



SUBSTITUTION REQUEST

(After the Bidding/Negotiating Phase)

Project: _____ Substitution Request Number: _____

 From: _____
 To: _____ Date: _____

 A/E Project Number: _____
 Re: _____ Contract For: _____

Specification Title: _____ Description: _____
 Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
 Manufacturer: _____ Phone: _____
 Address: _____
 Trade Name: _____ Model No.: _____
 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 _____

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:

CSH-Series (Horizontal)

Description

The Horizontal Compression Seismic Seal (CSH) is composed of a open micro-cell polyurethane foam impregnated with a hydrophobic, polymer sealing compound, which can be used in a variety of waterproofing applications. The foam has constant internal forces built into each cell. These cells continuously push against each other and the sidewalls of an opening to keep out water, moisture, dust, sound and weather, providing a permanent, watertight seal.

When used in horizontal applications, the self-adhering material is augmented with a two-part epoxy to assure that the system will adhere to the substrate in the horizontal position. The system was developed to waterproof most larger vertical and horizontal construction movement joints or joints anticipating seismic movement.

The CSH is typically used in non-pedestrian horizontal applications. The colored silicone face allows the material to blend in with the surroundings in an aesthetically pleasing manner. Once installed in the joint, the material expands to adapt to the width of the joint and the irregularities of the substrate provided such profile changes are not sudden or extreme.



Physical Properties

Properties	Result
Thermal Conductivity	0.05 W/m. °C
Temperature Range	-40° F to 185° F
Tensile Strength	ASTM 3574, meets 21 psi min.
Ultimate Elongation	ASTM 3574, 125% +/- 20%
Compression Set	ASTM 3574, Max. 2.5%
Shear Strength	Min. 8N/cm ²
Mildew Resistant	Excellent
Staining	None
Flammability	UL94VO Self Extinguishing
Flash Point	590°F (310°C)
Durometer Hardness	ASTM D2240, Shore A 15pts.

Features and Benefits

- Can accommodate rapid rates of joint movement
- Supplied in pre-compressed state for ease of installation.
- Two-part epoxy supplied for installation in horizontal applications
- Does not rely on the silicone coating or on the adhesion of a field applied bead of sealant to provide a watertight seal
- Consistent depth of product
- Excellent compression recovery
- Permanently elastic and weather-tight
- Used for joints up to 8” wide
- Allows for up to 100% (±50% movement)
- Not based on asphaltic or bitumastic impregnation
- Available in **Dow Corning® 790** and **Pecora 890**
Colors: Actual Colors may vary. See **Dow Corning® 790** and **Pecora 890** Color Chart for exact color match.
- **LEED Credits** - Up to two (2) LEED credits depending on the location of the project.

**Available in 0.25" increments up to 8" wide

PRODUCT	DEPTH OF SEAL IN (MM)	MIN. WIDTH IN (MM)	MID-RANGE IN (MM)	MAX. WIDTH IN (MM)	TOTAL MOVEMENT IN (MM)
CSH-050	1.50" (38.1)	0.25" (6.4)	0.50" (12.7)	0.75" (19.1)	0.50" (12.7)
CSH-100	1.50" (38.1)	0.50" (12.7)	1.00" (25.4)	1.50" (38.1)	1.00" (25.4)
CSH-150	2.00" (50.8)	0.75" (19.1)	1.50" (38.1)	2.25" (57.2)	1.50" (38.1)
CSH-200	2.00" (50.8)	1.00" (25.4)	2.00" (50.8)	3.00" (76.2)	2.00" (50.8)
CSH-250	2.00" (50.8)	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)
CSH-300	3.00" (76.2)	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)
CSH-350	3.00" (76.2)	1.75" (44.5)	3.50" (88.9)	5.25" (133.4)	3.50" (88.9)
CSH-400	3.00" (76.2)	2.00" (50.8)	4.00" (101.6)	6.00" (152.4)	4.00" (101.6)
CSH-500	3.00" (76.2)	2.50" (63.5)	5.00" (127.0)	7.50" (190.5)	5.00" (127.0)
CSH-600	4.00" (101.6)	3.00" (76.2)	6.00" (152.4)	9.00" (228.6)	6.00" (152.4)
CSH-700	4.00" (101.6)	3.50" (88.9)	7.00" (177.8)	10.50" (266.7)	7.00" (177.8)
CSH-800	4.00" (101.6)	4.00" (101.6)	8.00" (203.2)	12.00" (304.8)	8.00" (203.2)

