

Working with extruded polystyrene

26/10/2008 — Basic techniques



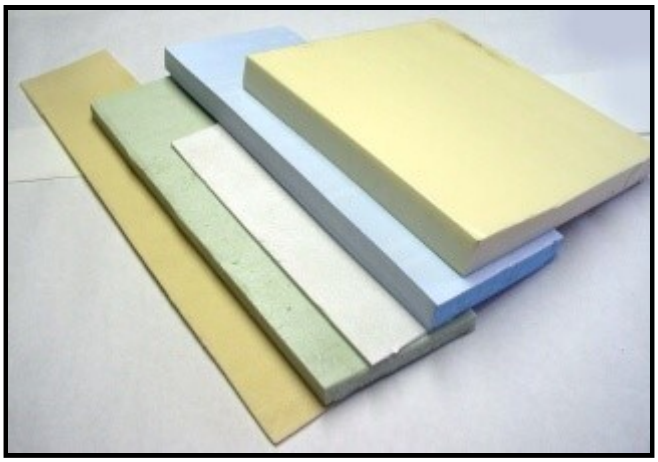
Contents

1. Engraving
2. Painting
3. Street pavement
4. Set Design

De part sa consistance, le polystyrène permet de faire de nombreux décors dans lemaquettisme, car facile à manipuler, à graver et à peindre. Son seul "défaut" est sa fragilité. Il est vendu dans le commerce sous de très nombreuses formes: les appellations - STYRODUR - STYROFOAM - ROOFMAT - GLASCO...





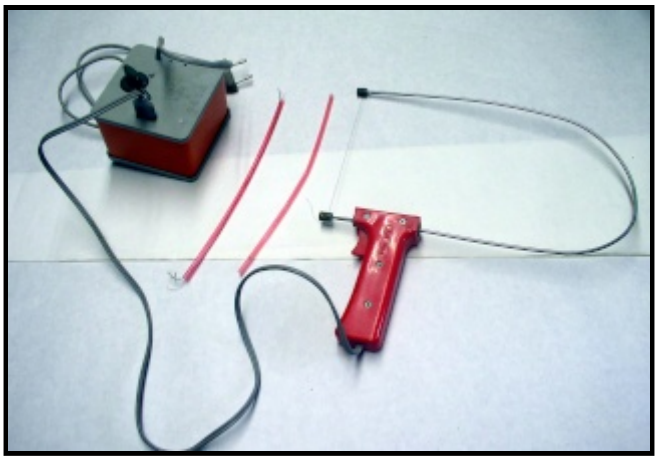


Because of its texture, polystyrene is ideal for creating a wide variety of scenery in model making, as it is easy to handle, carve, and paint. Its only "drawback" is its fragility. It is sold commercially in a wide variety of forms: the names—STYRODUR, STYROFOAM, ROOFMAT, GLASCOFOAM, etc.—are not the names of the material itself but rather brand names. The only thing you need to consider is the density of the material. Color is not an indicator of quality when choosing this product either...

- Prioritize purchasing high- or medium-density foam (low-density foam has a structure similar to that of a very porous stone)...

- The thicknesses available on the market vary quite a bit, but in any case, they are too thick for our usual work. Furthermore, the outer surfaces are glossy because they are coated with a type of varnish that must be removed before any engraving or carving can be done. As a result, the thinner sheets are even less suitable for use...

- The goal of our work is to cut our sheets to custom sizes that better suit our needs, without the drawback of a protective varnish...



Various types of polystyrene. The essential tool is the Pyrocie...

IMPORTANT NOTE: Always use the thickest wire available (wrapped in red plastic)...

