COASTAL ENTERPRISES
Manufacturers of Precision Board

Mounting and Strengthening High Density Urethane Signs

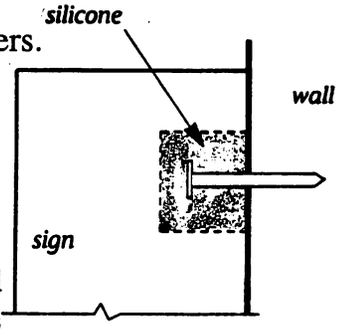
Precision Board high density urethane is used very effectively to make dimensional signage. Its long exterior life and ease of use makes it an ideal material. However, like all new state-of-the-art products there are certain precautions and considerations that must be taken to achieve the most they have to offer. This article will address the precautions and considerations for mounting and strengthening high density urethane signage.

Precision Board high density urethane is comprised of millions of tiny cells. These cells are created during the chemical foaming reaction process and, for the most part, are separate from each other. This condition creates a closed cell structure which does not allow anything to absorb into it and results in long life expectancy.

Due to the cellular nature, high density urethane must be treated differently than wood. Unlike wood, it has no grain, it cuts easier, sandblasts and routs faster and smoother, plus carves quicker with less effort and wear on the carver. This cell structure, however, requires special consideration when mounting and attaching the sign.

Following are some of the more common mounting conditions and recommendations:

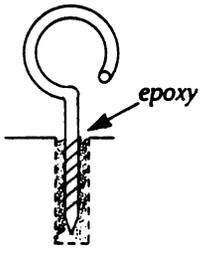
• Signs mounted directly to the building wall



Flat mounting directly to the wall is best accomplished using studs as hangers. The first step is to put the studs into the wall. Concrete nails work well in masonry walls, use galvanized nails into wood wall. After the studs have been installed the sign should be leveled and pushed back onto the studs with enough force to cause a small locating indent at each stud. Be careful not to damage the sign. Using these indents for proper hole location, drill a hole about 1 1/2 times larger in diameter than the stud. Depth of hole to be about 1 inch if thickness allows. Fill the holes with silicone caulking and slide the sign over the studs. Verify sign is still square, support as necessary, and let cure overnight before disturbing. Leaving the heads on the studs allows the silicone to grip the sign and keep it from being pulled off the wall during high winds. The silicone maintains a strong yet flexible attachment that allows for any wall movement. This type of installation also keeps from having to drill and repair attachment holes through the sign face.

• Hanging Signs

Do not attach a weight bearing screw or bolt directly into high density urethane. Because urethane has a cellular structure and doesn't have grain, any weight bearing screw or bolt must have extra support around the threads. Hanging signs are typically hung from eye bolts that are either screwed directly into the sign or that are welded onto the supporting steel framework that is screwed into the periphery of the sign. Attaching eye bolts or weight bearing screws into urethane should be done by drilling a hole about 1 1/2 times larger in diameter than the eye or screw and about



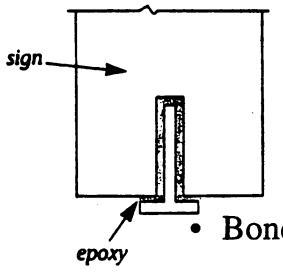
1/4" deeper than the length. Fill this hole with a very strong 2 part epoxy, such as EP-75, and insert the eye or screw down to flush with the surface. Try to keep the fastener in the center of the hole. Excess epoxy can be smoothed around the eye with any suitable tool dipped in mineral spirits. The epoxy holds the threads of the fastener and greatly increases the holding surface area around the inside of the hole. This makes the fastener able to take much more load and eliminates the loosening effects caused by expansion and contraction of the fastener.

- **Strengthening wide expanses of high density urethane**

Because urethane does not have grain, it also has less beam strength than wood. Wide, unsupported expanses need to have this taken into consideration. This situation can be addressed in several ways depending on the design of the sign and the unsupported expanse. Three possibilities are:

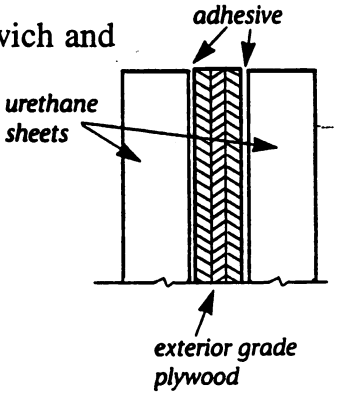
- Add a metal band around the periphery of the sign and attach it as mentioned above.

- Add a metal extrusion in the shape of a T along the entire bottom edge of the sign. A slot is cut up into the bottom edge of the sign that is slightly wider and deeper than the leg of the T. This slot is then filled with a strong, hard, two part epoxy, like EP-75, and the T inserted into it. The excess epoxy squeezed out of the slot welds the other two legs of the T to the bottom edge of the sign adding rigidity without any visual impact.



- Bond urethane sheets to a center sheet of exterior grade plywood or MDO.

When bonding a sandwich composite of Precision Board and other substrates, do as follows:
Wipe the mating surfaces with a damp rag and immediately apply PB Bond-240 one component urethane adhesive.
Apply a 1/4" bead of PB Bond about 1/2" back from the edge all around the periphery of the sign.
Apply 1/4" beads of PB Bond on 3"- 4" centers all across the field area of the sign.
Position the primed plywood on top of the unprimed Precision Board and move around slightly to wet out all surfaces.
Wipe the exposed top side of the plywood with a damp rag and immediately apply PB Bond as described above.
Position the top sheet of unprimed Precision Board on the primed plywood and move around slightly to wet out all surfaces.
Place a 1" sheet of plywood, etc. over the bonded sandwich and place enough weight on top of plywood to keep the assembly flat for a minimum of 4 hours. Eight hours is better, twelve hours for total cure.
When inspecting the edges after curing there should be some squeeze out all around the edges. This lets you know the three pieces are sealed all around and the excess can be easily sanded smooth Prime exterior of the sign and double prime all edges, especially the plywood.



Precision Board high density urethane is becoming more and more accepted by sign makers as a legitimate substrate for sandblasting, routing and carving.
Its long life, easy workability, and large thick sheet size, are some of the reasons for this increase in acceptance. It is, however, extremely important to keep in mind that it is a unique substrate and needs to be treated as such. If you have any questions about any aspect of its use it is best to contact our technical department at (800) 845-0745 prior to proceeding.

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