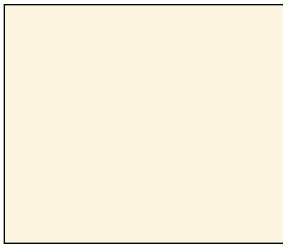
Dow Corning® 790 Silicone Building Sealant

Sealant Color Selection Guide

STANDARD COLORS

- Please check the availability of the different colors.
- Custom colors are available on request.
- Please refer to product literature for application and technical information.

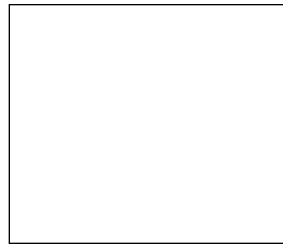
The colors shown are a close approximation of the actual sealant colors. However, for best results, submit color samples or swatches to our lab for color testing and matching.



Precast White



Limestone



White



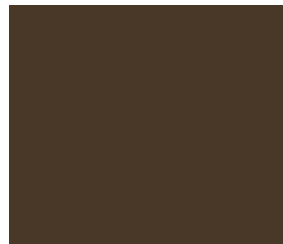
Natural Stone



Gray



Black



Bronze



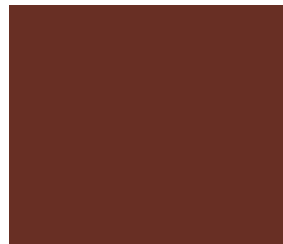
Sandstone



Adobe Tan



Dusty Rose



Rustic Brick



Blue Spruce



Charcoal



PECORA CORPORATION

Architectural Weatherproofing Products
U.S.A. • since 1862

STANDARD SILICONE COLORS

Custom colors available upon request

Non-standard colors

Minimum order quantity per color:
30 gallons for cartridges and pails
30 gallons for sausages

This guide offers a representation of color; when matching is critical, a cured or applied color sample is highly recommended.

Pecora Corporation

165 Wambold Rd
Harleysville, PA 19438
Phone: (215) 723-6051
(800) 523-6688
Fax: (215) 721-0286

www.pecora.com

An ISO-9001:2000 certified company.

ARCHITECTURAL SILICONE SEALANTS

864NST

NON-STAINING TECHNOLOGY.

Tru-White	345
Precast	113
Beige	595
Limestone	039
Aluminum Stone	515
Classic Bronze	046
Black	012
Hartford Green	196

890NST

NON-STAINING TECHNOLOGY.

Tru-White	345
Precast	113
Beige	595
Limestone	039
Anodized Aluminum	804
Aluminum Stone	515
Natural Stone	565
Sandstone	951
Charcoal Gray	950
Classic Bronze	046
Black	012
Hartford Green	196
Red Rock	955

895NST

NON-STAINING TECHNOLOGY.

Translucent	610
Tru-White	345
Anodized Aluminum	804
Aluminum Stone	515
Classic Bronze	046
Black	012

STANDARD SILICONE COLORS

Custom colors available upon request

Non-standard colors

Minimum order quantity per color:
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An ISO-9001:2000 certified company.

310 SL

Limestone 039

311 NS

Limestone 039

860

Translucent 610

Tru-White 345

Metallic Aluminum 027

Black 012

898NST

NON-STAINING TECHNOLOGY™

Translucent 610

Tru-White 345

Almond 792

Black 012

COVERAGE CHART (231 cu. in./gal.)

