

STRUCTURE PROJECTS FOR YOUR MODEL RAILROAD



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The projects in this book originally appeared as articles in *Model Railroader* magazine. The material has been updated wherever possible with current information and sources of materials. However, some products mentioned may no longer be available.

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CHAPTER ONE

Basics of kitbashing plastic structures

By David Popp

Photos by the author

Kitbashing is a technique of modifying an existing kit or combining two or more kits to create a different structure. Hanson Piano is an N scale structure kitbashed from a pair of Design Preservation Models kits.

With the amazing number of structure kits available to model railroaders today, chances are good you can find the buildings you want for the factories, businesses, and homes on your layout. If you can't, it's fairly easy to modify existing kits (called *kitbashing*) to make the structures you need.

Recently I was looking for a wedge-shaped factory to fit an unusual space on my N scale layout. After searching for a while, it was obvious that I would need to kitbash a readily available plastic structure. After choosing one that had architectural features I was looking for, I set to work. You can use these simple kitbashing techniques to make your own unique structures.

Hanson Piano Co.

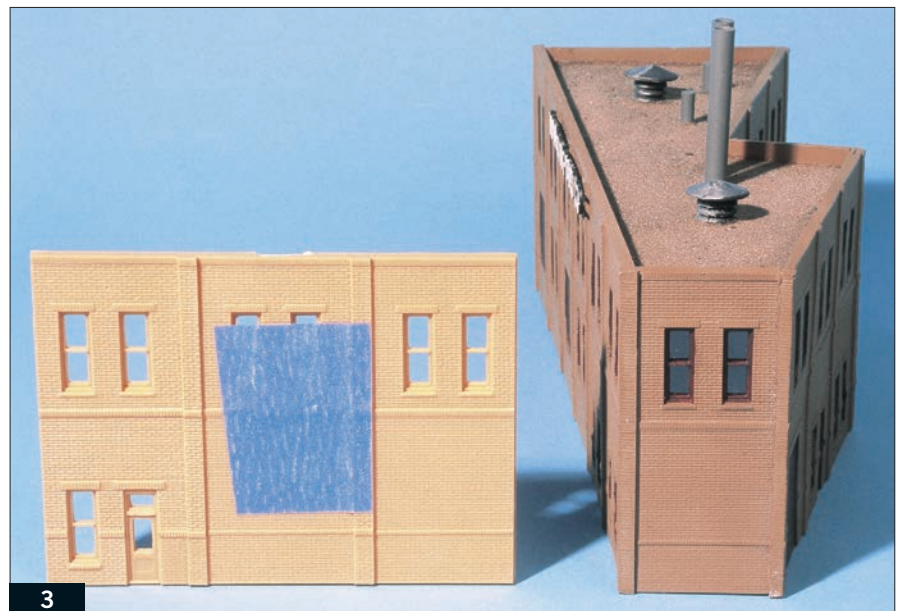
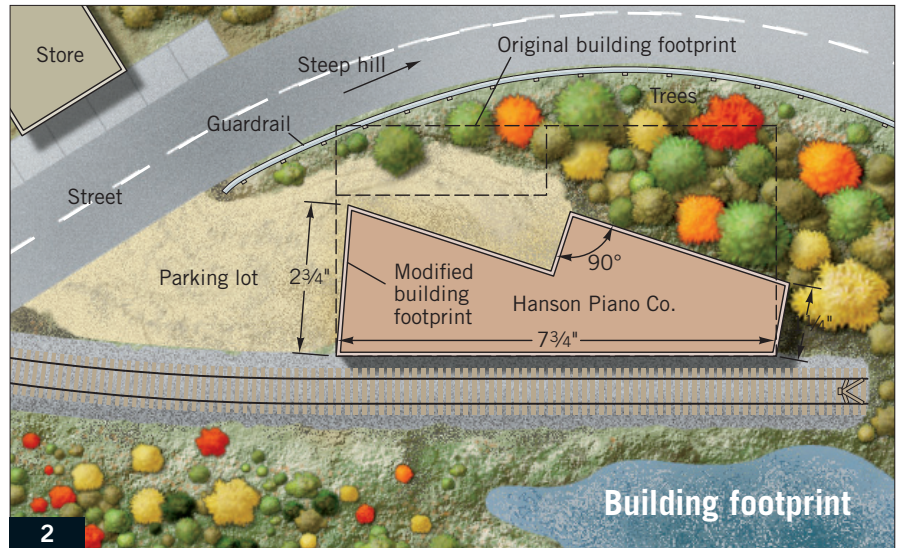
To build the Hanson Piano Co. plant, **1**, you'll need to start with a Design Preservation Models (DPM) N scale Gripp's Luggage kit (no. 506). If you're working in HO scale, you could build a similar structure by combining parts from two DPM Laube's Linen Mill kits (no. 106). The DPM kit includes six plastic walls with all door and window details molded in place, a sheet of styrene for the roof, and two styrene tubes to make the twin smokestacks. The kit is ideal for customizing projects like this one because you can easily cut apart the walls with a razor saw and reassemble them in new ways.

The illustration, **2**, shows where I wanted to place Hanson Piano Co. on my layout, and the dashed line indicates the space required by the DPM kit. It was obviously too big! By altering the finished shape of the kit and raising the ground on the street side so it would be level with the loading dock, I was able to make enough room for the structure without unrealistically crowding the corner.

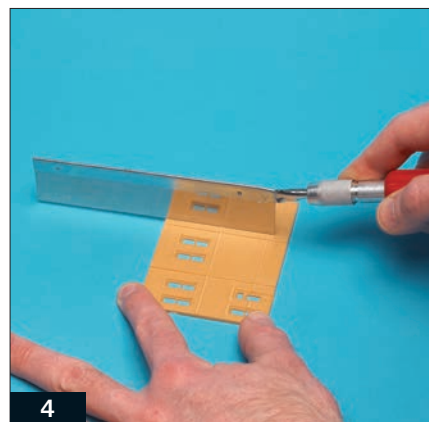
To get a feel for how the finished building will fit on the layout, tape the walls together. This way you can experiment with possible changes before cutting any parts.

The DPM kit pieces come with large tabs on them left over from the molding process. Use a sprue nipper, a special tool for cutting plastic, to carefully clip away the molding tabs (you could also use a sharp hobby knife). After cleaning up the walls, file or sand the edges smooth.

By cutting just one wall and changing the angles of several corners, you can make a wedge-shaped building from the original, **3**. To cut the wall, place the razor saw blade along the



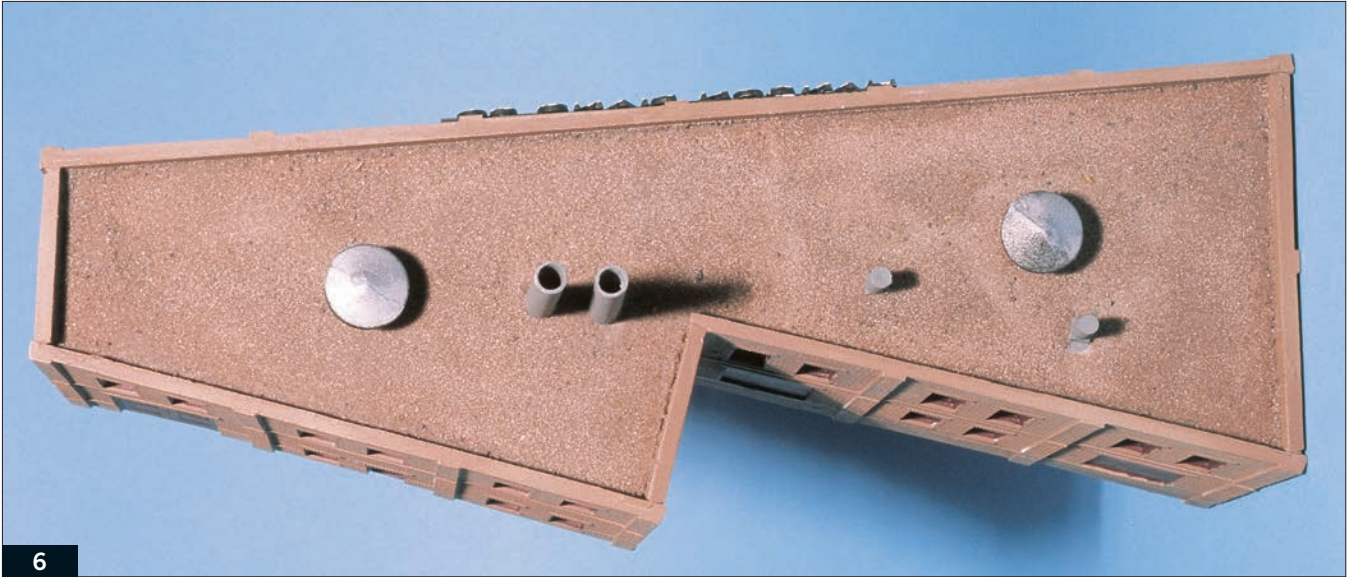
Tape marks the side of the pilaster that needs to be cut. The portion at right becomes the finished end wall (far right).



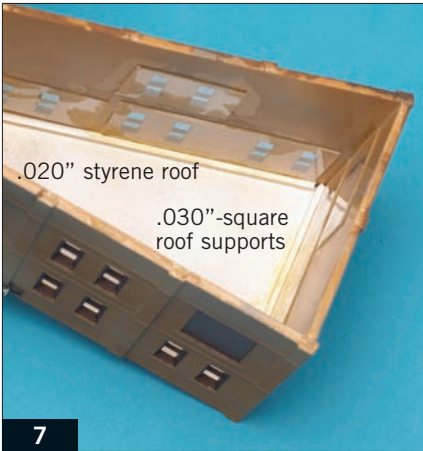
On this kit, the pilasters provide a built-in guide for a razor saw. Cut slowly and smoothly to ensure a square edge.



Touch a brush of liquid plastic cement to the joint and capillary action will draw it into the seam. Hold the joint securely for a few seconds until the bond begins to strengthen.



For an odd-shaped structure, start by gluing the 90-degree joints and work outward from there.



The roof is .020" styrene sheet, with .030"-square supports glued around the interior walls.



Use a fine-tip brush to paint the window trim and doors.

brick pilaster, 4, and make gentle cuts until the saw blade works its way through the plastic. The pilaster provides a good guide for making a straight cut. After cutting, file the new edge smooth.

Assembly

It's easiest to begin assembling the structure at a joint where the walls form a 90-degree corner. Test-fit the pieces before cementing them together, making any necessary corrections with a small file.

Glue the joints with liquid plastic cement, using a small artist's paintbrush to apply the cement, 5. Hold two wall sections together and touch the brush along the seam, letting the

liquid wick into the joint. After a few seconds, the plastic walls will bond and you can let go. Use a small square to make sure the corner fits correctly. If you need to make any adjustments, do so immediately! It doesn't take long for the joint to set hard, making it impossible to change how they are aligned without cutting apart the walls.

For the remaining walls that don't form square corners, use a file to shape the edges so the outer-surface joints are flush. When you are sure you have a tight fit, cement the walls together with liquid plastic cement. Let the glued joints dry thoroughly before handling the model, 6.

The roof for the DPM kit is made from .020" styrene sheet. To fit the

roof, trace the inside walls of the building onto the styrene with a mechanical pencil. Cut the roof out of the sheet using a sharp hobby knife and a metal straightedge. Test-fit the roof and make any necessary adjustments with a file.

To support the roof, cement .030"-square styrene strips around the perimeter $\frac{1}{8}$ " from the top of the wall, 7. Attach the roof by dropping it inside the walls and gluing it to the supports with liquid plastic cement.

I painted the brick walls Polly Scale no. 414256 D&RGW Building Brown and the doors and windows no. 414275 roof brown.

Painting the doors and windows is the most delicate step of the project, but it also produces the most dramatic results, 8. The nice part is that if you make a mistake while painting the trim, you can touch it up simply by painting over your error with more of the wall color.

I painted the smokestacks no. 414173 Union Pacific Dark Gray and weathered the tops with black to represent built-up soot.

Roof and final details

Since we spend a lot of time viewing our models from above, we'll add some details to the roof to improve the building's appearance. To finish the roof, cement the smokestacks and other rooftop details in place. As shown in 9, I included several ventilators left over

from an old Model Power kit and some vent pipes made from pieces of plastic sprue material. Other good industrial roof details could include piping, tanks, air conditioners, access hatches, a stairway, or ladders.

To simulate the gravel roof, I used Highball Products no. 125 N scale brown ballast. To apply the ballast to the roof, mix 4 parts white glue and 1 part water in a separate container. Working in small sections, brush a thin layer of diluted glue on the roof surface, carefully working it around rooftop details. Next, sprinkle the ballast on top of the glue and let it sit for about 20 to 30 seconds before dumping off the remaining ballast in a box or bin for re-use later. Let the new gravel roof dry overnight.

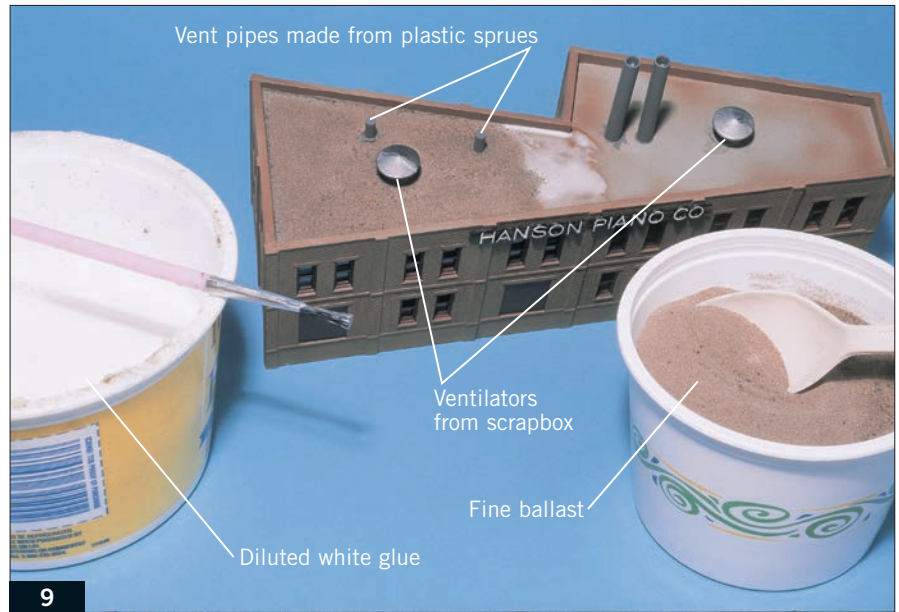
With the roof complete, it's time to add the final details. The kit includes a sheet of .010" clear styrene for window glazing. Cut the styrene to size and cement it in place. Be stingy with the glue—too much liquid cement will damage the transparent material.

To simulate window shades, paint the back of some of the clear-styrene windows with a cream- or tan-colored paint, 10. Viewed from the exterior of the building, the paint looks like a window shade. If your shades have brush marks or appear streaky, simply apply a second coat of paint.

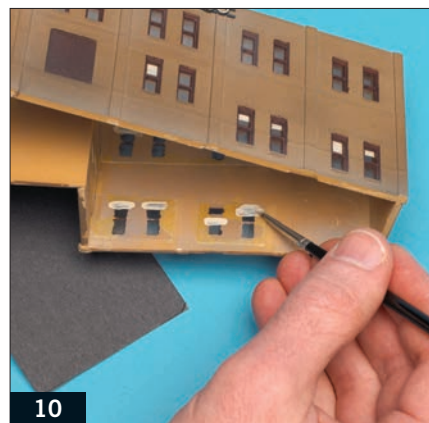
I made the large sign for the track side of the building using 6mm plastic letters from Slater's, an English company (www.slatersplastikard.com), 11. Cement the letters to two .015" x .020" styrene strips and then paint the whole sign black, letters and all. The letters have a flat face, making them easy to paint. I painted mine an off-white so they'd stand out against the black. When the paint dries, attach the finished sign to the building with cyanoacrylate adhesive.

Finally, to keep visitors from seeing through the empty model, add a view block, 12. I cut mine from a strip of black cardstock and inserted it into the building as shown below.

With that the piano factory is ready to take its place on the layout and begin adding musical carloads of commerce to the railroad.



9 Simulate a gravel roof by painting diluted white glue on the roof and sprinkling fine ballast over it. Dump off (and save) any extra ballast after the glue dries.



10 You can make simulated window shades by painting the backs of the glazing in some windows with tan-colored paint.



11 Slater's plastic letters make very realistic three-dimensional signs. I painted the letters black, then painted the face of each letter off-white.



12 View blocks made from black cardstock or construction paper keep viewers from seeing all the way through a building.



CHAPTER TWO

Basics of modular structure kits

By David Popp

Photos by the author

Modular structure components are perfect for making buildings fit into odd-shaped areas or along backdrops. This warehouse and factory are on David Popp's N scale layout.

The space available on a layout for structures, particularly lineside industries served by our railroads, can vary widely. The universal constant with layout space, however, is that there never seems to be quite enough! When faced with a location where stock structure kits just won't do, your choices are usually limited to kitbashing or scratchbuilding. However, depending upon the type of building you're looking for, you may be able to use one or more modular structure kits to solve the problem, **1**.

Because they're hybrids, modular structure kits offer you the flexibility of kitbashing and scratchbuilding but also include some of the construction ease of off-the-shelf models. Modular kits are available in a variety of architectural styles and typically have either wood or plastic parts. The best part about using modular structure components is that you can easily arrange them to fit unusual spaces. Want to make a larger building? Simply add more walls or tack on a different modular kit to give your industry that "corporate expansion" look.

Follow along as I explain how I used modular structure kits to build an industry on my N scale layout. You can use the same techniques to fill an empty spaces on your own N or HO layout.

Footprints and foundations

I needed an industry that would fit into a long, narrow location sandwiched between the tracks and a road on my N scale Naugatuck Valley layout. As if that weren't enough of a challenge, the structure also had to be angled to accommodate a riverbank and nestle around a free-standing backdrop.

Because the industry would actually wrap around the backdrop and run along one side of it, I used two different structures: a brick main factory building along the river and a wood-frame warehouse that fit flush along the backdrop. To make the brick factory portion I used an assortment of plastic Design Preservation Models (DPM) modular brick wall sections. For the warehouse, I selected a Bar Mills laser-cut wood 1-Kit.

Before assembling anything, I established the footprint for each building to get an idea of how it would fit on the layout. First I temporarily taped the wall sections together to position them on the layout, **2**. When I was satisfied with the building and its location, I marked the final footprint on the layout with a pencil. I repeated the exercise to mark the warehouse footprint, this time using wall sections from the Bar Mills kit.

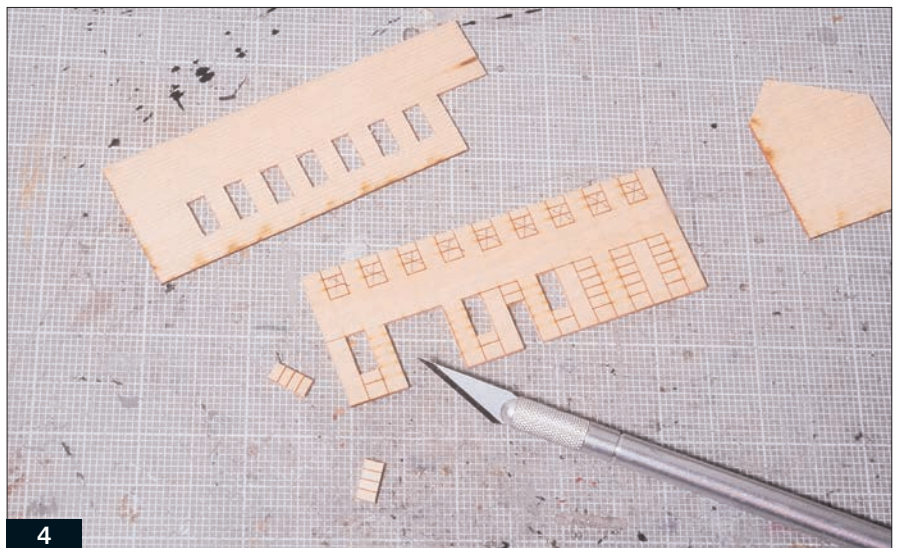
To look correct, my wood-frame warehouse would need some type of



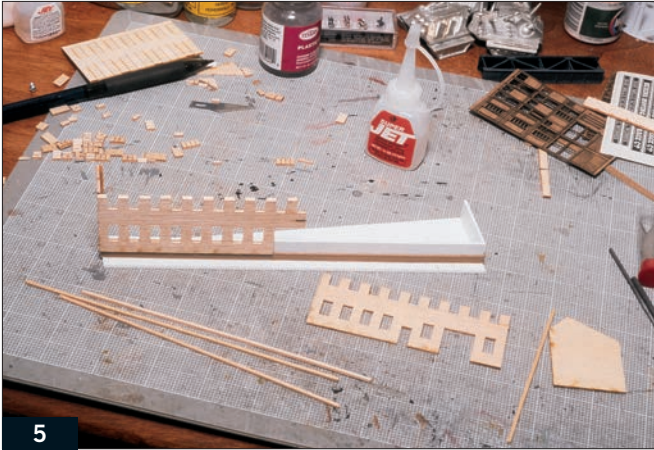
Tape the walls together to see how the finished building will fit in your available space.



