

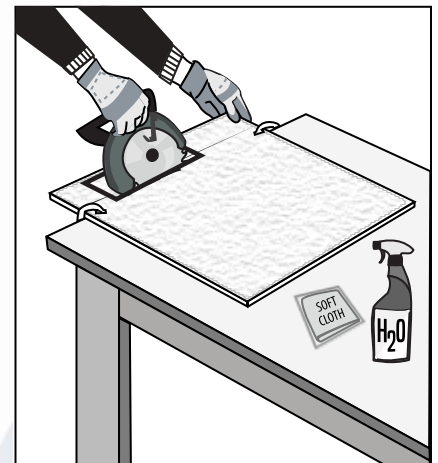
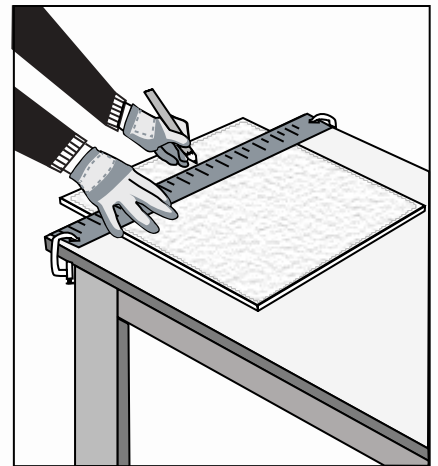
## HDPE Installation Guide

### Cutting

HDPE sheets can be cut with a variety of cutting tools. During the machining or fabrication process, the masking should be left on to protect the sheet's surface. Make safety a priority. Always wear protective eyewear and gloves!

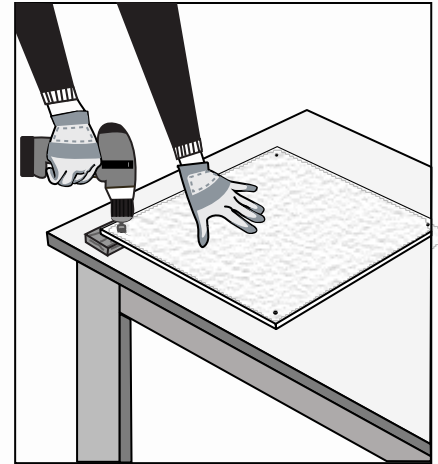
- Panel or circular saws work well for straight cuts. Use a band, scroll, or jig saw for cutting shapes or curves. Regardless of the type of saw, it is important to use a blade designed specifically for cutting plastic sheets.
- Measure and mark the location of the desired cut with a ruler or tape measure. Using a straight edge, draw a cut line with a carpenter's pencil.
- Using c-clamps, firmly secure the sheet to a flat surface with the marked cut line hanging at least 1/2" beyond the worktable edge.
- Align the saw blade with the marked cut line. Start the saw and proceed along the cut line at a low speed to prevent cracking. Keep the saw speed slow to prevent overheating and melting the HDPE plastic.
- To reduce the heat generated when cutting HDPE plastic, use a spray bottle to spritz water on the sheet as it is being fed through the saw.
- Continue the cut to the end of the sheet, letting the 'off-cut' fall to the ground. Do not force the saw along the cut line. This may chip or gouge the plastic.
- If necessary, use a soft cloth to dry the surface of the sheet and lightly sand the cut edge with 120-grit sandpaper to smooth any rough edges.

\* *NOTE: For best results, always use ultra-sharp blades.*



## Drilling

- HDPE sheets can be drilled using standard woodworking or steelworking drill bits.
- A hole saw works well for larger holes. If using a hole saw, drill using multiple depths. Make sure to clean the shavings out between depths to prevent plugging up the saw.
- Do not use self-augering drill bits. They cut too aggressively.
- When drilling holes, enter the sheet at a slow feed rate. Increase to a steady rate. The proper feed will produce smooth, continuous spiral chips. Exit the sheet slowly.

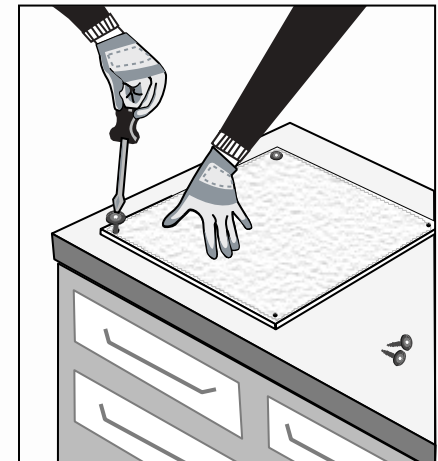


*\*NOTE: Place plywood under the sheet to help eliminate chipping as the bit passes through.*

## Fastening

HDPE sheets can be fastened with screw or bolts. Using an adhesive is not advised because the sheet's low surface energy makes it difficult for coating to adhere to it.

- Make sure shavings are cleaned out and holes are deburred after drilling.
- Use oversized washers and screws with a coarse thread deck.
- Threaded inserts are recommended for good holding power.
- Do not overtighten fasteners.



*\*NOTE: Screws should be checked periodically and retightened as necessary.*

**Flame treatment** can help HDPE bond to other surfaces. When the surface of HDPE is exposed to a gas flame, it undergoes temporary chemical changes that may improve adhesion.

- Lightly sand the HDPE surface to be bonded with fine-grit sandpaper.
- Clean with a solvent, such as acetone or alcohol, and allow to dry thoroughly.
- BEFORE** operating propane torch, remove solvent and any other flammable materials from workspace. Work area should be well-ventilated. Safety first!

## **Fastening**

### **Flame treatment continued**

- d. Operate propane torch according to manufacturer's instructions.
- e. Hold the torch so the flame is approximately 1-2 inches away and the blue portion of the flame is touching the HDPE sheet.
- f. Pass the flame over the surface just until the appearance of the sheet changes from reflective to dull. Approximately 12 inches per 3 seconds. Exposure should not deform or melt the plastic.
- g. Before proceeding, allow the sheet to cool.
- h. Test the effectiveness of the flame treatment by wetting the surface with water.
  - a. If the water beads up instantly, the treatment wasn't effective and the bonding will remain difficult.
  - b. If the water "sheets or lays flat" on the surface, the treatment was effective and the surface is ready for painting or bonding.
- i. Always follow manufacturer's guidelines for applying paint or adhesive.



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