Installation Procedure

Horizontal Foam Seal (HFS)

Pre-compressed, Monolithic Cross Section Foam Supported Silicone Faced Expansion Joint System

The following installation procedure is very important and must be fully understood prior to beginning any work. To ensure proper installation and performance of expansion joint system the following actions must be completed by the installing contractor. **Failure to do so will affect product warranty**.

1) Carefully read and understand installation procedure. Contact WBA's Technical Service Department at (800) 677-4922 for product assistance.
2) Inspect all shipments and materials for missing or damaged components and hardware. Contact Customer Service at (800) 677-4922 with WBA's order number and invoice for prompt assistance.
3) Inspect substrate or adjacent construction for acceptance before beginning work. Report unacceptable construction to the project manager for scheduled repair work.
4) Review WBA shop drawings for project specific detailed information if Engineering services were purchased at time of order.

WBA P/N #20500

A WBAsics™ Product by Watson Bowman Acme

Health & Safety

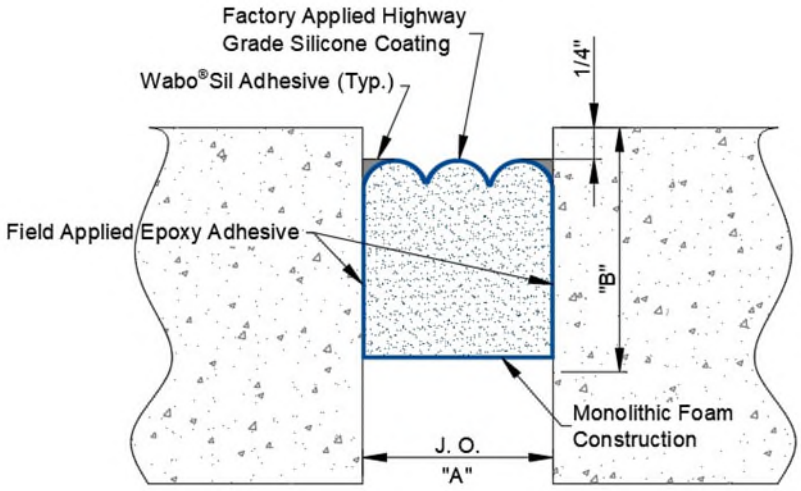
During the installation of any Watson Bowman Acme product, appropriate personal protective items should be worn at all times, including but not limited to the following:

- Proper work clothing
- Safety glasses
- Safety boots
- Gloves
- Hard hat

Local rules and regulations regarding safe work environments and health should be followed.

Product Components

The following components are required for the installation of this product:



Horizontal Foam Seal
(Refer to chart below for size and part number)

WBA Model Number	WBA Part Number	Joint Opening "A"	Seal Depth "B"	WBA Model Number	WBA Part Number	Joint Opening "A"	Seal Depth "B"
HFS-050	41000	1/2" (12)	2.00" (51)	HFS-300	41010	3" (75)	3.50" (89)
HFS-075	41001	3/4" (19)	2.00" (51)	HFS-325	41011	3-1/4" (82.5)	3.50" (89)
HFS-100	41002	1" (25)	2.50" (63.5)	HFS-350	41012	3-1/2" (89)	3.50" (89)
HFS-125	41003	1-1/4" (31.75)	2.50" (63.5)	HFS-375	41013	3-3/4" (92.25)	3.50" (89)
HFS-150	41004	1-1/2" (38)	2.50" (63.5)	HFS-400	41014	4" (100)	4.50" (114)
HFS-175	41005	1-3/4" (44.5)	2.50" (63.5)	HFS-425	41015	4-1/4" (108)	4.50" (114)
HFS-200	41006	2" (50)	3.50" (89)	HFS-450	41016	4-1/2" (114)	4.50" (114)
HFS-225	41007	2-1/4" (57)	3.50" (89)	HFS-475	41017	4-3/4" (120.5)	4.50" (114)
HFS-250	41008	2-1/2" (63.5)	3.50" (89)	HFS-500	41018	5" (127)	4.50" (114)
HFS-275	41009	2-3/4" (70)	3.50" (89)				

Wabo®Gel Adhesive

Dual Cartridge Pneumatic Caulking Gun

Pneumatic Caulking Gun

NP 100 - Splicing Adhesive

Wabo®Sil Adhesive

Pre-Installation Notes

The work shall consist of furnishing and installing the Horizontal Foam Seal (HFS) in accordance with the details shown on the plans and the requirements of the specifications. Placement of the Horizontal Foam Seal shall consist of proper surface preparations, material and application of materials. Epoxy adhesives will be shipped in manufacturer's labeled containers. Seals shall be cut to length on jobsite where required. Miter cut or bend seal (depending on size) in the field to conform to directional changes unless otherwise recommended by manufacturer.

