

SPECIFICATION

CST (1FRH) Series Foam Seal System

Division 07900

PART 1 – GENERAL

1.01 Summary

- A. The work shall consist of furnishing and installing waterproof, fire rated expansion joints in accordance with the details shown on the plans and the requirements of the specifications. Preformed sealant shall be silicone pre-coated, preformed, pre-compressed, self-expanding, tensionless, 1 hour fire rated sealant system.
- B. Related Work
 - Division 3 – Cast in Place Concrete
 - Division 7 - Thermal & Moisture Protection
 - Division 7 - Sealants, Caulking and Waterproofing
 - Division 7 - Joint Firestopping

1.02 Submittals

- A. General – Submit the following according to Division 1 Specification Section.
- B. Standard Submittal Package – Submit typical expansion joint drawing(s) indicating pertinent dimensions, general construction, expansion joint opening dimensions and product information.
- C. Sample of material is required at time of submittal.
- D. All products must be identified by a UL listing number and must be listed in the UL and ULC Online Certification Directories as proof that they have been tested according to UL 2079 and manufactured under UL’s “Follow Up” service.
- E. Submit UL-issued Certificate of Compliance as proof product has been tested by UL and passed ANSI/UL 2079.
- F. All products must be certified by manufacturer that they are not comprised of un-bonded vertical laminations and do not rely on a water based intumescent surface coating as part of the UL listed sealant system. Material exposed to the possibility of vandalism must have UL validation that the fire rated expansion joint will perform as listed with UL even if the surface bellows are vandalized or damaged. Exterior products must be certified by independent laboratory test report to exceed the requirements of curtain wall performance tests ASTM E330, E283-04, and E331. Product must meet or exceed hurricane-force wind loading with no deflection at both positive and negative pressures up to 4954 Pascals - equal to 200 mph winds (ASTM E330-02-procedure A).

- G. All products must be certified by independent laboratory test report to ASTM E90-09 and to meet or exceed an STC 54 in STC 56 wall and OITC 48 rating in an OITC 47 wall.
- H. All products shall be certified in writing to be: a) capable of being expanded from the mean joint size at 40°F to the stated maximum dimension without exerting any tension on the attached substrate; and b) capable of withstanding 150°F (65°C) for 2 hours while compressed down to the minimum of movement capability dimension of the basis of design product (-50% of nominal material size) then extended to the stated extension (+50%) without evidence of foam delamination or sealant face de-bonding from the material; and that the same material after the heat stability test and after first being cooled to room temperature will subsequently self-expand to the maximum of movement capability dimension of the basis-of-design product (+50% of nominal material size) within 24 hours at room temperature 68°F (20°C).

1.03 Product Delivery, Storage and Handling

- A. Deliver products in each manufacturer's original, intact, labeled containers and store under cover in a dry location until installed. Store off the ground, protect from weather and construction activities.

1.04 Acceptable Manufacturer

- A. All joints shall be as designed and manufactured by EMS, Inc., 13311 Main Road, Akron, New York 14001.
- B. Alternate manufacturers and their products will be considered, provided they meet the design concept and are produced of materials that are equal to or superior to those called for in the base product specification.
- C. Any proposed alternate systems must be submitted and receive approval 21 days prior to the bid. All post bid submittals will not be considered. This submission shall be in accordance with MATERIALS AND SUBSTITUTIONS.

Any manufacturer wishing to submit for prior approval must provide the following:

1. A working 6" sample of the proposed system with a letter describing how system is considered superior to the specified system.
2. A project proposal drawing that illustrates the recommended alternate system installed in the horizontal construction that is specific to the project. Typical catalog cut sections will not be considered.

3. Any substitution products not adhering to all specification requirements within will not be considered.

1.05 Quality Assurance

- A. Manufacturer: Shall have a minimum of ten (10) years of experience specializing in the design and manufacture of expansion joint systems.

PART 2 – PRODUCT

2.01 General

- A. Provide watertight, energy-efficient, one (1) hour fire rated joint sealant with a factory applied Traffic grade silicone membrane coating designed to provide protection against moisture and water intrusion on horizontal surfaces. System shall perform waterproofing, fire rating, movement joint functions as well as add to thermal insulation and sound attenuation as the result of a single installation and without the addition of ancillary fire-blankets, mineral wool, cover plates. Cover plates can be used where appropriate but should not be a required part of the fire rated system. Profile shall be installed without use of invasive anchor systems.
- B. Provide 1 hour fire rated expansion joint, Model CST(1FRH) as manufactured by EMS, Inc. and as indicated on drawings for horizontal expansion joint locations.
- C. Sealant system shall be comprised of the following components: 1) fire retardant, impregnated foam not comprised of un-bonded vertical laminations and will fully extend without putting tension on the substrate, 2) pre-coated on both sides with silicone proven not to de-bond or separate if exposed to thermal shock cycling, 3) field-applied epoxy or UL listed adhesive, 4) system must not rely on a water based intumescent surface coating as part of the 1 hour fire rated sealant system. 5) Silicone fillet beads may be used where appropriate to prove a uniform seal with the substrate. Impregnated foam material must be proven not to take a compression set over time and the fire rated joint sealant must not rely on “injected sealant bands” along the substrate for its sealing properties.
- D. Material shall be capable of movements of -50%, +50% (100% total) of nominal material size depending on the anticipated movement of the joint design. Standard sizes from 1/2” (25mm) to 4-1/2” (112mm). Depth of seal is 4” (100 mm).
- E. Silicone external color facings to be low-modulus, waterproof silicone factory applied to the foam at a width greater than maximum joint extension such that the joint is never under tension within its rated movement range. When compressed to final supplied dimension, a bellow(s) to handle movement must be created in the silicone coating. Silicone coatings to be available in a range of not less than 26

standard colors for coordination with typical building materials, with the option for custom colors. Separate colors may be chosen for each coated surface.

- F. CST(1FRH) to be installed using manufacturer's standard field-applied epoxy or UL approved adhesive. The CST(1FRH) is to be installed slightly recessed from the surface, such that when the bead of silicone is installed between the substrates and the foam and silicone bellow(s), the system will be essentially flush or slightly inset from the joint face.
- G. Select the sealant system model appropriate to the movement and design requirements at each joint location that meet the project specification or as defined by the structural engineer of record.

2.02 Fabrication

- A. Seal profile shall be shipped in six and a half foot lengths in manufacturer's standard shipping carton. Seals shall be cut to length on jobsite where required for straight lengths or directional change transitions utilizing appropriate tools, saws and miter boxes. All cuts shall be accurately measured and completed in a neat and workmanlike manner to ensure quality work.

2.03 Finishes

- A. Seals – Standard color offering: Traffic grade gray.

PART 3 – EXECUTION

3.01 Installation

- A. Preparation of the Work Area
 1. The contractor shall provide 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. Repair cracked, spalled, irregular or unsound joint surfaces using accepted industry practices for repair of the substrates in question. Remove protruding roughness to ensure joint sides are smooth. Ensure that there is sufficient depth to receive the full depth (typically 4") of the joint being installed. Refer to Manufacturer's UL approved Installation Guide for detailed step-by-step instructions.

3. No drilling, or screwing, or fasteners of any type are permitted to anchor the sealant system into the substrate.
4. System to be installed by qualified sub-contractors only according to detailed published installation procedures and/or in accordance with job-specific installation instructions of manufacturer's field technician.

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