

## **HEAVY PRODUCT INSTALLATIONS**

Many mounting options are available for installing Letters, Logos and Plaques.

While our catalog provides information on common mounting methods and options, additional considerations must be reviewed when planning for your installation.

This document is intended to provide additional technical information, options, and guidelines to plan for and conduct a successful “heavier” product installation direct to a wall. Various Post Mounts are also available for heavy plaques, when not mounting on walls.

### **Engineering Consultation**

*NOTE: The following are “guidelines”, not absolute recommendations, as combinations of many additional factors such as mounting surface, hardware, and adhesives may impact the installation results. Therefore, our “recommendation” is to consult with an Architect, or qualified structural engineer, with any technical strength questions or concerns – especially with heavier product installations*

### **Goal of a successful installation:**

Securely and permanently affix letters, logos, or plaques to a predetermined mounting surface, in a manner to clearly communicate a message, identify establishments, or direct consumers.

### **Risk Assessment:**

Perform a risk assessment of your installation conditions, as you develop a plan for installing any heavy product(s). Identify and evaluate variables such as wall type, hardware to be used, anchoring and adhesive to be used – all in relation to your product weight and mounting method. Keep in mind that the weak point of most installs is not the hardware, but the mounting method and adhesive used, as they play more a role in creating a secure install.

### **Mounting Surface Considerations**

#### **1. Type of wall?**

- a. Are you installing on drywall, brick, block, steel, etc.
- b. How much weight will the wall support?
- c. Does the wall require any structural reinforcement to carry the load?
- d. Can you get to the back of the wall to access studs?

#### **2. Texture or shape of wall?**

- a. Is the surface flat, smooth, textured stucco, uneven block, stone, ribbed, etc.
- b. Will you be able to secure parts flat on the wall – or will there be a stand-off?
- c. Are spacers required to set letters even, affecting the stand-off, required hardware or strength of install?
- d. Is the wall Corrugated metal wall – maybe requiring rails?

#### **3. Drilling-construction restrictions?**

- a. Any local codes restricting drilling of holes into wall? Any landlord or mall restrictions?
- b. Can you physically drill into the wall, or do you need to affix parts to a rail, panel, raceway first?

## Hardware-Mounting Considerations

### 1. Are there any hardware limits or requirements?

- Is the hardware specified by an engineer or architect? Ex: Must use ¼-20 studs.
- Does the specification or design call for a specific type of hardware – or is it optional?

### 2. Wall mounts vs. Blind Studs

- Through hole mounts, such as Solid or Hollow Wall Mounts, using a masonry shields or toggle wings, typically provide the most secure mounting option for heavy product installs direct to walls. In some install situations, these mounting options may not be possible – or are not specified in the design. Therefore, a **BLIND STUD** mount (no visible hardware) may be required or specified.

## Adhesive Considerations

### 1. What adhesive should I use?

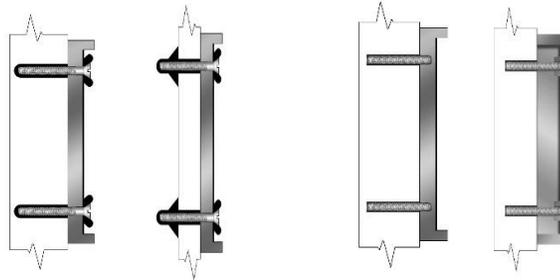
- Lighter and smaller parts can be installed with silicone (a good universal adhesive).
- Heavier and larger parts should be installed with a "stronger" construction grade adhesive, epoxy, or even mortar in brick or block walls.
- Match your adhesive to the mounting type, install surface, and product weight. Consult with adhesive manufacturers for technical product recommendations.

## Installation Tips

Always coat all studs and fill drilled holes with ample adhesive.

Coat the back side of flat parts, if possible (such as a flat plaque or flat cut letter), to increase surface bond and strength.

Adhere filler strips to hollow heavy parts, then coat with adhesive to aid in surface area for bonding to wall.



### **Engineering Note**

**Note:** the risk of an install failure is more a function of the actual mounting surface, surface structure, and the adhesive used - NOT the studs.

The point of failure will be the Aluminum screws in shear, at the minor thread diameter.

144 mph wind speed is equal to 82.7 lb./sq.ft. (0.574 lbs./sq.in.)

Tensile strength at break for 3003 Aluminum is 16,000 psi.

Minor thread area in shear of a 10-24 Aluminum Screw is .015 sq.in. at 2 threads depth.

Therefore, each screw has a holding force in shear of 240 pounds.

Testing and Calculations done and confirmed by David Schmitt, BSME, MMSE.