Knowledge for Creating and Sustaining the Built Environment

SUBSTITUTION REQUEST

(After the Bidding/Negotiating Phase)

Project: _____ Substitution Request Number: (For Architect to fill in)

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: CSIS-Series Foam Seal with Integral Sealant

Manufacturer: Erie Metal Specialties, Inc. Phone: 716-542-3991

Address: 13311 Main Road, Akron, NY 14001

Trade Name: CSIS Model No.: CSIS

Installer: _____ Phone: _____

Address: _____

History: ☐ New product ☐ 1-4 years old ☐ 5-10 years old ☑ More than 10 years old

Differences between proposed substitution and specified product:

☐ Point-by-point comparative data attached — REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____ ($ _____).

Proposed substitution changes Contract Time: ☑ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☑ Drawings ☑ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

Form Version: June 2004
CSI Form 13.1A

SUBSTITUTION REQUEST

(After the Bidding/Negotiating Phase — Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: ☑

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ Other:

Form Version: June 2004
CSI Form 13.1A

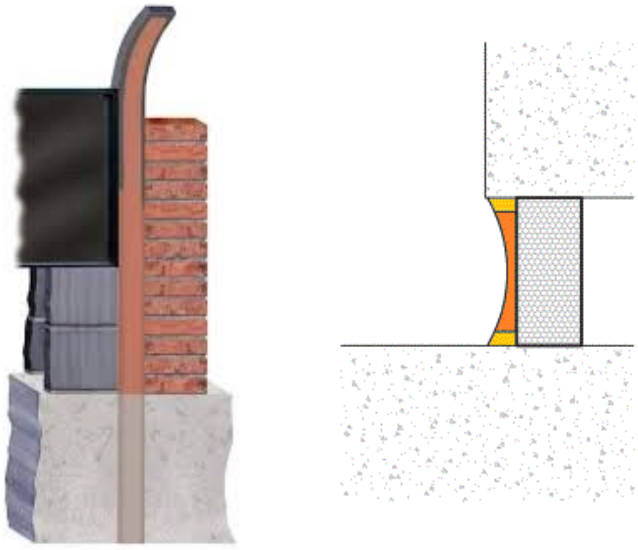
CSIS-Series

Foam Seal Systems

Description

The Compression Seal Integrated Sealant (CSIS) system is a factory cured strip of silicone sealant adhered to a rectangular polyurethane backer. The polyurethane backer is wider than the joint opening and the silicone is of a lesser width than the joint opening. The backer is compressed and placed into the joint, thus holding the cured silicone in a vertical position and leaving a recess on either side of the cured silicone and parallel substrate. A wet silicone sealant is caulked and tooled into the recess bridging the cured silicone and the interface of the parallel substrate.

The CSIS-Series foam seal is designed for sealing vertical expansion joint openings that measure 2" or greater.



Physical Properties

Table 1 – Physical properties of Cured Sealant	
Properties	***Result***
Hardness (Shore A)	ASTM C661, 35-40
Tear Strength	ASTM C624, 6.9 k N/M
Elongation	ASTM D412, 250%
100% Modulous	ASTM D412, 1.03 MPa (150 psi)
Tensile Strength	ASTM C1135, Bead 3/8"x1/2" cured for 6 wks at 23°C and 50% R.H. pulled at 0.05"/min 0.69-0.90 MPa
Peel Strength (glass, aluminum, mortar)	ASTM C794, 2.28-2.63 kN/M (13-15 pli)
Movement	ASTM C719 25%
Movement	Bead of sealant cycled at 3mm (1/8") per hour after 28 days cure at 23°C and 50% R.H.