A hand sanding a blue sheet of extruded polystyrene on dust-covered kraft paper

Cutting a block of extruded polystyrene using a red hot wire cutter

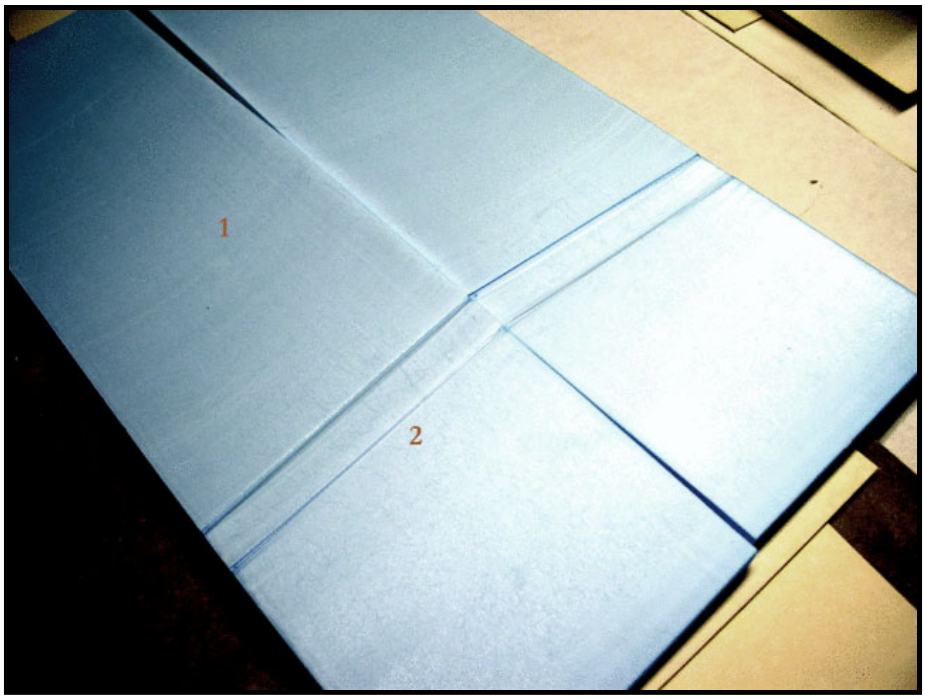
Cut a strip of material across the width of the Pyrocie's jaw...

On a sheet of MDF, plywood, or any other perfectly smooth and clean surface, sprinkle a generous amount of talcum powder...

Cans used as weights for gluing extruded polystyrene sheets

Cutting a sheet of extruded polystyrene with a hot wire, guided by tin cans

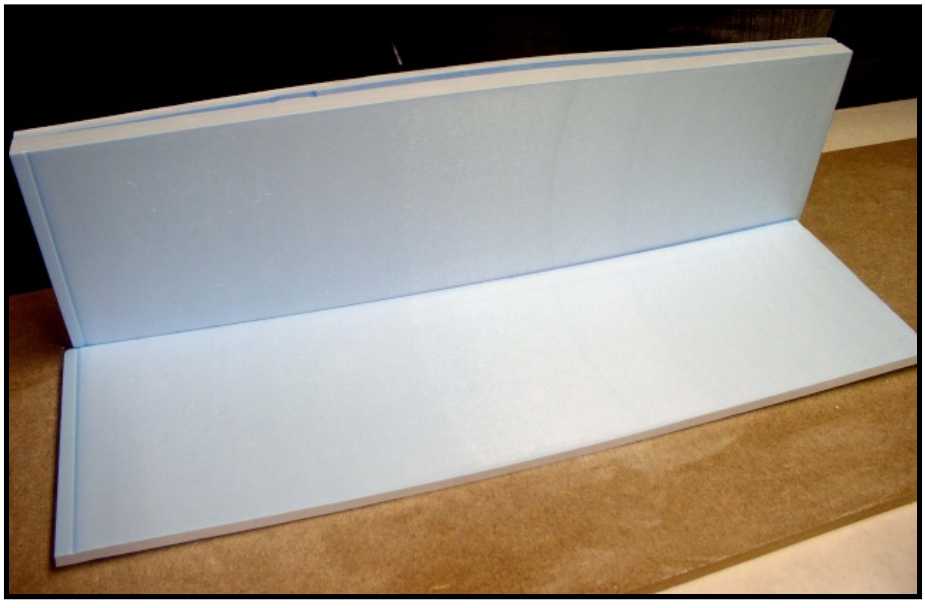
To begin cutting: Hold the pyrocie firmly against the panel, then heat the wire, and slide the plate—AT A CONSTANT SPEED—on which appropriate weights have been placed...



