BUILDING TRUST

SIKAFUKO® -

JOB SITE GUIDE FOR HOSE INJECTION PROCEDURES

INTRODUCTION

Junction box locations shall correspond with locations shown on submitted shop drawings (if shop drawings showing junction box locations are submitted). If field conditions dictate that a junction box shall be moved, or additional junction boxes are required, submit new or modified junction box locations to Sika (St. Louis sales office) for shop drawing revision (when required).

Areas adjacent to joints observed as having honeycombing or improper concrete consolidation shall be patched using hydraulic cement or other appropriate repair material as approved by the Engineer to prevent significant loss of injection resin during SikaFuko® injection.

NECESSARY TOOLS AND EQUIPMENT

- Injection pump (a.k.a electric airless sprayer) equipped with a hose and ball valve
- Vacuum/diaphragm pump if re-injection of SikaFuko® is desired
- Vacuum Pot (a.k.a pressure pot or painters pot), for capturing excess injection resin, if re-injection of SikaFuko® is desired
- Two Packertongs per injection pump (purchased from Sika® – St. Louis office). Type 1 and Type 2 Packertong size available. Select the size that matches the SikaFuko® size being used (i.e., when using SikaFuko® VT-1, select the Type 1 Packertong).
- One Sliding Clutch per injection pump (purchased from Sika® – St. Louis sales office). Sliding Clutch shall be replaced periodically as the seal wears through normal usage.
- Plenty of clean 5-gallon buckets and measuring devices capable of measuring liters and milliliters
- Plenty of clean water
- Sponge, cloths and/or rags, stirring spoon
- Extra PVC hose (clear or green) and connecting nozzle (purchased from Sika® – St. Louis sales office) to extend the length of the installed hoses for easier access
- Optional – Mineral Spirits for cleaning cured injection resin
- Regular Dish Washing Soap/Detergent for cleaning equipment of uncured injection resin.

INJECTION PROCEDURES

Locate junction boxes which house appropriate vent ends for each designated SikaFuko hose segment.

Open junction box to expose SikaFuko hose vent ends. SikaFuko hose vent ends shall be terminated using clear and green non-perforated PVC hose (see Figures 1 and 2). The color coded vent ends help identify which hose is being injected. For each individual SikaFuko hose segment, the two ends shall be terminated with a different color vent hose. For example, after opening a junction box and exposing the vent ends, if you select a green vent end to inject, the opposite end of that hose segment should be terminated with a clear vent hose. If the applicator is unsure of what vent end corresponds with what hose, check by pumping clean water through each hose segment. Pumping clean water through the hose is highly suggested not only to identify the opposite vent end, but also to check for any hose blockage or damage, or excessive voids in concrete that may lead to excessive loss of injection resin during hose injection.

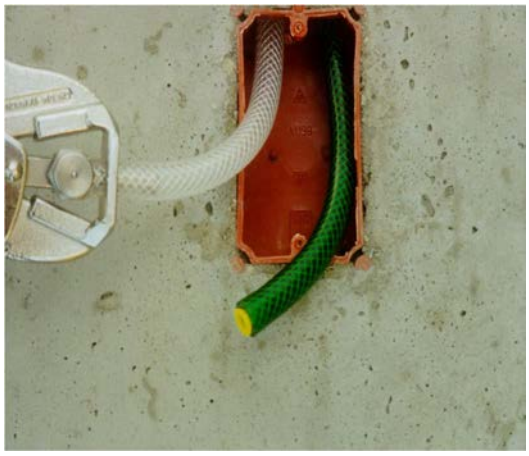

Figure 1: exposed vent ends

Figure 2: vent ends entering junction box

Insert the SikaFuko Packertong into the injection vent end and connect pump to the Packertong. The pump hose assembly should be terminated with a Sliding Clutch (button head coupling). The Sliding Clutch will slide over the "button head" fitting on the Packertong to connect the pump to the Packertong (see Figure 3).