Joint Depth (in.) x Width (in.)	Linear feet per Gal.	Joint Depth (in.) x Width (in.)	Linear feet per Gal.
1/8 x 1/8	1232.0	3/8 x 7/8	58.7
1/8 x 1/4	616.0	3/8 x 1	51.3
1/8 x 3/8	410.7		
1/8 x 1/2	308.0	1/2 x 1/2	77.0
1/8 x 5/8	246.4	1/2 x 5/8	61.6
1/8 x 3/4	205.3	1/2 x 3/4	51.3
1/8 x 7/8	176.0	1/2 x 7/8	44.0
1/8 x 1	154.0	1/2 x 1	38.5
1/4 x 1/4	308.0	5/8 x 5/8	49.3
1/4 x 3/8	205.0	5/8 x 3/4	41.1
1/4 x 1/2	154.0	5/8 x 7/8	35.2
1/4 x 5/8	123.2	5/8 x 1	30.8
1/4 x 3/4	102.7		
1/4 x 7/8	88.0	3/4 x 3/4	34.2
1/4 x 1	77.0	3/4 x 7/8	29.3
		3/4 x 1	25.7
3/8 x 3/8	136.9		
3/8 x 1/2	102.7	7/8 x 7/8	25.1
3/8 x 5/8	82.1	7/8 x 1	22.0
3/8 x 3/4	68.4	1 x 1	19.3

Joint Depth (in.) x Width (in.) x Length (in.) x 0.053 = gallons required

PEC184 10/14

Spectrem[®] 1

Standard Colors

Colors shown are approximate and may not reflect the shade precisely. Different lighting conditions can influence color appearance, for truer color please view in daylight. Colors are not stocked in all available package types. Minimum order quantities will apply for custom colors and alternative packaging. For more information, please contact Tremco Customer Service.

	PRECAST WHITE
	ANODIZED ALUMINUM
	IVORY
	GRAY
	OFF WHITE
	LIMESTONE
	SANDSTONE
	BUFF
	DUSTY ROSE
	ADOBE TAN
	CHAMPAGNE
	ALUMINUM STONE
	LIGHT BRONZE
	RUSTIC BRICK
	BRONZE
	DARK BRONZE
	BLACK
	WHITE

CSH-Series (Horizontal)

INSTALLATION INSTRUCTIONS

Material Application

For use in **horizontal joints**.

Recommended Tools

- Tape Measure
- Sharp Knife
- Miter Saw
- Duct Tape
- Clean Cloth
- Isopropyl Alcohol
- Caulking Tool
- Jiffy Mixer
- Margin Trowel
- 2 Empty, Clean Containers
- Mineral Spirits

Material Sizing

1. Joints must be sized every 5-7 feet (1.5-2 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 material at a minimum of 68°F (20°C) for a minimum of 24 hours prior to installation, regardless of temperature at location of installation.

TIP: Material will expand faster when hot and slower when cold. In cold temperatures, store material in a heated area 24 hours prior to installation. In hot temperatures, store material out of direct sunlight and not in an enclosed storage container where temperatures may exceed 100°F.

2. Store materials in a dry, enclosed area. Make sure materials are off the ground and out of direct sunlight.
3. Use a miter saw to make any cuts to the seal before removing the clear shrink packing. All starting and ending pieces must be square to the termination point.

WARNING: Install the material directly after removing the shrink packaging to ensure the material does not expand past the joint opening.

4. Use a sharp knife to make any cuts after the clear shrink packaging and wooden boards have been removed.



TIP: Apply mineral spirits to the knife for a smoother cut.