Joint Preparation

- Store material at a minimum of 50° F (10° C) for a minimum of 24 hours prior to installation, regardless of temperature at location of installation. Store materials in a dry, enclosed area. Make sure materials are off the ground and out of direct sunlight.

- Forming materials should be carefully removed to avoid edge spalling of the concrete. Joint gap edges should be chamfered to help prevent small fractures and spalling. Edge spalling conditions should be repaired and allowed to properly cure prior to installation of the Horizontal Foam Seal. Repairs shall be made as directed by the Engineer.

- The substrate sidewalls must be sound and free of all contaminants such as grease, oil, form release agents, etc. prior to installation of Horizontal Foam Seal.

- The preferred method of surface preparation to produce laitance-free, roughened sidewalls is abrasive blasting. Where this is not permitted, disc grinding should be employed. Ensure a coarse disc is used to produce an abraded surface. The gap openings should be blown out with clean air to remove dust. Vacuum with HEPA rated equipment to remove dust if required by OSHA or another authority.

- Installation must be performed in joint gap openings with sound, clean and dry substrates. Any loose portion of substrate at the gap must be removed and the substrate properly repaired as directed by the engineer.

Preparation of Concrete - New or Aged Concrete

- All Concrete surfaces must be abrasive blasted or grounded to achieve proper surface preparation for epoxy adhesive otherwise failure of system will occur: CSP 2 or 3 Profile.

- The concrete substrate must be clean (free of dirt, coatings, rust, grease, oil and other contaminants), sound and durable. New concrete must be cured (minimum of 14 days) and all latinance removed. Suitable preparation methods include sandblasting, chipping and scarification.

    - Durable Concrete - Sound and durable concrete should have a cap pull-off strength that meets or exceeds ACI 503R, Appendix A.

    - Unsound Concrete – Loose, contaminated, weak, spalled, deteriorated and/or delaminated concrete must be removed to sound concrete and repaired. Prior to placement, any spalling, voids or structural cracking at the joint interface must be repaired. Follow International Concrete Repair Institute (ICRI) and American Concrete Institute (ACI) concrete repair and maintenance guidelines.

Preparation of Steel – New or Existing

- Steel surfaces must be abrasive blasted immediately prior to installing the Horizontal Foam Seal. This is a requirement in new or existing construction. All oxidation must be removed and “white steel” revealed (SP-10 or “nearly white”). Where abrasive blasting is not permitted, steel surfaces will be aggressively disc-ground to roughen and abrade the surface to achieve the “white steel” condition.

- Stainless steel surfaces require aggressive grinding and/or blasting to remove the smooth, glassy surface to achieve SP-10 or “nearly white” for acceptable installations.

- On galvanized steel surfaces, galvanizing material should have good adhesion to steel. Steel must be solvent wiped with Denatured Alcohol using clean white cotton rags just prior to installation.

For Best Results

- Protect the work area with appropriate plastic sheeting. Utilize plastic sheeting on the underside of the joint opening to protect from objects, dripping liquids, or other materials from falling through the opening to lower levels.

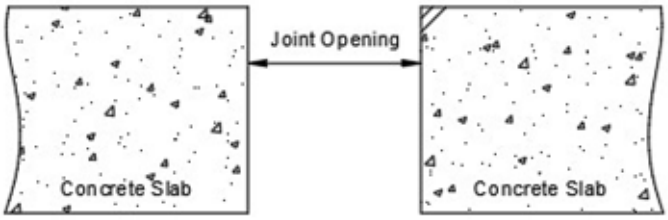
- Do not allow any of the epoxy components to freeze prior to installation. Store all epoxy components out of direct sunlight in a clean, dry location between 50°F (10°C) & 95°F (35°C).