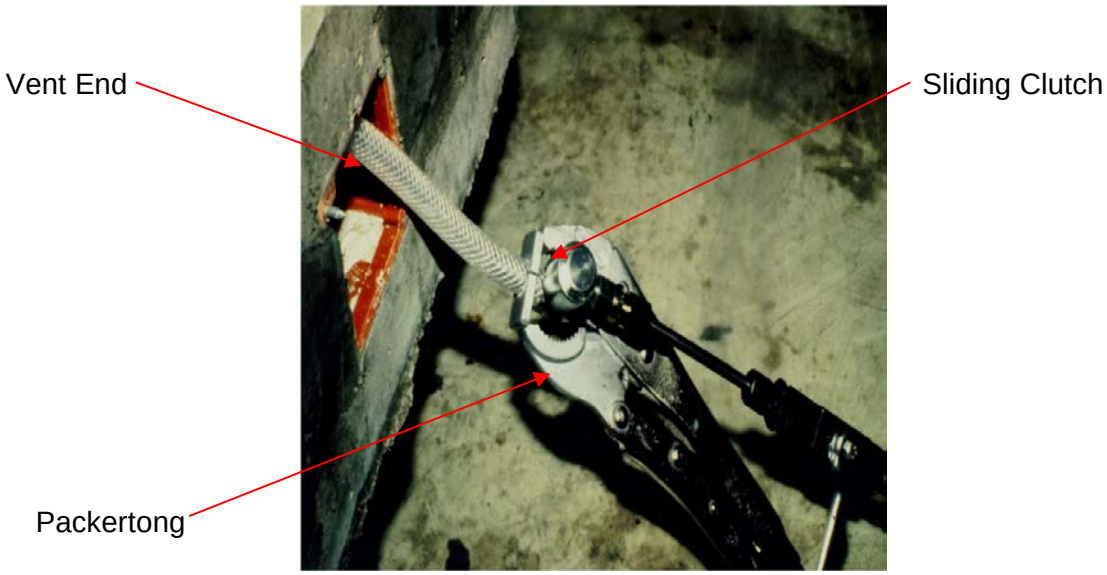

Figure 3: Injection Equipment Assembly

Prepare the injection material (Sika Injection 306 typically suggested) per the manufacturer's instructions and pour into injection hopper connected to the pump (or a clean 5-gallon bucket if your pump is not equipped with a hopper).

Once the connection is made, start the pump and begin injecting SikaF hose until material flows out the opposite end (vent end). Injection can be successfully performed at injection pressures as low as 75 – 150 psi. However, it will be observed that most conventional pumps have a minimum output of approximately 300 psi. Therefore, you will find that the injection will have to be performed at pressures closer to 300 psi or greater. Higher injection pressures will not compromise the integrity of SikaFuko waterstop, but it is suggested to keep injection pressures below 600 psi to prevent cross-contamination of adjacent SikaFuko waterstop, when using multiple rows of SikaFuko within a single joint.

When the injection material is observed flowing out the opposite end of the hose, stop the pump (or close the ball valve on the pump assembly). Close off the vent end with another Packertong tool.

Once the vent end is securely closed off with the Packertong, start the pump and continue to inject Sika Injection 306 into the SikaFuko hose at a pressure between 100 and 600 psi. Slow, low-pressure injections are more effective than rapid, high-pressure injections. A successful injection will be indicated by the pump's refusal of injection resin (the piston will quit pumping) or by the sight of Sika Injection 306 seeping along the length of the joint. At that time, hold the pressure between 500 and 600 psi for approximately 2 more minutes.*

*Note: The held pressure does not have to register 600 psi to be effective. Maximum injection pressure and injection time will vary from hose to hose and is not an "exact science". It depends heavily on the degree of concrete consolidation, concrete thickness, and concrete cover over the SikaFuko waterstop. Determining successful injection is more a function of sight and sound…sight of injection resin flowing out of the joint being injected or the sound that the pump makes during injection. If you see injection resin flowing from the joint, the pump may not be able to establish an injection pressure of 500 to 600 psi, nor hold a lower injection pressure constant for 2 minutes. However, sight of injection resin seeping from the joint throughout the entire length of the joint shall indicate a successful injection. The pump can be stopped at that point and one can assume a successful injection of this SikaFuko hose segment. Additionally, a joint can be successfully injected without seeing injection resin seeping from the joint. In this situation, one must also listen to the sound of the pump. If the pump piston is not moving, indicating the joint is not accepting any additional injection resin, it simply means that the joint was well constructed and the joint is so "tight" that the injection resin will not seep from the joint at injection pressures under 600 psi. If the pump refuses to pump any additional material, and the injection pressure can be held constant between 500 to 600 psi for approximately two minutes, then it can be assumed that the joint is successfully injected even without seeing injection resin seep from the joint. The constant pressurization is done to ensure that an even distribution of material is guaranteed over the entire length of the joint.

Once the SikaFuko hose segment is successfully injected per the previously described criteria, disconnect the pump and hook it up to the Packertong at the opposite SikaFuko hose segment end, leaving the Packertong plugged into the end that was just injected. Re-inject the hose from the opposite end to ensure that the entire joint has been filled. In most cases, the joint will already be successfully sealed and the pump will refuse to inject any additional material. Use the previously described procedure/criteria for injecting and determining successful joint injection on this end of the hose as well.

This procedure must be completed within the specified gel time of the material, yet still allowing time for vacuuming and rinsing operations before the Sika Injection 306 gels.

Turn off the pump, disconnect the pump hose from the Packertong, and remove both Packertongs from the SikaFuko hose segment.

