

# GUIDE LITE®

## Lightweight Snowplowable Raised Pavement Marker

### Product Description Assembly Manual



15601 Dallas Parkway  
Suite 525  
Addison, Texas 75001



**Important:** These instructions are to be used only in conjunction with the assembly, maintenance, and repair of the GUIDE LITE® lightweight snowplowable raised pavement marker. These instructions are for standard assemblies specified by the appropriate highway authority only. In the event the specified system assembly, maintenance, or repair would result in a deviation from standard assembly instructions, contact the appropriate highway authority engineer. Valtir representatives are available for consultation if required.

**This manual must be available to the worker overseeing and/or assembling the product at all times. For additional copies, contact Valtir directly at (888) 323-6374 or visit [Valtir.com](http://Valtir.com).**

The instructions contained in this manual supersede all previous information and manuals. All information, illustrations, and specifications in this manual are based on the latest GUIDE LITE® system information available to Valtir at the time of printing. We reserve the right to make changes at any time. Please contact Valtir to confirm that you are referring to the most current instructions.

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## Customer Service Contacts

Valtir is committed to the highest level of customer service. Feedback regarding the GUIDE LITE®, its assembly procedures, supporting documentation, and performance is always welcome. Additional information can be obtained from the contact information below:

### Valtir

Telephone:	(888) 323-6374 (USA) +1 (214) 589-8140 (International)
Fax:	(800) 770-6755 (USA) +1 (214) 589-8423 (International)
Contact Link	<a href="http://Valtir.com/Contact">Valtir.com/Contact</a>

## Important Introductory Notes

Proper assembly and placement of the GUIDE LITE® is critical to achieve desired marker performance. These instructions should be read in their entirety and understood before assembling GUIDE LITE®. These instructions are to be used only in conjunction with the assembly of GUIDE LITE® and are for standard assemblies only as specified by the applicable highway authority. If you need additional information or have questions regarding GUIDE LITE®, please contact the highway authority that has planned and specified this assembly and, if needed, contact Valtir's Customer Service Department. This product must be placed in the location specified by the appropriate highway authority.

This product has been specified for use by the appropriate highway authority. No person should be permitted to assemble, maintain, or repair this system that does not possess the unique knowledge described above. These instructions are intended for an individual qualified to both read and accurately interpret them as written. These instructions are intended only for an individual experienced and skilled in the assembly of highway products that are specified and selected by the highway authority.



**Important:** Read safety instructions thoroughly and follow the assembly directions and suggested safe practices before assembling or maintaining the GUIDE LITE®. Please keep up-to-date instructions for later use and reference by anyone involved in the placement of the product.



**Warning:** It is the responsibility of the installer to ensure all of the GUIDE LITE® Danger, Warning, Caution, and Important statements are followed completely.

## Safety Rules for Assembly

### \* Important Safety Instructions \*

This manual must be kept in a location where it is readily available to persons who assemble, maintain, or repair GUIDE LITE®. Additional copies of this manual are available from Valtir by calling (888) 323-6374 or visiting [Valtir.com/contact](http://Valtir.com/contact). Please contact Valtir if you have any questions concerning the information in this manual (p. 3).

Always use appropriate safety precautions when operating power equipment and when moving heavy equipment or GUIDE LITE® components. Work gloves, hearing protection, eye protection, safety toe shoes, and back support should be used.



**Warning:** It is the responsibility of the installer to use all safety measures incorporating appropriate traffic control devices specified by the highway authority. These measures must be used to protect all personnel while at the assembly, maintenance, or repair site.

## Safety Symbols

This section describes safety symbols that may appear in the GUIDE LITE® manual. Read the manual for complete safety and assembly information.

### Symbol

### Meaning



**Safety Alert Symbol:** Indicates Danger, Warning, Caution, or Important statements. Failure to read and follow the Danger, Warning, Caution, or Important sections could result in serious injury or death to workers and/or bystanders.



**Warning:** Do not assemble, maintain, or repair the GUIDE LITE® until you have read this manual thoroughly and completely understand it. Please call Valtir at (888) 323-6374 if you do not understand these instructions.



**Warning:** Only Valtir parts that are specified herein can be used for assembly, maintenance or repair on GUIDE LITE®. **Do not utilize or otherwise comingle parts from other Valtir systems.** Such configurations have not been tested for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited.

## **Limitations and Warnings**

The GUIDE LITE® is intended to be assembled, and maintained in accordance with specific guidelines. It is important for the highway authority specifying the use of a highway product to select the most appropriate product configuration for its site specifications. Careful evaluation of the site, vehicle population type and speed, traffic direction, and visibility are some of the elements that require evaluation in the selection of a highway product.