Features and Benefits

- Long-lasting life due to not being affected by ozone or ultraviolet rays. Has excellent stability in regards to movement capability and modules
- Movement capability of +/-50%
- Aesthetics allow for larger joint design which reduces stress on the bond line, increasing the chances of successful sealant installation
- Primerless adhesion to a variety of substrates including masonry and concrete. No staining
- Easy to install. No anchoring systems, mechanical fasteners, cutting of substrates or waiting for expansion to accrue.
- Caulking the reveals on each of the cured sealants makes it necessary to fill to full depth - no "cheating" on the amount of sealant placed
- Available in 16 standard colors. Custom colors available upon request

PRODUCT	MIN. WIDTH IN (MM)	MID-RANGE** IN (MM)	MAX. WIDTH IN (MM)	TOTAL MOVEMENT IN (MM)
CSIS-200	1.00" (25.4)	2.00" (50.8)	3.00" (76.2)	2.00" (50.8)
CSIS-250	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)
CSIS-300	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)
CSIS-350	1.75" (44.5)	3.50" (88.9)	5.25" (133.4)	3.50" (88.9)
CSIS-400	2.00" (50.8)	4.00" (101.6)	6.00" (152.4)	4.00" (101.6)
CSIS-450	2.25" (57.2)	4.50" (114.3)	6.75" (171.5)	4.50" (114.3)
CSIS-500	2.50" (63.5)	5.00" (127.0)	7.50" (190.5)	5.00" (127.0)
CSIS-550	2.75" (69.9)	5.50" (139.7)	8.25" (209.6)	5.50" (139.7)
CSIS-600	3.00" (76.2)	6.00" (152.4)	9.00" (228.6)	6.00" (152.4)
CSIS-650	3.25" (82.6)	6.50" (165.1)	9.75." (247.7)	6.50" (165.1)
CSIS-700	3.50" (88.9)	7.00" (177.8)	10.50" (266.7)	7.00" (177.8)

CSIS-Series
INSTALLATION INSTRUCTIONS

Foam Seal Systems

Material Application

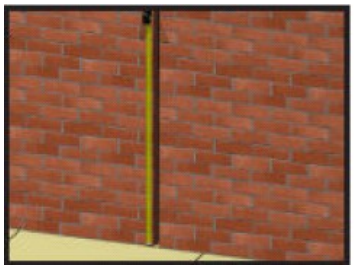
For use in **vertical joints.**

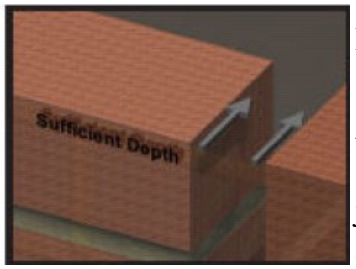
Recommended Tools

- Tape Measure
- Sharp Knife
- Miter Saw
- Duct Tape
- Clean Cloth
- Isopropyl Alcohol
- Caulking Tool
- Mineral Spirits

Material Sizing

1. Joints must be sized every 5-7 feet (1.524-2.137 meters) to ensure gap opening is uniform and depth is sufficient for the supplied material.





NOTE: Allow sufficient depth for the material to be recessed 1/8”–1/4” in the joint.

Material Preparation

1. Store materials in a dry, enclosed area. Make sure materials are off the ground.

2. Use a sharp knife to cut the material square. All starting and ending pieces must be square to the termination point.

Joint Preparation

1. Verify that the joint is clean, sound, and will provide an appropriate surface for installation of the joint sealant.
    a. Use compressed air to clean any loose debris from the joint.
    b. Apply water or alcohol to a clean cloth and wipe the joint walls to the depth of the sealant materials plus 1”.

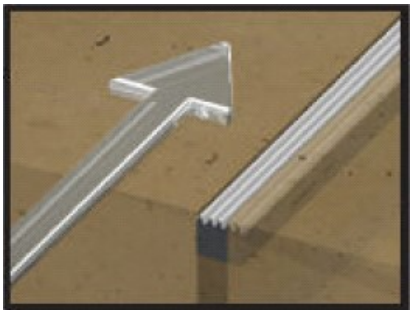
2. Verify that the joint is uniform and repair any spalls prior to installation.

3. Apply duct tape to both edges of the substrate face to prevent the epoxy from contacting the deck surface.

4. Check the material for appropriate length, width, and depth.
    a. Supplied material should be larger than the intended joint opening.
    b. Joint depth must allow for the material to be recessed 1/4” from the substrate surface.