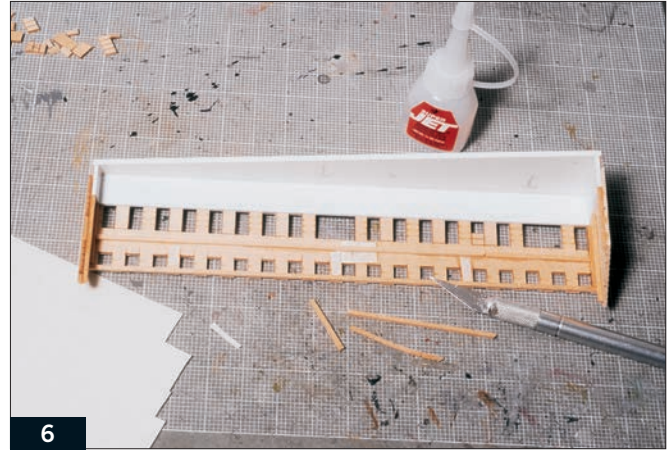
The foundation is .040" styrene sheet with Kibri plastic stone sheet on the outside.



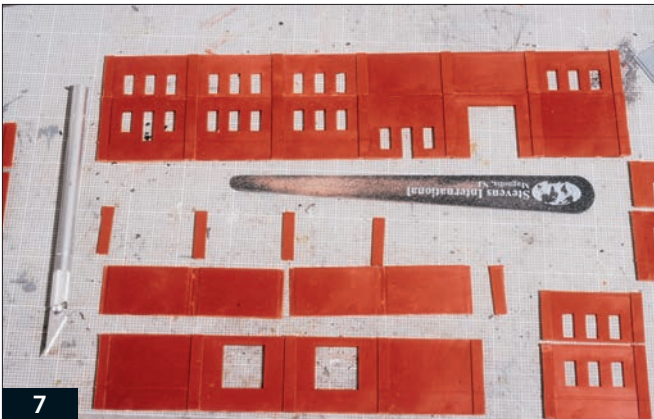
Cut out window and door openings as needed on the Bar Mills wall sections.



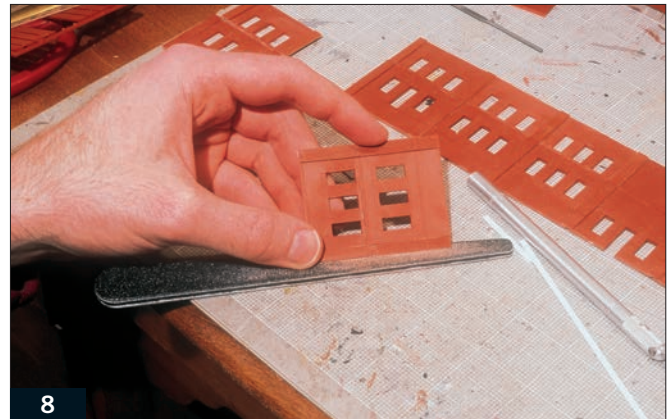
5
Glue the walls together with gap-filling, medium-viscosity cyanoacrylate adhesive.



6
Use CA to glue paper over wall splices to reinforce them, with wood strips inside right-angle joints.



7
I used both single- and double-wall sections for the factory building.



8
Sanding or filing the wall edges at the corners helps ensure a tight joint when glued.

foundation. I built one from .040" styrene sheet to match the warehouse's footprint and faced the styrene foundation walls with strips of Kibri no. 7960 plastic stone sheet. I then set the foundation in position on the layout and marked the loading door locations, 3.

Warehouse construction

The Bar Mills 1-Kit includes four blank walls that have wood siding detail on the front and are laser-etched on the back for standard placement of doors and windows. The kit also includes several sheets of laser-cut windows, trim, and an assortment of different entry and freight doors.

After figuring the wall requirements, I marked the window and door openings and set to work cutting them out, 4. Even though the openings are partially scored, it took quite a bit of gentle cutting with a sharp knife to avoid splitting the part. I used several

new blades to make the 37 window and door openings on my warehouse.

Next, I attached the walls to the foundation and braced the corners. I used Jet medium-viscosity cyanoacrylate adhesive (CA), which works well for bonding wood to plastic. I used stripwood for bracing the walls and corners, 5. To brace the seams, I cemented a small slip of paper over the area, 6.

The kit includes a sheet of 10-pane windows, but if you want smaller ones as I did, you'll need to cut them to size. I used eight-pane and four-pane windows on my structure and found it worked best to assemble the window and its trim piece before cementing it into the opening. Once this assembly was in place, I added the window sill.

The 1-Kit doesn't include a roof, so I made mine from Kibri no. 7967 plastic shingle sheet. I cemented it in place with CA and braced the edges

with more stripwood. While I was at it, I made a narrow loading dock (shown in 1) from scrap styrene pieces.

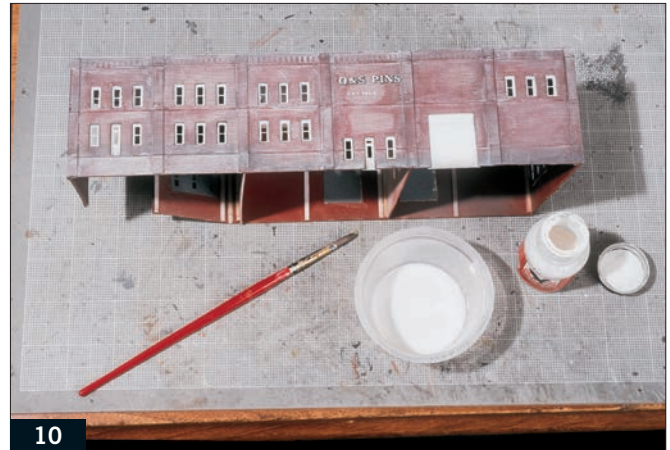
Factory assembly

For the factory portion of the pin company, I used an assortment of one- and two-story plastic wall sections from DPM. Unlike the 1-kit, the DPM wall sections have the door and window openings molded in place, so you don't have to cut them out yourself.

The plastic brick wall sections are molded in pairs but are easy to cut apart with a hobby knife or razor saw. I used an assortment of single and double wall pieces to make my factory, 7. The walls are joined at the seams using connecting pilasters (these required filing to fit properly). I bonded the pilasters in place with liquid plastic cement, then reinforced the joints from the back of the wall with scrap pieces of .020" styrene strips.



9 After applying the dry-transfer lettering, David used pastel artist's chalks, applied with a brush, to add weathering streaks below the letters.



10 Apply diluted white paint with a soft brush. As the wash starts to dry, wipe the surface with a paper towel to leave most of the paint in the mortar lines.



11 Window glazing and view blocks complete the interior.



12 Loading dock details and figures complete the scene.

The wall sections needed a little extra filing at the corners to square them up and make a tight fit. I carefully sanded the corner sections using a medium-grit sanding stick, **8**.

After assembling the walls, I installed a .040" styrene roof. I glued it in place with liquid plastic cement and reinforced the edges where the roof met the walls with .080"-square styrene strips. I then added an assortment of chimneys and vent pipes made from scrap styrene. I waited to add the windows and doors until after I'd painted the factory.

I primed the factory and warehouse with Rust-Oleum light gray primer, an organic-solvent-base primer in a spray can. (Do this outdoors or in a vented spray booth.) This was especially important for the wood Bar Mills structure because the primer seals the wood and prevents it from warping. I then airbrushed the factory a brick red color and painted the factory windows

and the warehouse white. I brush-painted both roofs black and weathered them with powdered pastels.

Next, I installed the windows on the DPM kit and added dry transfer lettering for the company signs and slogans. I then weathered the lettering using more powdered pastels, **9**.

To fade the color of brick walls and make the mortar lines stand out, I applied a wash of 1 part water-based white paint diluted in 10 parts 70-percent rubbing alcohol. To apply the wash, I laid the model flat and then flowed the diluted paint on with a soft brush, **10**. Once the paint filled the mortar lines, I daubed the wall with a paper towel to remove most of the white from the surface.

Final details

To finish the buildings I added window glazing, view blocks, and other details such as workers, crates, and pallets.

I used .010" clear styrene sheet for window glazing, employing my new-found favorite way to install it—Woodland Scenics Accent Glue. This water-based adhesive is made to hold figures and other details on layouts, but it also works well for window glazing. Simply brush it on the back of the window, let it dry until it becomes tacky, and then press the glazing sheet in place. Accent Glue won't damage clear plastic the way liquid styrene cement or CA will, and it bonds to most any material.

The easiest way to keep viewers from being able to see through empty buildings is a view block. I use black construction paper, added behind the window glazing with Accent Glue, **11**.

Finally, to bring the finished scene to life, I added some dock workers and a few pallets and crates, **12**. With that, my Quincy & Smith Pin Co. was ready to fill its unique niche on my layout.



1

CHAPTER THREE

Easy house kitbashing

By V.S. Roseman

Photos by the author

With a few basic kitbashing techniques, V.S. Roseman created four distinct HO scale houses, all starting with the Atlas Kate's Colonial Home kit.

I prefer that when visitors see my layout they see something familiar yet still distinctive. One easy way to do that is by kitbashing, or modifying a kit structure to change its appearance. Here's how I turned one kit (the Atlas HO scale no. 711 Kate's Colonial Home) into four distinct homes, **1**. This kit represents a typical two-story house from the 1920s. I got my inspiration for these models by looking around my own neighborhood. Each was built with easy modifications that demonstrate how real homes are altered over the years.

The Jones house addition

This family needed a new room on the main floor, and a common choice for a growing family is a kitchen extension on the rear of the house, 2.

I built the first floor of the kit according to instructions before adding the extension. I used Evergreen styrene no. 4051 clapboard with .050"-wide boards for the walls of the extension, 3, which is similar to the clapboard in the original kit. The addition matches the kit walls, though this is not always the case with many extensions added after a house is first built.

I measured the sides and rear of the extension and scored the pieces on the clapboard sheet. Because I made scoring cuts with a sharp hobby knife, I had to flex the styrene only lightly to snap the part out of the sheet.

Next, I cut openings for windows on all three sides of the kitchen extension. I used Grandt Line no. 5032 windows and clipped out the lower mullions to better match the kit's windows. But this still results in an eight-pane window instead of the six-pane windows on the rest of the house.

I cut two plastic strips to the same height as the taller end of the wall and glued them to the rear of the house. Next I glued the two tapered side walls into place against the square strips and waited for them to dry. I added another pair of plastic strips to the other end of the walls. I used a file to taper the tops of these strips to match the angle of the side walls.

Next, I fit the rear wall between the side walls and cemented it in place. I then glued Plastruct no. 91630 shingles atop the new walls. For a thicker roof, add a fascia of .030" x .030" strip styrene below the roof overhang.

When the kitchen was done, I gave the stove a chimney. For the chimney, I cut a 1/2" length of gray sprue from the kit at an angle, enlarged the hole in its center, and cemented it to the roof of the addition.

The finishing touch was a colonial red and dove gray paint job.

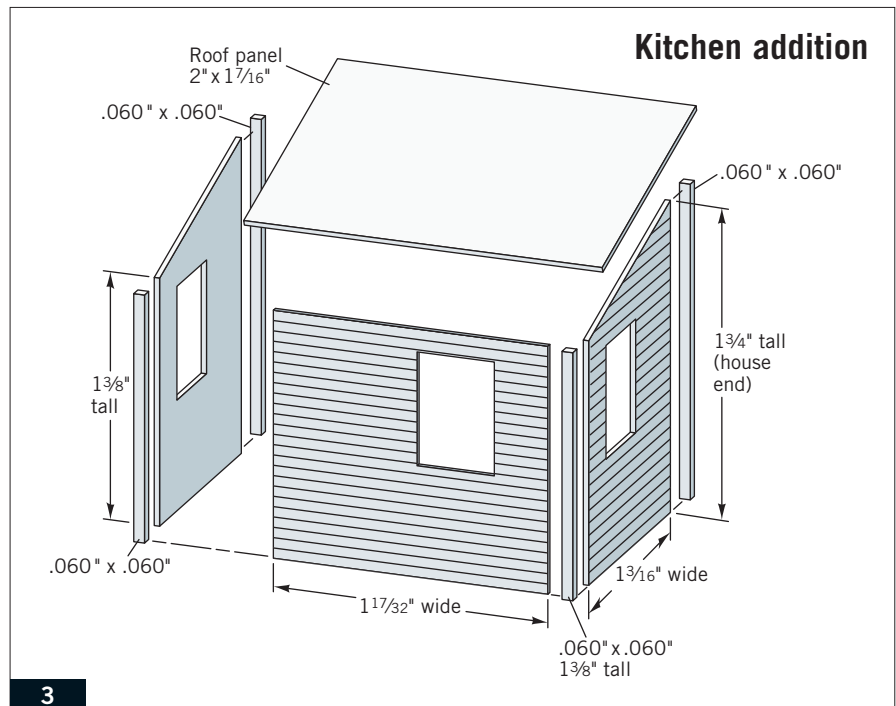
Backdating the Sorrentos' porch

It appears to me that the kit's porch represents a newer-style porch, so



2

Here you can see the kitchen and chimney added to the Jones house.



3

I wanted to make this house look like it might have originally looked, 4. In my city, houses that look like this one originally had latticework trim under the porches and spoked porch railings. The clapboards extending all the way to the ground would probably not have been used in the original construction either.

With this in mind, I decided to backdate the Sorrentos' porch to match my memories. I assembled the house according to the instructions, but substituted Grandt no. 5064 latticework panels below the porch floor, 5.

I used Grandt spool-type porch posts to support the roof. I drilled holes in the porch roof for the new columns, then attached the porch roof to the house. The posts slipped easily into position, and I made sure they were square on both front and side before gluing them in place. After the glue dried, I trimmed the excess length off the posts and installed the outer triangular sides of the assembly before adding Grandt Line no. 5035 porch railings.

I thought that adding shutters would give the house an even more



The front porch on the Sorrentos' home has been backdated with lattice panels.

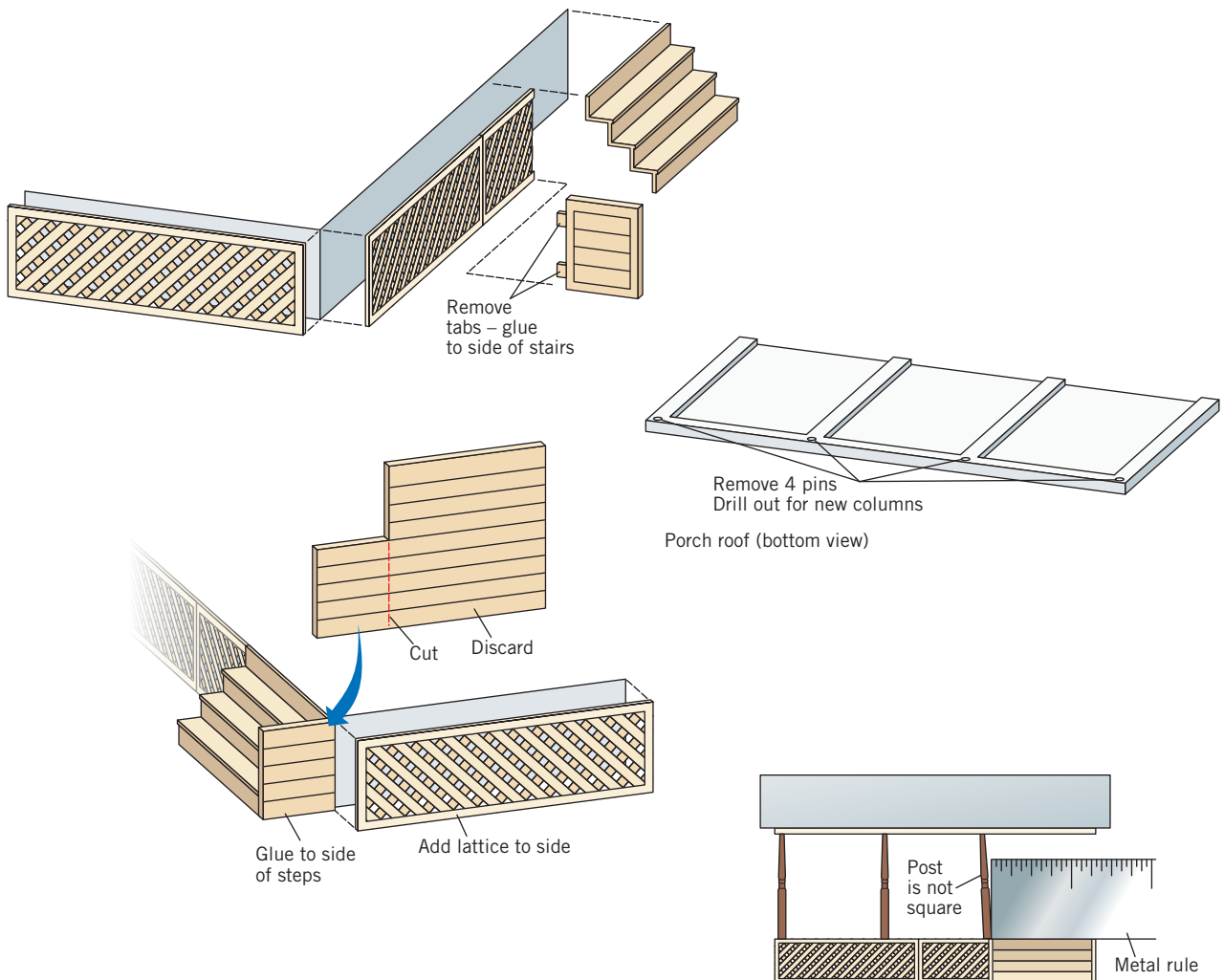
distinctive look. Grandt no. 5173 shutters fit the building's style very well, so I painted some shutters white and glued them in place.

After the modifications were done, I painted the house coffee and cream colors with burnt umber trim.

The Grimes house porch and dormers

This house has two additions to keep up with a growing family. The attic has been converted into three bedrooms, a guest room, and a small bathroom by adding dormers to the front and rear, 6. Doctor Grimes has moved his dental practice home, and his office is what used to be the porch. An enclosed porch could also represent an extended

Porch details



Lighting your structures

Illuminated houses make nighttime operations even more interesting. Here are some tips to help make your lighted structures look realistic.

On houses like the ones shown here, you must make sure that parts of the original kit don't show through windows you plan to light. On the Grimes house, I placed black paper inside the dormers to cover the kit's original roof so light wouldn't show through the windows. You could also put a piece of black paper inside each of the windows, add shades to the windows, or even cut out the original kit roof inside the dormer to light it from inside.

I cut the shades and curtains used in these structures from colored paper. However, I notice that in many houses today the windows are covered with plain white shades or venetian blinds. The fact that the shades are behind the windows in dark areas makes them appear gray.

Paint the inside of any house you plan to light a black or silver color. The light inside the house should show through only the windows, never the walls. If you prefer working with paper, you could trim black paper to line the walls and roof and glue it to the inside of the house.

I put a view block, a 3"-tall by 3½"-wide piece of cardboard, inside each of these houses so you can't see all the way through them when lit.—V.R.

living room, a den, or a guest room. In some neighborhoods, nearly every house has this type of extension.

To enclose the porch, I copied the form of the kit's front porch piece using Evergreen clapboard (nos. 4051 and 4061). I then cut a strip of Evergreen styrene to match the corner



The large dormers on the attic of the Grimes' house blend well with the kit.



The large dormers on the back side of the Grimes' house were added using the same method as the dormers on the front.

posts. I cut a shorter piece to copy the post at the left of the staircase, as this part doesn't need to go down to the floor of the model. After building the main part of the kit, I used the original living-room window for the office and cut an opening in the front clapboard panel so the window from the kit

would fit. I then drilled small holes in the square posts to accept the pins of the porch ceiling.

I assembled the office just as I would have built the original kit, except I used the newly cut styrene pieces and added posts to the front corners. I measured a new clapboard part and cut



8 This model is turned sideways and has a new front porch to give it a distinctive look.

it to fit between the post next to the steps and the front wall. I cut the tabs from the left staircase side panel and glued the new office against the stairs.