## **Recommended Materials**

### **Materials Provided**

GUIDE LITE® with or without reflective lens as indicated on purchase order.

### **Required Materials**

Adhesive - Poly-Carb Mark 29.9 two-part epoxy system or equivalent. Adhesive used must meet AASHTO M237, Type IV specifications.

### **Optional Materials (if placing reflector elements onto marker or if performing reflector element field replacement)**

Reflector – Ennis-Flint C40 or equivalent

Liquid Nails LN-602, LN-901, or LN-950

4x4x6 wood block or similar object (used to support the marker body on markers not yet installed in the road)

## **Recommended Tools**

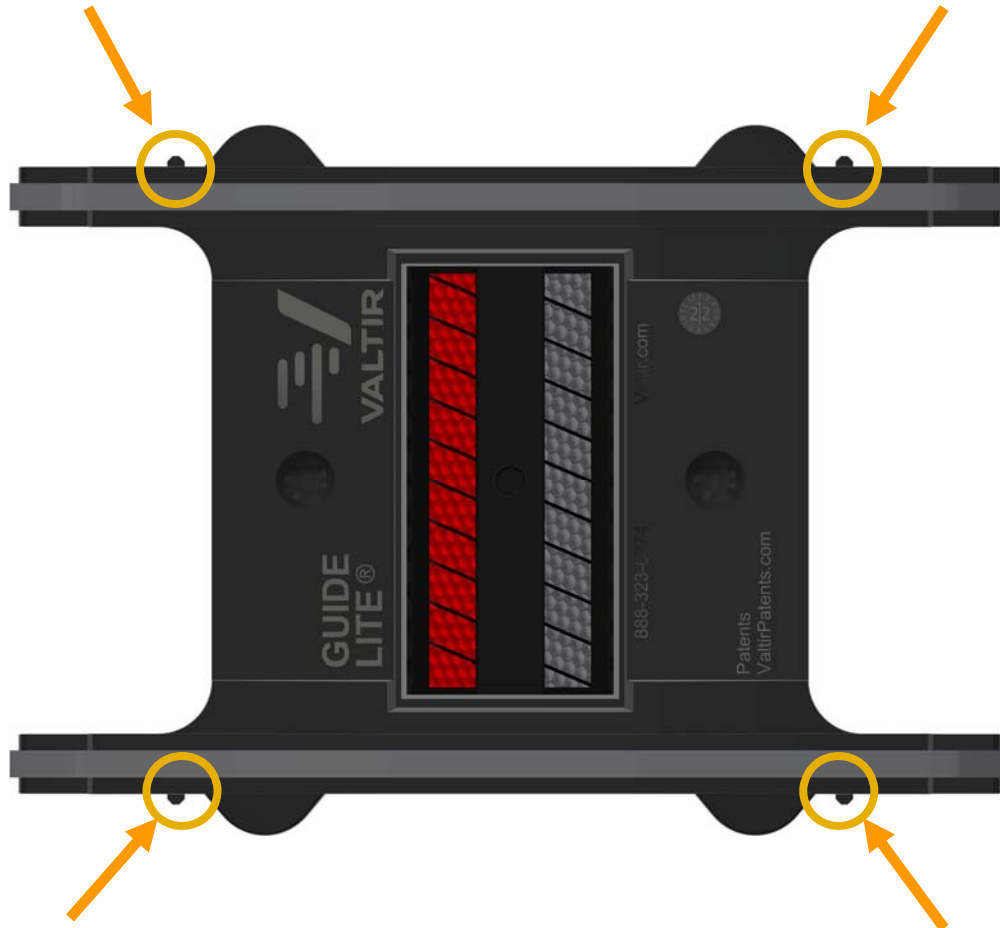
- Plunge cut saw equipment
- Stacked diamond saw blade set with shims. 18" diameter blades bordered by 20" diameter blades (p. 10).
- Air Compressor (oil-free & 90 psi minimum) and Generator (5 kW)
- Epoxy adhesive dispensing equipment
- Calipers
- Tape measure
- Ruler
- Mallet

**Note:** The above list of tools is a general recommendation and should not be considered an exhaustive list. Depending on specific site conditions and the complexity of the assembly specified by the appropriate highway authority, the required tools may vary. Decisions as to what tools are needed to perform the assembly properly are in the sole discretion of the specifying highway authority and the authority's selected contractor performing the assembly of the system at the authority's specified assembly site.