- Epoxy Adhesive shelf life is 18 months. Wabo®Sil shelf life is 24 months.

- Proper application is the responsibility of the user. Field visits by Watson Bowman Acme personnel are for the purposes of making technical recommendations only.

Installation

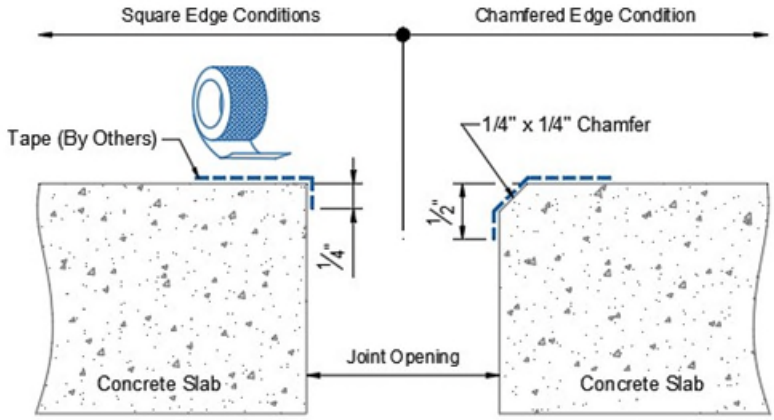
1 Prior to beginning work, installer shall inspect for proper joint interface and ensure that joint opening has enough depth to accept the Horizontal Foam Seal. Verify joint opening as called for on chart. Accomodations for adjacent construction temperature shall be considered when sizing the seal. Deficiencies in joint opening must be corrected prior to beginning work, such as spalled edges and protruding objects to ensure a clean, smooth, dry surface for installation of the Horizontal Foam Seal. Recommended Concrete Surface Profile is 2-4.



Model	Joint Opening
HFS-050	½” (12)
HFS-075	¾” (19)
HFS-100	1” (25)
HFS-125	1-1/4” (32)
HFS-150	1-1/2” (38)
HFS-175	1-3/4” (45)
HFS-200	2” (50)
HFS-225	2-1/4” (57)
HFS-250	2-1/2” (64)

HFS-275	2-3/4” (70)
HFS-300	3” (75)
HFS-325	3-1/4” (83)
HFS-350	3-1/2” (89)
HFS-375	3-3/4” (92)
HFS-400	4” (100)
HFS-425	4-1/4” (108)
HFS-450	4-1/2” (114)
HFS-475	4-3/4” (121)
HFS-500	5” (127)

2 Before installation of the Horizontal Foam Seal, tape off edges of the substrate to prevent the epoxy from coming into contact with the exposed surface.

