



FAQ

Frequently Asked Questions **Precision Board** **Signage Applications**

.....

1. Why does Precision Board stand up so well in exterior environments?

Precision Board high density urethane (HDU) is made of millions of tiny bubbles, or cells, that are mostly separate from each other. Since these cells are not interconnected neither moisture nor temperature can enter PB. This means PB does not warp or crack from water penetration.

.....

2. Can Precision Board be used outside in all exterior environments?

Yes it can. Precision Board, being a closed cell product, absorbs no moisture. It is a fairly good insulator so temperature does not migrate into it. It has been tested from -423°F to +300°F with no degradation or breakdown. It doesn't absorb water from high humidity, rain, snow, or ice so it does not expand or contract because of water intrusion. This means it doesn't warp or crack and the paint lasts longer and stays brighter than on wood.

.....

3. Does temperature cause Precision Board to expand or contract?

Yes it does. Virtually every material, whether it is metal, glass, wood, stone, or HDU, expands and contracts as it gets warmer and cooler. This percentage of movement, and it is different for every material, is called its Coefficient of Thermal Expansion or CTE. The CTE of Precision Board is $32 \times 10^{-6} \times ^\circ\text{F}$. When an architect designs buildings, dams, houses, etc. the CTE of each different material is taken into consideration to allow for its required movement. When designing signs it is the same. The CTE of the metal framing, plastic faces, metal backing, stone framing, etc. need to be considered and movement allowed. Call us to assist you with calculating the movement of Precision Board.

.....

4. How long has high density urethane been around?

High density urethane has been used commercially as exterior insulation starting with the Saturn S-II moon launch vehicle in 1964, and as exterior insulation on the Alaskan Pipeline in 1970, still in service. Currently, in addition to being used as insulation for homes, water heaters, refrigerators, and freezers, it is used for signage, tooling, model making, boat building, and in many other places. Urethane is very versatile and track proven. Precision Board has been manufactured by Coastal Enterprises since 1972.

.....

5. What does density mean and how does it relate to high density urethane?

Density is a standard term for determining the weight of a cubic foot of material, any material. A cubic foot is a cube that is 12" x 12" x 12". Its weight is the density. The higher the density the thicker the cell wall and the tougher and heavier it is. Thicker cell walls means it takes more pressure to crush the cell wall. Heavier means there is more material in its makeup so it costs more. The only physical difference between a 4 pound density PB and a 40 pound density PB is the thickness of the cell wall. The cell wall thickness only determines toughness and has no affect on its weatherability, solvent resistance, etc.

6. Is Precision Board heavier or lighter than wood?

The density of redwood is approximately 26 pounds per cubic foot. The standard Precision Board density for sandblasting is 15 pounds per cubic foot. A 1" thick 4' x 8' sheet of PB-15 weighs 40 pounds. A similar sheet of redwood weighs almost twice as much.

.....
7. Can I fiberglass over Precision Board without the solvents eating it?

Yes. None of the commonly used solvents such as lacquer thinner, methylene chloride, naphtha, mineral spirits, etc. will attack Precision Board.

.....
8. Can Precision Board be cut with a hot wire?

No. PB does not soften and dissolve with heat as does styrene. PB can only be cut, sanded, etc. with tools that cut wood. If it won't cut wood it won't cut PB.

.....
9. Can Precision Board be cut with a laser?

Yes. With the advent of the newest lasers and their ability to be finely controlled, Precision Board can be very effectively engraved and cut. In some cases charring on the edges may occur.

.....
10. Can Precision Board be cut with a water jet?

Yes. Water jets cut by focusing a very high pressure, small diameter, stream of water. The cut is very smooth and thicknesses up to 6" thick have been accurately cut using this method. Water jet cutting is normally used to cut very large letters that won't fit on a router table.

.....
11. When cutting or sanding PB does it give off harmful gases or toxic vapors?

No. PB is totally reacted and inert. There is nothing inside PB that is released during cutting, etc. Standard particulate dust masks and eye goggles are recommended however to keep the dust from entering the eyes, nose, or mouth. These protective devices should also be used, for the same reasons, when cutting or sanding wood, plastic, steel, or any other product.

.....
12. Is Precision Board more expensive than wood?

Precision Board may be more expensive initially on a square foot basis depending on the type of wood. However, since it comes in standard sizes of 4' x 8', 4' x 10', 5' x 8' and 5' x 10' in thicknesses up to 20" thick, there is usually no laminating or surfacing required. The savings in laminating labor, equipment usage, and shop flow time will usually more than make up the initial cost difference.

.....
13. What about sandblasting Precision Board, any special considerations?

Sandblasting PB is just like sandblasting a lightweight wood. Blasting pressure needs to be about 60 psi max. at the pot. You can get much closer to the work surface because of the low blasting pressure and the detail and shapes can be much more subtle. Very interesting textures can be realized by using heavy grit blasting material and standing at different distances from the work piece. Since the blasting pressure is low, the grit moves slower and instead of pulverizing the surface it takes out small pieces of the background. Less pressure means a smaller, less expensive compressor can be used. Using Precision Board allows almost anyone to become their own blaster if they so desire.

14. For butt bonding pieces together to make them longer/wider or for laminating sheets to make them thicker what kind of adhesive is recommended?