# Know Your GUIDE LITE®

## Marker Retention Friction Wedges

The marker is lightweight (1.4 lbs) and tends to float in uncured adhesive. To keep the marker in position while the adhesive is setting up, four friction wedges are located on the sides of the marker. When the GUIDE LITE® is pressed into the road slot, the friction wedges grip the slot walls and prevent the marker from lifting while the epoxy adhesive is curing.



**Figure 1 – Location of the Four Marker Retention Friction Wedges**



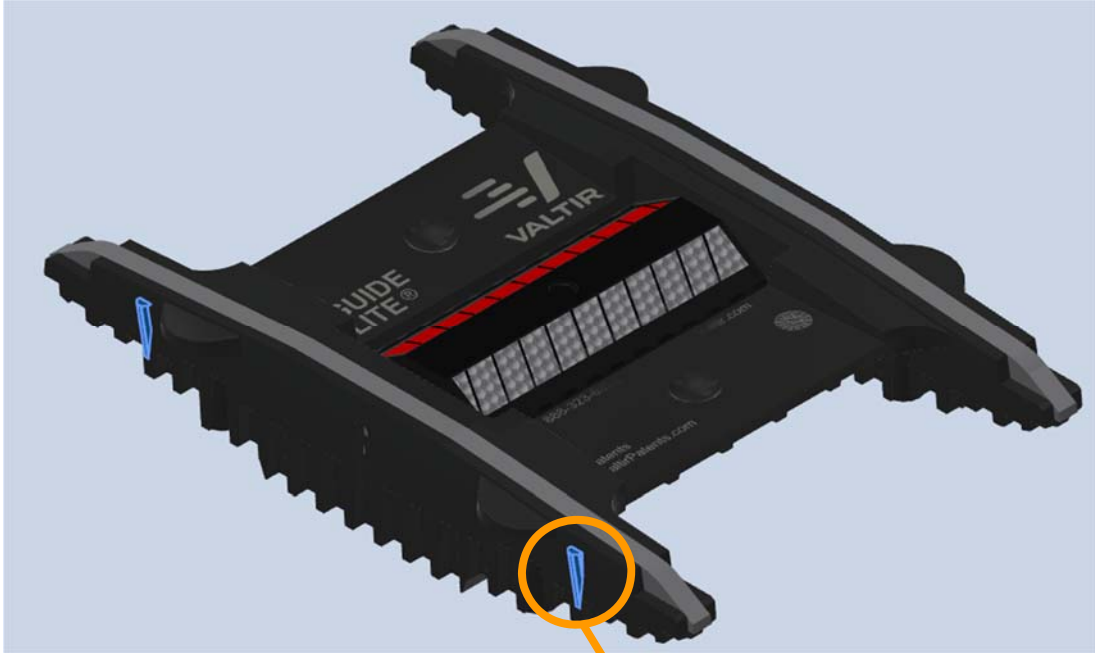
**Warning:** Do NOT modify the GUIDE LITE® in any way.



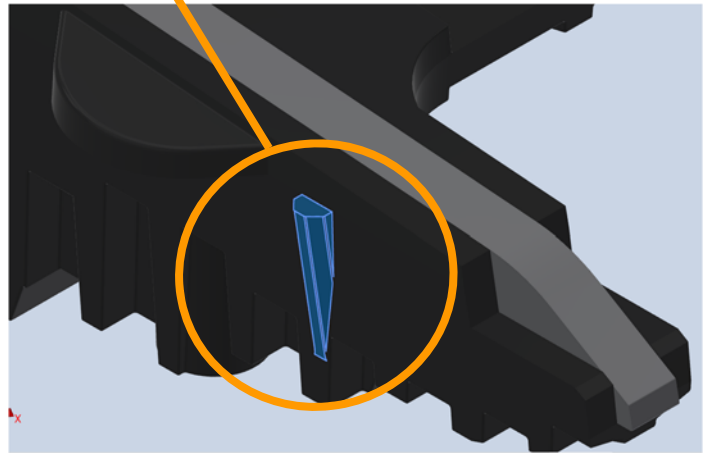
**Warning:** Ensure that your assembly meets all appropriate Manual on Uniform Traffic Control Devices (MUTCD) and local standards.