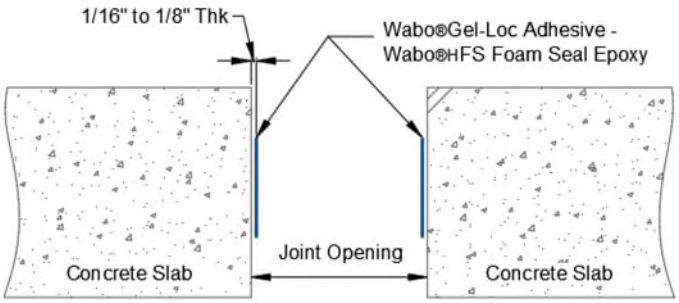


3. Mixing of Adhesive

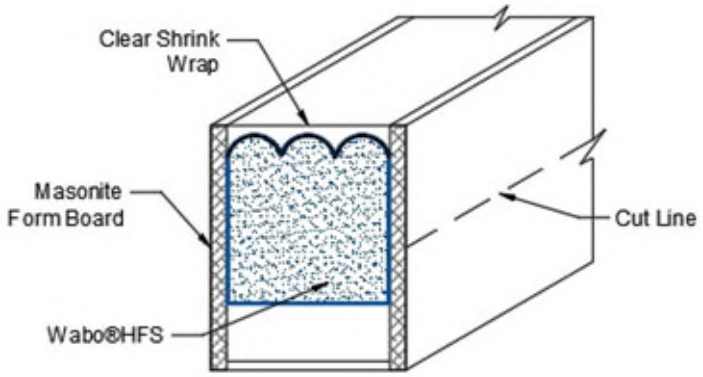
3A Stir each Wabo®Gel-Loc component separately.
Mix 1-part A with 1-part B equally by volume (1:1 mix ratio) in a clean mixing container. Mix the epoxy using a slow speed drill with a mixing paddle attachment. Carefully scrape the sides and bottom of the pail during mixing with a paint stirring stick. Blend for 3 minutes. Mix only the amount of material that can be used within the pot life (pot life @ 77˚F/ 25˚C = 45 minutes). Please note large batches of epoxy will cure faster than small batches. Mixed epoxy will cure much faster in hot weather than in cold weather.

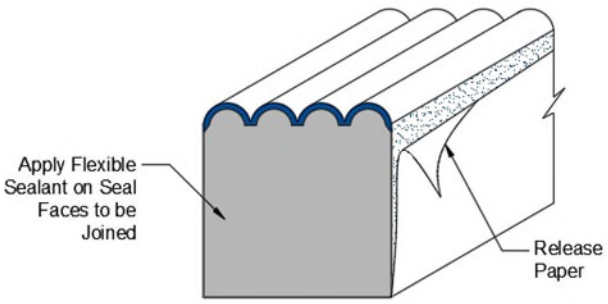
4. Seal Installation with Adhesive

4A Apply a uniform coating of epoxy adhesive, approximately 1/8” (3 mm) thick, to both sides of substrate surfaces to receive the Horizontal Foam Seal. Use a trowel to spread the adhesive onto the substrate. (Unused quantity can be resealed and used at a later date.)



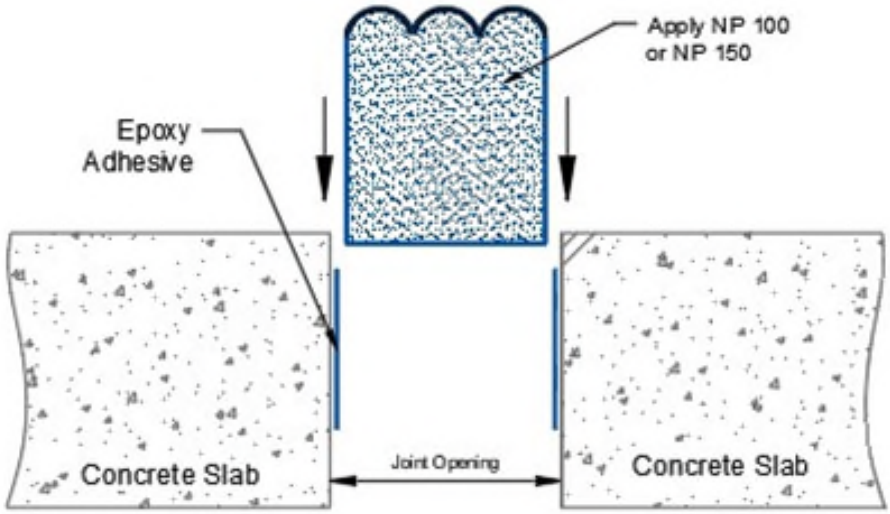
4B The Horizontal Foam Seal is pre-compressed 1/4" less than width of opening. It is important to quickly unpackage and insert seal to avoid displacing the epoxy that was previously troweled onto the opening.
When fully prepared to install the seal, carefully cut the shrink wrap packaging along Masonite Form Board. This is to ensure that the colorable Silicone Face does not get cut. (See also Step 4E).
Remove shrink wrap, masonite forms, and release paper. Be prepared to install the Seal immediately once the packaging is removed to prevent the material from expanding past the joint width.





(Important Note:
Make any cuts to the Horizontal Foam Seal **before removing** the clear shrink wrap packaging. Please refer to Step 5 for proper splicing techniques. **For directional changes, please refer to Steps 6A for Instructions.)**

With gloved hands, compress the Horizontal Foam Seal and install where the epoxy adhesive was initially applied on the substrate. Install the seal starting at one end of the joint working towards the other end of the joint run. Utilize a blunt probe to aid in the installation of the seal, if necessary.
Install the seal to approximately ¼" (6mm) below the top surface making sure it does not protrude above the joint edge. Continue installing the seal in the same direction in which the adhesive was initially applied. DO NOT push at an angle or pull the seal, as this will stretch the seal.