Sealant Installation

1. Begin installation at one end of the joint and work to the opposite end using butt seams.



2. When fully prepared to install, compress the foam backer block by hand and insert into the expansion joint opening

3. Recess the highest point of the silicone strip 1/4” below the surface.

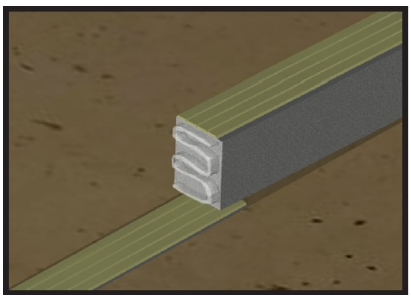
4. Position and center the factory preformed silicone strip creating equal reveals on each side.

5. Apply silicone sealant in the reveals on each side of the factory preformed silicone strip with manufacturer’s silicone. Tool immediately to insure firm contact and secure bond.

Seams

1. Verify that the new piece of material is cut square and not at an angle to the previous installed piece.

2. Overlap extra material (approximately 1/2” – 1”) at seams and splices to ensure that the seam is in compression after installation.



3. Apply silicone to the butt end of the new piece of material

4. Butt seam all ‘T’ and ‘+’ intersections.

5. Tool the silicone over all seams and transitions using a small caulking tool.

Finish

1. Evenly spread the silicone on exposed seams to allow for a clean, aesthetic finish. Verify that the silicone adhesive matches the color on the face of the joint sealant material.

2. Remove any excess silicone left on the surface of the material or substrate.

3. Remove the duct tape from the joint surface.

SPECIFICATION

Division 07900

CSIS Series Foam Seal System

PART 1 – GENERAL

1.01 Work Included

A. The work shall consist of furnishing and installing waterproof vertical expansion joints in accordance with the details shown on the plans and the requirements of the specifications. The expansion joints utilize factory applied 0.50 inch [13 mm] thick silicone face seal and secondary polyurethane foam backer block creating a monolithic and binary sealing system. A field applied primer-less one-part silicone sealant is used to achieve a 3-sided bond to the expansion joint sidewalls on each side of the preformed silicone seal.

B. Related Work

- Division 3 - Section - Cast-in-place concrete
- Division 4 - Masonry
- Division 7 - Thermal & Moisture Protection
- Division 7 - Sealants, caulking and waterproofing

1.02 Submittals

A. General – Submit the following according to Division 1 Specification Section.

B. Standard Submittal Package – Submit typical expansion joint drawings(s) indicating pertinent dimensions, general construction, expansion joint opening dimensions and product information.

1.03 Product Delivery, Storage and Handling

A. Deliver products to site in Manufacturer's original, intact, labeled containers and store indoors in a dry location until installed. Store off the ground in temperatures above 40ºF, protect from weather and construction activities.

1.04 Basis of Design

A. All joints shall be designed to meet the specified performance criteria of the project as manufactured by Erie Metal Specialties, Inc., 13311 Main Road, Akron, NY, 14001. / Tel. 716-542-3991 / Fax. 716-542-3996 Web. www.eriemetal.com

B. Alternate manufacturers will not be considered for this project due to insufficient product evaluation time. Submit for future evaluation, products that meet the design criteria and exhibit performance features that are equal to or superior to those called for in the base product specification. Submittal of alternates must be made two weeks prior to bid opening on future projects to allow proper evaluation time.

1.05 Quality Assurance

A. Pre-construction Meeting – the General Contractor, Engineer/Architect, Concrete Subcontractor, Manufacturer's Representative and Certified Contractor, will conduct a pre-construction meeting to discuss joint gap construction, joint gap settings and construction phasing.

B. Joint Opening Adjustment – the Project Engineer shall provide calculations to the concrete subcontractor to adjust the nominal joint opening the day of the concrete placement. Use a "temperature adjustment table" with expansion joint openings calculated in five (5ºF) degree increments based on a temperature range of [adjust for project] -20ºF to 120ºF.

C. Pre-installation Inspection – the General Contractor, Engineer/Architect, Manufacturer's Representative and Certified Contractor, will conduct a pre-installation project site inspection. The General Contractor shall provide a field report that summarizes the project conditions and any remedial action necessary to correct field conditions (substrate, joint size, non-parallel sidewalls, vertical offsets, etc.) that may affect expansion joint system performance.

D. Certified Installation – a factory-trained and "certified" contractor shall install the specified expansion joint system. The contractor shall provide proof of certification from manufacturer and proof of participation in manufacturer's continuing education program.