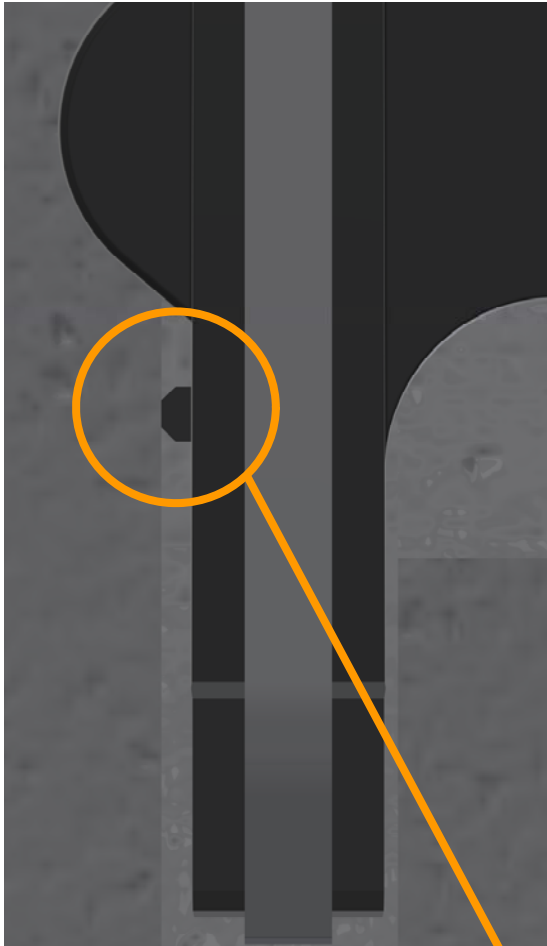
**Warning:** Ensure that your assembly procedure meets all appropriate Occupational Safety and Health Administration (OSHA) and local standards.



**Figure 2 – Friction Wedges (4)**



**Figure 3 – Friction Wedge Close-Up**

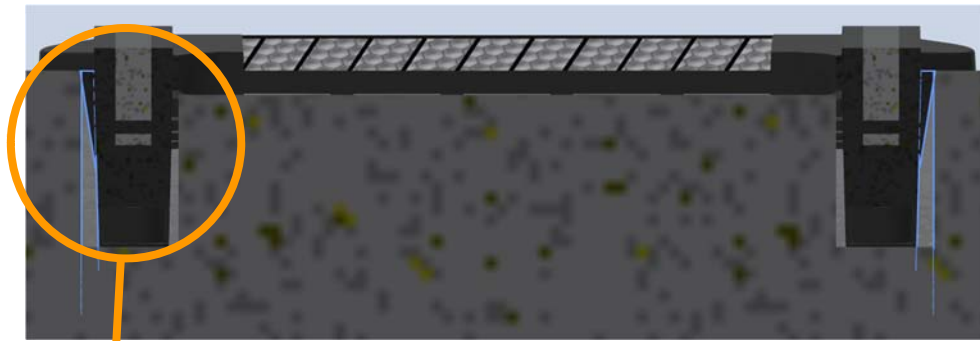


**Figure 4 – Friction Wedge Top Detail**

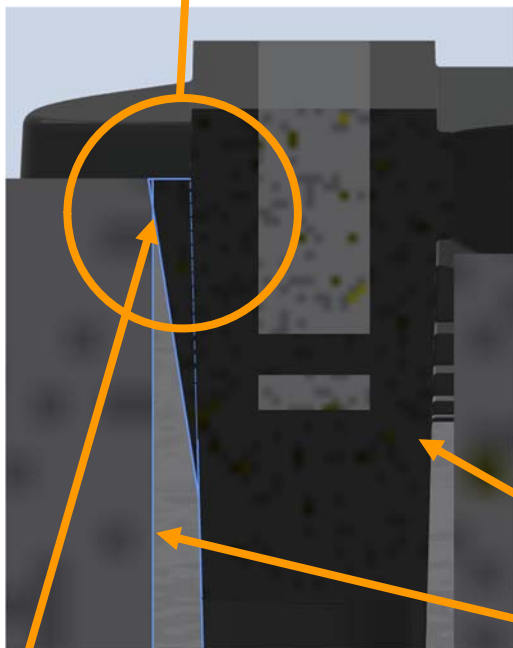


**Figure 5 – Friction Wedge Top View**





**Figure 6 - Cut-Away View Showing Friction Wedge Engagement**



As the marker is pressed or tapped into the slot, the friction wedges scrape away against the slot wall, providing a snug friction fit to prevent the marker from floating in the fresh liquid adhesive.