Dormers are popular too, and in my neighborhood it seems that the majority of homes have them. This type of extension is especially useful when the attic is being used as a room because the dormer lets in much more light. Dormers can be either small, with a single window, or wider. I chose to make large dormers for the Grimes house to match the width of the porch.

I traced the original kit parts and measured the several small triangles that needed to be cut from clapboard.

I held the upper wall of the house with the gable to the bottom of the clapboard sheet. With a sharp pencil, I traced the angle of the gable onto the plastic sheet to match the angle of the roof. My dormer is 16 boards tall ($2\frac{5}{32}$ "") and $1\frac{1}{2}$ " deep. I transferred the height to the edge of the angle I drew on the wall of the kit. Then I made a light line from the left edge of the plastic sheet to where the piece should intersect with the angle line of the roof. I connected the point to the top of the dormer and cut it out of styrene. I reversed and repeated this process for the other side of the dormer.

For the dormer front, I cut a rectangular panel 16 boards tall ($2\frac{5}{32}$ "") and the same width as the porch. I also cut an opening in the front panel for each window. Next, I glued the dormer to the roof with the sides extended all the way to the top shingle of the original roof. I measured a $1\frac{1}{2}$ " x $3\frac{3}{8}$ " panel from the roof shingle sheet and added this to the dormers. I added dormers to both the front and rear of the house, 7.

Next, I worked with the interior of the kit so that I could light it from the inside. See the sidebar on page 15 for view-block tips. After installing the view block, I followed the instructions to complete the kit. I added Grandt no. 5173 shutters on the front, painted in the white trim to match the windows. Then I added gutters and leaders to finish the renovation on the Grimes' house.

Turned gables for the Stillmans

I rotated the gables on the fourth house, 8. Front-gable houses (the gable is the pointed top of the wall under the angle of the roof) are more common on deep lots.

I began by scribing a line around the clapboard wall area on the front of the first floor of the house. Then I removed the piece at the center and replaced it with .060"-spaced Evergreen clapboard



9 The light and dark shingle design on the house and porch roofs of the Stillman home makes it stand out even more against the other similar houses in the neighborhood.

sheet and cut an opening for the living room window. Next I reversed the front and rear walls of the house (now the left and right sides) to orient the house for a corner lot.

I trimmed all the connecting pins from the back of the porch parts because there were no holes for them in the new front wall. Alternatively, you could drill holes in the new front of the house to attach the porch. I filed down a few of the lower boards to resemble a poured concrete foundation. You could also scribe lines here to match the rest of the concrete block foundation. I notched the deck of the porch so it would clear the bay window on the left side, and then I assembled the porch as in the original kit.

The random design I added to the roof shingles takes time but makes for a striking model, 9. First I mixed a gray color to nearly match the color of the roof. I then added white until I could see just a slight difference. Next, I painted random shingles on the roof with this color, then darkened this a bit by adding black. I then added the darker color to random shingles until the entire roof had dark and light shingles mixed with the original gray color.

I finished the house by painting it a pearl gray color with olive window frames and white trim.



1

CHAPTER FOUR

Build a low-relief structure

By Cody Grivno

Photos by the author
and Bill Zuback

A lone boxcar waits to get unloaded at Odegard Shipping Co. on Kalmbach's Milwaukee, Racine & Troy club layout. The HO scale low-relief structure fits well between the backdrop and the tracks in Williams Bay, and provides the impression of a large building in a small space.

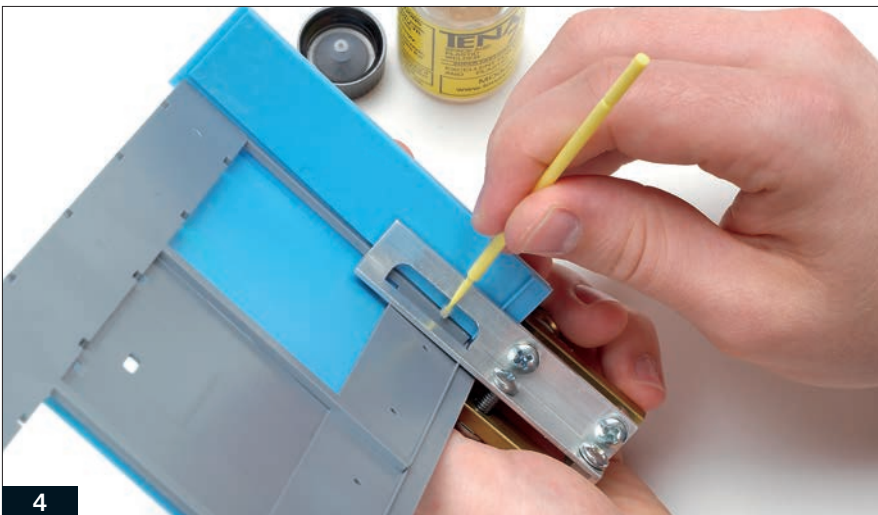
Large structures can be dramatic, and are great when space allows. However, in some instances an entire building simply won't fit on a layout. That's where low-relief structures come into play. A low-relief structure is a building that has a full face and one or two inches (or less) of the ends that make the structure three-dimensional. These buildings are ideal where there's a limited amount of space between the tracks and the backdrop or if you're looking to add an industry in a tight space.



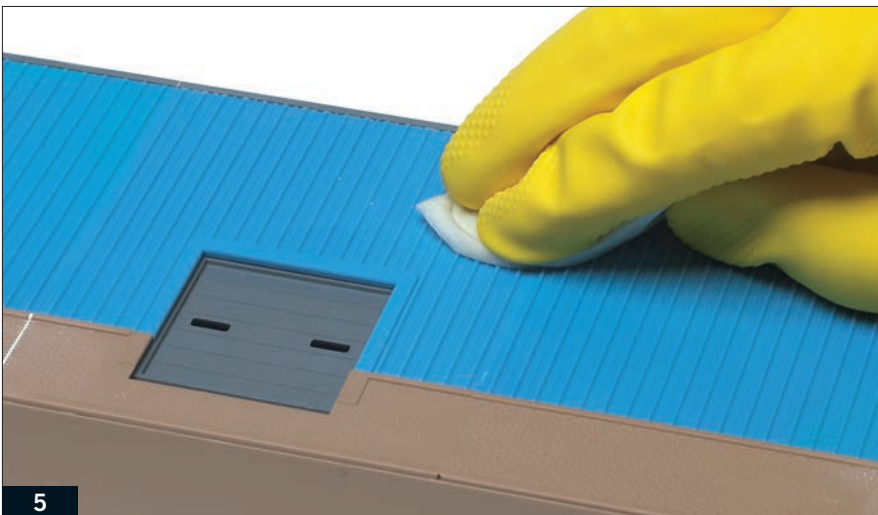
2 Remove parts from their sprues with sprue-cutting nippers (from Micro-Mark and others) or flush cutters.



3 Use needle files to smooth any flash or rough areas from sprue-connection points.



4 Apply liquid plastic cement to the joints. Right-angle clamps help keep parts aligned.



5 I prepped the walls for painting by cleaning them with Polly Scale Plastic Prep.

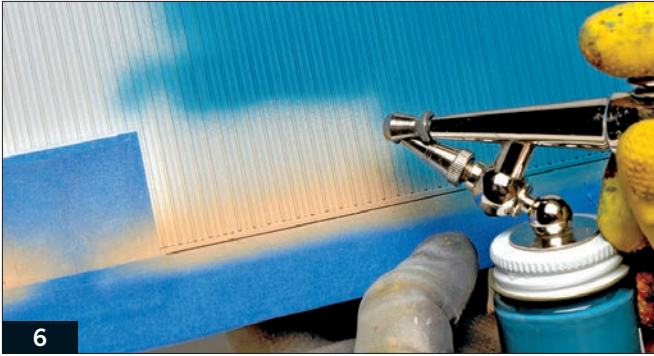
Some firms that offer low-relief plastic kits in HO include Nu-Line Structures and Summit USA; Wm. K. Walthers, Inc., produces both HO and N scale kits. Several companies also manufacture low-relief laser-cut wood kits. With a bit more work, you can also modify a regular kit, often with the added benefit of doubling the length of the visible wall by combining what would be the front and back walls if assembled in the usual manner.

I assembled Bud's Trucking Co., an HO scale kit from Walthers, for this project. I renamed the structure Odegard Shipping Co. in memory of late Model Railroader staff member Gordon Odegard. The modern warehouse building, **1**, looks right at home in Williams Bay on our HO scale Milwaukee, Racine & Troy club layout.

Prepping and painting

To cut the parts from the sprues, I used both nippers and flush cutters, **2**. Nippers are well suited for thin parts. After I'd separated the parts from the sprue, I used jeweler's files to smooth the edges, **3**. It's smart to have a dedicated set of files for working with plastics. If you use the same files on metals, the metal filings can damage the plastic.

I used Tenax-7R liquid plastic cement to bond the parts, but any plastic-compatible glue will work. I



I airbrushed the structure walls, but you can use a brush as well.



A brush is handy for applying powdered pigments for weathering.

applied the Tenax with a Microbrush, 4, and let capillary action draw the glue into the joints.

Where the walls meet at right angles, I used Coffman Engineering's Right Clamps to keep the corners square. The clamps have foam pads that prevent damaging the parts, and they also have small slots for applying glue.

Before painting, I soaked the building in warm water with a few drops of dish soap added, then rinsed the model and dried it with a lint-free towel. I cleaned the exterior surfaces with Polly Scale Plastic Prep, 5, using a small brush to clean the hard-to-reach areas. Since Plastic Prep has a strong odor, I worked in a well-ventilated area.

After the Plastic Prep evaporated, I was ready to start airbrushing. I sprayed the brick foundation with Polly Scale Sand and the walls with Boston & Maine Blue, 6. I airbrushed the weather bellows with Grimy Black and brush-painted the cap strips along the top of the building with the same color.

I sprayed the entire structure with Testor's Dullcote. Then I used MIG Pigments (migproductions.com) to lightly weather the building, 7. The dry pigments, commonly used by military modelers, are available in a variety of colors that are useful for model railroading.

Making it believable

The biggest challenge with low-relief structures is to make them look convincing. When viewed from the front, 8, the structure's lack of depth isn't apparent. From this angle, the warehouse looks just like a full kit does.

In this three-quarter view of Odegard Shipping Co., the warehouse's



Low-relief structures look best directly from the front. When viewed at an angle, their lack of depth begins to show. You can add trees, foliage, or other details to disguise this.



Details include pallets, drums, foliage, and weathering on the door weather bellows.

lack of depth becomes apparent. Storage tanks or trees could be used to disguise the shallow depth of the building.

To help draw attention away from the shallow depth, I detailed the surrounding landscape, 9. I placed pallets and a few 55-gallon drums between the roadbed and the building, added ground foam and static flock grass around the building, and placed some weeds between the rails. I also sprayed the weather bellows with Testor's Dullcote and brushed them with 70 percent

isopropyl alcohol to make them appear worn and faded.

It's also important to study the buildings carefully before making your purchase. I initially thought I'd made a mistake selecting the warehouse because it was only 1" deep, while the space between the backdrop and the roadbed was 1 3/4". However, the kit includes 3/8" drop plates below the dock doors, so the space between the building and the tracks was almost exactly what I needed.



CHAPTER FIVE

Expand a town with digital buildings

**By Daniel Cyrus,
Michael J. Burgett,
and Chris Wiley**

Chesapeake & Ohio Extra 6094 West crosses the Norfolk & Western main line in downtown Lynchburg, Va., on Mike Burgett's HO scale Chesapeake & Ohio layout. Mike and his friends used photo-editing software to turn pictures of real buildings in Lynchburg into backdrop buildings for his layout.

Doug Tagsold

Creating a unique and believable HO scale version of downtown Lynchburg, Va., was one of the most daunting tasks in the construction of Mike Burgett's Chesapeake & Ohio Clifton Forge Division layout, **1**. No commercially available models resembled the prototypes. In addition, there were many unique signs painted on the brick walls, identifying almost every building. Scratchbuilding more than a dozen background buildings would consume not only hours of precious time, but also plenty of resources that could be spent elsewhere on the construction of the model railroad.

Another challenge was space. Since Lynchburg was built up a hill, we wanted to create this feeling by stair-stepping buildings upward. However, we had only about 2" between the backdrop and an industrial spur track. The technique of forced perspective could help, but the question was how to accomplish this in such limited depth.

We began experimenting with digital photography to create paper mockups of the buildings we wanted to model. These were originally intended to be glorified place-holders. Much to our surprise, these paper mockups turned out so well that we decided to use the same techniques to make finished models. Follow along and we'll explain how.

Photography

To begin with, you'll need digital photographs of the subject. We recommend that you use a camera with a resolution of 4 megapixels or better.

If possible, take your photos on a cloudy day, as diffused light will help eliminate shadows and harsh lines, 2. Take more pictures than you think you'll need, because going back for more shots later might be inconvenient. Also, taking all your photographs on the same day means the lighting will be consistent, minimizing color differences.

If the entire building can't be captured in one picture, take multiple pictures to cover the whole building. Photo editing programs like Adobe *Photoshop* (which we used) and *Photoshop Elements* allow you to work in layers, sizing and positioning each element of a photo separately, which makes it easy to assemble multiple photos into a single image.

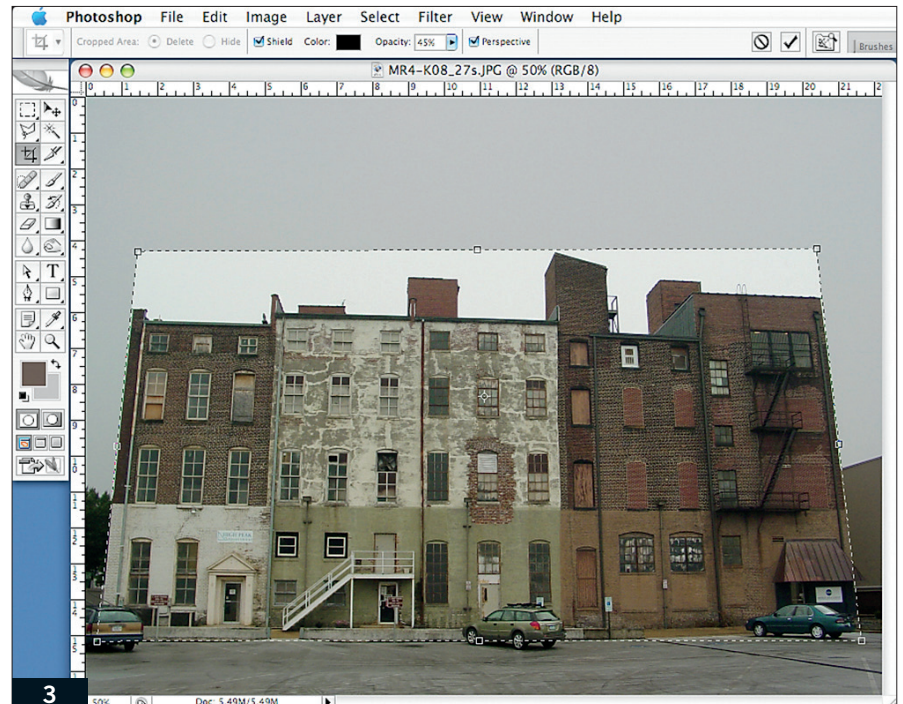
Upload the photos to the computer and open them in *Photoshop*. The next step is to use the "Save As" command to save each image under new file names. This way, if you make an unrecoverable mistake, you can always go back to the original version of the photo.

Fixing perspective

Now you're ready to start manipulating the image. The first step is to correct the perspective, making it appear as if you are looking straight on, not the



When taking pictures of prototype buildings for use as background structures, try to shoot the photos on a cloudy day to minimize color changes from sunlight and shadows. *Chris Wiley*



Checking the "Perspective" box at the top of the screen when using the "Crop" tool in Adobe Photoshop lets you move the corners of the cropping box individually to correct the photo's perspective.

usual angled view. Even if you shoot your pictures straight on, there will be some vertical distortion to fix.

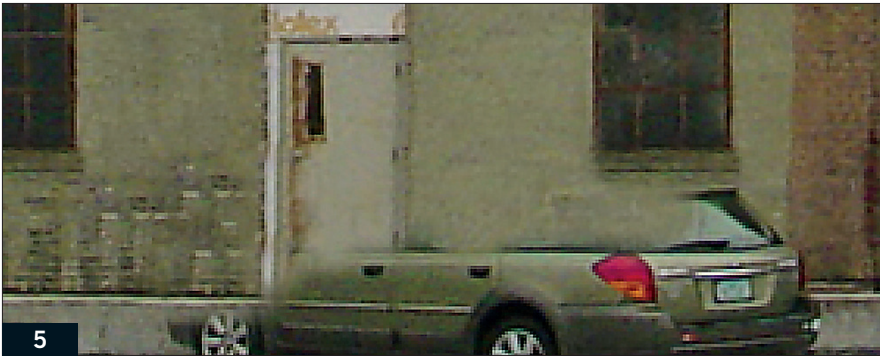
Start by selecting *Photoshop's* "Crop" tool. Click a bottom corner of the building and, while holding the mouse button down, drag to the opposite-top corner, circling the entire front of the building. Then, look at the top center of the window for a checkbox labeled "Perspective." With this box checked, you can click and

drag the corners of the cropping box individually. Place each corner box on the corresponding corner of the building, so that the bounding box outlines just touch the sides of the building you want to work with. Once all four corners are placed, double-click anywhere inside the box or hit the Enter key to simultaneously crop the photo and correct the perspective, 3.

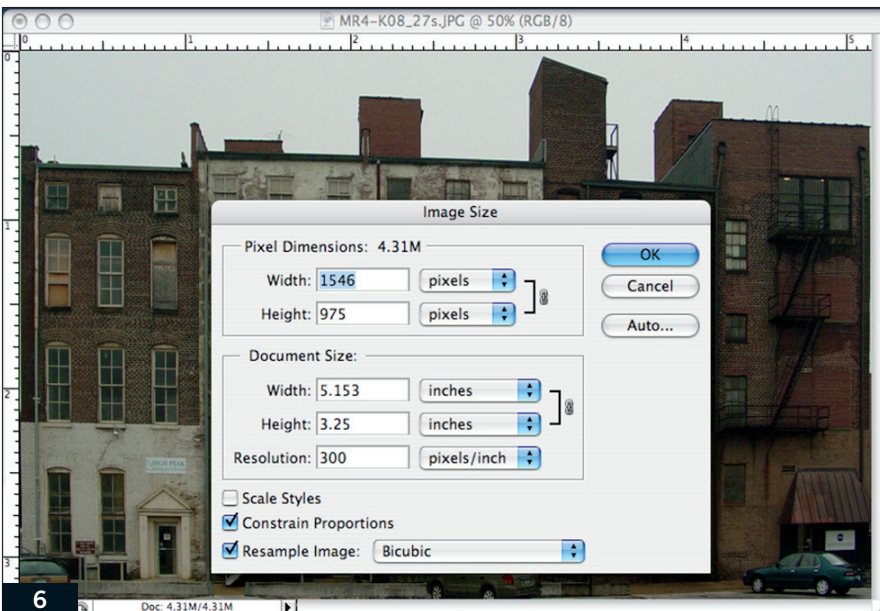
Depending on the angle at which you shot your picture, you may end up



By selecting a portion of the photo with the “Selection” tool, then copying and pasting it, that portion can be duplicated to replace other parts of the photo. Here, the window on the left has been copied and is being moved to cover the window surrounded by brick.



The “Clone Stamp” tool can be used to copy textures from one part of a photo to another. One use for this tool is to erase unwanted details, such as the parked car in this photo. Zooming in makes this easier.



Once your building photo is ready, you can use the “Image Size” command to make it the size you need. It may take several tries to find the right dimensions.

with a building that appears to have been stretched vertically. To correct this, select your entire building front, then use the “Edit. . . Transform. . . Scale” menu item to shrink the picture vertically until the proportions look right.

Editing the image

Now it’s time to get creative. Look at the building and see if there are aspects you want to change, modify, or correct, such as broken windows, modern signs, or power lines.

For example, to fix a broken window, find an unbroken matching window somewhere else on the building, and draw a box around it using the “Selection” tool. Copy the selected area, click outside the box to deselect the area, then select “Paste.” A new window will appear in the middle of your wall, 4.

Pasting places the copied image on a new layer, so you can move it around as needed without damaging the original below it. Use the “Move” tool to grab the new window and put it where you need it. Use the “Layers” palette to keep track of your new layers created when you paste each item, to make sure you are selecting the right one.

Once you get the hang of this technique, you can use it to create a row of windows where there wasn’t one before or insert a ventilation fan into a window. You can even copy details from other buildings. The sky is the limit!