E. Warranty – The expansion joint system, when installed by the Manufacturer's Certified Contractor, shall be warranted for a period of two (2) years under specified movements and design conditions for vertical applications. The warranty covers leakage at the joint under normal use due to cohesive or adhesive failure and material failure related to tearing, weathering or abrasion. No liability or responsibility is accepted due to defects in the surrounding substrate. The Certified Contractor and Manufacturer will jointly warrant and provide at no charge, all materials and labor needed to properly repair or replace defective product within the term of the warranty.

PART 2 – PRODUCT

2.01 General

A. Provide watertight silicone expansion joint sealing system that meets the specified movement requirements for structural expansion joints, panel joints, window perimeter joints, EIFS panel joints, curtain walls joints or other penetrations of the building envelope.

B. System shall consist of a high performance engineered silicone seal that is a minimum of 0.50 inch [13 mm] thick and is factory cured and fused to a cellular

polyester/polyurethane foam backer block creating a monolithic and binary sealing system. A field applied primerless one-part silicone sealant is used to achieve a 3-sided bond to the expansion joint sidewalls on each side of the seal.

C. System design shall provide a .375 inch [9 mm] reveal on each side of the silicone surface seal to create a 3-sided bond area for the field applied silicone adhesion. The increased bond area at the expansion joint sidewalls will ensure a binary watertight joint sealing system.

D. Furnish approved CSIS-Series Compression Seal with Integrated Sealant as manufactured by Erie Metal Specialties, Inc.

E. Select the system size at each joint location based on the movement and design requirements that meet the project specification or as defined by the structural engineer of record. Insure that the anticipated service condition is part of the expansion joint system selection criteria.

F. The Certified Contractor must provide written confirmation; utilizing manufacturer's product data, insuring the silicone seal selected will comply with and accommodate expansion, contraction and lateral shear throughout the full movement cycle.

2.02 Components and Materials

A. Primary Preformed Silicone Seal – provide CSIS-Series material consisting of a primary flexible, preformed silicone rubber compound exhibiting the physical properties listed in the table below.

PHYSICAL PROPERTIES OF PREFORMED ESS SILICONE SEAL
(after 14 days at 77°F (25°C) and 50% relative humidity)

Property	Requirement	ASTM Method
Hardness, Shore A	35 - 40	C661
Tensile strength @ max.	1.52-1.59Mpa (220-230 psi)	D412
Ultimate elongation	235 – 260%	D412
Tensile strength @ 100%	0.62-0.69Mpa (90-100 psi)	C1135
Tear Strength	35-40 pli / 6.14-7.02 kN/m	D624
Peel Strength, glass	16-22 pli / 2.81-3.86 kN/m	C794
Cyclical Movement	± 50%	C719
Tack-free time	35 - 45 minutes	C679
Sag	0-0.1 mm (0-0.03")	D2202
Tooling time	15 – 20 minutes	Skin Formation

B. Secondary Foam Seal -– shall be a cellular polyurethane / polyester backer block factory bonded to the silicone face seal. The monolithic backer system allows for proper alignment and positioning in the structural joint opening.

2.03 Fabrication

A. CSIS-Series Silicone Seal – shipped in nominal six-foot standard lengths in manufacturer's standard shipping carton.

B. Directional Changes – follow manufactures detailed instructions for field splicing.

2.04 Finishes

A. Silicone seal color shall be selected and approved by the owner from the manufacturer's standard colors or project specific custom color matching process.

PART 3 – EXECUTION

3.01 Installation

A. Preparation of the Work Area

1. The contractor shall provide a properly formed and prepared expansion joint openings constructed to the exact dimensions and elevations shown on manufacturer's standard system drawings or as shown on the contract drawings. Deviations from these dimensions will not be allowed without the written consent of the engineer of record.

2. The contractor shall clean the joint opening of all contaminants immediately prior to installation of expansion joint system. Concrete form release agents, water repellents, laitance, surface dirt, rust, old sealants and other surface treatments and protective coatings must be removed from the joint opening sidewalls in order to obtain the proper adhesion.

3. The CSIS-Series product is wider than the joint opening. Compress the foam backer block by hand and insert into the expansion joint opening.