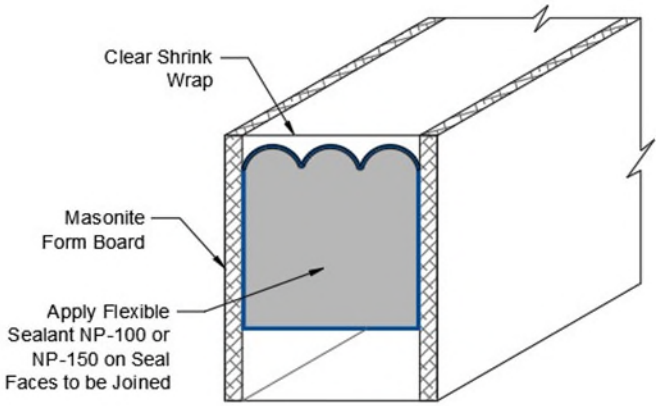


Stop the epoxy adhesive short approximately 12" (300mm) from the end of the seal if doing Phase Work to allow for access of the seal for next splice. The seal can be pulled up later to be spliced and the installation continued.

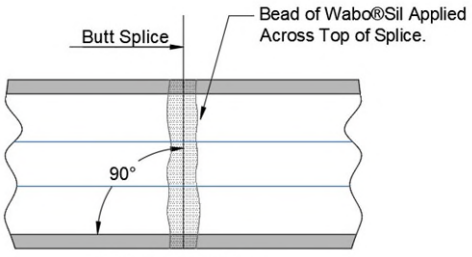
4C Using only denatured alcohol or isopropyl alcohol, clean all excess epoxy from the edges of the joint and from the top of the seal. DO NOT allow the adhesive to cure before removing it. Use care not to use excess pressure while cleaning the seal as the seal could inadvertently be pushed lower.

5 All starting and ending pieces must be square to the termination point.

NOTE: At ALL splice locations, spread NP 100 on the entire end of each seal to a thickness of 1/16" minumun to 1/8" maximum. Join pieces together – the splice connection must be under compression to achieve watertight connection.



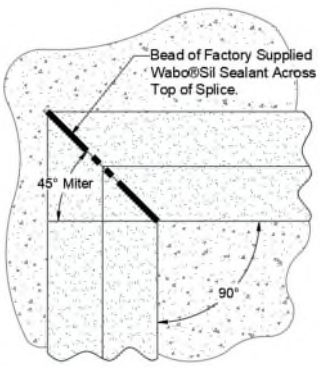
Apply a bead of Wabo®Sil Adhesive along the Top of the Spliced joint. Top surface of silicone must first be cleaned and Wabo®Sil must be properly tooled to allow seal to properly function. Excessive sealant particularly at the center groove will restrict movement.



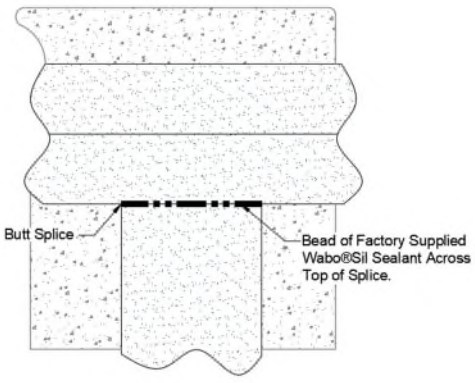
Butt Splice All Sizes

TOP VIEW

6 For "L" Transitions, cut the material at a 45-degree angle and for "T" and "X" Transitions, apply Sealant to all faces to be joined, the "Butt" the material together. Install with a slight compression to hold in place.



