

## SIPLAST*FLASH*

Lightweight insulating concrete has proven to be a reusable roofing substrate at the time of roof membrane replacement. In many cases, very little preparation of the existing concrete surface is required in order to make the substrate acceptable for installation of the new membrane system. The following recommendations are guidelines for evaluating existing lightweight insulating concrete substrates for reroofing and/or a new pour of Siplast Lightweight Insulating Concrete Systems.

First, if the reroofing specifications call for a new system that represents a higher weight than that of the previous assembly, structural loading issues should be addressed by a licensed, professional engineer. The engineer should evaluate the structural capability of the building and verify that the added weight of the new construction is within the acceptable loading standards of the local building code.

The condition of the existing lightweight insulating concrete (LWIC) substrate for new membrane system application should be evaluated for suitability using the following inspection and testing procedures and repair guidelines:

1. The existing LWIC should be inspected by making core cuts through the existing membrane system (a core cut size of 12 inches by 12 inches is recommended) in enough locations on the roof to provide a sufficient understanding of the overall substrate condition. Once the inspection of the area is completed, the cored roofing material should be replaced and the area patched with appropriate materials to restore the roof to a watertight condition.
2. An acceptable LWIC surface is firm and should support the weight of foot traffic. Areas where the LWIC has the appearance of loose sand are typically the result of excessive moisture exposure from continuing roof membrane leaks. Such areas should be removed and replaced. Some limited surface spalling may be noticed (particularly after the roof membrane is completely removed during reroofing operations). In such areas where approximately 1/16-inch to 1/8-inch of the material has flaked loose from the surface, the spalled material should be swept and removed. Areas where the spalling is in excess of this thickness should be "capped" using the LWIC mix and method outlined in items 5 & 6 below.

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3. The most practical means of conducting a field evaluation of the strength of LWIC is through base ply fastener withdrawal tests in all areas where test cuts are made. Appendix A describes the recommended procedures for conducting these tests. The minimum recommended withdrawal resistance for an approved LWIC base ply fastener is 40 pounds.
4. Small depressions (6 inches or less in diameter) or holes left by removed fasteners can be patched using Zono-Patch. Gypsum-based materials are not recommended.
5. Replacement of existing LWIC that has become damaged should be accomplished at the time of reroofing. The material in each affected area should be removed to the structural substrate or to where the existing LWIC is sound. The removed areas must be a minimum 1 inch deep and be "square cut" around the edges, "feather edging" is not acceptable. All loose material should be removed and any LWIC surfaces heavily saturated prior to application of the capping material.
6. The capping material should be NVS Lightweight Insulating Concrete, or a LWIC mix having a 1:4 cement/aggregate volume ratio. The patching mix should yield a minimum design compression strength of 250 psi. Patched areas should be applied level with surrounding surfaces and with sufficient slope to maintain proper drainage. The concrete patch mix should be allowed to cure sufficiently, generally 2 to 4 hours, prior to application of the roof membrane system. Patched areas that are adequately cured should allow for foot traffic without footprints.

The roofing specifications, including installation and venting, should follow the requirements of the roofing membrane manufacturer. For more detailed recommendations, contact Siplast at 1-800-922-8800.

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14911 Quorum Drive, Suite 600  
Dallas, Texas 75254-1491

201 Bewicke Avenue, Suite 208  
North Vancouver, BC, Canada V7M 3M7

Customer Service in North America  
1.800.922.8800 [www.siplast.com](http://www.siplast.com)

## **Appendix A**

### **Base Ply Fastener Withdrawal Procedure**

#### **Equipment Needed**

1. Zono-tite® base sheet fasteners or equivalent.
2. Pulling strap. The pulling strap can be fabricated from 24 to 26 gauge sheet metal. *See Figure 1*
3. Retainer cord with a circumference of 30 inches can be made from 3/8-inch diameter nylon cordage.
4. Spring scale with a "maximum value obtained" indicator. The pulling capacity should be 0-50 pounds or 0-100 pounds. Chatillion is one example of a quality scale.
5. Mallet or magnetic "stick" driver designed for installing nailable concrete fasteners.
6. SRIS Insulation Inspection Report form.
7. Safety glasses for eye protection.

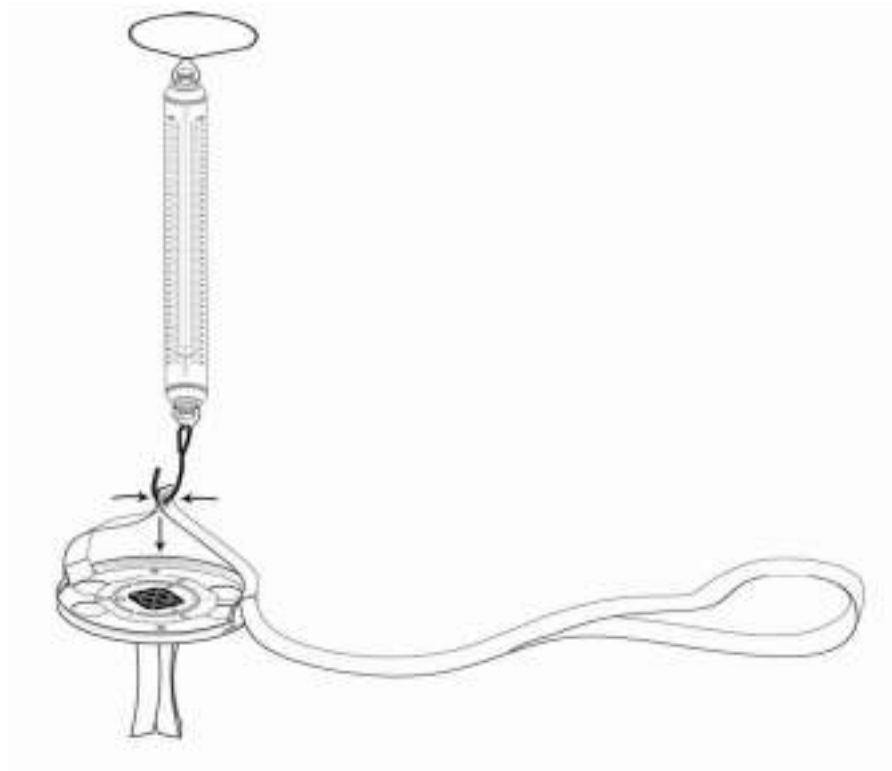
#### **Procedure**

1. Drive the fastener through the center hole of the pulling strap.
2. Place one end of the loop of the retainer cord over the pulling strap. Carefully bend each end of the pulling strap upward, centered over the head of the fastener, to create a hooking eyelet for the spring scale hook. *See Figure 1.*
3. Insert a foot through the opposite loop of the retainer cord to restrain the pulling strap once the fastener is pulled free of the concrete substrate. Hook the spring scale through the eyelet. Pull the strap upward at a right angle to the concrete substrate in a continuous motion until the fastener is completely withdrawn. *See Figure 2.*
4. Record the maximum force obtained for withdrawal.

Figure 1



Figure 2



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