SikaFuko Hose Vacuum Procedures:

Connect the vacuum/diaphragm pump to the pressure pot using additional clear PVC vent hose to connect the two (see Figure 4). Connect the pressure pot to one of the ends of the injected SikaFuko hose segment using an additional length of clear PVC vent end hose and additional connecting nozzle. It does not matter which end of the SikaFuko hose segment you connect the pressure pot. Extend the opposite end of the SikaFuko hose segment with additional PVC vent end hose and additional connecting nozzle. Place that end of the SikaFuko hose segment into a 5-gallon bucket filled with clean water.

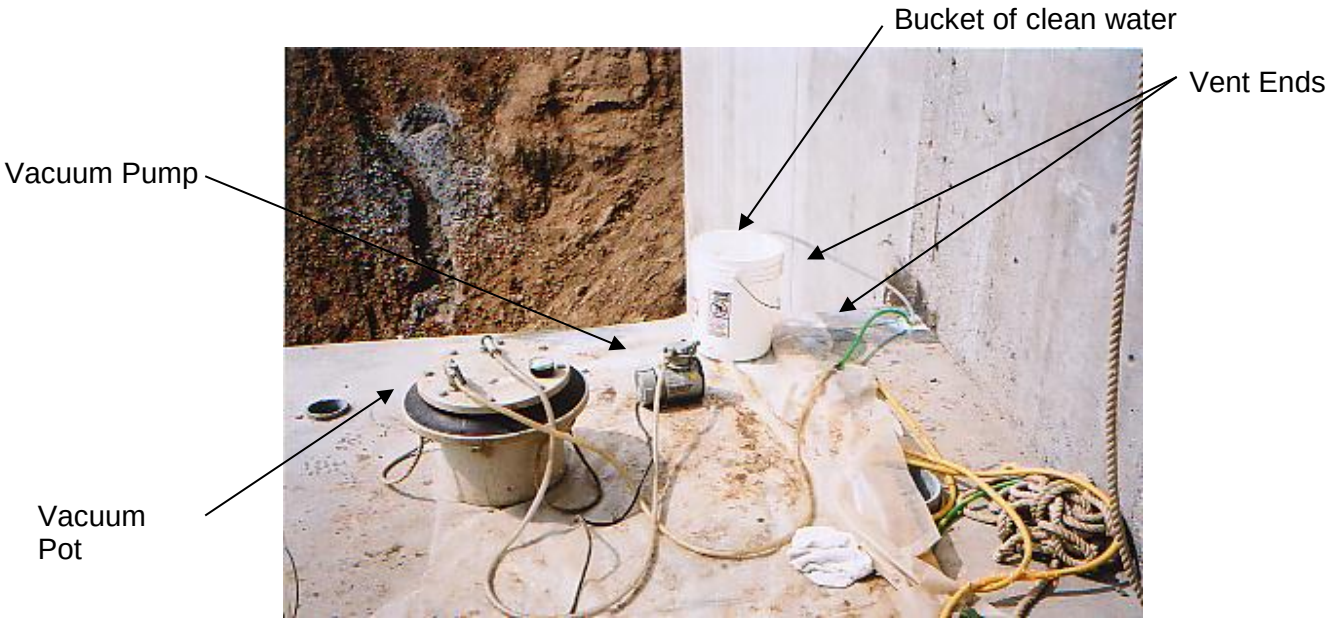

Figure 4: FUKO Hose Cleanout Overview

Start the vacuum pump. Verify a hose suction pressure by placing a finger over the vent end hose in the bucket of water to see if you feel a "sucking" pressure.

During the vacuum process, the injection resin which was left inside the core of the SikaFuko hose will be vacuumed out of the interior diameter and rinsed by the water from the bucket. The neoprene strips will be "sucked" over the injection port holes in the hose, acting as a "one-way valve" and none of the previously injected resin will be vacuumed back into the SikaFuko hose segment.

The entire length of the SikaFuko hose shall be rinsed clean. When the water flow observed at the vacuum pump end is clear by inspecting the material flow through the clear vent hose, stop the pump.

Disconnect the pressure pot from the SikaFuko hose and remove any additional PVC vent end hose and additional connecting nozzle connected to the vent ends of the SikaFuko segment. Insert the yellow plastic closure plugs into each vent end of the SikaFuko hose segment. Replace vent ends into each appropriate junction box and properly secure junction box face plate flush with the wall or surface.

Injection and clean-out of this length of SikaFuko hose segment is entirely complete!

It is a good idea to monitor and record the amounts of grout injected into each hose segment.

Sika Corporation - US
201 Polito Avenue
Lyndhurst, NJ 07071
United States
Usa.Sika.com

For More Information Contact
Sika - St. Louis Sales Office
3400 Tree Court Industrial Blvd.
63122, St. Louis, MO
United States
www.USA.Sika.com
Phone: 1-800-325-9504
Fax: 800-551-5145