

## Sculpting Foam Part II: XPS (Blue) Foam

Part II of our Sculpting Foam project sheet series focuses on extruded polystyrene foam or blue board (sometimes pink). Making forms from XPS foam is easy with the right tools and techniques. Coated with any number of foam coating materials, you can make lightweight strong 3D forms.

Materials used in this Project Sheet:

- Blue Foam
- Hot Wire Foam Cutting Tools
- Sculpting Tool
- Hot Knife Tool
- 100 & 220 grit Sand paper

Optional Materials:

- Rasps & Riffles
- Dremel Tool & Burrs
- Crafter's Hot Knife

**Suggested Tools:** Many different tools can be used to sculpt blue (and pink) extruded polystyrene foam. The following are some tools traditionally used to carve other materials but will work on blue and pink foams as well.

**Hot Wire foam sculpting tools** work well for roughing out and preliminary shaping of forms. When using hot wire tools do not force them through the foam; use light pressure, no more than would break an eggshell, and let the tool do the work. This method is somewhat slow but easy and does not create any dust, however hot tools cut through foam by melting it and this may produce fumes and smoke. Appropriate respiratory protection and good ventilation must be used.

**Rotary Tools** such as Dremel, Freedom and FlexShaft tools can also be used to rough out forms. Use a medium aggressive bit, Sandpaper taper roll, Kutzall burrs and Buzzout Burrs also work well. Use a low RPM with rotary tools, a high speed may cause the burr to dig into the foam and be harder to control. It may also melt the foam causing the burr to gum up. Larger power tools such as an Angle Grinders used with a medium aggressive Zec disk can be used for large jobs. This method is very fast and easy but produces a lot of dust. **CAUTION:** these tools remove material quickly! Be sure to secure your foam piece before using power tools, the fast turning motion of these tools can send foam pieces flying and always use appropriate safety gear.

**Rasps & Riffles** can be very effective when sculpting foam. Aggressive files with large teeth may rip the foam and remove large chunks; this can be effective for mass stock removal. Medium coarse rasps remove material quickly and leave a finer surface. Finer rasps are typically not used because sand paper takes care of the final surfacing.

**Sandpapers** can be very useful in refining the shape of rigid foams. We generally recommend 100 grit for roughing out and 220 for smoothing the surface.

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**Safety:** Exercise caution and common sense when using power and hot tools and use appropriate respiration to filter fumes and/or particulate matter when sculpting foam. We recommend acid gas filters to filter out fumes when using hot tools and a good particulate dust mask when sanding or other sculpting method that may create particulate matter. Leather gloves are recommended when using power and hot tools to protect hands from possible abrasions or burns. The use of anti-static spray can be helpful when trying to remove small foam particles from clothing.

**Tool Quality and Type:** Most abrasive tools are rated by how durable they are for use on certain materials; steel tools are good for use on alabaster, a relatively soft stone but tools made of carbide are harder and can be used on marble, a harder stone. If you were to use a steel tool on marble it would work however it would wear out faster than a carbide tool. Given that foams are so soft almost any tool that suits your budget, is appropriate for the size of your work and removes material with the speed and accuracy you desire will be fine. Most tools will last a very long time when used on foams since the level of resistance from the foam is negligible.

### **Step 1: Design**

Think about the object you would like to make and choose a piece of foam that will accommodate your desired shape. Alternatively, you can glue pieces of foam together to create the mass necessary. Foam Lok Adhesive is an excellent product for this purpose. Unlike most adhesives, it can be cut with a hot wire.

### **Step 2: Draw your shape onto the foam**

Use a marker to trace a pattern or free-hand draw a shape onto your foam. This will help guide you when carving and the marks can be sanded off or coated over so they will not be visible on the final coated form.

### **Step 3: Cut out the shape**

Following your drawing, use hot foam cutting or rotary tools to roughly cut out the shape. Rasps & Riffles can also be used for this step.

### **Step 4: Rough out the shape**

Further define the shape using hot tools or rotary tools. Rotary tools will be faster and harder to control than hot wire tools. Rasps & Riffles can also be used for this step.

### **Step 5: Refine the shape**

Smooth out the shape with finer abrasive such as fine rasps or sand papers (Image #4) leaving fine detail to be made with the coating material.

### **TIPS:**

The coating material will add some bulk to the foam form so it is necessary to sculpt your piece smaller than you require the finished product to be; this will accommodate for the added bulk from the coating material. Imperfections such as holes and gaps in the foam object can be fixed and filled with the coating material.

Fine details carved into the foam will most likely be lost when you coat the object, keep the shape of the foam general and sculpt fine details in the coating material instead.

The closer your foam object is to your desired shape the less coating material you will have to use to cover it. However, if there are parts of the shape you wish to adjust, some coating materials can also be sculpted directly and can be used to shape the final form. For example if the handle of the spoon did not quite match the proportion of the spoon head it could be shaped with the coating material or the handle could be cut off and attached to another piece of foam and then the head could be re-sculpted.

**CAUTION:** many epoxy products can dissolve foam and should not be used. Hot glue will often melt foams and is not recommended either.