**(Note: adhesive omitted from image for clarity)**

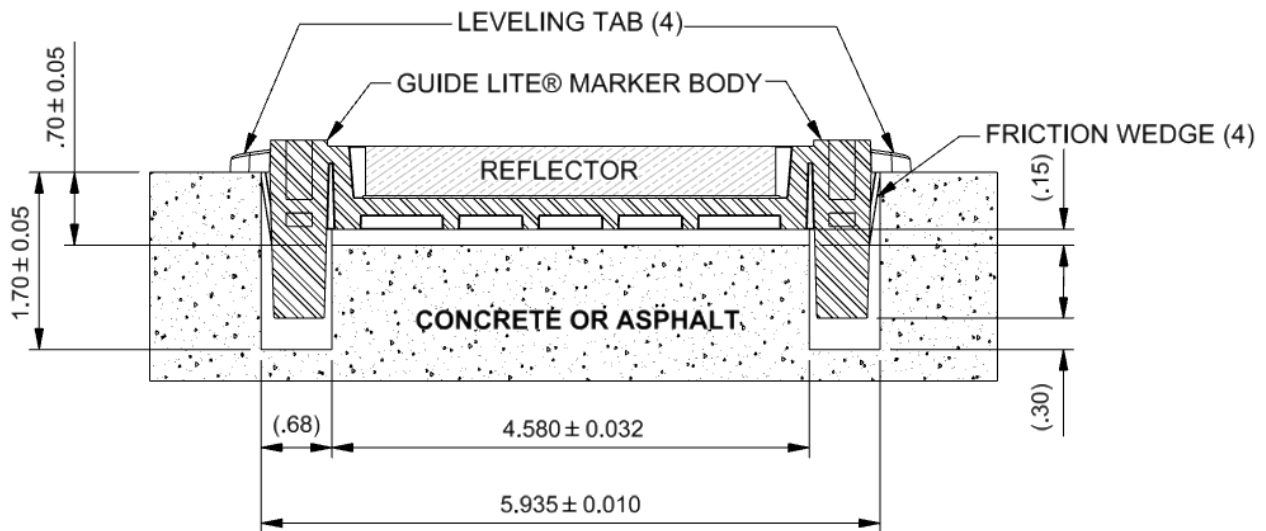
Marker keel

Slot wall

**Figure 7 – Close-Up of Friction Wedge Engagement with Slot Wall**

Friction wedge engages the slot wall when the marker is pressed into the slot.

## Slot Dimensions



**Figure 8 - Section View Showing Slot Dimensions and Marker Position in Slot**



**Important:** It is critical to set up the saw blade dado stack to within the specified tolerance range. If the slot is too narrow, then the marker will not sit low enough in the slot. If the slot is too wide, then the marker retention friction wedges will not engage, which would cause the marker to float in the wet adhesive.

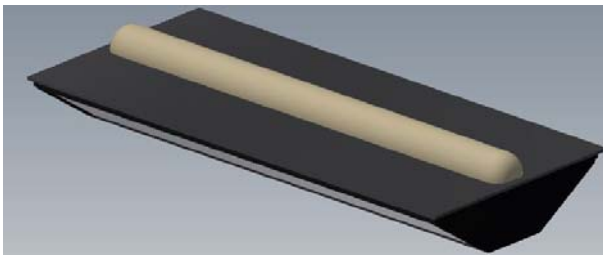


**Warning:** It is the responsibility of the installer to ensure this assembly procedure meets all appropriate local and Occupational Safety and Health Administration (OSHA) standards.

## Reflector Element Placement (as required)

If a GUIDE LITE® was ordered without the reflector element already attached, then follow the instructions in this section. Otherwise, skip to Step 1 in the GUIDE LITE® Marker Placement Procedure section on page 10.

1. Remove the release paper from the bottom of the reflector, exposing the butyl pad.
2. Place an approximately 3/8" wide bead of Liquid Nails in the center of the butyl pad running end to end along the long axis (Figure 9). Before using the adhesive, ensure that the ambient temperature and weather conditions are within the specifications recommended by the adhesive manufacturer. Be sure to follow all of the manufacturer's recommended procedures and guidelines for handling, and applying the adhesive.



**Figure 9 - Bottom of Reflector with 3/8" Wide Bead of Liquid Nails Applied**

3. Now, place the reflector into the marker body pocket. With the marker body supported by the wood block as shown in Figure 10, apply foot pressure (approximately 150 lbs) for 3 to 5 seconds. The Liquid Nails adhesive should flow out around the edges of the reflector as an indicator that the adhesive completely covers the entire bottom of the reflector. If any excess adhesive gets onto the reflector lens, wipe the lens clean using a moist cloth immediately.