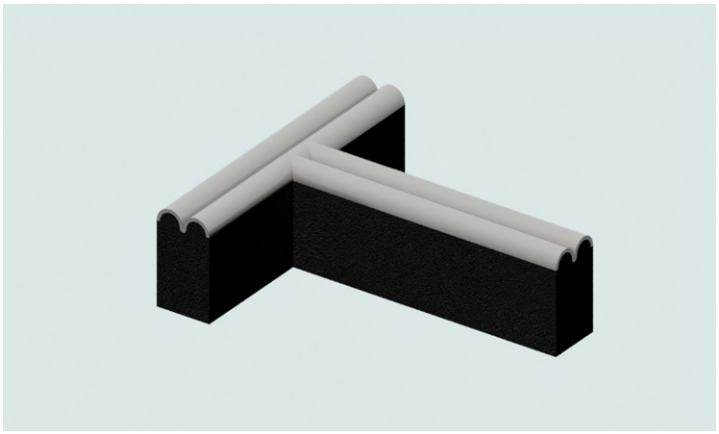
"L" Transitions



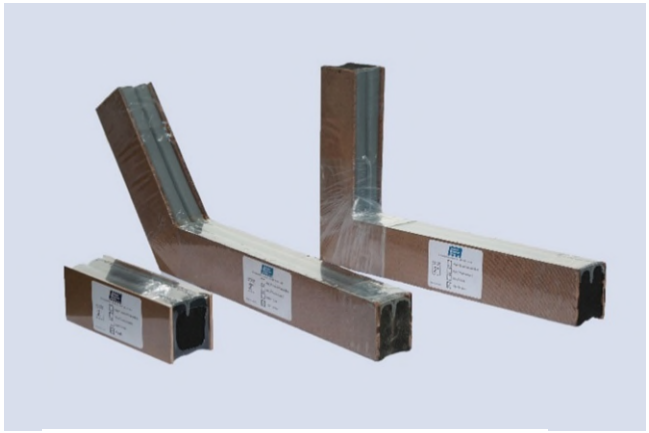
"T" Transitions

NOTE: At ALL splice locations, contractor shall apply a bead of the Wabo®Sil supplied, across the top of each splice to ensure a water tight splice connection.
After installation, if there are any mitered joints with a hole or void, use Wabo®Sil to fill and seal the joint.

Factory Transition Options:



Factory Fabricated “T” Transition



Factory Fabricated Upturn Transition

(Images for illustrative purposes only)

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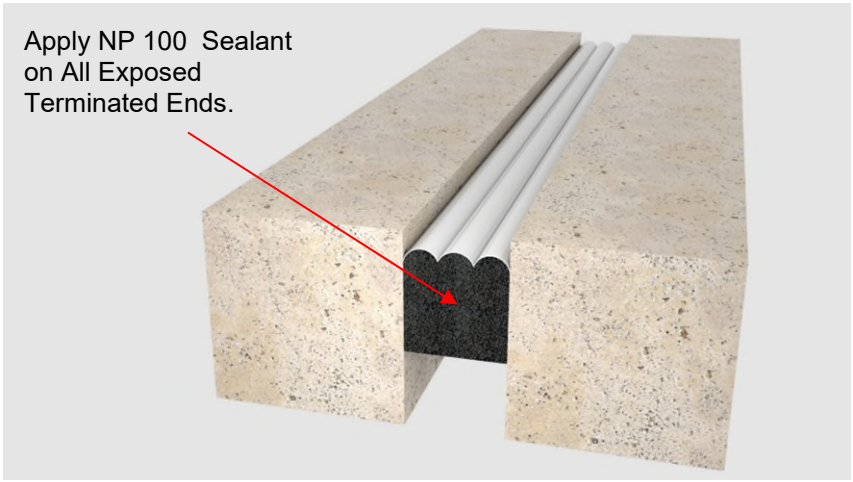
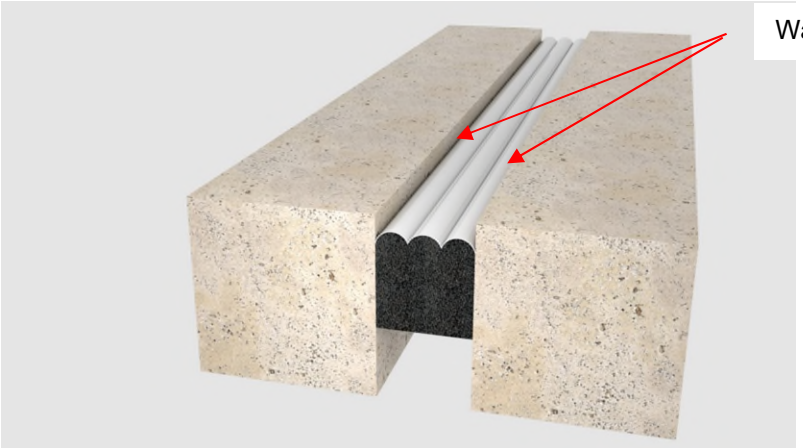
7 At the end of the joint run, and all exposed terminated ends (including any and all Factory Transitions), apply a liberal coat of NP 100 to the entire surface of the Foam terminated end(s) so that not foam is exposed. Doing so will ensure proper moisture resiliance.