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 pre-compressed to a size smaller than the intended joint opening.
 - b. Joint depth must allow for the material to be recessed ¼” from the substrate surface.
-

Epoxy Preparation

1. Mix Part A and Part B separately.
2. Transfer the entire contents of Part A (resin) and then Part B (hardener) into a clean, empty container. Mix the material thoroughly with a low speed (approx. 300 rpm) drill or jiffy mixer.

WARNING: Part B must always be added Part A, and mixed in a 1:1 ratio.

3. Mix until the black and white is evenly blended leaving no streaks of either color.
4. Transfer the mixture to another clean container to avoid any leftover residue from streaking the final mixture.

TIP: Mix only the required amount of epoxy that will be used within a 30 minute timeframe to prevent the epoxy from curing prematurely.

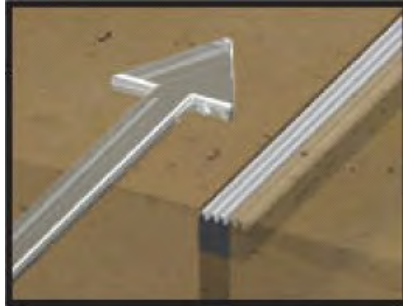
EPOXY TIPS:

1. The epoxy will not cure when the temperature is below 40°F.
2. For every +17°F the epoxy cures twice as fast.
3. For every -17°F the epoxy cures twice as slow.
4. Greater volume = less time to cure.
5. Smaller volume = more time to cure.
6. A technique to increase the pot life of the epoxy is to split up the mixed material into smaller units.



Sealant Installation

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

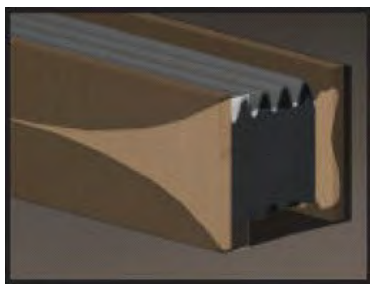


2. When fully prepared to install, apply a 1/16" – 1/8" coating of the epoxy mixture to both joint walls using a 1" margin trowel to a depth of the sealant material plus 1/2".
 - a. The epoxy must still be wet upon installation of the seal. The working time for the epoxy is approximately 30 minutes depending on the temperature.
 - b. If the epoxy hardens on the surface of the substrate before installation, another coat of epoxy can be applied within 8 hours. After 8 hours, the substrate surface must be abraded to eliminate the amine blush that occurs during final cure.



WARNING: Pay attention to the direction of insertion marked on the packaging.

3. Cut the shrink packaging along the edge of the masonite strapping.



NOTE: If stick sizes larger than the standard 5' LF is ordered (XL marking after product name), do NOT cut shrink packaging completely off. Cut open 5' LF sections at a time and install material working your way down. This will prevent the foam from expanding past the joint opening size.

WARNING: Be prepared to install the material immediately once the packaging is removed to prevent the material from expanding past the joint width.

4. Verify that the material is cut square at both ends for proper seams. All pieces must be square to the termination point.

Sealant Installation

5. Remove the white release liner on both sides of the seal.



WARNING: Make sure not to pull, twist, or stretch the material in the process of installation to avoid tearing the white release liner.

6. Initially, position seal 1/8" above the deck surface. Once the material is partially expanded in the joint, it can then be installed to 1/4" below the surface of the joint using a putty knife or margin trowel.
 - a. Wedges can be used to aid installation. Remove the wedges once the material begins to expand and before the epoxy cures.



Seams

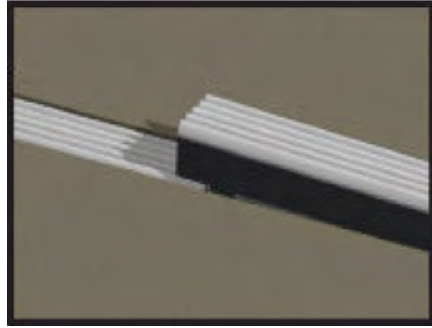
1. Verify that the new piece of material is cut square and not at an angle to the previous installed piece.
2. Apply flexible sealant to the butt end of the new piece of material.

