ☒ NO EXCEPTIONS ☐ REVISE AS NOTED
☐ REVISE AND RESUBMIT ☐ REJECTED

This review is for general conformance with the design intent of the project and general compliance with the information provided in the contract documents. Review, corrections, or comments made concerning the shop drawings during this review do not relieve the contractor from compliance with the requirements of the drawings and specifications, nor relieve the contractor of contractual responsibility for any error or deviation from the contract documents.

The contractor is responsible for, but not limited to: confirming all quantities, dimensions, and structural capabilities, selecting fabrication and construction techniques, coordinating work with that of all other trades, and performing work in a safe and satisfactory manner.

STEAMBOAT STRUCTURES, LLC

By: H. Reed

DATE: 8/17/21

Expansion Joint Systems

Delastic® Preformed Compression Seals

CV & CA Compression Seals Standard Specifications

SECTION I – General

- A. This item consists of furnishing and installing preformed compression seal expansion joints in accordance with the contract plans, this specification and the manufacturer's recommendations.
- B. Acceptable manufacturers of the preformed compression seals and appropriate model of the system shall be:

Delastic CV/CA Series Preformed Compression Seals

The D.S. Brown Company

300 East Cherry Street

North Baltimore, Ohio 45872

Phone: (419) 257-3561 Fax: (419) 257-2200

No other alternates will be allowed.

SECTION II – Product Description

Delastic® Preformed Compression Seals are extruded from neoprene (polychloroprene) compounds which satisfy the ASTM standard specification D3542 for Preformed Polychloroprene Elastic Joint Seals for Bridges.

SECTION III – Application

In addition to highway and bridge applications, Delastic® Neoprene Compression Seals can be used in spillways, dams, parking structures, stadium ramps and pedestrian overpasses.

SECTION IV – Design

The table below should be used to select the appropriate Delastic® Preformed Compression Seal for your project. In addition to accommodating perpendicular movements (summarized in the table), Delastic® seals are also capable of accepting approximately 15-20% lateral shear, vertical



Delastic® Seal Catalog No.	Delastic® Seal Characteristics			Joint Design Criteria		
	Nominal Width (W)	Nominal Height (H)	Maximum Movement	Narrowest Opening ^A	Widest Opening ^A	Minimum Depth ^B
CV-1250	1.25 (32)	1.25 (32)	0.50 (13)	0.56 (14)	1.06 (27)	2.00 (51)
CV-1625	1.63 (41)	1.88 (40)	0.66 (17)	0.72 (18)	1.38 (35)	2.50 (64)
CV-1752	1.75 (44)	1.75 (44)	0.68 (17)	0.81 (21)	1.49 (38)	2.75 (70)
CV-2000	2.00 (51)	2.00 (51)	0.82 (21)	0.88 (22)	1.70 (43)	2.50 (70)
CV-2250	2.25 (57)	2.33 (59)	0.85 (22)	1.05 (27)	1.91 (49)	3.25 (83)
CV-2502	2.50 (64)	2.50 (64)	1.00 (25)	1.13 (29)	2.13 (54)	3.80 (89)
CV-3000	3.00 (76)	3.25 (83)	1.30 (33)	1.25 (32)	2.55 (65)	4.25 (108)

CV & CA Characteristics & Properties Standard Specifications

Delastic® Preformed Compression Seals

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Delastic® Seal Catalog No.	Delastic® Seal Characteristics Nominal Width (W)	Nominal Height (H)	Maximum Movement	Joint Design Criteria Narrowest Opening ^A	Widest Opening ^A	Minimum Depth ^B
CV-3500	3.50 (89)	3.50 (89)	1.60 (41)	1.38 (35)	2.98 (76)	5.25 (133)
CV-4000	4.00 (102)	4.00 (102)	1.65 (42)	1.57 (40)	3.40 (86)	5.75 (146)
CA-4500	4.50 (114)	4.50 (114)	2.27 (58)	1.56 (40)	3.83 (97)	6.25 (159)
CA-5001	5.00 (127)	5.00 (127)	2.41 (61)	1.84 (47)	4.25 (108)	6.75 (171)
CA-6000	6.00 (152)	6.00 (152)	3.10 (79)	2.00 (56)	5.10 (129)	8.50 (216)

Bold numbers represent inches; metric (mm) shown in parentheses.

Joint opening dimensions (A) are based on minimum and maximum pressures allowed in ASTM D3542.

Minimum depth dimensions (B) include a 0.25 inch (6mm) recess below the roadway surface.

SECTION V – Materials

The Contractor shall furnish a manufacturer's certification that the materials proposed have been pre-tested and will meet the requirements as set forth in the specification.