Your first cut will likely have flaws like these:

1. Excessive speed: vague.

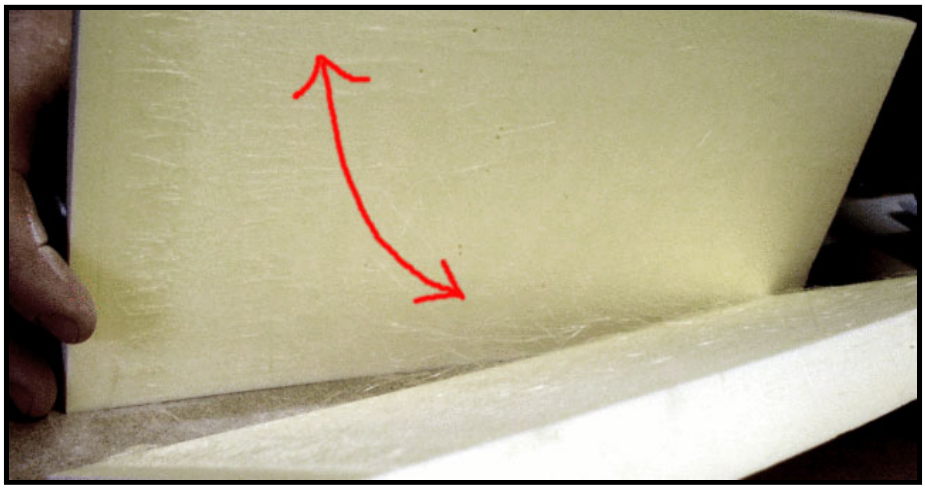
2. Too slow: deep scratches.



The result once your sheet has been cut correctly:

smooth and even.

It's important to dust with talcum powder between each cut. To create sheets of different thicknesses, insert sheets of cardboard (for example, between the wood panel and the polystyrene sheet...



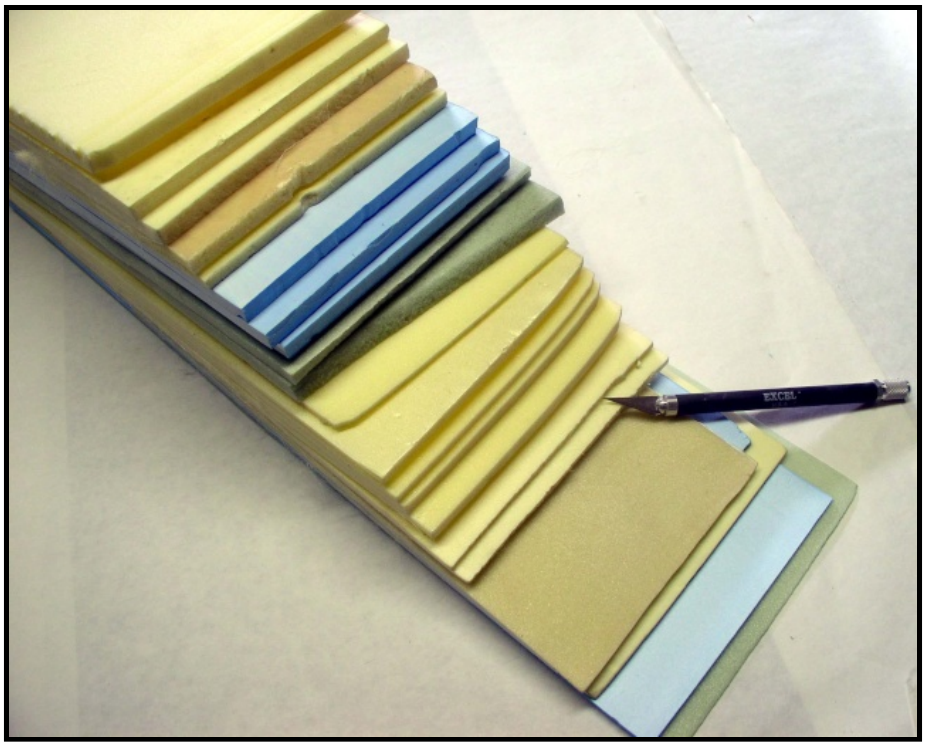
Some types of extruded polystyrene develop strands when the sheet is cut. It is essential to remove them carefully before sanding...

White extruded polystyrene sheet with pencil markings for cutting

Sanding an extruded polystyrene sheet by hand with a sheet of sandpaper

For any remaining irregularities in the cut edges, gently sand them with the pads of your fingertips using wet sandpaper (though in this case, sand dry) — 280 to 400 grit, depending on the density of the cut material...

If necessary, you can salvage the outer surfaces of the plate for use by sanding them in the same way...



The result obtained after cutting various sheets: a very cost-effective, high-density material available in a wide range of thicknesses...

EXAMPLES OF PRODUCTS MADE FROM EXTRUDED POLYSTYRENE

In this section, we'll explain how to build a classic structure on a 25mm scale for a simulation game: a fortified watchtower...