WARNING: Do not apply flexible seal to the faces of the seal that are in contact with epoxy.

TIP: If crew size permits and two lengths of material can be prepared, the ends to be seamed can be held above the deck surface and the mitered pieces can be pushed down into the joint together.

Seams

3. Overlap extra material (approx. 1/2" -1") at seams and splices to ensure that the seam is in compression after installation.



4. Butt seam all 'T' and '+' intersections.

NOTE: After installation, if there are any mitered joints with a hole or void, use the supplied flexible seal to fill and seal the joint.

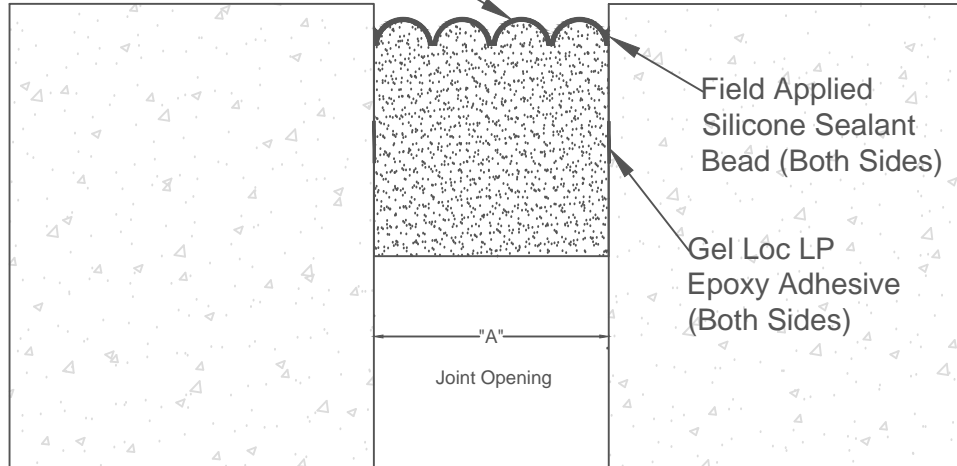
Finish

1. Remove any excess flexible seal or epoxy left on the surface of the material substrate.

WARNING: Do not allow the flexible seal or epoxy to cure before removal.

2. Remove the duct tape from the joint surface.
3. **Use the matching silicone to run a bead along each edge of the joint to fill any irregularities in the substrate.**

Factory Applied Dow 790 Or Pecora 890 Silicone



CSH-SERIES
Horizontal Condition

* Sizes available in 0.25" increments and up to 9".
Contact EMS for additional information.

PRODUCT	"A" Min. Width IN (MM)	"A" Mid Range IN (MM)	"A" Max. Width IN (MM)	Total Movement IN (MM)	Seal Depth IN (MM)
CSH-050	0.25" (6.4)	0.50" (12.7)	0.75" (19.1)	0.50" (12.7)	1.50" (38.1)
CSH-100	0.50" (12.7)	1.00" (25.4)	1.50" (38.1)	1.00" (25.4)	1.50" (38.1)
CSH-150	0.75" (19.1)	1.50" (38.1)	2.25" (57.2)	1.50" (38.1)	2.00" (50.8)
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CSH-250	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)	2.00" (50.8)
CSH-300	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)	3.00" (76.2)

NO.	Description	Date	By
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13311 Main Road * Akron * New York * 14001
Phone: (716) 542-3991 * Fax: (716) 542-3996 * E-mail: sales@eriemetal.com

PROJECT: N/A

TITLE: CSH-Series Horizontal Condition

Detailed by: BAF	Date: 07/20/16
Checked by: SLP	Date: 07/22/16
Scale: NTS	EMS Job #: N/A
Sheet No.: 1 of 1	Drawing No.: CSH-1