To fix or remove smaller details, try the “Clone Stamp” tool. This tool lets you copy small portions of the picture from one location to another. Hold the Shift key and click the mouse to set the source point, then click and drag to copy from the source to the destination. This tool is most useful to erase power lines, remove graffiti, or clear vegetation from plain or unevenly textured surfaces, 5. However, it can be tricky to keep patterns aligned on a surface like a brick wall. The copy-and-paste technique may be of more use there.

At this stage, you may also wish to remove details that you want to later replace with 3-D detail parts, like fire escapes, drainpipes, ladders, and exhaust vents. Use Save As frequently

during this process, in case you decide later to revert to an earlier version.

Once you have the basic look of the building as you want it, resize it to the proper scale. If the building is to have rail service, you'll want to print it out to scale, but if you plan to use it as a forced-perspective background model, you can experiment with smaller sizes to see what works in your location. Print out samples on your home printer at various sizes before settling on a size for your final print.

To change the size of your picture, use the "Image... Image Size" menu item. This dialog box defaults to size your picture proportionally, so if you type in one dimension, Photoshop will figure the other automatically, 6.

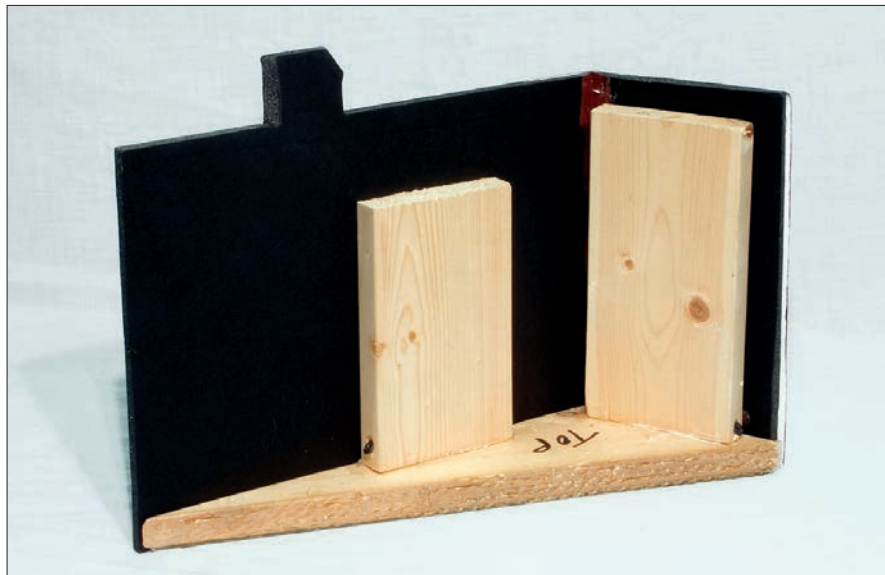
After experimenting with sizes and deciding on all the variables, it's time to print your masterpiece. The results you get from printing at home depend on the limitations of your equipment. We found that professional print shops offer generally higher quality, as well as a wider variety of paper-size options. We took our images to a FedEx-Kinko's and were pleased with the results.

Giving your creations depth

Next, mount the printout on foam core or Gatorboard. We like to use black foam core, which makes the cut edges less noticeable.

First, cut out the paper building with a sharp hobby knife. Use a black felt marker to darken the edges of the paper. Then trace the cutout onto your foam core or Gatorboard and cut it out using a foam cutter (sold at craft stores) or a sharp hobby knife. Check to see if the printed building and foam core back fit together properly, then attach them using rubber cement. It's best to glue a piece of the same type of paper on the back of the board to prevent warping. You can then mount your background building directly to the backdrop.

However, if you took pictures of more than one side of the building, you can add foam core sides to wrap your other images around, 7, creating a 3-D building that will add more depth to your scene.



Glue your printouts to black foam core to give them shape. If you photographed more than one side of the building, you can glue them together to give your background buildings more depth. *Doug Tagsold*

Modeling team

Most people who build a model railroad of any size will tell you "I had a lot of good help." This is truly one of those cases. Through teamwork, we were able to create prototypical backdrop buildings that helped to further enhance the layout's feeling of time and place.

At the time this was written, Daniel Cyrus was a central Virginia high school student modeling the Chesapeake & Ohio's James River subdivision in N scale.

Mike Burgett was a signal supervisor for the Canadian National Ry. in Detroit, Mich., working on an HO scale layout representing the C&O's Clifton Forge division.

Chris Wiley worked as a utility forester in central Virginia, and was modeling the C&O's James River subdivision in N scale.

All are members of the Chesapeake & Ohio Historical Society.



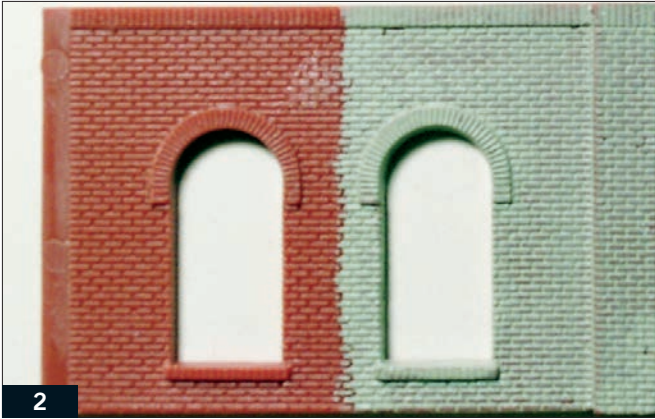
CHAPTER SIX

“Paint” brick and signs with colored pencils

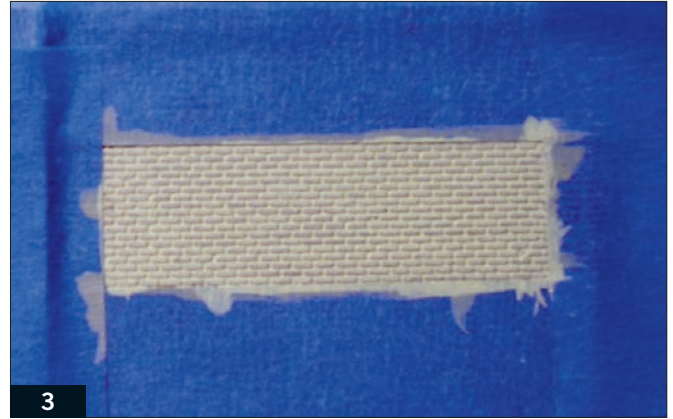
By Douglas Kirkpatrick
Photos by the author

Douglas Kirkpatrick used colored pencils to color the bricks as well as create the signs on this building on his HO layout.

I recently finished assembling a large Design Preservation Models modular building as a background, low-relief structure on my HO scale Virginia & Western layout. While I was working on this project, Noll Horan, a National Model Railroad Association master model railroader, described how he’d discovered artists’ pencils that could be used for “drybrushing” O scale figures to highlight details. I realized I could use a similar technique (but not Noll’s pencils!) to color the brick on my building, **1**.



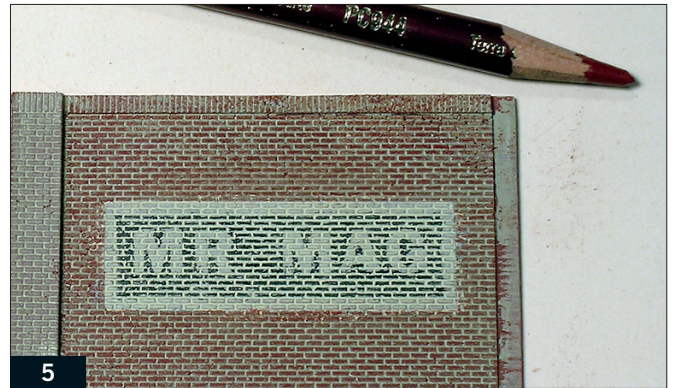
Start by painting the walls a concrete color (right), and then using a brick-colored pencil to color the surfaces.



Once you determine the space needed for the letters, mask the area and paint it Polly Scale aged white.



The EZ stick-on letters have been applied to the sign area. They'll be removed following the next step.



I colored the sign area black, being careful not to disturb the letters. I left a border two bricks wide around the letters.

For this technique to work, you'll first need to paint the wall the color you've chosen for your mortar lines, 2. I prefer Floquil's aged concrete. After assembling the building, but before installing windows, airbrush the entire building. On smaller buildings you can also use a brush with the same results. Let the paint dry for several days.

For the bricks on my Grand Union building, I used a Prismacolor rouge tuscan pencil. You'll find a variety of colors at art supply stores.

Begin with a wall that has no signs. Keeping the pencil at a low angle to the surface, rub it horizontally across the face of the bricks. You'll immediately notice each brick appear, with the mortar joints remaining concrete color.

Making signs

Now for a wall with a sign. A computer comes in handy here to create temporary paper letters. Print out the words or letters, cut them out, and tape them to the building to see how they look.

When you're satisfied with the results, mask the area where the sign will be placed, 3, and remove the letters. Then, paint the background the color you want your letters to be—Polly Scale aged white in my case.

After the paint in this area has thoroughly dried, remove the mask. Then apply Geographics EZ stick-on letters directly to the building, 4. Available at educational Web sites, the Geographic EZ letters I selected were similar to those in my computer layout. Position the letters, starting in the middle of the sign and working toward both ends. This allows you to adjust the spacing to the background length.

Using your Rouge Tuscan (or whatever color you've chosen for your bricks), color the rest of the wall. When you reach the sign area, make sure the pencil is sharp, and color only the adjacent bricks, 4. For the next step you'll need (depending on the sign colors you prefer) about a half dozen Prismacolor pencils. I ended up with

black, white, scarlet lake, terra cotta, crimson red, rouge tuscan, light umber, and burnt ochre.

I colored the sign area black, 5. Be careful when coloring the areas adjacent to the letters. I made a two-brick-wide border around the sign with a colored pencil.

After coloring the sign, remove each letter. You should see the sign appear. Then paint the window sills and windows, and install glazing. If you get extra paint on the window sills, just use the appropriate pencil to correct your work. You may want to seal the color with clear flat finish (such as Testor's Dullcote) to avoid rubbing away the color. The building is now ready for pastel weathering, if you desire.

You can use many color combinations for the bricks, signs, and lettering. Stay away from white for the mortar; it looks unrealistic. So sharpen those pencils and forget what they taught you in school: When coloring bricks, always stay out of the mortar lines!



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CHAPTER SEVEN

Easy interior details

By David Popp

Photos by the author
and Jim Forbes

A few simple details is all it takes to provide the impression of a detailed structure interior, as with this N scale storefront building on David Popp's layout.

Structure windows can be frustrating for a modeler. Why are panes such a pain? Empty windows, especially the big ones found on storefronts, can break the illusion of a modeled world almost as fast as shiny plastic freight cars and locomotives.

In the real world, windows allow light into buildings, but they also allow passers-by a glimpse inside.

If you take a quick look around at houses, shops, factories, and offices, you'll find that many windows have curtains, shades, or blinds to keep people from looking inside. Though you can't see much beyond these view blocks, the curtains and blinds themselves are usually visible from the outside.



2 This building has both interior styrene walls and a construction-paper view block.

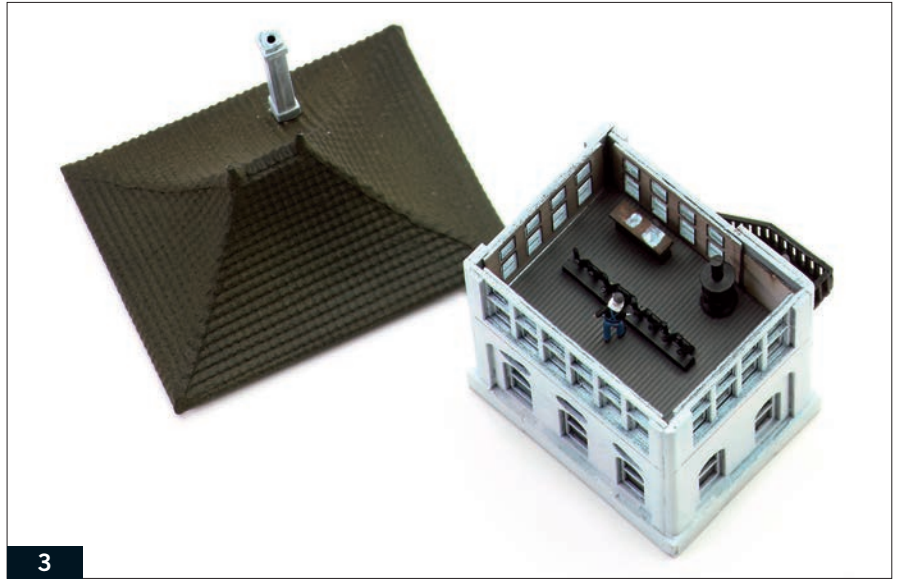
Where windows are left open to the viewer, at least some interior detail is visible. This is especially true with storefronts, where the front window is used as display and advertising space. And unless the windows are boarded up, empty buildings show some type of interior detail, even if it's bare walls, rubbish, and cardboard boxes.

With a little styrene, some paint, and a few signs and figures, making simple interior details for your model railroad structures is easy. And, they can be added to new kits and assembled buildings alike. These samples are N scale, but you can do the same in HO and other scales.

Basic walls

It adds to the realism of a model structure if viewers can't see all the way through the building. One method is to place a view block inside the finished model. I use black construction paper for this, **2**, placing it on an angle so you can't look in the upper windows and out the bottom windows. If you're working with a bigger structure, you might use cardstock or black styrene.

Though it's great for buildings with small windows, the black view-block trick doesn't work very well for large front windows, especially storefronts. In this case you're better off making simple walls from styrene. I use .030"



3 This interlocking tower features rudimentary details such as armstrong control levers, stove, desk, and figure on the top floor.

sheet styrene to divide the storefront from the back of the building and partition separate building entrances, such as stairwells. I also add a styrene ceiling to prevent the windows from upper floors from providing a view of the store below.

I typically add the walls and ceiling while the building is under construction and then paint them solid store-like colors. If you're adding walls to an existing building, you could make them as a freestanding unit that slips inside the building shell. The building in **2** shows the interior walls for my music store shown in **7**.

Simple interiors

Adding three-dimensional interiors to structures that viewers will see up close adds a lot of life to your model railroad. This is a fun project, and you don't have to go to dollhouse-level detailing to get good results. I built the interiors of the buildings in **3**, **4**, and **5** for structures on my layout using an assortment of styrene shapes to give the impression of everyday objects, such as chairs, sofas, and desks. I then painted them appropriate colors and added a few figures to bring the scenes to life. When seen from the edge of the layout, these details go a long way to convincing people that all the buildings have interiors.

I used styrene to make the interior for my N Scale Architect New Haven interlocking tower, **3**. I used grooved sheet to represent the wood floor. I added a Period Miniatures coal stove casting and then made a desk from several pieces of strip styrene. The interlocking mechanism is made from pieces of plastic Con-Cor fencing. Although the finished model looks only a little like a real interlocking plant close up, when viewed from outside the building, just the levers are clearly visible, completing the illusion that everything is correct.

For my drugstore (a Design Preservation Models kit), **4**, I filled the shop windows with signs and built a small apartment scene for the upper floor. Similar to the tower, I used styrene shapes here, this time to make a couch, chair, television, and table. After painting these details, I added some figures.

Mel's Café, **5**, is another DPM kit. I started by walling off the stairwell and adding a back wall to the diner portion of the building. Next, I made a floor for the diner and modeled two booths, one for each window, from strip styrene. I painted most of the interior a wood-work color and then added a few figures and an "OPEN" sign for the window.

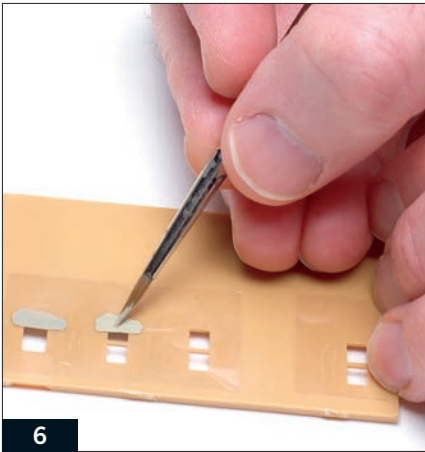
This building also has a detailed upstairs and features a Preiser no. 79176 painting crew. The floor and



4 The drug store has signs in the window and a partially furnished apartment on the second floor.



5 A pair of booths sit behind the café windows, while a painting crew works in the upstairs apartment.



6 Among the easiest methods of making window shades is painting them on the styrene glazing.



7 This music store shows first-floor windows printed with Evan Designs software and upper-floor painted shades.



8 The Evan Designs software can be used to print on paper (left) or clear transparency film (acetate).

walls are all made from .030" styrene. I left the walls white but painted a few swatches of tan so it looks like the crew has just started.

Shades and curtains

Most residential structures and many offices and businesses have some type of shades, blinds, or curtains in the windows. Even simple shades and curtains add a lot to a model, and structures without them look out of place. You can use several different methods to make your own window treatments. I've used a couple of them on my music store.

An easy way to add shades to a building is to paint them on the back of the styrene window glazing, **6**. I used this method to make the shades on the upper two floors of the store. With very small buildings, painting

shades works best if you do it before you've installed the plastic glazing. I map out the window locations for an entire floor on the sheet of clear styrene first. Then, as shown in the photo, I paint the shades on the back of the plastic with acrylic paint. After I've completed the building, I cement the glazing behind the windows with Woodland Scenics Accent Cement, a water-soluble contact adhesive.

For more-complex shades, blinds, and curtains, you can purchase printed versions or make your own using a computer software program. I recently tried Evan Designs Modeler's Tool Kit software with great success (www.modeltrainssoftware.com). This computer program works on any PC with a color inkjet printer. Basically, it allows you to lay out the window arrangement

for each wall of a building and then fill those window openings with more than a dozen different options for window treatments in a variety of colors. You can also choose from an assortment of signs to place in your windows, or you can design and print your own. The program is pretty flexible.

When you've finished designing your windows, you have several printing options. I used paper for the ones on the music store, **7**, but the Evan kit includes several sheets of decal paper, transparency film, and styrene—all of which will work with an inkjet printer. I printed test windows on both paper and transparency film, **8**.

With just a few evenings' worth of work, you can fill those empty windows and add interest to your layout all at the same time.



CHAPTER EIGHT

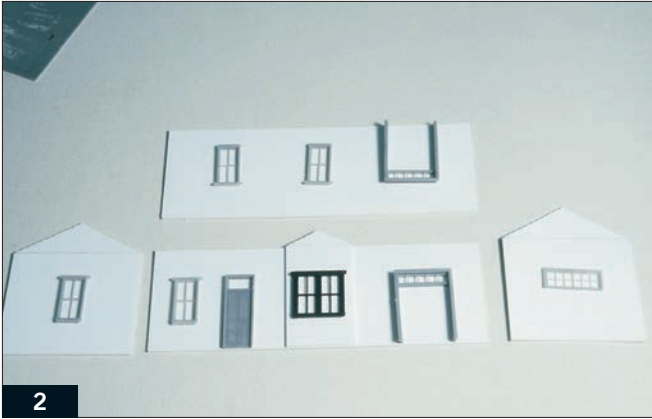
Scratchbuild styrene depots

By Bill Darnaby

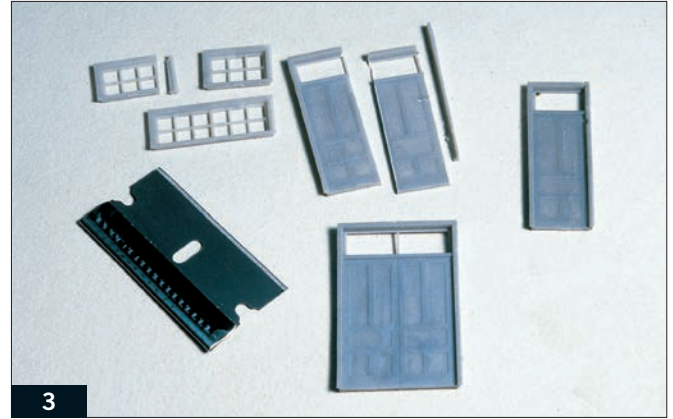
Photos by the author

Bill Darnaby scratchbuilt the Clay Center depot on his HO Maumee Route using styrene and commercial windows and doors. It's a great way to build a unique structure, and the process is no more difficult than assembling many kits.

A railroad run by timetable and train orders, like my free-lance Youngstown Division of the Cleveland, Indianapolis, Cincinnati & St. Louis RR (the Maumee Route), needs places for delivering orders to the train crews. This means train order offices (usually in small town depots) with train order signals every four to six miles.