Engraving

Drawing parallel lines with a pencil on a sheet of blue extruded polystyrene using a r

Applying adhesive with a brush to cut strips of blue extruded polystyrene

After marking and cutting the four sides of the tower, we mark the joint lines for the stone blocks, and then the stones themselves...

Stacked blue extruded polystyrene sheets forming a column for a model

Extruded polystyrene wall panel engraved to resemble brick or stone masonry

We adjust our corner stones and do a dry run to check...

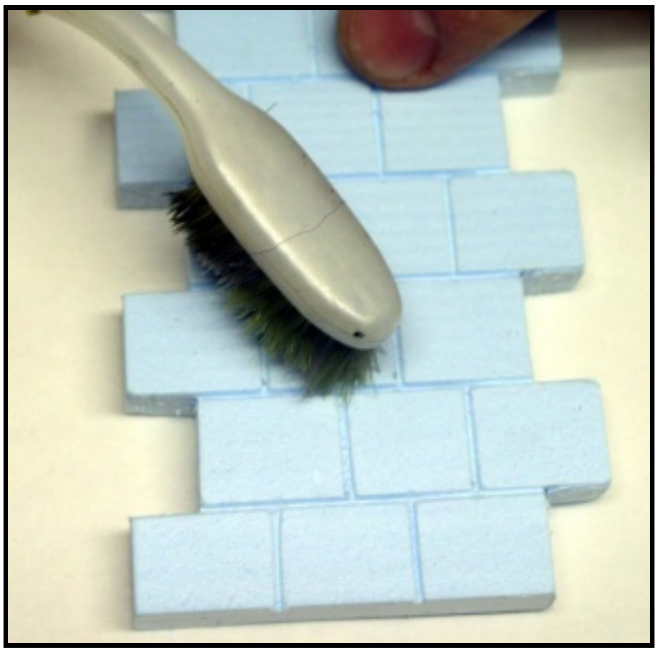
Tools for texturing extruded polystyrene: putty knife, wire brushes, and sanding bloc

Metal brushing of an extruded polystyrene wall with an engraved brick-like pattern

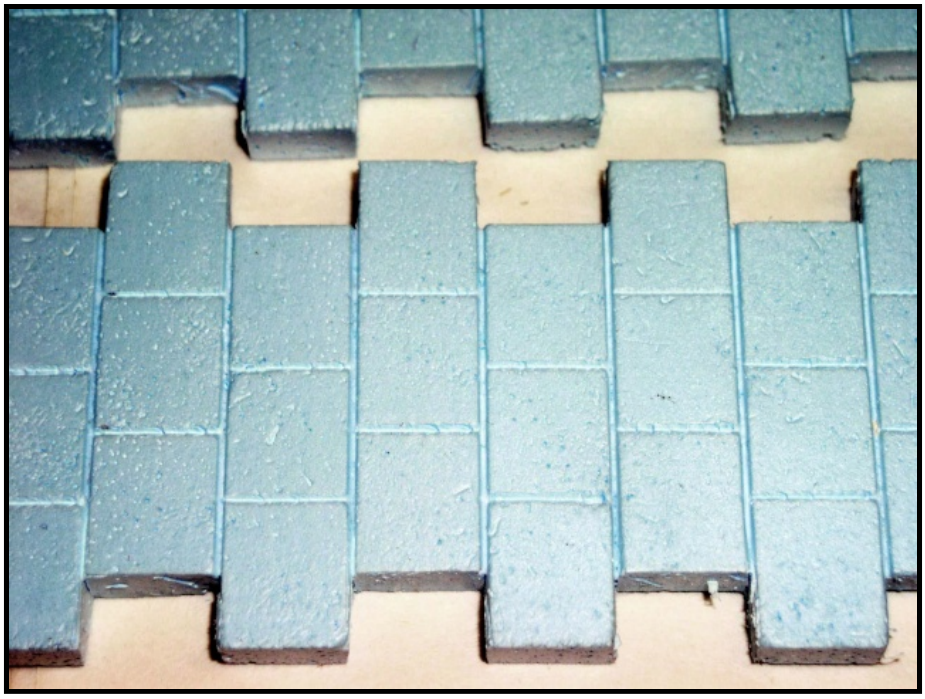
We're going to add texture to the stones. To do this, we'll use three tools:

- The brass weed brush

- A hairbrush and a toothbrush...



Be sure to mark your stones in a variety of ways...



