

Sculpting Foam *Part 1:* Expanded & Extruded Polystyrene

Rigid EPS (Expanded Polystyrene) foam is a sculpting material that can be sculpted quickly and easily for making all kinds and sizes of light-weight 3D forms. In this project sheet we will discuss two types of foam and the most effective way of carving them.

Foams

The foams we will be sculpting in the article will be defined for clarity purposes as the following:

Bead Board – the foam that looks like it is made of little foam beads mashed together, typically used in packing material. (Expanded Polystyrene - EPS)

Blue or Pink Foam - blue or pink foam typically used for insulation. (XPS - Extruded Polystyrene)

Balsa-Foam - a dense foam that was developed specifically for three-dimensional design and model making. It cannot be carved with hot tools! (Phenolic foam)

Tools

Many Demand Products tools can be used to carve rigid foams. The tools you use depend on the amount of material you want to remove and vary somewhat depending on the type of foam you are using.

Hot Knife or Hot Wire Tools – We have many hot tools available. Please visit us at www.demandproducts.com. These tools have metal components that heat up and carve the foam by melting it. Steady, light pressure is all that is needed when using hot tools and they can be used for high volume removal or refining details. Hot foam sculpting tools should be used with care, ventilation and respiration is recommended; the heated components can burn skin and fumes created by the melting foam though typically not toxic can smell offensive.

Rasping Tools – Many abrasives can be used to sculpt foam. Choose a fine or coarse abrasive depending on the volume of material you wish to remove. Coarse tools can be used for high volume removal and fine tools can be used for final shaping.

Power Tools - Use extreme caution when using power tools to sculpt foams. Be certain that your foam piece is anchored securely before carving with power tools! Also be aware that the friction created by the power tool may cause the foam to melt, clog the abrasive and produce unpleasant fumes.

Sand papers – Sandpaper should be used for refining the final shape and is not effective for stock removal (unless the piece being sculpted is very small).

Carving Bead Board

Bead Board can be carved with many abrasive tools as well as hot tools. It can also be shaped with wire brushes but be prepared - although the wire brush method is fast and easy – it makes a mess! Beads from Bead Board are highly static and will stick to you and everything else.

If you like, sketch your design with a permanent marker on your foam before carving to get a general idea of the form. You may choose to cut out the shape using HotWire tools first because it is very fast, then round out the shape using 220 grit sand paper to smooth the foam and refine the final shape. This step is not necessary if you are using a thick foam coat under which finer sandpaper details may be lost. However it will smooth the surface of the foam if that is the look you are going for.

White, blue and pink foam can be carved with all the tools mentioned above. Hot tools, rasps and sand paper work well. Using an air compressor or vacuum, remove any last loose bits of foam before coating, this will keep bits of foam mixing in with the coating and creating lumps.

Gluing

You will find that Demand Products has many types of glue, including Foam-Lok Contact Adhesive, Pro-Lok, and Enerfoam foam adhesives. Foam Lok glue can be cut with a hot tool. Enerfoam cannot be cut with a hot wire or hot knife.

Tips:

- * A Tyvek suit can keep clothing foam free. Keep an old pair of shoes to wear during carving and eye protection.
- * Use a shop vacuum to keep the dust level down.
- * If you plan on coating your foam sculpture - make the foam sculpture 5-10% smaller than what you want the final piece to be.
- * Avoid burning the foam. Hot tools should be used at a temperature that cuts the foam but does not smoke.
- * Do not force hot tools through the foam... they "cut" the foam by melting it and should be allowed to move at their own pace. Excessive force can break the tool. The hotter the tool the faster it will melt the foam, however it will create more fumes. The perfect temperature for hot tools is one where the tool moves through the foam without producing drag or smoke.