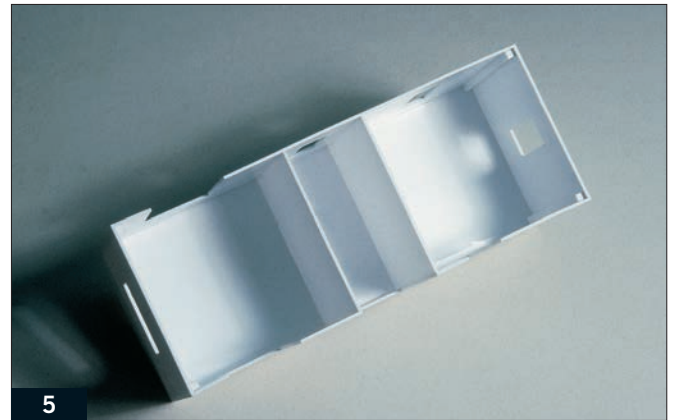
Move the door and window parts around to locate openings, keeping prototype plans in mind.



To get single doors the desired height, I modified Grandt Line double doors and also doubled a window.



The basic building shell is reinforced with strips of square styrene glued in each corner.



This view from the station's bottom shows how interior walls butt against the ceiling panel.

A quick look at the station list for my HO layout showed 12 train order offices open at various times of the day. Every one requires a depot or yard office.

To give the Maumee an authentic look I wanted the depots to have classic lines, but with some distinctive features, 1. A family appearance was important as this would reflect typical practice, and I was willing to scratch-build because I considered the atmosphere of the depots very important.

These were not difficult projects, and you can follow the same techniques to build depots in many other styles.

Depot design

I have always preferred depots with a gabled bay window as opposed to the main roof overhanging the bay. Within this category I find Chesapeake & Ohio and Wabash depots to be attractive and well proportioned.

These depots have bay windows with angled side walls; however to simplify construction I chose a rectangular bay while maintaining the overall proportions. To further simplify construction, and because I like the appearance, I opted for drop or novelty siding with little trim.

The classic American depot is a combination type, meaning it has both passenger waiting rooms and baggage or light freight rooms in one structure. These are usually positioned to either side of the agent/operator's office and bay window. The rule of thumb is that the passenger side was nearest the street. Railroads built these to standard plans but in various sizes based on need. As depots became larger the waiting rooms grew with more windows and doors. The baggage room also became larger with additional doors. Baggage platforms were optional.

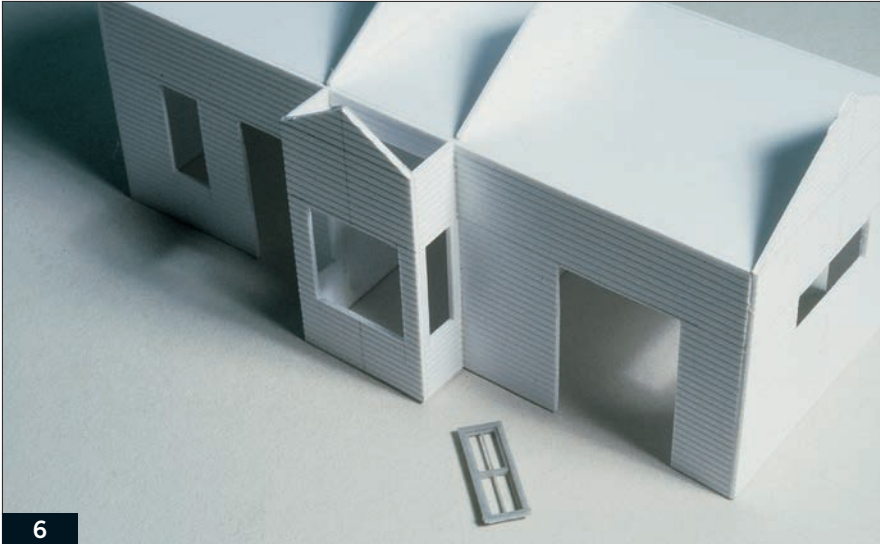
In the early 1900s separate men's and women's waiting rooms were com-

mon for larger depots and placed to either side of the operator's office. For an excellent reference on depots I recommend *Indiana Depots* by Francis Parker (Ball State Press), which has numerous photos illustrating a variety of Midwestern depot styles. Many historical societies have published books of their railroads' standard depot plans.

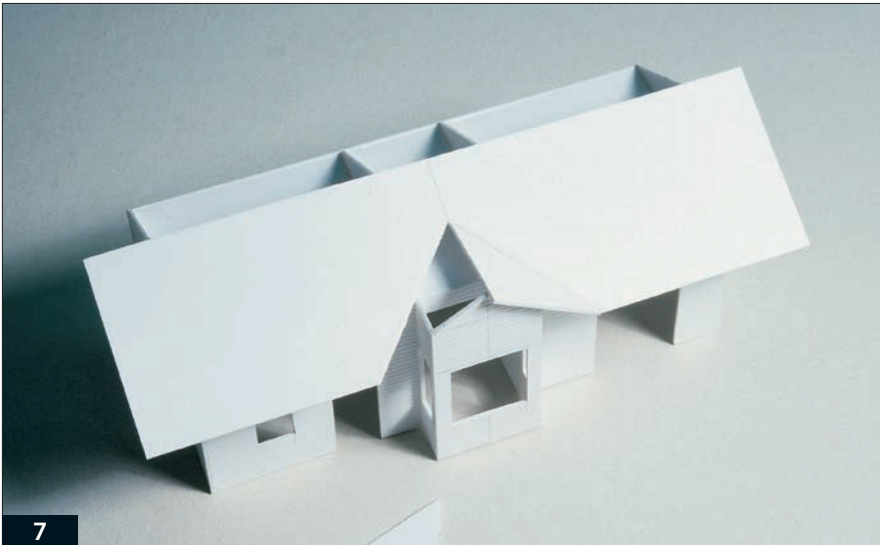
Common dimensions for small three-room (waiting, agent, and baggage) depots were 16 x 40 feet, 20 x 40 feet, and 20 x 50 feet. Mostly I needed small depots; to make them I chose easy techniques that would go quickly.

Styrene construction

My favorite construction material is styrene as it is easy to work with and assembles quickly with MEK (methyl ethyl ketone) as a solvent. (Use MEK only in a well ventilated area and avoid skin contact.) Evergreen makes all of the essential shapes and siding types, and with Grandt Line win-



6 The sidewalls for the bay window consist mostly of window, with a strip of siding material above and below.



7 The roof sections are .040"-thick styrene siding, attached with the scribed side down.

dow and door castings everything is at hand to build any style of wood depot. Let's follow the construction of a standard small depot to see how simple it is.

Determine the overall dimensions and the door and window locations. (I didn't bother drawing plans). Knowing that the depot was to be 16 x 40 feet and taking the 14-foot ceiling height and 30-degree roof angle from the C&O plans, I simply marked off these dimensions on Evergreen novelty siding to lay out the sides and ends.

Let the ends overlap the sides so you don't have to make the tops of the sides conform to the roof angle. I ignored the thickness of the end mate-

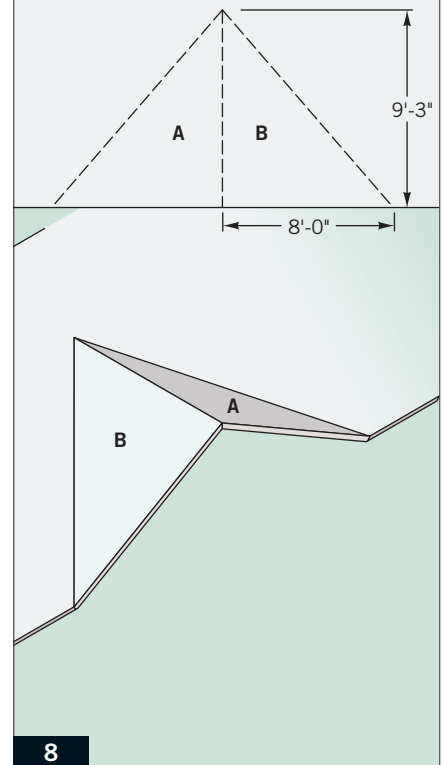
rial and cut the sides to 40 feet, so the overall length became roughly 40'-7".

Position the Grandt Line doors and windows, **2**. The double baggage door is the tallest and I wanted the tops of the windows and other doors to line up with it. Unfortunately, none of the Grandt Line single doors with transom are this tall so I modified double doors to make my singles, **3**. I also made the long horizontal baggage room end window by splicing two smaller windows together. On the styrene, mark the openings that need to be cut out.

Cut the sides and ends from the styrene sheet using a single-edge razor blade to make a series of shallow cuts. The sides and ends can then be broken

Bay roof

Cut out triangles A and B. Reattach to roof along long side of each triangle



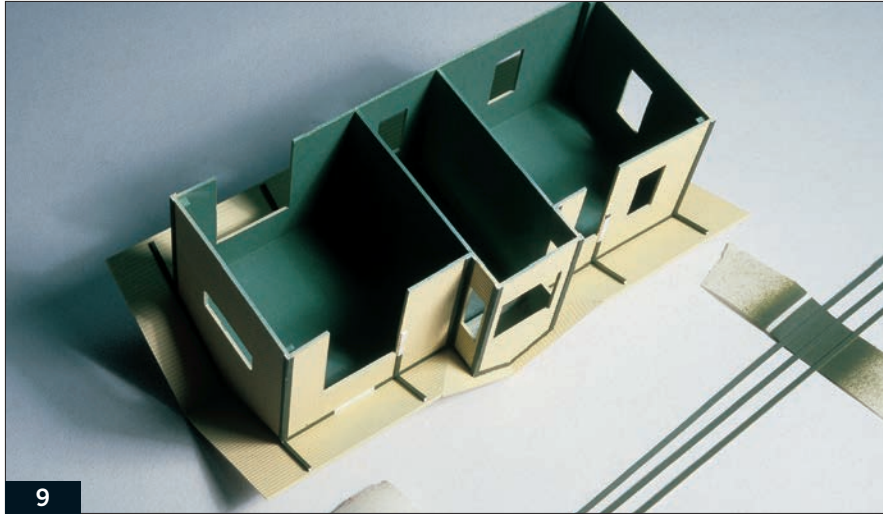
free by bending the sheet to slightly open the cut and then snapping it in the reverse direction. Deeper cuts will have to be made for the door and window openings to get them to break free.

Test-fit the doors and windows and file the openings if necessary for a good fit. Cut out the opening for the bay window. I left about 1/2" of wall above it for structural integrity.

Wall assembly

Assemble the basic box using either .100"-square or .125"-square styrene strips to reinforce the corners, **4**. Cut these shorter than the wall height so they will not interfere with the ceiling panel. I prefer MEK applied with a small brush as it makes an instant bond and evaporates very quickly.

To keep things square and solid, cut a ceiling and two interior walls from plain .040" styrene. Install the ceiling first—it should fit snugly between the sides and ends. Next, install the interior



9

I learned the hard way that it was best to paint the trim pieces before applying them. The results were a lot neater.



10

Evergreen styrene half-rounds and rods serve as gutters and downspouts.



11

Emery paper (400-grit) represents rolled tarpaper roofing. Latex contact cement will keep it firmly anchored.

Materials list

Evergreen styrene

156 .060" x .125" strip
 186 .125"-square strip
 189 .125" x .250" strip
 211 .047" rod
 241 .060" half-round
 4050 V-groove siding
 4062 novelty siding
 8106 HO 1 x 6 strip
 8404 HO 4 x 4 strip
 9005 .005" clear sheet
 9040 .040" sheet

Floquil paint

303097 butternut
 303195 Italian olive green

Grandt Line

5057 D&RGW station chimney
 5060 four-pane station windows
 5073 double door (cut down to one)
 5198 RGS freight door
 5221 double window (bay front)
 5242 horizontal window
 5250 four-pane window (side of bay)

Miscellaneous

400-grit emery paper

walls. They should fit snugly between the sides and flush with their lower edges, 5. These represent the office walls.

Begin the bay window by marking the front and sides of the bay on the styrene siding. In my case the sides are pieces of siding above and below the side windows. The front window is a Grandt Line double. The bay measures 3 x 8 feet and the bay front maintains the 30-degree roof pitch. Attach the upper and lower bay side pieces to the main side, 6, then attach the front.

Roof

Cut two triangles of .040" styrene matching the roof line and attach them to the ceiling in line with the interior walls to serve as roof supports. My roof is .040"-thick V-groove siding with .050" board spacing facing down. It's a



12

Black-painted strips of masking tape were used to cap the roof and finish the joints with the bay window roof.



13

Styrene strips yielded foundation walls. The strip alongside the ties edges the station platform's cinder fill.

nice touch to see this detail under the eaves but it is not completely necessary.

Cut two roof panels long enough for a four-foot eave overhang at the sides and ends, 7.

The bay gable gets a little tricky. On one of the main roof pieces mark off the dimensions of the cutout in the roof for the bay, 8. After you break these pieces out of the roof re-orient them and the gable roof of the bay will be neatly formed.

Attach the main roof pieces first and then the gable pieces. You may have to bevel the edges where the gable meets the main roof for a clean intersection.

Trim and paint

On my first depot I added the trim and eave bracing first and spent as much time painting the trim tediously with a small brush as I did installing it. So, paint the depot, paint the trim stock, and then attach the trim pieces with small amounts of solvent, 9. The finished model will be much neater. The paint will not be disturbed if the trim is first laid in place and the MEK is wicked underneath with a small brush.

The trim is HO 1 x 6 styrene. It's applied to all corners, across the upper edges of the sides and ends, and to the roof edges. The eave braces are 4 x 4 styrene, 9. It helps to draw patterns of the braces to aid in cutting the lengths and angles.

My depot is painted Floquil butter-nut (from the Military line) with Italian olive green trim, but these colors

have been discontinued for some time. Choose colors to match your railroad.

Rain gutters, if used, were either angled boards attached to the surface of the roof or else metal and attached to the edge of the roof along with downspouts. It is very easy to simulate conventional metal guttering with $\frac{1}{16}$ " half-round Evergreen styrene gutters and .047" round styrene spouts, 10. The round pieces can be bent easily for any configuration.

I made simple tarpaper roofing. Start with black or dark gray fine sandpaper and cut it to fit. Attach it with latex contact cement, 11. (A solvent-based cement will warp the styrene over time.)

I covered the ridgeline and intersections of the gable roof with thin strips of black-painted masking tape. Then using a straightedge as a guide I painted black lines on the sandpaper to simulate strips of tarpaper, 12. The paint can also be used to simulate patched areas.

Finish the roof with a Grandt Line chimney trimmed to sit on the pitch line of the roof and painted a shade of boxcar red. So the chimney could vent both rooms it typically was positioned in line with the wall separating the waiting room and the agent's office.

Final touches

Mount pieces of .005" clear styrene in the window frames with MEK. Lay each piece in the frame and hold it down while touching small amounts of solvent to the edges. The MEK bonds

instantly and evaporates quickly without tending to craze the clear styrene.

Structures look best when they sit in the scenery, not on it, and the way to accomplish this is to build a foundation. I prefer a separate foundation, 13, for ease of scenery and maintenance. Strips of .125" x .250" styrene on edge brought the top of the foundation even with the top of the rail. An additional .060" x .125" strip laid on top of this raised the foundation by an additional scale 6" so the depot would appear to sit above the platform. Your local conditions may require something different but the same principle applies.

Assemble the foundation so it is set back under the walls by about .020". To lock on the structure I added 4 x 4 styrene strips to the top of the foundation to engage the insides of the walls, notching the strips so they'd clear the corner braces and interior walls. To simulate an old poured concrete foundation in place and add scenery around it.

A typical depot installation is shown in 1. The platform is a simple cinder fill against a concrete curb, a strip of .125" x .250" styrene with its edges roughed up a bit with a coarse file and painted to represent concrete. It is turned on edge to match rail height and butted against the tie ends. The cinder is filled in behind it and around the depot foundation.

The working train order signal is by Tomar. Ending up with a place for the agent who operates it is what this has been all about.



1

CHAPTER NINE

Modeling rundown structures

By Kathleen Renninger
Photos by the author

If you want a structure to look neglected, like this HO model, Kathleen Renninger has tips that work on models in any scale, era, or size. Among the features that made the prototype shed appealing to model are its condition (brought on by neglect), the variety of building materials used over the years, and how common materials were used in unconventional ways.

One of the aspects I like most about being a model railroader is that it's opened my eyes to the unique qualities of many of the ordinary things around me. While I might once have viewed an old structure as simply an old shed, as a model railroader I see it as a barn with character—beautiful in its own offbeat way. In fact, I liked the old shed in **1** so much that I scratchbuilt it in HO scale.



2 To make assembly of the foam core walls easier, hold the hobby knife (with a new, sharp blade) so that the cut edges are 90 degrees to the surface.



3 A motor tool with wire brush removes most of the black paint from the surface of the fieldstone sheet, leaving what appear to be black shadows in the recesses between the rocks.

All of the techniques and almost all of the materials I used for my shed will work on structure projects in any scale. The beauty of it all is that you can't really make any serious mistakes that you can't undo.

Walls and foundation

The walls of my HO scale building are pieces of black foam core. What appear to be structural materials in relief (such as fieldstone and planks) are simply applied to the foam core surface.

My first steps were to prepare and then print out scale drawings using Corel Draw (any drawing program will work) on my home computer. I cut out the shapes and, using rubber cement, attached them to a piece of foam core. When the cement had dried, I used a no. 11 hobby knife to carefully cut along the lines, **2**. I then used Tacky Glue (sold in craft stores) to assemble the pieces, bracing them with 1/8"-square stock.

I began work on the foundation by painting a Plastruct fieldstone sheet black and letting it dry. Then I removed most of the paint from the high spots by going over the surface with a wire brush in a motor tool running at low speed, **3**. I was careful to let most of the paint remain in the recessed spaces between stones. The black that remains defines the rocks and gives the impression of shadows.

I then cut the fieldstone sheet into scale two-foot-wide strips and used

Tacky Glue to cement them along the bottom of the walls. I'll come back to finishing the foundation later.

Windows

With window castings serving as templates, I cut openings large enough for the window to fit into but small enough that the frames won't drop through the walls. The frames, which are quite thin, overlap the edges of the foam core on all four sides. However, since the siding overlaps the window frames, I trimmed away just the paper layer of the foam core beneath the frame.

I traced around the window frames with a knife to define the area, **4**, and then peeled away the paper layer. I painted the windows and then, when the paint was dry, used Tacky Glue to cement them in place. The glazing came later.

Original wall

Using a saw to cut the wall boards would have resulted in an even, well-maintained look. To achieve a ragged-edged look, I broke them with my thumbnail. I also used rail nippers to cut notches on the ends of some boards.

I used Tacky Glue to apply the walls board-by-board. When the glue had set, I sanded the boards with 60-grit sandpaper to give them some texture and then painted them. I didn't really try for even coverage.

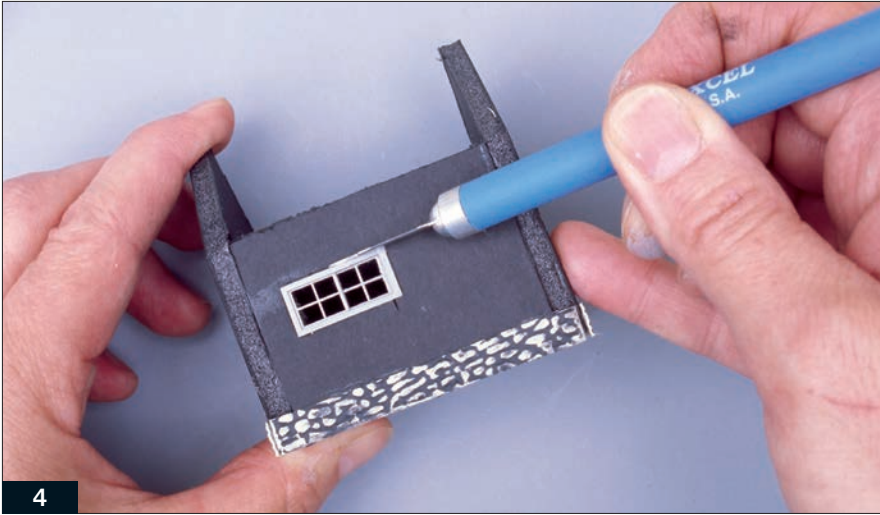
Before weathering the siding, I masked the stone foundation with tape. Next, I blotted a mascara applicator on a paper towel, removing most of the fluid. Using the almost-dry mascara brush, I stroked it over the boards with the grain, **5**. I used a paper towel to immediately wipe off most of the mascara, toning down the color, then went back and darkened random areas using the same technique. Finally, I creased 60-grit sandpaper and used the edge to sand streaks here and there, revealing the natural wood color.