Coastal Enterprises makes, and recommends PB Bond-240 and PB Fast Set, one part urethane adhesives, that are specifically designed for these purposes. PB Bond and PB Fast Set are waterproof, solvent proof, plus they carve and sandblast similar to the basic substrate. PB Bond cures in six hours. **PB Fast Set cures in thirty minutes.** Check out the data and application sheets. Call us for free samples.



15. What is the best way to attach eye bolts and other hardware to Precision Board?

Since PB is a cellular material it is not recommended to screw hardware directly into it. The hardware, being metal, will expand and contract with temperature causing it to work its way back out. If excessive tension or pressure is applied to the fastener the threads will pull out of the cellular material. The most secure way to install a fastener or hardware is to drill a hole into the PB that is twice the diameter of the fastener and about 1/4" deeper than its screw length. Fill this hole with a structural epoxy, insert the fastener and let it cure. This way the threads are pulling against the hard epoxy and the epoxy is totally bonded to the inside of the hole. Check out the PB Mounting and Strengthening Data Sheet.



16. Is it necessary to prime the surface prior to painting and what should be used?

We feel it is necessary to prime Precision Board prior to painting because not all paints adhere to HDU for the long term. Coastal Enterprises makes the FSC-88 WB - a one component waterbased primer/filler. It is applied directly to Precision Board, dries quickly, sands easily, and accepts all types of paints. Also acceptable is any other type of primer that has been developed specifically for use on HDU. When in doubt always ask the primer manufacturer before proceeding. Check out the priming video on our website at www.precisionboard.com.



17. What can I do to improve the adhesion of my sandblast resist mask to Precision Board?

Verify your blasting pressure has been reduced to 50-60 psi. Consider one coat of primer or even complete priming and painting prior to mask application. See question 22. Also consider using a high tack sandblast resist directly to raw Precision Board.



18. Should I prime and paint all sides of my sign since PB does not absorb moisture?

Yes, PB does not have grain and therefore does not have the beam strength that comes with grain. This means PB can be pulled in the direction of the drying paint. All paints shrink as they dry which causes tension across the surface of the sign. The higher quality of paint the more strength this shrinkage has. Painting both sides of the sign with equal thickness of paint provides equal tension and will keep one side from drawing the other. This is especially true of dark colored, heat absorbing paints. See our Paint Tension Data Sheet.



19. How can I speed up the drying of my primer/filler?

The quickest and safest way is to position a large shop fan to blow air across the primed piece. The air rolling over the surface creates a slight frictional heating which pulls out the solvent or water carrier that is in the primer. Turn the fan off during actual primer application so the primer can flow out before it starts to dry. Don't place in direct sunlight as drying might occur too fast which can result in blisters.

20. How long does it normally take for FSC-88 to dry before I can sand and paint it?

Remember that Precision Board does not absorb anything. This means that all drying takes place from the outside in, which takes much longer than on wood, or other absorbing materials. Typically, after drying over night it is ready for finish sanding. However, the primer/filler is totally dry only when it can be sanded without any balling up on the sandpaper. If balling occurs, stop and let it dry longer. This method of testing is true for water or solvent based primers. Painting over primer that is not completely dry will result in later blistering when the sign is installed. Even after complete drying, we recommend placing a large shop fan to blow across item for 2 hours minimum prior to painting. See our FSC-88 WB training video at www.precisionboard.com.

.....
21. What is the best way to add the wood grain look to Precision Board?

Since Precision Board HDU does not have a grain structure naturally, it must be simulated into the surface. The grain effect can be accomplished by coating the routed background surface with TSF-45 texture material or PB Hard Coat (both products made by Coastal Enterprises) and combing the grain in with a hair comb, etc. If carving, a wire brush can be used directly on the Precision Board. When sandblasting, a frame with wires stretched over it can be easily made and placed over the sign and blasted through. The wires redirect the sand which creates a very realistic grain effect. Call us for specific details.

.....
22. Can I prime and paint my Precision Board sign panel prior to sandblasting?

Yes. Priming makes it easier for a medium tack sandblast resist to adhere to the surface of Precision Board. Leaving the mask in place after blasting and using it as a paint mask during priming and painting of the blasted area also saves time. Important: Always roll out primer and paint evenly as overlapped areas will result in uneven blasting. Be sure to use the proper sandblast stencil for primed HDU.

.....
23. Does Ultraviolet from the sun affect Precision Board?

Yes. Left in the sun unpainted, PB will start to discolor and turn brown in about 48 hours. Left totally unprotected PB will continue to turn brown and breakdown from UV at about 1/32" per year. This means about 1" of deterioration every 32 years. Obviously deterioration is not a problem but the brown color is not a pleasing site. However, just under the brown surface the cell structure is unaffected and ready for primer/paint. Keeping the painted surface looking good will assure a very long service life.

.....
24. Is there a product performance warranty on Precision Board?

Yes. Precision Board is warranted, in writing, against warping or cracking for the life of the sign. Obviously, installation must be adequately designed for HDU and sign properly maintained during warranty period. Contact us for a copy of warranty.

.....
25. How do I make sure I purchase a high quality HDU product and get the best technical support available?

The very best way to assure you receive top quality high density urethane is to always remember to ask for Precision Board by name. Accept no substitutes. Technical support is readily available. Call us toll-free at (800) 845-0745 or check out our web site at www.precisionboard.com. We are here to help.