

# **Building Model Railroad Topography and Scenery with Foam Board**

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Over the years, there have been many ways to form model railroading topography, which is usually the support deck for our model scenery (collectively made up of ground cover and trees). For lightweight scenery, foam products produced for the home insulation market are a good alternative. This information sheet details the type of foam you can use, methods of securing and carving the foam, and examples of foam use in the hobby press so you can determine the best approach for your layout and modeling interests.

## **Foam Types**

The two most common type of foam products using in model railroad construction are extruded and beadboard sheet insulation. Both are available in home improvement stores, such as Lowe's and Home Depot, in thicknesses up to 2", and in 4' by 8' sheets. Specialty plastics suppliers may have thicker foam sheets available, along with a variety of density factors (which equate to foam hardness), and can cut the sheets to sizes that are convenient for your use. It's best to contact one of these specialty suppliers directly for specific information about their products.

Extruded foam is mostly found in pink and blue shades, and a few other colors. The blue foam is manufactured by Dow, and is officially trademarked as Styrofoam™, whereas the pink foam is an Owens Corning product under the brand name of Foamular®. Each is produced by a different manufacturer (hence the color differences), but they are essentially interchangeable.

The beadboard material is made up of small polystyrene spheres that have been expanded together, and is sometimes referred to as EPS (expanded polystyrene) foam. It also is available in a variety of thicknesses and densities, usually white in color, and generally is less expensive than the extruded pink and blue insulation foam.

## **Cutting Foam**

Extruded foam can be cut with a knife or saw blade for a square, smooth edge. Or it can be scored and snapped for a rougher one. In scoring, make a cut along the entire length of the surface, about an 1/8" thick. Then brace the foam along a table or other similar edge and snap the two pieces apart.

Foam (both extruded and beadboard) has the ability to dull knives quickly, so keep them sharp, as dull knives have the tendency to ball the cuts. Inexpensive paring knives work well for these tasks, and if you decide to carve the foam, a variety of straight and serrated blades produce different surface textures.

Beadboard foam can be cut with a knife, and also shaped with commercially-produced hot wire tools, which actually melts the material. Be sure to use these hot wire cutters only on the foam for which it's intended, as cutting extruded foam insulation in this manner can produce harmful vapors.

## **Securing Foam**

Hot glue, construction adhesives, and yellow glue are methods that have been used to secure foam components. The type of adhesive depends upon personal preference and the type of topography you're constructing. To supplement adhesives, foam components can be mechanically secured with wood screws and bamboo skewers. Some tips on each adhesive follow.

- **Hot Glue:** Use the low-temperature guns (or settings on multi-setting guns), as the high-temperature settings on some guns can melt the foam. A thin bead along items to be glued is typically all that's needed to secure the components, and be sure to do this as quickly as possible after applying the hot glue, as it will insure a strong bond and minimize stringing (the spider-web like strings that form when the glue is overworked).
- **Construction Adhesives:** Apply these from a caulking gun, again in long and thin lines of adhesive along the length of the items to be glued. Using water-based adhesives (such as Liquid Nails for Foamboard) that are specifically designed for foam products will produce secure joints. Solvent-based adhesives (such as Liquid Nails for Construction) can also be used to secure foam and theoretically produce a stronger bond, but may eat away certain types of foam. If you have solvent-based adhesives on hand, test them on your project materials before starting full-scale construction.
- **Yellow Glue:** For securing relatively small pieces of foam, this adhesive works well. Yellow glue adhesives, such as Elmer's Carpenter's glue have a difficult time completely drying when they're placed too far from the edge of foam items, so don't use yellow glue as a primary adhesive for large layout areas.

If you already have these adhesives and materials on hand, experiment with some scrap foam pieces and see what works for your situation (item you're constructing as well as what methods you feel most comfortable with).

## Foam Finishing

Sanding and cutting are two methods to roughen and contour the perfectly flat and angular foam surfaces, and form roadbed grades, streambeds, and other topographic features. A popular item for sanding contours is a Surform tool, which is made by Stanley. There are several varieties available, with a shorter version looking much like a wood plane and a longer handled version appearing more like a long file. Check your local hardware store for availability of each.

Surform tools, as well as any foam sanding and cutting tools produce a good bit of small, statically-charged pieces of foam during the finishing process. To minimize the static cling of the foam particles, mist some water over the work area and your tools. The light water spray will tone down the adhesion of the foam particles. For fine finishing, synthetic foam sanding blocks work well to smooth foam surfaces.

## Foam Construction Examples

Several detailed articles on using foam for topographic scenery support have been published in various model railroading publications. Read these over, and then choose a system that fits your budget and goals in modeling.

Foam scenery is thought to be relatively new, as it came to prominence in the mid-1990s. But the ideas and execution have been around for decades, as illustrated in the following three seminal articles from the 1960s and 70s.

- *Styrofoam Scenery* by Paul Stromberg (January 1965 **Model Railroader**)
- *Shaping Tools for Styrofoam Terrain* by Wayne C. Hunt (June 1967 **Model Railroader**)
- *Lightweight Scenery* by Laurence Larson (July 1974 **Railroad Model Craftsman**)

More recent articles describing the techniques that many of us use today are described in the following references:

- *Scenery for the San Juan Central* by Malcolm Furlow (April 1984 **Model Railroader**)
- *The Eastern Loggers* by Jerry Strangarity and John Burchnall (September 1992 **Railroad Model Craftsman**)
- *Meet the Traveling Tascosa & Calico* by John Olson (October 1993 **Model Railroader**)
- *Pop-Out Scenery* by John Pryke (February 1994 **Model Railroader**)
- *Hot-Wire Foam Layout Construction* by Bill Darnaby (June 1994 **Model Railroader**)
- *The Pioneer Valley RR* by Michael Tylick (September 1994 **Model Railroader**)
- *The Latest on Foam-Board Layout Construction* by Bill Darnaby (March 1995 **Model Railroader**)
- *Foam Board Construction Tips* by Bill Darnaby (April 1998 **Model Railroader**)
- *The Eastern Loggers* by John Burchnall and David Keith (**Great Model Railroads 1998**)
- *Foam-Sculpted Scenery* by Clayton Barry (January 2000 **Railroad Model Craftsman**)

These periodicals are available from a variety of sources, including local modelers, the Cincinnati Railroad Club library in Tower A of the Union Terminal, and for purchase from local and website vendors (including the NMRA library, which will make photocopies of selected articles and mail them to you). For a summary of library services, visit the website [www.nmra.org](http://www.nmra.org), which has a link to the Kalmbach Library along the left side of the screen.