**Figure 10 - Placing the Reflector onto the GUIDE LITE® Marker Body with the center section fully supported by a wood block or similar object.**

# **GUIDE LITE® Marker Placement**

## **STEP 1 - Determine Marker Location**

The marker shall be oriented so that the reflector face is perpendicular to the direction of traffic. Avoid placing markers where the snow plow will be traversing the roadway at right angles to the marker. The markers must be oriented so that the snow plow blade scrapes the marker rails in the longitudinal direction. Space the markers according to the engineering plans or as directed by the road authority.



**Important:** Place the marker at least 2" from any joint or crack in the pavement surface.

## **STEP 2 - Cut the Slot**



**Caution:** Markers must be placed in a new saw cut slot. **NEVER** attempt to reuse an existing slot that previously held a marker.



**Warning:** Consult saw manufacturer's safety instructions before cutting marker slots.

Set up the saw blades per dimensions shown on page 8. Cut the pavement with a single plunge cut to the depth shown on page 8. Remove debris and check that the dimensions of the slot are within the specified tolerances (p. 8). Verify the marker fit as described in STEP 3.

## **STEP 3 - Check the Slot Dimensions Using a Marker**

Place a marker in the slot to verify the slot dimensions are correct. **Do NOT push or tap the marker down into the slot at this time.**

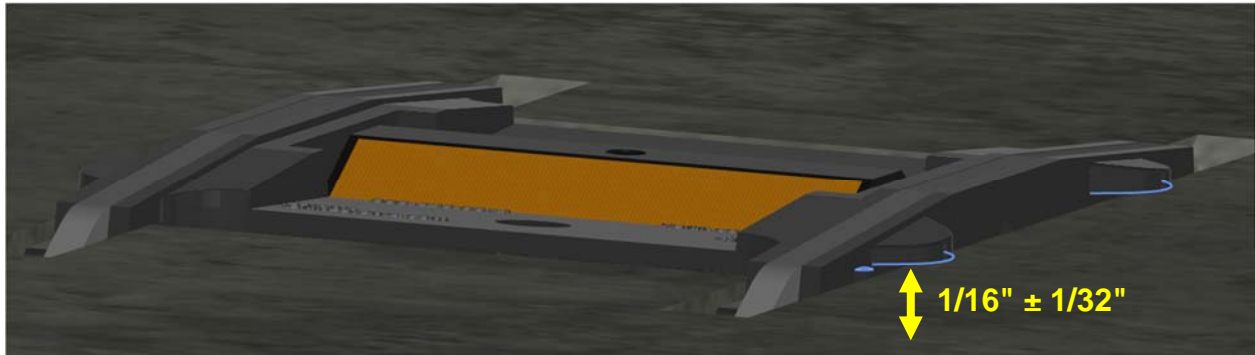
With the marker placed gently in the slot, check that the leveling tabs are between 1/32" and 3/32" above the pavement surface (Figure 11).

If the leveling tab/road surface distance is outside the prescribed range, adjust the slot width accordingly.

Once it is confirmed that the leveling tabs are at the proper pre-installed height, press the marker into the slot with your foot or by using a mallet. A few taps with the mallet or steady pressure from your foot should be all that is necessary to set the leveling tabs flush to the road surface. If many heavy blows from the mallet or excessive foot pressure is required to get all four leveling tabs to seat, then adjust the slot to a wider width.

After it is confirmed that all four leveling tabs are contacting the road surface, gently pull up on the marker. The marker should remain in the slot. It may require a firm tug or a small pry bar to remove a properly fit marker. A properly fit marker is required to ensure the marker does not float in the liquid epoxy.

Once it is confirmed that the saw blades are set up correctly and the slot is at the proper dimensions, proceed with STEP 4.



**Figure 11 - Test Fitting the Marker in the Slot. Pre-installed leveling tab height.**

#### **STEP 4 - Clean the Slot**

Blow any debris or contaminant from the slot using (90 psi) oil-free compressed air to ensure it is completely dry to bond with the adhesive. The surface must be free from oil, grease or any other contaminants.

#### **STEP 5 - Apply the Adhesive**

Before applying the adhesive, ensure that the ambient temperature and weather conditions are within the specifications recommended by the adhesive manufacturer. Follow all of the manufacturer's recommended procedures and guidelines for handling, mixing and applying the adhesive.

Dispense the adhesive so that there is enough to fill the slot to approximately 3/8" below the pavement surface. As the marker is set into place, some adhesive should squeeze out and around all marker edges. Adjust the amount of adhesive so there is enough to fill all of the spaces between the marker edges and the slot, but not so much that the adhesive spills onto the marker body or the reflector.