7A Allow the adhesive to set approximately 20 minutes @75° F (24°C) before traffic is allowed onto the joint, slightly longer times are required during cooler weather.

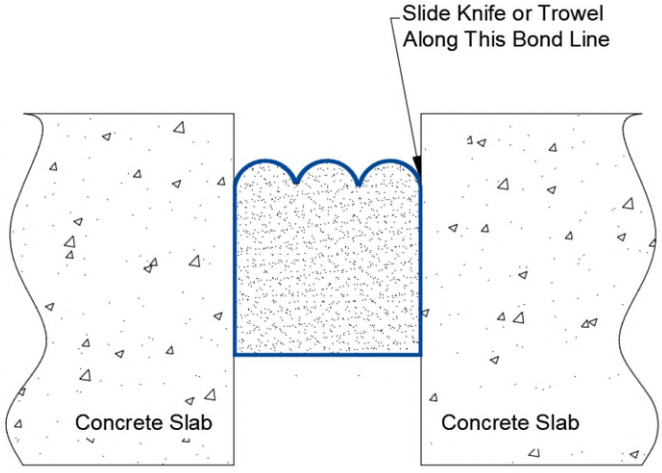
8 Run a 1/4” bead of Wabo®Sil Adhesive on top of seal on each side once installed (see figure below). After running beads, tool the material, especially during colder temperatures



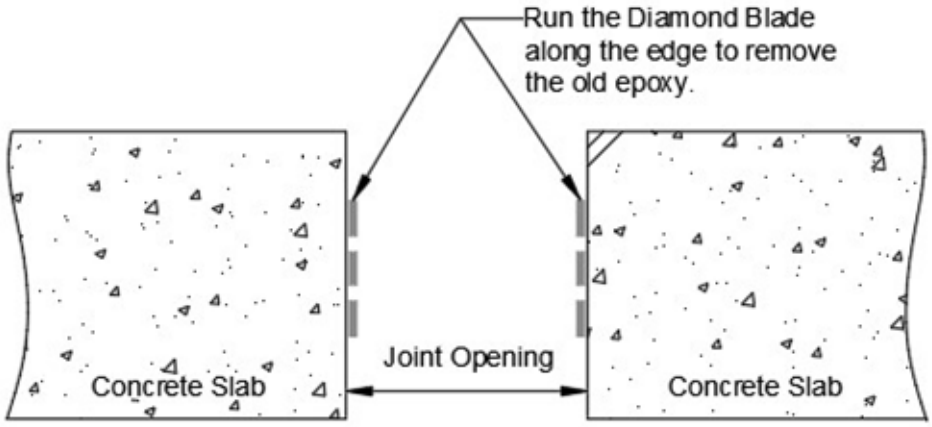
Repair Procedure

Please follow the repair procedure below if the Horizontal Foam Seal drops before the epoxy fully cures.

R1 Slide a large knife or trowel along the bond line as shown above and remove the affected section of the Horizontal Foam Seal. Exercise care not to destroy the seal while trying to separate the seal from the Epoxy Bond Line.



R2 Once the seal has been carefully removed from the concrete, the fastest way to remove the old epoxy is to use a concrete cutting saw with a diamond blade. Run the diamond blade along the epoxy line, to remove the epoxy and prep the surface as well.



R3 After the seal and old epoxy have been removed, please follow the installation procedure for instruction on re-installing the Horizontal Foam Seal product.