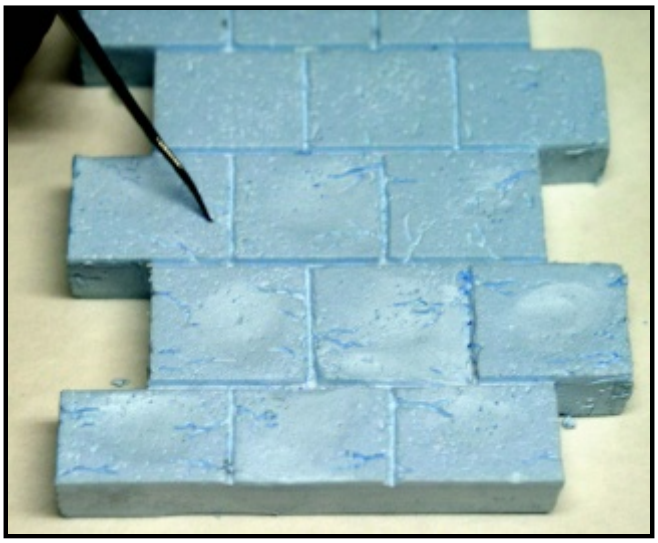
The engraved piece...

Fingers pressing against blue extruded polystyrene bricks cut to resemble a stone w

Engraving brick joints into blue extruded polystyrene using a metal tool

You'll smooth and press the mixture in a variety of ways—both within each stone and between them. This process will give your stones a more natural look...

Using the fine tip, engrave some signs of wear (cracks, chipped stones)...





A close-up of the final result before gluing it with wood glue...

Engraving of stone joints on a blue extruded polystyrene wall

Extruded polystyrene wall sculpted to resemble blue-painted bricks, with plaster app

Apply the joint compound to the joints. Smooth the joint compound with a brush...



The final result after drying...

The final result after drying...

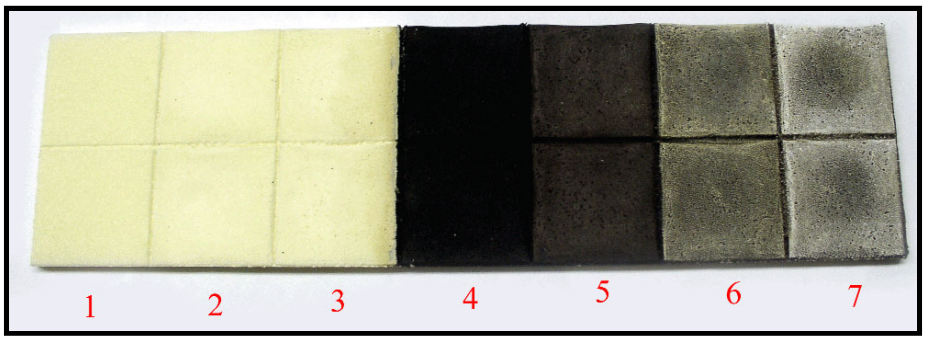
Painting

Model of a stone well with a square well curb and a wooden pyramid-shaped roof sup

Extruded polystyrene model wall, engraved and painted to resemble stone blocks

After applying a base coat of matte black, dry brushing is done in the traditional manner, varying the shades slightly. The tower is now painted. All that's left is the slate roof...

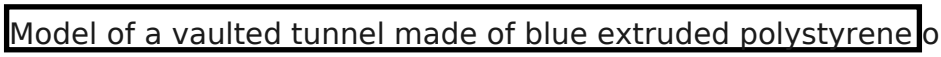
Street pavement



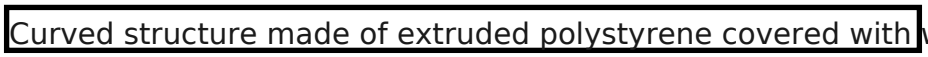
1. Marking the pavers.
2. Beginning the marbling process and creating textures with a wire brush.
3. Smoothing to make Step 2 look more natural—wear on the inner edge of the cobblestones.
4. A heavily thinned matte black primer.
5. -6 - 7 - Dry brushing using appropriate colors, from dark to light.

Set Design

ANOTHER EXAMPLE OF A PROJECT: SEWER DECOR...



Model of a vaulted tunnel made of blue extruded polystyrene on a wooden base

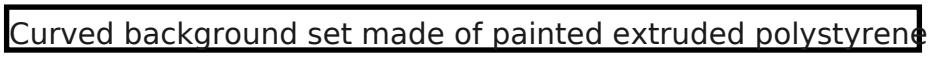


Curved structure made of extruded polystyrene covered with white cardboard, mour

1. The display is built on a plywood base. It serves as the figurine's pedestal. Crossbars and a plastic grid are added...
2. The polystyrene arch is secured with pins while the wood glue dries...