The seals shall be preformed and manufactured from an extruded neoprene (polychloroprene) compound exhibiting the physical properties as called for in ASTM D3542, AAS-HTO M297 and listed in the table below:

Properties	ASTM D3542-08 - Physical Requirements for Preformed Elastomeric Joint Seals Requirements	ASTM Test Method
Tensile Strength, min, psi (MPa)	2000 (13.8)	D412
Elongation at Break, min, %	250	D412
Hardness, Type A durometer, points	55±5	D2240 (modified) ^A
Oven Aging, 70 h at 212°F (100°C)		D573
Tensile Strength, loss, max, %	20	
Elongation, loss, max, %	20	
Hardness, Type A durometer, points change	0 to 10	
Oil Swell, ASTM Oil No. 3, 70 h at 212°F (100°C)		
Weight change, max, %	45	D471
Ozone Resistance ^B :		
20% strain, 303 mPa of ozone in air (the volume fraction of ozone is 300 pphm in air at 1 atm), 70 h at 104°F (40°C), wiped the toluene to remove surface contamination	no cracks	D1149 ^C
Low-Temperature Recovery ^C , 72 h at +14°F (-29°C), 50%;		
Deflection, min, %	88	Section 8.2 ^D

CV & CA Characteristics & Properties Standard Specifications

Delastic® Preformed Compression Seals

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ASTM D3542-08 - Physical Requirements for Preformed Elastomeric Joint Seals		
Properties	Requirements	ASTM Test Method
Low-Temperature Recovery ^c , 22 h at -20°F (-29°C), 50%		
Deflection, min, %	83	Section 8.2 ^D
High-Temperature Recovery ^c , 70 h at 212°F (100°C), 50%		
Deflection, min, %	85	Section 8.2 ^D
Compression-Deflection Properties:		D575 Method A (modified) ^E
LC Min., in (mm)	See 8.3.5	
LC Max., in (mm)	See 8.3.5	
Movement Range, in (mm)	See 8.3.5	

^A The term “modified” in the table relates to the specimen preparation. The use of the joint seal as the specimen source requires that more plies than specified in either of the modified test procedures be used. Such specimen modification shall be agreed upon between the purchaser and the supplier prior to testing. The hardness test shall be made with the durometer in a durometer stand as recommended in Test Methods D2240.

^B Sample prepared in accordance with Method A of Test Method D518.

^C Cracking, splitting or sticking of a specimen during a recovery test shall mean that the specimen has failed the test.

^D The reference section and subsections are those of specification D 3542 – 08 *Preformed Polychloroprene Elastomeric Joint Seals for Bridges*.

^E Speed of testing shall be 0.5 ± 0.05 in. (13 ± 1.3 mm), minimum at room temperature of 73°F ± 4°F (23 ± 2.2°C). The sheets of sandpaper are not used.

SECTION VI – Installation

Blockout Tolerances Guide: For parallelism, use 1/8” allowable up to 2-1/2” joint sealants and 1/4” for 2-1/2” and larger seals.

In determining joint width tolerance, if the joint is 1/2” wider at one point then the expected maximum opening is an additional 1/2”. If that calculation is found to be out of the specified movement range of the compression seal, you will need to recut the joint and go with a larger seal.

Install Delastic® Preformed Compression Seals into joints that are sound (no loose substrate), clean (no dirt, rust, scale, slurry or other debris), dry and free from other contaminants.

Delastic® Preformed Compression Seals shall be installed utilizing DSB 1520 Lubricant Adhesive. DSB 1520 is a single component, moisture curing polyurethane in a solution of aromatic hydrocarbon solvents and used as an adhesive lubricant and bonding agent for neoprene compression seals.

DSB 1520 Lubricant Adhesive exceeds the requirements of ASTM D-4070, Standard Specification for Adhesive Lubricant for Installation of Preformed Elastomeric Bridge Compression Seals in Concrete Structures. The Contractor shall furnish a manufacturer’s certification that Lubricant Adhesive complies with the requirements of ASTM D-4070.

DSB 1520 Lubricant Adhesive should be applied liberally to the preformed compression seal or to the expansion joint walls prior to inserting the seal into the joint. The seal must be inserted into the joint immediately following the application of the DSB 1520 Lubricant Adhesive.

Do not allow DSB 1520 lubricant adhesive to freeze. Optimal working temperature is 70F. Do not apply when ambient temperatures are below 40F.

Opened containers of DSB 1520 Lubricant Adhesive must be used the same day opened. Unused material cannot be saved even if the container is tightly resealed as the product is moisture reactive and will gel when exposed to air.

CV & CA Characteristics & Properties
Standard Specifications

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instructions. *Note: Seals should not be stretched to facilitate installation. Stretching the seal will diminish the performance of the seal.*

Every effort should be made to supply and install preformed compression seals in continuous lengths. Contact manufacturer for procedures should splices be unavoidable.

Cleanup: Excess DSB 1520 Lubricant Adhesive and Tools and equipment used in the application of Lubricant Adhesive should be cleaned with toluene, xylene or a blend of the two. Clean hands with soap and water.

Contact manufacturer for upturn and/or downturn installation procedures. Refer to manufacturer datasheets and MSDS sheets available at www.dsbrown.com for additional product and safety information.

SECTION VII – Packaging and Shipment

Preformed compression seals are packaged in continuous joint lengths in cardboard boxes or on wooden reels as the project requires.

DSB-1520 is packaged in 1 gallon pails.
Shipment is typically palletized.

SECTION VIII – Measurement and Payment

Preformed compression seals shall be measured as the distance along the center line of the joint and paid for at the contract unit price per linear foot.

Payment will be made under:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Preformed Compression Seal	Lineal Foot

Payment will be full compensation for all work necessary to complete the items includes furnishing and installing the preformed compression seal.