For the parts of the wood that would show, I applied paint to the wood, laying on an even coat in some spots, but letting the brush run dry in others. Then I wiped over the boards with a paper towel. When the paint had dried, I sanded the boards lightly with 220-grit sandpaper to expose some natural wood color.

Asphalt siding

I prepared the asphalt paper by cutting 220-grit sandpaper into 3" squares and soaking them overnight in water with a few drops of liquid dish soap. It's a good idea to prepare more sandpaper than you think you'll need, since you're likely to ruin some pieces in subsequent steps.

In the morning I separated the paper backing from the grit layer by inserting the tip of a no. 11 hobby knife blade into the paper and peeling it back, **6**. If it starts to tear, stop and



4
Using the outside of the window frame as a template, cut through the paper surface of the foam core and remove the paper. This recesses the frame so the siding material covering it will be flat.



5
I use the drybrush technique to apply mascara weathering to the siding. After wiping much of it off, I darken random areas and lightly sand others.



6
To simulate asphalt siding, soak squares of sandpaper overnight. The paper layer is then separated from the grit layer using a hobby knife.

start at a different corner. Your aim is to get the paper layer completely off, though some fibers will probably remain.

While they were still wet, I placed the grit pieces on a glossy piece of cardboard, taping down the ends to keep them from curling. Once the pieces had dried, I painted the grit with a 50:50 mix of Accuflex SF Red and maroon tuscan oxide red. The mix isn't critical; experiment until you get the color you want. If you substitute paint, make sure you use a flexible acrylic finish (such as Modelflex or Polly Scale).

When the paint dried, I cut the pieces of grit into scale 36"-wide strips and trimmed them to fit the walls. To get a ragged look, I tore some of the ends. At this point, I had to decide in which direction my siding would overlap. I used a black Sharpie to touch up the edge that would show, giving the strips more definition once on the shed.

I glued the pieces in place with Tacky Glue, overlapping each one by a small amount, **7**. After letting each piece set for a few moments, I pushed and pinched it just a little to get the characteristic wrinkles of asphalt siding.

To finish the siding, I weathered the asphalt by using a black ballpoint pen to draw tiny squiggles and marks to represent cracks and holes in the siding.

Roofing

Before adding the roof, I attached the window glazing to all of the windows from the inside. I used scraps of clear styrene glued in place with Microscale's Micro Kristal Klear. With that done, it was time to add the roof. The underlayment is $\frac{1}{32}$ " sheet balsa cut to size, and the roofing material that covers the underlayment is Campbell corrugated aluminum. I cut most of the aluminum into sections about 3 scale feet square, but I cut an assortment of larger pieces as well. I sprayed Testor's Dullcote on one side of the aluminum roofing material, and then I applied a thin coating of Walthers Goo to the other side.

I used Tacky Glue to attach the balsa roof underlayment to the shed

walls. Then I coated the top surface of the balsa with Goo and allowed it to dry for a couple of minutes. When the Goo on both the aluminum and the wood was tacky, I carefully put the aluminum pieces in place. I used the square ones as a basis for a pattern, but I interspersed the larger pieces for variety. I was careful to let the overlapping edge of the larger pieces remain unglued so I could tuck the smaller ones underneath the larger, 8.

With the aluminum sheets all in place, I weathered them using Stoney Mountain Classic Castings weathering powders mixed with water to a consistency thin enough to be applied with a brush. I worked from light to dark. Intermittently, I applied a very pale gray, followed by a fairly even coat of light yellowish rust. Then I brushed a mix of medium brown with that same rust into the seams to define them. Following that, I applied medium reddish rust, again intermittently.

Finally, I mixed a bit of black with the original light yellowish rust and brushed it on in streaks and patches. I wanted to suggest heavier rust at the center and less along the edges. I then masked the window glazing and gave the roof a light spray of Dullcote, avoiding overspray on the asphalt paper as much as possible.

Foundation

I filled the foundation's corner joints with Squadron white putty. Once this had dried, I scored it to match the adjoining mortar lines and touched it up with paint. I also filled the joint on the concrete portion of the foundation and painted it with Polly Scale aged concrete.

I added subtle color to the stones with Bragdon Enterprises weathering powders. (You don't have to spray them with Dullcote if you rub them in well enough.) I used a Microbrush to apply the powder to individual stones, starting with dust bowl brown on a few stones, green grunge on others, and used brick here and there, 9. I left some stones uncolored. For the final touch, I stroked a white china marker over the top edge of some stones to add highlights.



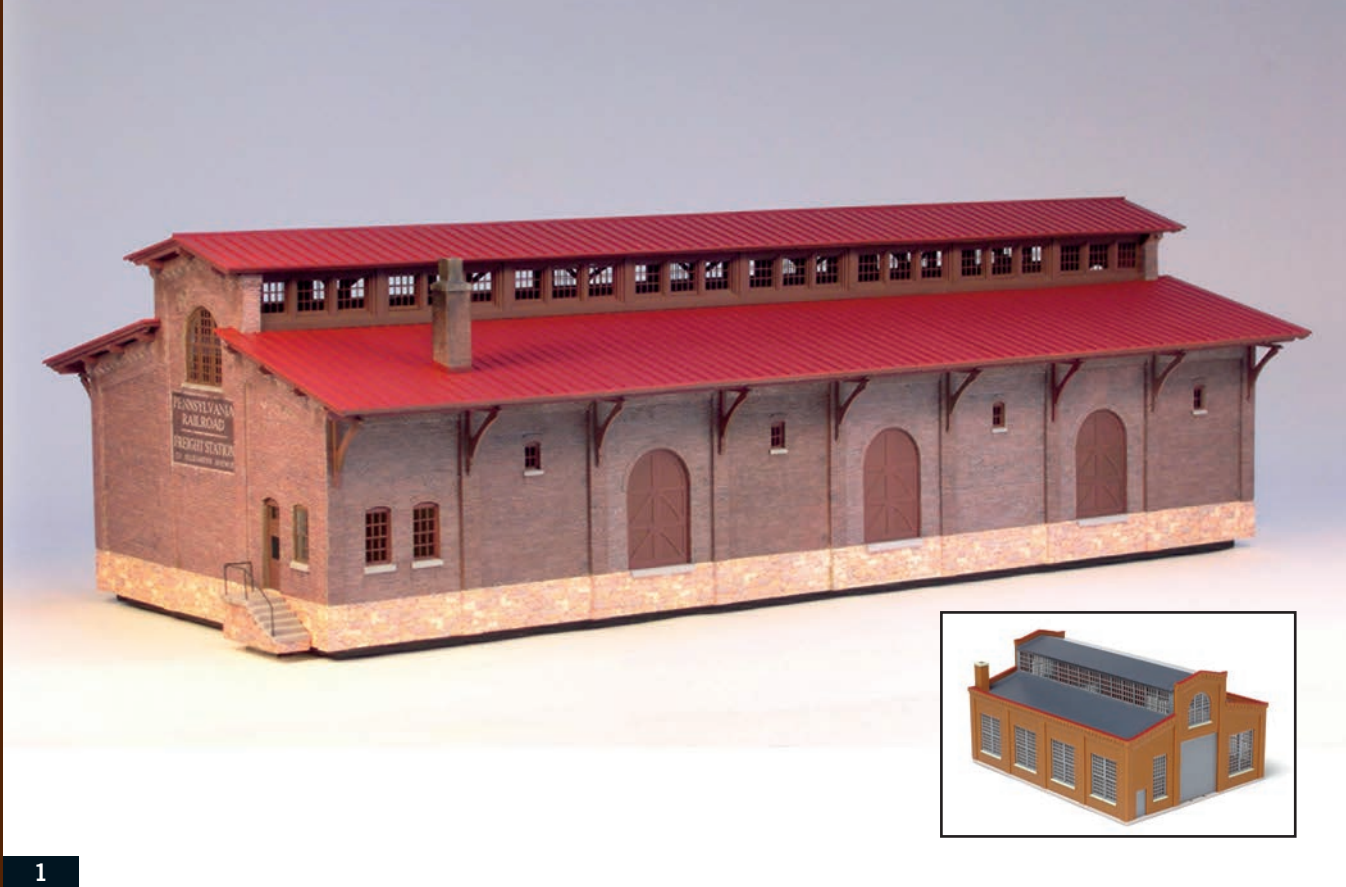
7 After painting the grit layer, I cut it into strips and apply it to the painted and weathered siding material. Tearing some of them gives the siding a well-worn look.



8 The corrugated aluminum sheeting is cemented onto the roof underlayment) and aged with weathering powders mixed with water.



9 I used Microbrushes to apply three shades of weathering powders to the foundation.



1

CHAPTER TEN

From factory to freight house

By Charlie Conway

Photos by the author

Starting with an HO scale Walthers Dayton Machine Co. “Built-ups” structure (inset photo), Charlie Conway reworked it into a Pennsylvania RR freight house using several clever techniques, including making molds and casting resin walls and assembling a new clerestory from styrene strips. The completed structure also features wall-sized brick decals created on a home computer.

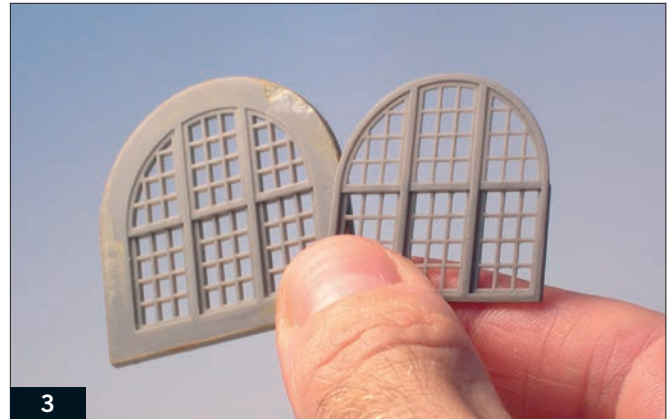
The late master kitbasher, Art Curren, changed the way I look at structure kits. Through the many articles he authored for *Model Railroader* over the years, Art conveyed his enthusiasm for kitbashing with imagination and warm humor. In following Art’s example, I’ve come to view structure kits as the raw materials of the creative process rather than as something to be merely assembled according to the instructions.

The moment Walthers unveiled its HO scale Dayton Machine Co. (an N scale version was also offered), I had a kitbashing project in mind. I’ve always been fond of the Pennsylvania RR, and I’d been thinking of building a small bookshelf diorama to display some PRR rolling stock. A freight house based on the Walthers kit seemed like the perfect centerpiece, **1**.



2

I removed all the wall sections between the pilasters by scoring around the edges with a hobby knife and snapping out the waste.



3

The original arched window is at left, with the modified version, trimmed and filed to fit inside the wall's brick opening, at right.

Prototype and inspiration

The design of my structure owes a lot to the Southern Ry. freight house in Kinston, N.C., with its roof monitor and semicircular arches, but it also has authentic Pennsy roots, as the stone foundation and roof details were inspired by the PRR freight station in Gap, Pa.

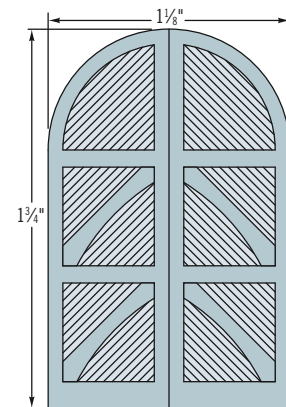
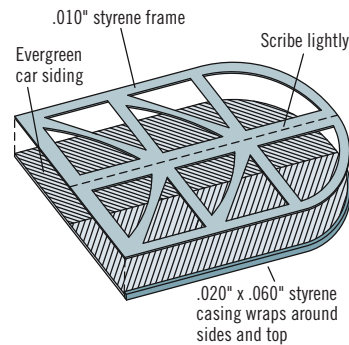
The project was not without challenges. The structure was available only as a “Built-up,” as Walthers calls its preassembled structures, so I had to deconstruct my model before I could start kitbashing. The need to extensively modify the walls led me to give resin casting a try.

The first rule of entertaining is never try a new recipe. I think there should be a similar rule for building contest models—never try a new technique. I'm glad that I gave resin casting a try, but I did spend considerable time traversing the learning curve.

I also spent much time experimenting with wall-sized decals (see “Making brick and stone decals” on page 45), using John Nehrich's technique as described in the December 2001 *Model Railroader*.

The way this project unfolded reminded me of Bugs Bunny's toothpick factory, where an entire tree is placed on a lathe and milled down to a single toothpick—by the time I was done, very little remained of the original Dayton Machine Co.! Even if you don't plan to build this exact model, the techniques I used can be helpful in designing and creating other structures as well.

Freight doors



4

Starting with two pieces of edge-glued Evergreen styrene car siding, Charlie added a frame cut from .010" styrene and a styrene casing.

I started by making scale drawings of the building I had in mind. I based the drawings on the dimensions of the original HO Dayton Machine Co. and the Grandt Line window castings I planned to use. With plans in place, I was ready to tear into this project by tearing down a building!

Tearing down a built-up model

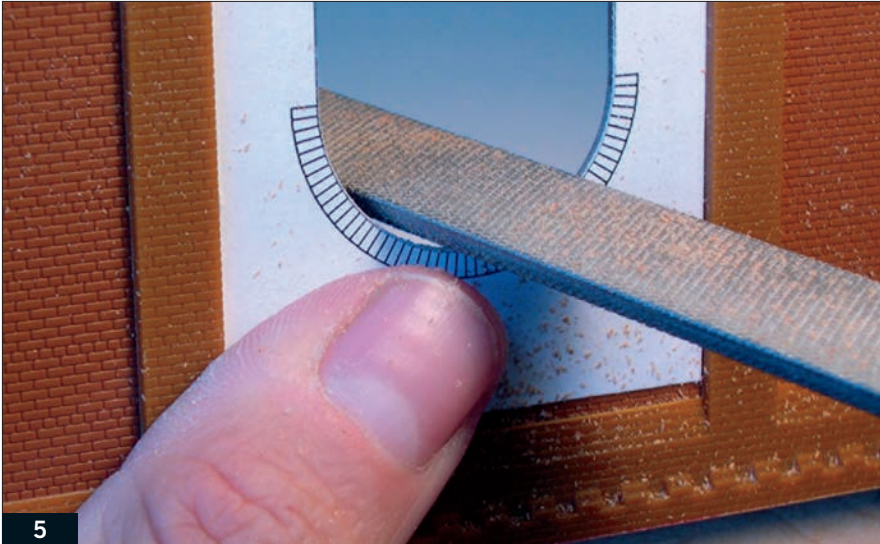
To disassemble the structure, I started by removing the screws that retain the floor. With a chisel-end blade, I then pried the roofs and clerestory window frames away from the walls by inserting the blade into the joints and twisting gently. The corners of the walls are reinforced by interlocking tabs. I sliced through the tab on each side with a no. 11 blade and carefully separated the joint. I was careful to cut away from my fingers and I wore safety glasses.

I then removed the doors and windows with the chisel-point blade. Repeated, sparing applications of Testor's liquid plastic cement helped soften stubborn joints, but I took care not to overdo it, and I used the solvent in a well-ventilated area.

I needed to modify one end and one side wall to make patterns for casting new walls in resin. I began by cutting the L-shaped mounting lugs from the side wall with a saw, then I filed off the wall caps, taking care not to cut into the bricks below.

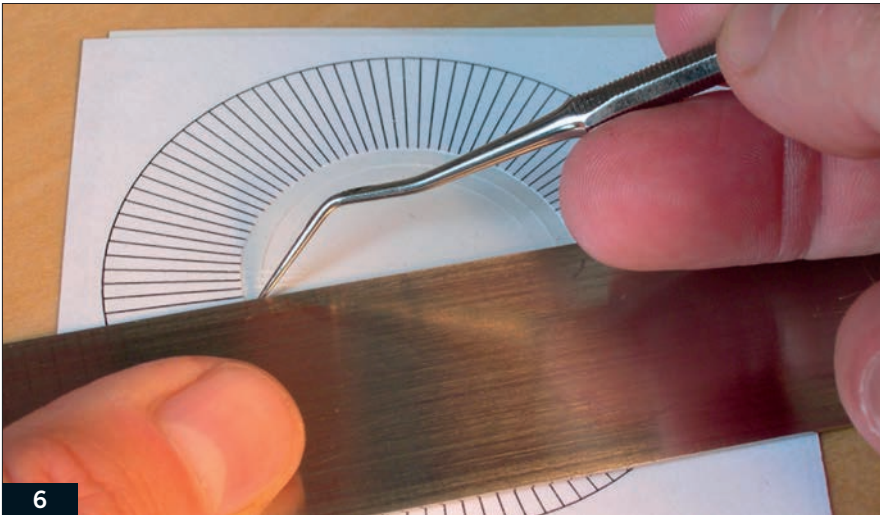
Except for the area around the arched window, I removed all the panels between the pilasters by scoring around the edges with a hobby knife, then making Y-shaped cuts and snapping out the waste, 2.

I used files and a chisel blade to level the backs of the walls flush with



5

The scale paper templates for door openings are temporarily glued in place and the openings filed and sanded to size.



6

Using a second copy of his template, I scribed bricks in .010" styrene, then cut out the brick arch detail and glued it over the doorway.



7

Starting with the Walthers cornice and pilasters, I added wall inserts made from styrene brick sheet, Grandt Line windows, and custom-built doors to complete a master pattern.

the inside face of the pilasters (I left intact the brick detail at the top of the inside wall face). Finally, I cleaned up the edges of the pilasters and the bottom edge of the stepped brick courses with a file.

Preparing the windows and doors

Grandt Line no. 5059 windows and 5197 doors are intended for wood-frame walls, so I needed to shave the casings. Placing the castings face-down, I trimmed their outer edge flush with the frame and smoothed it with a file. Then I glued a .060" x .080" styrene strip to the top of each frame and filed it to match the curve of the arched opening, 3.

To slim down the mullions of the Walthers arched windows, I filed the back of the castings until the upper half was .030" thick and the lower half was .050" thick. The mullions have a casting draw (taper), so reducing their depth also reduces their width. I removed the burr with a hobby knife, then trimmed the edge of the casting.

The freight doors on my model may look elaborate, but they were easy to make, 4. I cut two doors out of Evergreen no. 2037 car siding, edge-glued them together, and set them aside. I glued a copy of my door template to a piece of .010" styrene with low-tack spray adhesive and used a sharp knife to trim away the shaded areas. A no. 16 stencil-cutting blade is ideal for this job, but a no. 11 blade will also work.

I then peeled off the paper template and lightly scribed lines representing joints between frame members. I scribed a somewhat deeper line between the two doors. To complete the loading doors, I glued the frame to the face of the door and added a thin styrene strip around the perimeter for the casing. I needed two sets of freight doors to place in the wall pattern described in the next step.

Making patterns for resin castings

To make a mold master pattern for my side wall, I cut Walthers no. 933-3522 brick sheet and glued it behind the pilasters of the original Dayton Machine Co. wall, taking care to align the brick courses. I applied a paper

copy of my arch template to the pattern using a low-tack adhesive, then cut, filed, and sanded down to the template's lines, 5. After I peeled away the template, I removed the adhesive residue from the styrene with Goo Gone.

As shown in 6, I glued a second copy of my arch template to a piece of .010" styrene, cut away the middle of the template, and scribed the mortar joints. Next, I trimmed out the arch with a knife, cut sections to match the openings, and cemented them in place. I cut the lintels from .030" x .080" strip and beveled their top edges before installing them.

I cemented the wall to a sheet of .040" styrene, trimmed the edges and filled the gaps with Testor's contour putty. Working carefully, I cut openings for the windows, filing the tops square to match the window frames. After installing the window castings and freight doors, I completed my side-wall pattern by using a brush to apply a coat of acrylic paint on the joints. The paint keeps the room-temperature vulcanizing (RTV) mold compound from wicking into the joints. The finished side wall is shown in 7.

I planned to modify both end walls and incorporate them directly into the model. Unfortunately, my bench vise came adrift and went to the floor with one of the walls in its jaws. The wall, like Humpty-Dumpty, couldn't be put back together, so I used the remaining end wall as a resin-casting pattern.