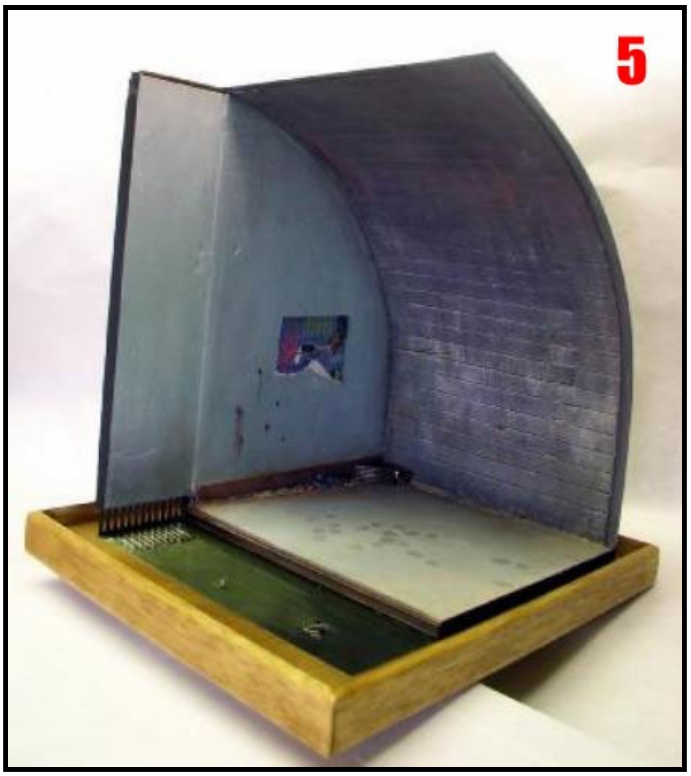
A curved white extruded polystyrene sheet placed on a countertop



Curved background set made of painted extruded polystyrene on a base, step 4 of th

3. Once everything is dry, apply a white acrylic primer so you can then paint with oil paints...

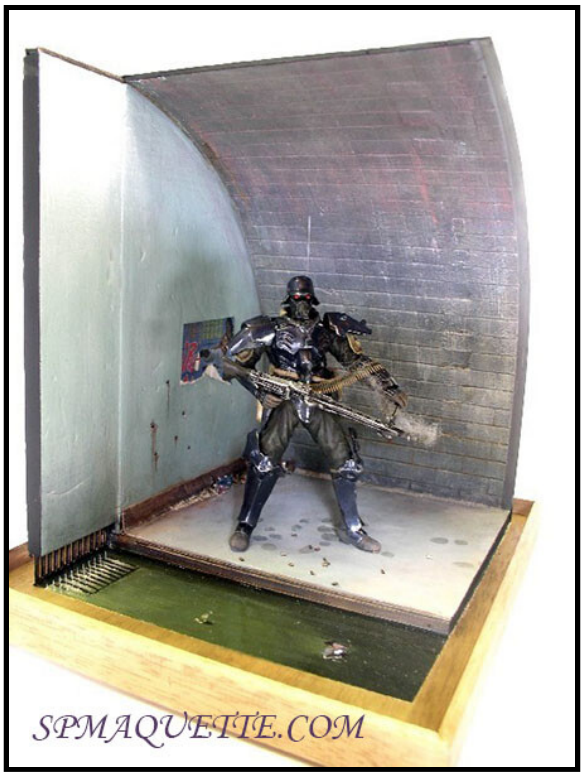
4. The first layers of color are applied using HUMBROL oil-based paint...



The set is finished...



Detail. A torn poster is taped to a wall. Some debris and a little sand are added. The footprints are made with glossy varnish, while three coats will simulate the water in the canal...



You are now free to create any structures, monuments, ruins, or floor coverings as you please, at any scale. Use wood glue to assemble the pieces, and immediately smooth out any excess with a brush and water; otherwise, these areas will form hard spots that are difficult to sand down due to the fragility of the material. Joints should be filled with wall spackle and smoothed in the same way as with wood glue. All painting should preferably be done with water-based (acrylic) paint that contains no chemical solvents; if you are using oil-based paint, apply an acrylic primer first to seal the material...