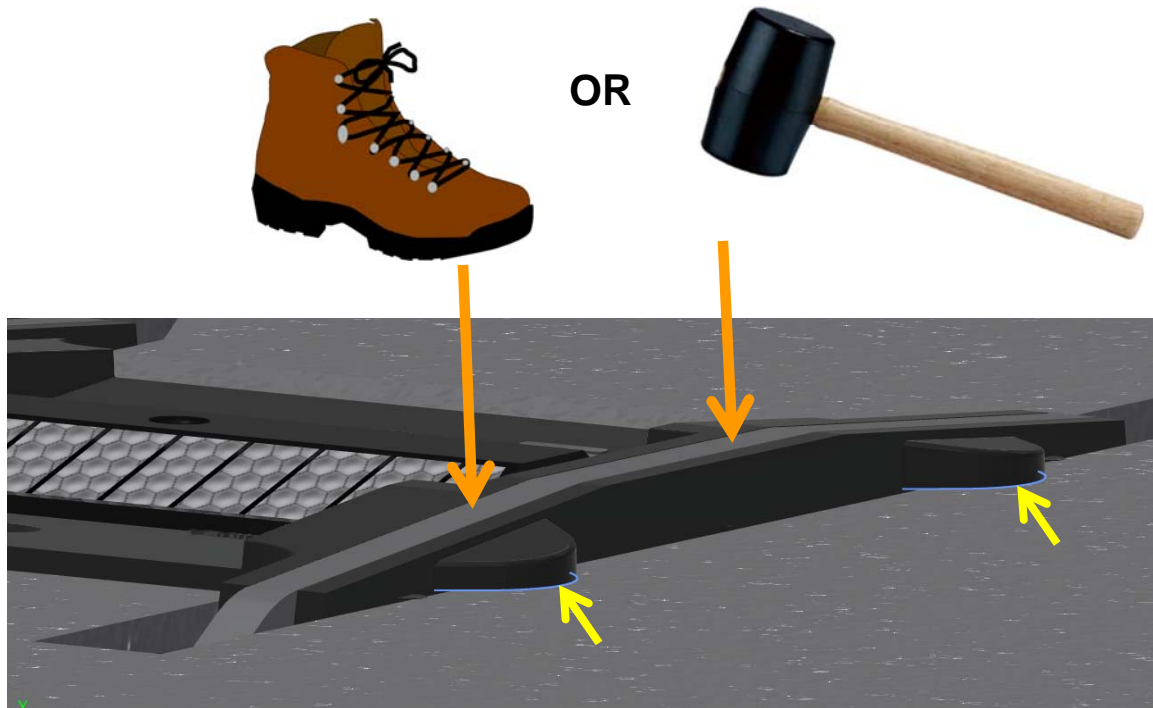
#### **STEP 6 - Place the Marker**

Place the marker into the adhesive-filled slot. Press the marker down by stepping on the rails or use a mallet on the rails to tap the marker in place. Step or tap both rails until all four leveling tabs are resting flat on the pavement surface (Figures 12 & 13). Check that the marker tips are below the pavement surface. Avoid stepping on or striking the reflector.

A few taps with a mallet on each steel rail or steady foot pressure should be all that is needed to properly set the marker into the slot. If several hard blows with a mallet or excessive foot pressure is required to get the leveling tabs to seat, then it means that the slot width needs to be adjusted to a wider width (see STEP 3).