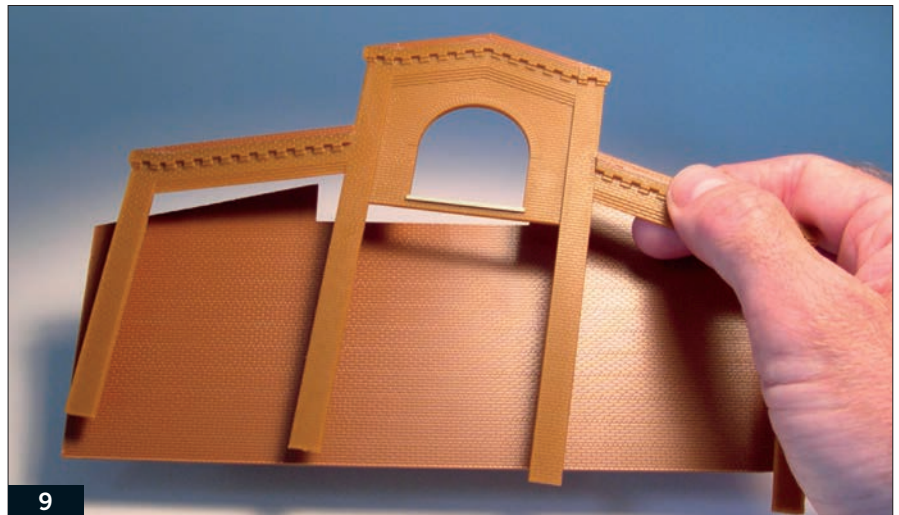
I replaced the corners of the upper cornice with the mitered version from the unused Walthers side wall, 8. I glued two courses of brick to the top of the cornice, taking care to keep the mortar joint at the splice the correct width. I cemented the modified end wall to the brick panel and the resulting assembly to a .040"-thick styrene sheet. I cut the opening for the window and filled the edges all around with putty. I made my pattern without door and window openings. It's a simple matter to cut them later, 9.

Building a solid foundation

To make the stone foundation for my freight house, I fabricated a simple mold box, 10, and cast a carving blank

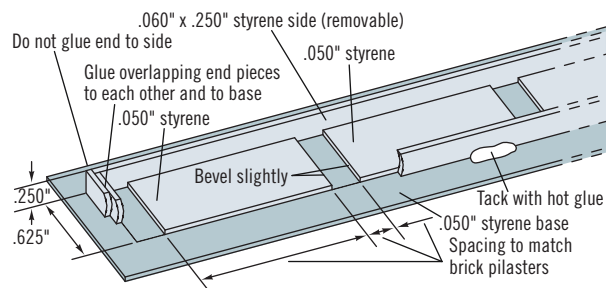


The corners of the upper cornice are replaced using pieces trimmed from the factory's unused side wall. I also added two courses of brick on top of the wall.



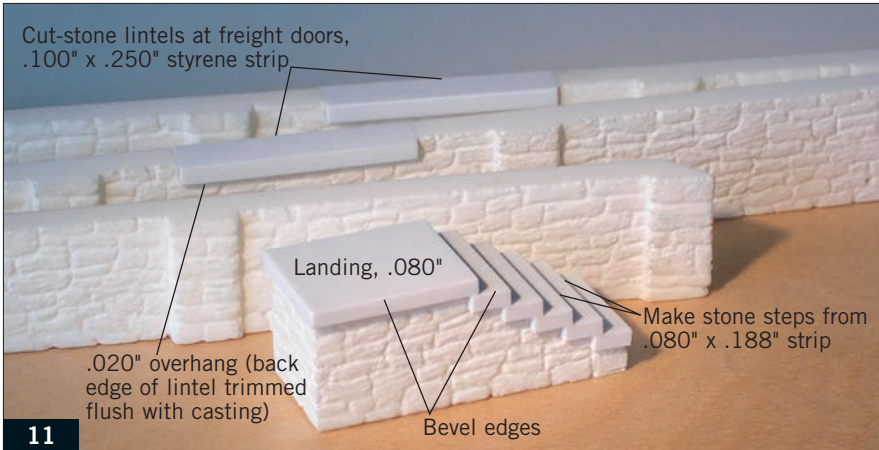
To complete his end-wall mold master, I cemented a new panel behind the pilasters cut from brick styrene sheet. The entire assembly is glued to a backing of .040" styrene.

Foundation casting master

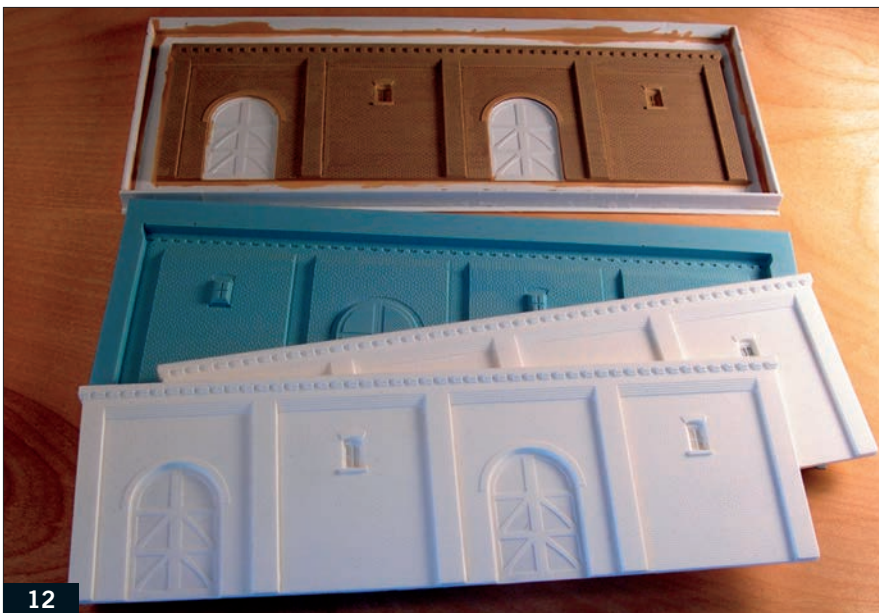


10

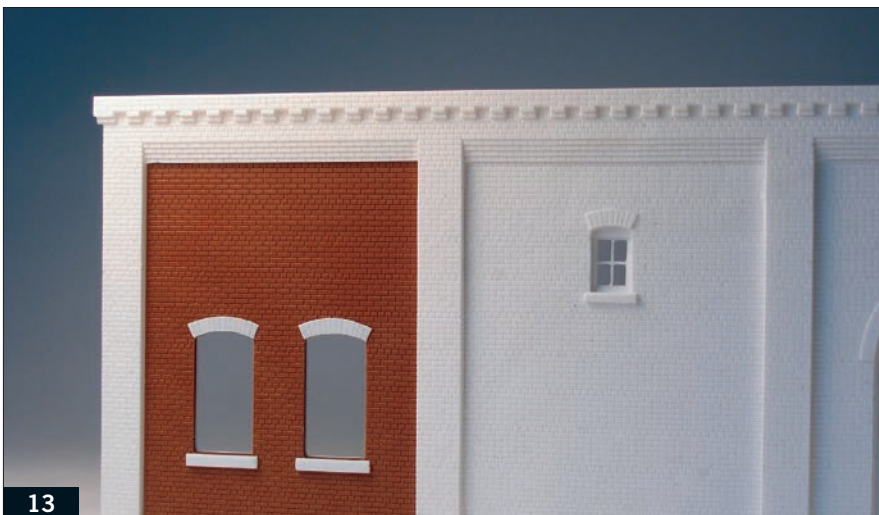
I made the pattern for my foundation casting by building a mold box, casting a Hydrocal blank, and carving it to match his decals.



11 After I marked out and carved the stones and filed spaces for styrene lintels, the foundation castings are ready for paint and decals.



12 I placed the wall patterns in a shallow box (at top), made molds from room-temperature vulcanizing rubber (middle), and cast several copies in resin (bottom).



13 The office windows were added by cutting out one cast-resin wall section and inserting a new inside panel made from brick styrene sheet.

in Hydrocal plaster. I then carved the plaster blank to represent stones and used it as a master to make an RTV mold, from which I eventually produced six resin copies.

I wanted the carved stone to match my stone decals (see “Making brick and stone decals” on page 45) so I printed the decals on ordinary paper, placed these copies over the carving blank (while it was still soft), and traced each stone’s outline with a sharp pencil.

Using a pointed scribe, I deepened the grooves and sculpted the faces of each stone with a flat-tip tool. When the plaster had hardened to the point that it became difficult to carve, I remoistened it slightly. Finally, I lightly scrubbed the faces of the stones with a stiff-bristle brush to smooth away the rough edges.

After making the resin copies, I marked the locations of the freight doors and filed notches for the styrene lintels. I also made a pair of stone steps using off-cuts from the foundation end walls, **11**.

Preparing for assembly

Some kitbashing projects allow parts to be rearranged with little modification, but changing the Dayton Machine Co. into a freight station required a lot of revision to the wall castings. I decided to prepare patterns by modifying the walls of the Walthers structure, then use the patterns to make RTV (room-temperature vulcanizing) rubber molds, and cast new walls in resin.

I’ve long used Hydrocal castings, but resin was new to me. I found resin to be a clean, quick, and relatively trouble-free material that reproduces delicate detail and thin cross-sections beautifully. For this project, I used RTV molding rubber and casting resin from Micro-Mark (www.micromark.com), **12**.

After sealing my wall patterns with paint and preparing RTV molds, I made four resin copies of the side walls and two copies of the ends. When the resin had cured, I prepared the mating edges with a disc sander and files.

I cut the door and window openings in the end castings and attached styrene brick arches and lintels with CA (cyanoacrylate adhesive).

To add the office windows to the side wall, I cut out the brick panel between the pilasters and replaced it with a new panel made from Walther's brick sheet, 13. There's no need to paint all the castings, but modified areas should be painted to match the untouched areas. Dramatic color variations will show through the semi-opaque decal paper. The wall placement is shown in 14.

I then prepared the window and door openings in the end wall castings. After making a dam from modeling clay to wall off the top left corner of the wall mold, I cast two pairs of brick returns (the narrow brick wall section between the clerestory and the end walls) and installed them at the corners of the upper roofs, 15.

To replicate the Pennsy trim color as I recall it (a dull, dusty-looking brown with a maroon undertone), I painted the woodwork Polly Scale boxcar red followed by a number of thin washes of brown violet. I applied this combination to all the exterior woodwork.

I painted the cut-stone lintels and steps a mix of Delta Ceramcoat white, sandstone, and rain gray stippled on in slightly different shades with a bristle brush.

Raising the roof

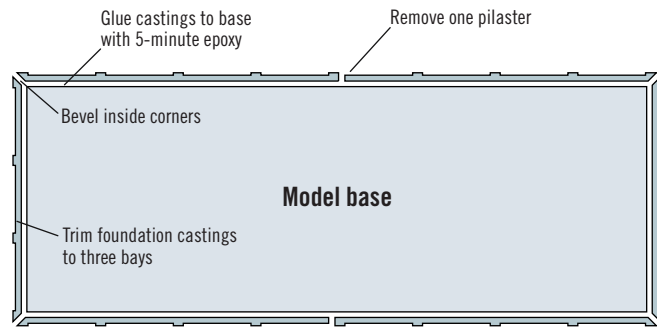
The clerestories supplied with the kit looked a little heavy to me. Rather than trying to modify them, I built new ones. I cut down Grandt Line no. 5278 double-hung windows and built up new clerestory assemblies from styrene strip, 16. The work is straightforward, although careful fitting is required. I found it helpful to make a jig for filing the mullions to length.

After test-fitting the clerestories, I discovered the inside of the frame is quite visible through the opposite windows, so I applied strips to the interior face of the clerestory assembly as well.

The roof cross-section is in 17. To make the roof, I cut sections of Evergreen metal roofing, allowing for the little return where the top of the lower roof overhangs the end wall.

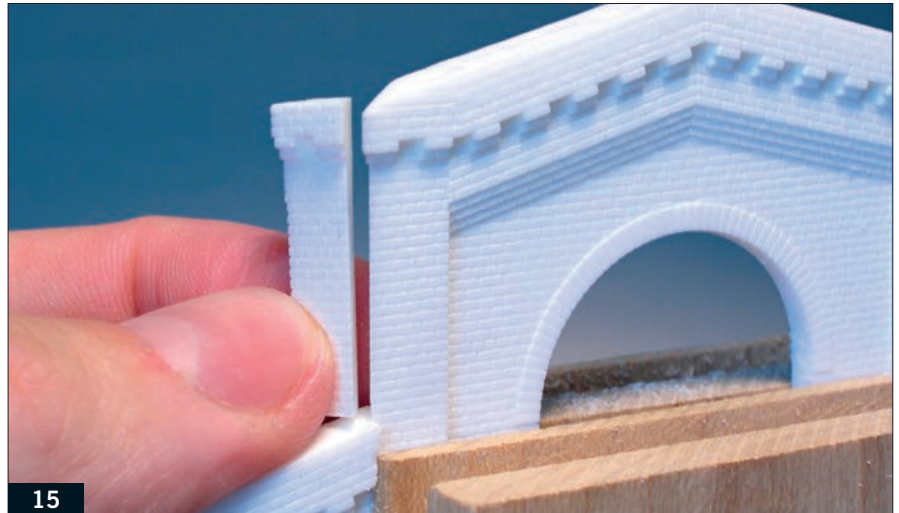
I edge-glued the roof pieces together, then laid out pieces of the V-groove siding so the joints were staggered. I

Walls and base



14

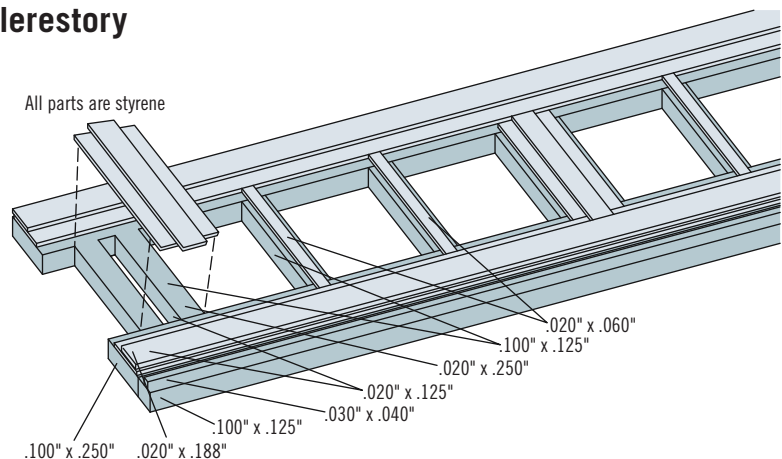
Trim the cast-resin walls as shown before gluing the walls to the foundation base with five-minute epoxy. Note that one pilaster has to be removed from the side-wall castings.



15

To make this brick return, I made a dam in the corner of the mold from modeling clay and cast the four returns needed.

Clerestory



16

Charlie made a new clerestory using cut-down Grandt Line double-hung windows framed by built-up strips of styrene.

Materials list

Champ

Decal-Set

Delta Ceramcoat paint

02025 burnt umber
02402 sandstone
02436 charcoal
02505 white
02506 black
02543 rain gray

Evergreen Scale Models styrene

123 .020" x .060" strip
126 .020" x .125" strip
128 .020" x .188" strip
129 .020" x .250" strip
132 .030" x .040" strip
136 .030" x .080" strip
143 .040" x .060" strip
154 .060" x .080" strip
155 .060" x .100" strip
159 .060" x .250" strip
168 .080" x .188" strip
175 .100" x .100" strip
176 .100" x .125" strip
179 .100" x .250" strip
241 .060" half-round
254 ¼"-square tubing
2037 car siding

2050 .020" V-groove siding
4522 metal roofing
9010 .010" sheet
9030 .030" sheet
9040 .040" sheet
9050 .050" sheet
9080 .080" sheet

Faller

170492 plastic cement

Grandt Line

62 ⅞"-square nut-bolt-washer
5059 outfit car window
5197 RGS-style depot doors
5276 38" x 68" window
5278 48" x 86½" window
5291 34" x 6'-10" transom door

Micro-Mark

80352 mixing set
81544 CR-300 casting resin
82083 rapid mold rubber

Model Master Acryl paint

4673 wood

Polly Scale paint

414281 boxcar red

414320 aged concrete
414354 special oxide red
505070 brown violet

Testor Corp.

1260 Dullcote spray
3502 plastic cement
8879 contour putty
9200 Decal Bonder spray
9202 decal paper

Wm. K. Walther's, Inc.

933-2606 Dayton Machine Co.
933-3522 brick sheet

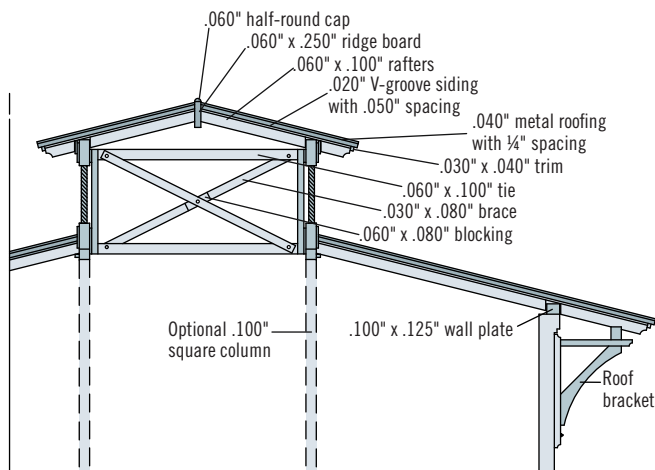
Woodland Scenics

C1201 lightweight Hydrocal

Miscellaneous

.020" brass wire
earth-tone pastels set
five-minute epoxy
India ink
low-temp hot glue
modeling clay
rosin-core solder
rubber cement
70 percent alcohol

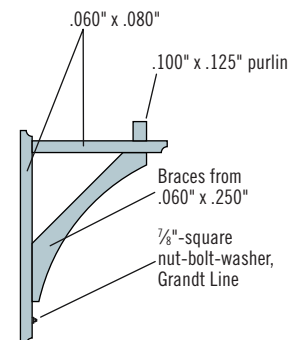
Roof cross-section



17

This view shows the array of styrene strips and sheets used to make the a new roof for the freight house. Also note the interior cross-bracing.

Roof bracket



19

The graceful curve was made by tacking the braces together and sanding them over a can covered with fine sandpaper.

laminated the siding to the roof sheet with plastic cement and applied a .030" x .040" strip along the edge.

Rather than make the rafters continuous through notches in the wall plates (per prototype practice) I made them in two pieces that butt up against the continuous plates. The finished appearance is the same.

I assembled the roof monitor, tying the clerestories together with cross bracing, then clamped the pieces and test-fit the monitor on the building before I permanently glued the parts together.

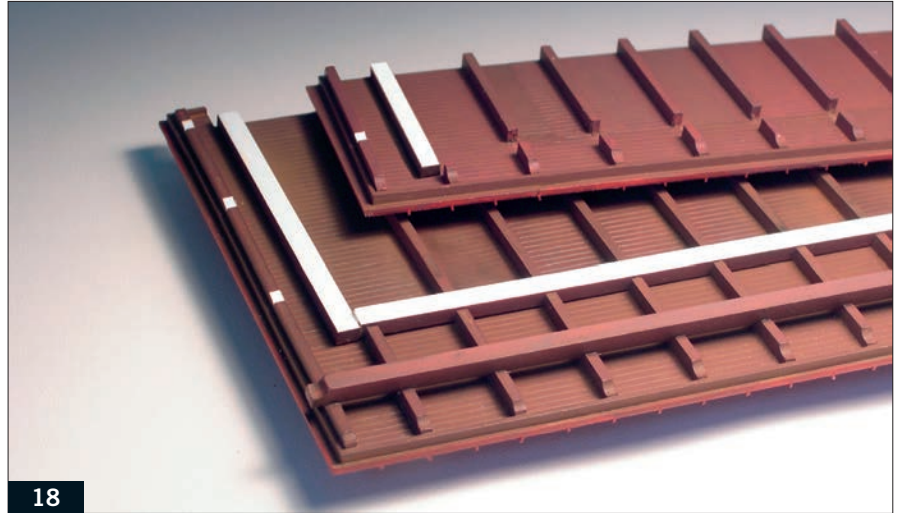
I made purlins (the horizontal beam along the length of the roof supporting the rafter ends) from .100" x .125" strip, 18. I shaped the ends with the round file, cut the pieces 5/8" long, and painted them. After placing the cornice decals, I notched the wall castings with a .100"-square file, glued the purlins in place with epoxy, and trimmed them flush with the back of the wall casting. Finally, I filed the purlins even with the top of the wall casting and installed a .060" x .080" ledger.

A series of elaborate roof brackets is an eye-catching feature, and they were not difficult to make, 19. I shaped the curved braces by cutting 18 pieces of .060" x .250" styrene strip 2" long and temporarily tacking the ends together. Then I glued a piece of 320-grit sandpaper to a 2"-diameter can and sanded the shape of the curve into the strips. After shaping the ends with a file, I separated the pieces.

To make the straight pieces of the bracket, I filed a notch in a .060" x .080" styrene strip with a .120"-diameter round file, cut the piece at the bottom of the notch, filed the end flat, and cut the strip to length. Adding Grandt Line nut-bolt-washer castings and gluing everything together over a template completed the job.