4. Recess the highest point of the silicone strip 1/4" [5mm] below the surface.

5. Position and center the factory preformed silicone strip creating equal reveals on each side.

6. As necessary, mask areas adjacent to the joint with tape to assure neat, clean joint lines. (Remove tape prior to the curing process.)

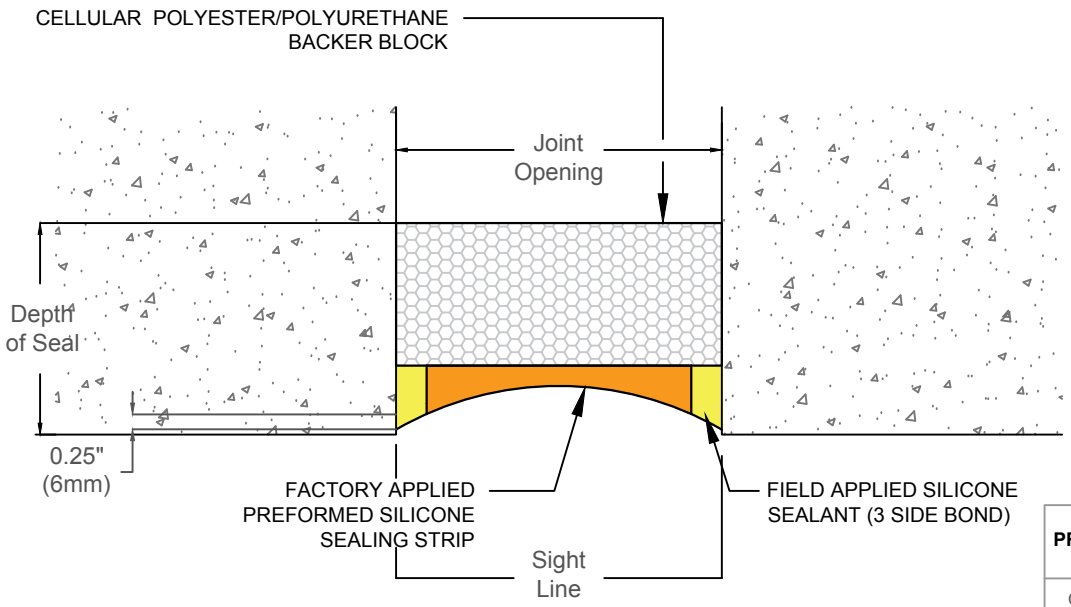
7. Apply silicone sealant in the reveals on each side of the factory preformed silicone strip with manufacturer's silicone. Tool immediately to insure firm contact and secure bond.

8. Refer to Manufacturers Installation Guide for detailed step-by-step instructions.

3.02 Clean and Protect

A. Protect the system and its components during construction. Subsequent damage to the expansion joint system will be repaired at the general contractor's expense. After work is complete, clean exposed surfaces with a suitable cleaner that will not harm or attack the finish.

END OF SECTION



CSIS-Series Expansion Joint

(Wall-to-Wall)

PRODUCT	Min. Width IN (MM)	Mid-Range IN (MM)	Max. Width IN (MM)	Total Movement IN (MM)	Seal Depth IN (MM)
CSIS-200	1.00" (25.4)	2.00" (50.8)	3.00" (76.2)	2.00" (50.8)	2.25" (57.2)
CSIS-250	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)	2.25" (57.2)
CSIS-300	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)	2.25" (57.2)
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CSIS-600	3.00" (76.2)	6.00" (152.4)	9.00" (228.6)	6.00" (152.4)	2.75" (69.9)
CSIS-700	3.50" (88.9)	7.00" (177.8)	10.50" (266.7)	7.00" (177.8)	2.75" (69.9)

NO.	Description	Date	By

ERIE METAL SPECIALTIES
13311 Main Road * Akron * New York * 14001
Phone: (716) 542-3991 * Fax: (716) 542-3996 * E-mail: sales@eriemetal.com

PROJECT:

TITLE: CSIS-Series Vertical Condition

Detailed by: BAF	Date: 9/03/2019
Checked by: SLP	Date: 9/03/2019
Scale: NTS	EMS Job #: N/A
Sheet No.: 1-1	Drawing No.: CSIS-1