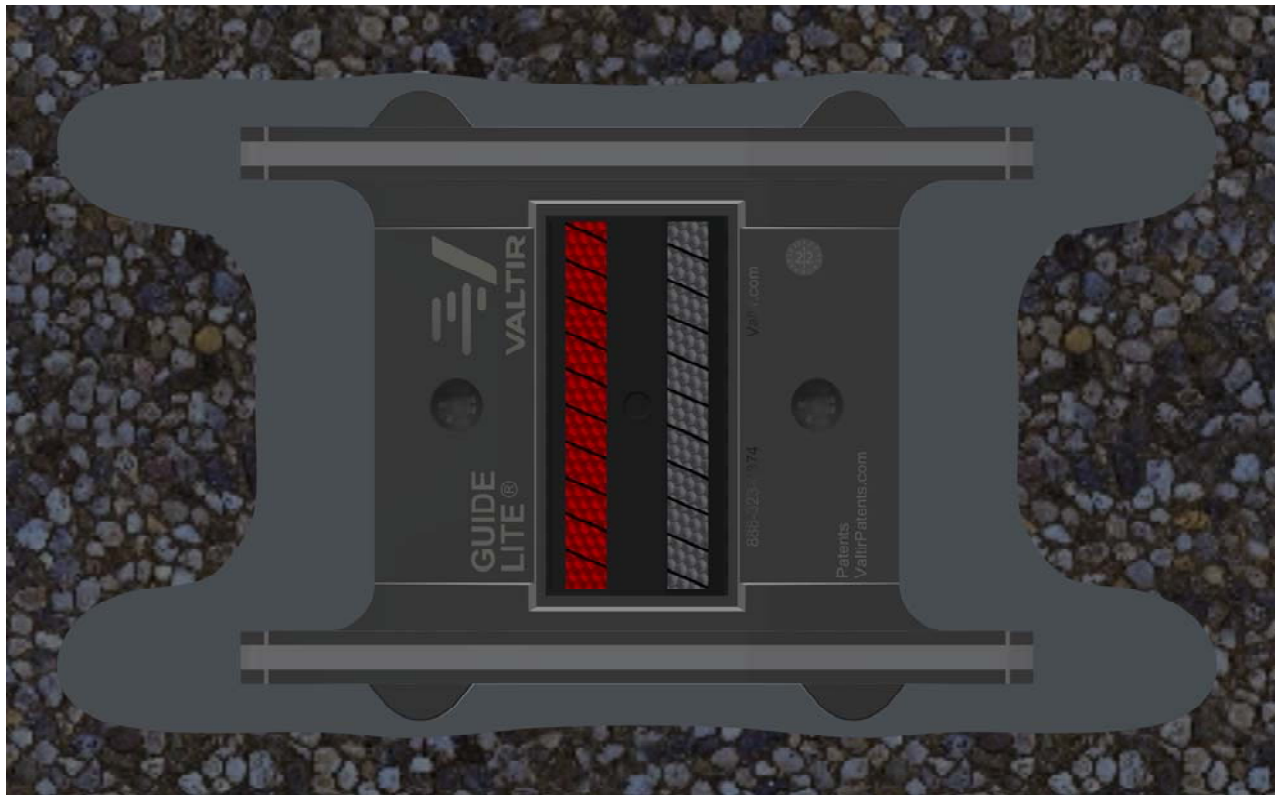
**Caution:** It is critical that all four leveling tabs are resting on the pavement surface.



**Figure 12 - Ensure that all four leveling tabs are contacting the road surface.  
(adhesive omitted for clarity)**

## **Completed Marker Placement**

Protect the markers from traffic until the adhesive completely hardens. Consult adhesive manufacturer specifications for cure times and conditions.



**Figure 13 - Completed Marker**

## **Reflector Field Replacement**

In the case where the reflector is missing or damaged and requires replacement, follow this procedure: **1)** Pry the old reflector from the marker pocket. **2)** Scrape the old adhesive from the marker pocket. Use only non-powered hand tools on the marker. **3)** Place an approximately 3/8" wide bead of Liquid Nails in the center of the butyl pad running end to end along the long axis (Figure 9). Before using the adhesive, ensure that the ambient temperature and weather conditions are within the specifications recommended by the adhesive manufacturer. Follow all of the manufacturer's recommended procedures and guidelines for handling, and applying the adhesive. **4)** Place the reflector into the marker pocket and apply foot pressure (approximately 150 lbs) for 3 to 5 seconds. The Liquid Nails adhesive should flow out around the edges of the reflector as an indicator that the adhesive completely covers the entire bottom of the reflector. If any excess adhesive gets onto the reflector lens, wipe the lens clean using a moist cloth.

## **Marker Removal**

A damaged or improperly installed GUIDE LITE® can be removed by a small jackhammer or pneumatic gun with a wide blade bit. The force of the blade must be directed at the widest part of the GUIDE LITE® web in order to lift the unit free of the epoxy.

Do NOT use a stacked blade assembly on the cutting saw to remove a GUIDE LITE® marker as it may heat and contaminate the spacers and blade in the process.

After the cut is properly cleaned, it can be patched using epoxy, cold patch, or another method as specified by the appropriate agency.



**Important:** Do NOT re-use an old cut to re-install a new GUIDE LITE®.

An alternative, if acceptable to the specifying authority, is to leave the damaged unit in place and install a new GUIDE LITE® immediately in front or behind the existing unit.

## **Road Resurfacing**

GUIDE LITE® markers can be left in place during road resurfacing or grinding operations. Although the integrated rub rails are made of hardened steel, they are small enough where they would not cause harm to road grinding equipment.

It is recommended that the equipment operator make his own determination of the situation. Valtir assumes no responsibility for any damage to equipment.