Putting it all together

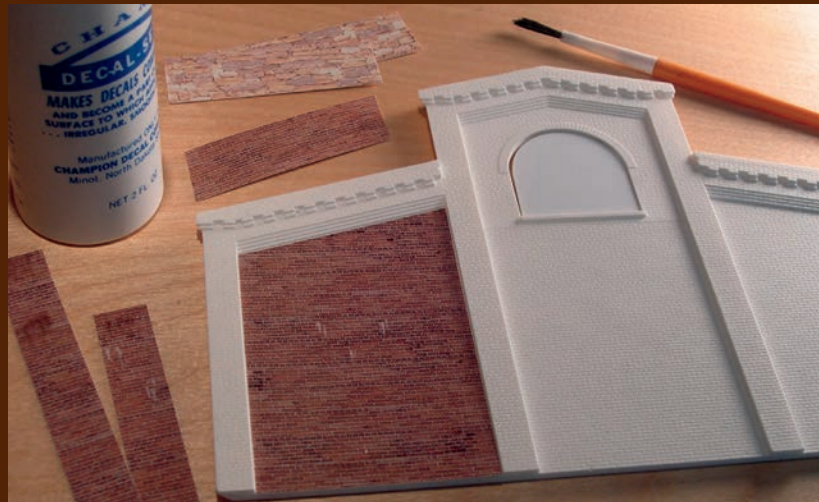
My resin castings were not uniform—each wall required some fiddling. When I was happy with the fit, I glued my foundation castings to the model base and to each other using five-minute epoxy; then I glued the walls in place, taking care to maintain alignment with the foundation.



18

The underside of the roof is highly detailed, including rafter and purlin details.

Making brick and stone decals



I developed my decals by scanning brick wall castings and importing the image into a photo-editing program along with a photo of the PRR freight station at Gap, Pa. After resizing and stretching the prototype photo to match the scale of my wall scans, I used the software's cloning command to build up an image of prototype bricks that were perfectly aligned with the bricks of my model wall. I also cloned stone foundation images.

I made styrene inserts for the wall openings to support the decal film until it adhered. For more information on creating custom decals, refer to articles by John Nehrich in the December 2001 *Model Railroader* or John Socha-Leialoha in the June 2003 issue.—C.C.

I modified the chimney by adding a flue made from 1/4"-square styrene tubing and built up a sloping mortar cap around the flue with Testor's Contour Putty. I painted the flue and cap with Polly Scale aged concrete. After applying the brick decals, I weathered the

chimney with powdered charcoal and sealed it with Dullcote.

I used .020" wire for the handrails, pinned the wire to a wooden block, and soldered it together. I painted the handrail a weathered black and dusted it with rust-colored pastel.



CHAPTER ELEVEN

Build a wood structure kit

By David Popp

Photos by the author

When David Popp needed an office for his N scale lumberyard, he turned to a laser-cut wood kit.

Modern laser-cut wood structure kits are some of the best-kept secrets in model railroading. Because wood kits have been a part of the hobby since the beginning, many modelers today overlook these newer wood kits as being outdated, lacking detail, or requiring a high level of skill.

Actually, most of the laser-cut kits on the market are highly detailed structures and require no more skills to assemble than most injection-molded styrene kits. Follow along as I build this office for my N scale lumberyard, 1, from a widely available kit.

What's in the box?

In the past year, I've built a number of N scale wood structure kits for my Naugatuck Valley New Haven layout from various companies, including American Model Builders, Bar Mills, Blair Line, and Northeastern Scale Models. Though all these kits use similar assembly methods, for this project I chose to work with the no. 622 Dill's Market kit from American Model Builders (it's also available in HO, no. 122, S, no. 75, and O, no. 475, scales).

The kit contains an assortment of laser-cut wood sheets that include the walls, roof, and self-adhesive details such as windows, doors, and trim, 2. The kit also comes with a detailed instruction sheet, window glazing, and a cast-metal chimney.

Before doing anything else, look over the instructions so you can easily identify the parts. Unlike a plastic kit, wood kits don't have sprue numbers for the individual pieces, so it's important to know what you have before you start cutting out parts.

Cutting and bracing

Although the instructions suggest painting the parts before cutting them out, I prefer assembling and bracing the structure walls and roof first to minimize warping. The laser cuts on the kit pieces are nearly complete, leaving only small tabs holding the parts in place on the sheet. To free the parts, cut the tabs using a hobby knife with a fresh, sharp blade. I cut the pieces on a self-healing mat. This helps prevent the pieces from breaking by supporting the material, and it doesn't dull knife blades. After cutting out the parts, I test fit them. I use an emery board or a small piece of fine sandpaper to smooth any remaining tabs.

You can use a variety of adhesives to assemble laser-cut models, but beware of those with a high water content,



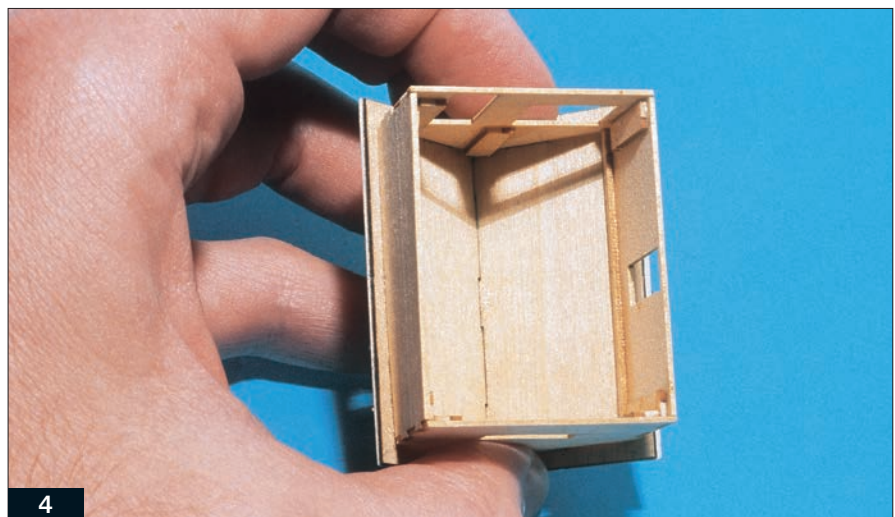
2

Check out the contents of the box. Wood parts are laser-cut but remain attached to the main sheet with small frets.



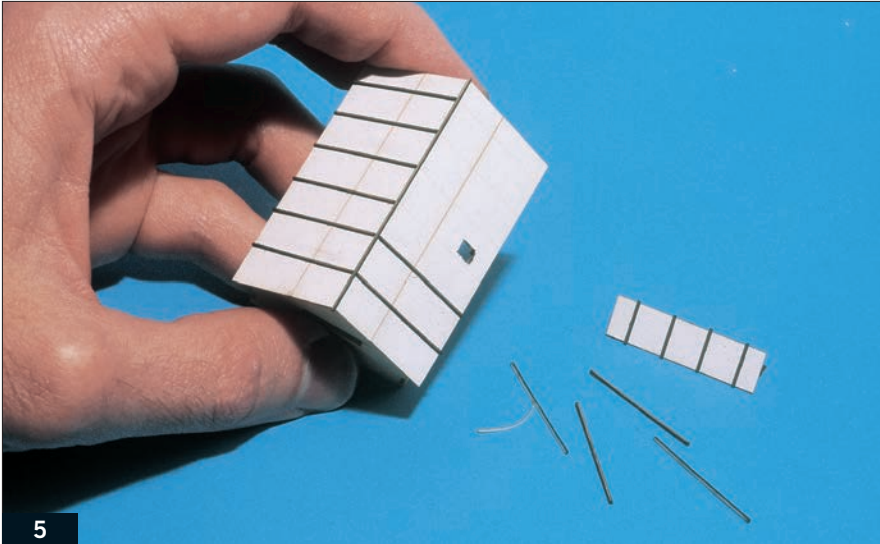
3

I prefer cyanoacrylate adhesive (CA) for assembling wood kits. Be sure interior corners and walls are adequately braced.

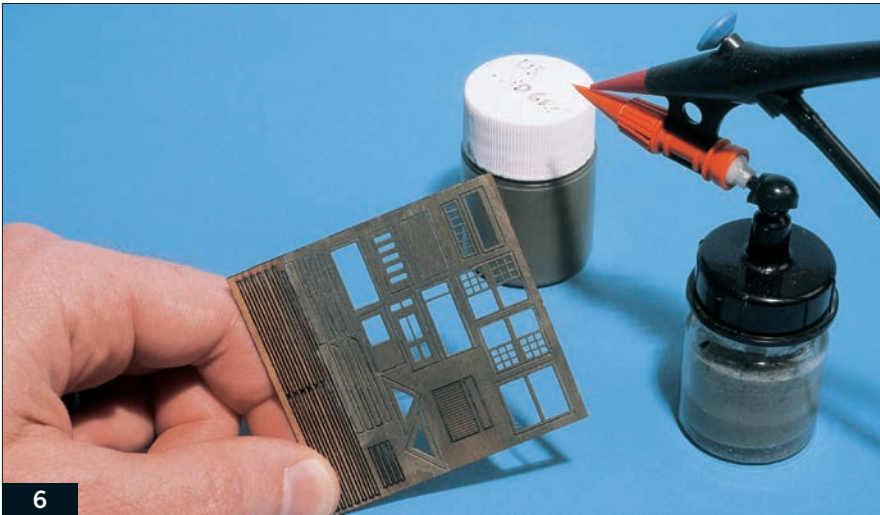


4

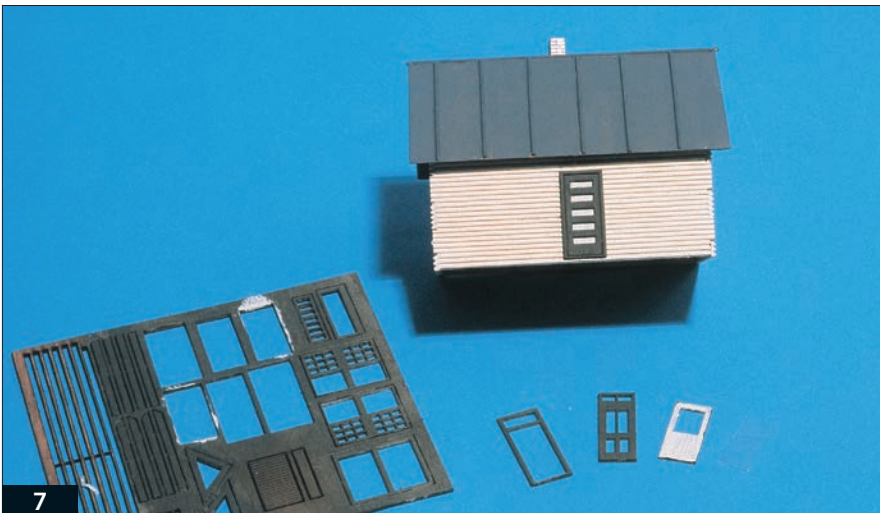
Glue the subroof in place, and add bracing where the subroof panels meet the walls.



5 This kit includes thin, self-adhesive strips that represent the battens boards that secure the tarpaper roof.



6 It's easy to paint windows and trim before separating them from their sheets. David used an airbrush; you can use a brush if you're careful.



7 Most laser-cut kits have details with self-adhesive backing. This makes installation simple and allows painting trim in multiple colors without masking.

such as white glue. They will cause parts to warp. I prefer gap-filling cyanoacrylate adhesive (CA) as it cements parts together quickly and securely without warping the wood, 3.

It's a good idea to brace the wall sections when building a wood kit. Because the wood has been milled with siding patterns, the wall pieces are rigid running with the grain, but somewhat flexible across the grain. If you don't add bracing across the grain, the parts will warp or sag when you paint them. I made simple braces from the remaining scraps of the kit's wood. I also added interior corner braces to keep the building square.

The roof for the Dill's Market kit starts with a wood subroof. Because this kit has no base and is accessible from the bottom, I attached the subroof to stabilize the walls. I also added bracing to form a solid joint where the subroof meets the walls, 4.

Once the subroof was in place, I applied the peel-and-stick paper layer and the thin, self-adhesive wood battens, 5. This represents a tarpaper roof; however, for a different look you could substitute other materials such as paper or styrene shingles or corrugated-metal roofing.

At this point I also assembled the front awning. However, I didn't attach it yet—waiting until later will make painting easier.

Painting

I finished this structure with Polly Scale water-based paints. I started by brush-painting the walls with two light coats of depot buff (no. 414278). Avoid applying a heavy first coat to the bare wood as it will cause the wood to warp. Instead, apply several light coats with plenty of drying time in between to keep the parts straight and true. A coat of paint on the interior as well will help seal the wood from moisture. I also brush-painted the roof UP Harbor Mist Gray (no. 414176).

The doors, windows, and trim are easiest to paint while still attached to their wood sheet. All these parts have a self-adhesive backing, so you need to paint only one side. (Be careful if you use a solvent-based paint like Floquil—

applying too much paint will dissolve the adhesive.) To avoid plugging the delicate details of the windows, I used an airbrush, 6. I sprayed the parts Polly Scale U. S. Tactical Medium Green (no. 505390 in the military line), making a good contrast to the wall paint.

Doors, windows, and assembly

Doors, windows, and other details are fairly easy to add after painting as long as there is still an opening in either the bottom or the top of the structure. In fact, most laser-cut wood kits have you build doors, windows, and trim details using multiple layers of self-adhesive parts, making it easier to create fancy painting effects.

I used this assembly technique to advantage with the front and side doors. I decided I wanted the doors to have a two-tone paint scheme, so I left the frame and raised door detail layer the same color green as the windows but painted the door slabs depot buff. When I assembled the pieces, I had neatly finished doors, 7. The doors and windows fit easily in openings in the wall and are held in place by the self-adhesive trim.

Completing the model includes installing the trim boards and chimney, 8. The trim boards are self-adhesive and simply stick in place. After completing the trim, I cemented the awning to the front of the building with CA.

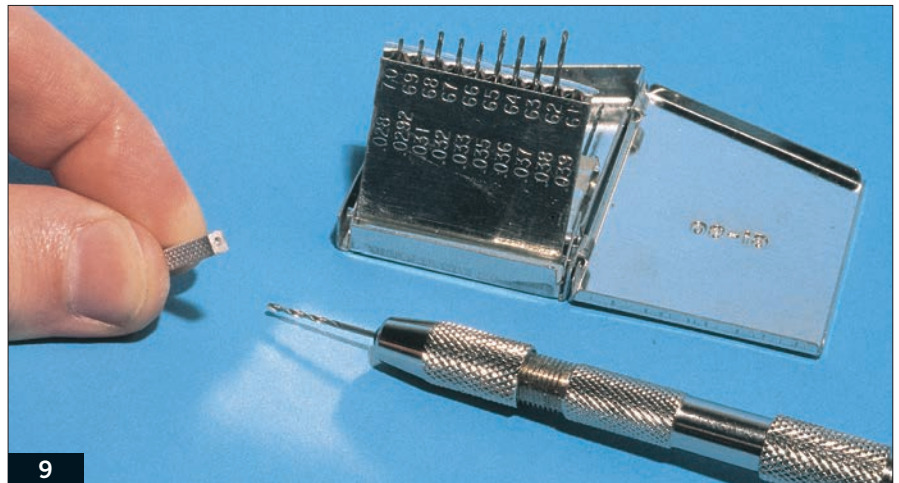
The chimney is a solid metal casting. To improve its appearance, I drilled a hole through the chimney cap using a no. 61 bit in a pin vise, 9. The chimney slips through a hole in the roof, and since it is much longer than need be, I secured it by cementing the bottom to the inside wall with CA. I painted the chimney Polly Scale boxcar red (No. 414281) and the cap depot buff.

The final step is adding weathering before moving the building to the layout. I weathered it by airbrushing a light dusting of L&N Gray (414380) around the base and on the edges of the roof to simulate dust left on those surfaces by rain. I also airbrushed engine black (414290) around the top and base of the chimney to represent soot deposits.



8

Applying the corner trim boards and chimney completes the structure.



9

An optional step to improve the chimney's appearance is drilling a hole through its cap.

Modeling tips

- Use a fresh, sharp blade in your hobby knife when cutting pieces out of their sheets. Single-edge razor blades also work well.
- Working on a self-healing cutting mat makes knife blades last longer and helps prevent part from breaking.
- Gap-filling super glue (cyanoacrylate adhesive, CA) is a good choice for assembling wood structure kits.
- Bracing wide wall sections across the grain of the wood siding will help prevent warping.
- Painting parts in several light coats (and painting both sides of large parts, such as the walls) prevents warping.
- Fancy paintwork on trim and door panels is easy to accomplish by prepainting the parts before assembly.



1

CHAPTER TWELVE

Weathering wood structures

By Cody Grivno

Photos by Jim Forbes
and Bill Zuback

Weathering goes a long way toward making wood structures look realistic. Cody Grivno weathered a pair of simple HO buildings using two different techniques.

No matter if it's a freight car, locomotive, or structure, weathering greatly enhances the realism of any model. However, certain media lend themselves better to weathering than others do, and wood is one of them, **1**.

Wood kits have been around since the early days of the hobby. For many years the market was dominated by craftsman kits, which required the modeler to cut most of the components himself. However, in the past two decades, laser-cut wood kits, with factory-cut walls, doors, and windows, have become the standard. These kits also feature components, such as windows and roofing material, with self-adhesive backing material that speeds up assembly.



2

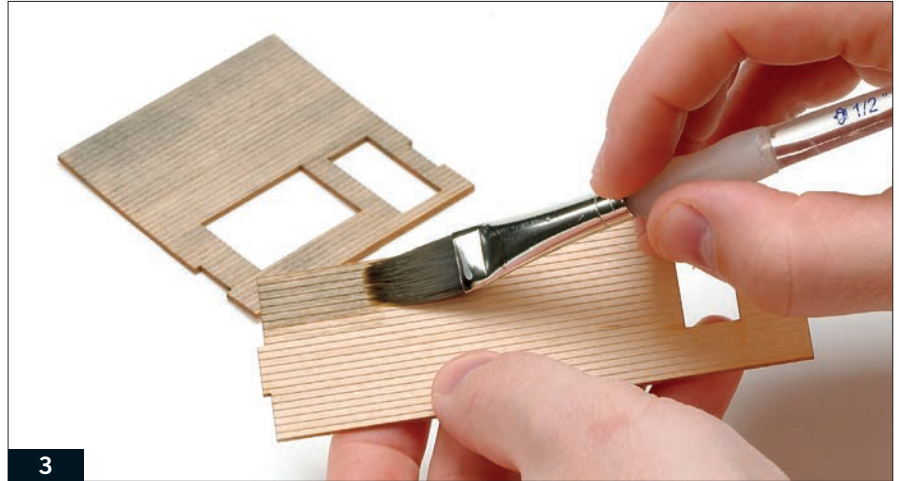
Many commercial weathering stains are available, including A-West Weather-It, Timberline Weather-Rite, and Micro-Mark Age-It Easy.

These weathering techniques can be used regardless of the type of kit you have. The basic idea is to first stain the wood to give it gray appearance, making the wood look like it's been exposed to the elements for many years. You can then apply a final finish and weather the structure to reveal part of the underlying weathered wood. You can take this weathering to any extent that you desire. My examples show a garage from The Three Sheds at Cohasset by King Mill Enterprises and McCormac's Dry Goods from American Model Builders.

Staining and bracing

Aging wood is easy to simulate with stain. Several firms, including A-West, Timberline Scenery Co., and Micro-Mark, offer commercial wood stains, 2. You can also make your own stain using India ink and 70 percent isopropyl alcohol. To do this, mix one pint of the alcohol with one or two teaspoons of India ink and stir the mixture. This can be done in the original alcohol container. One teaspoon of India ink will yield a lighter stain, while two will give the wood a dark gray appearance. Write the mixture's ratio on the outside of the container as a reminder.

I used a ½" brush to apply the stain before assembling the building, 3. If the stain is applied after assembly, any glue that seeped from the joints will prevent the stain from penetrating the



3

Brush the stain on the walls before assembling the kit.



4

To minimize warping, add interior corner bracing as well as vertical wall bracing.

wood. To minimize warping, I stained the wood on both sides. However, I still put paper towels on both sides of the wood, set the parts under a couple of heavy books, and let them dry for 24 hours before assembling the structure.

With any wood kit, it's good practice to brace the walls from inside, 4. The walls on most wood structures have a milled siding pattern that's rigid with the grain but flexible across the grain. If the walls aren't braced, they can warp or sag over time. I used scrap pieces from the carrier sheet to reinforce the walls on the garage. Then I sprayed the interior with Rust-Oleum Gray Automobile Primer.

Rubber cement masks

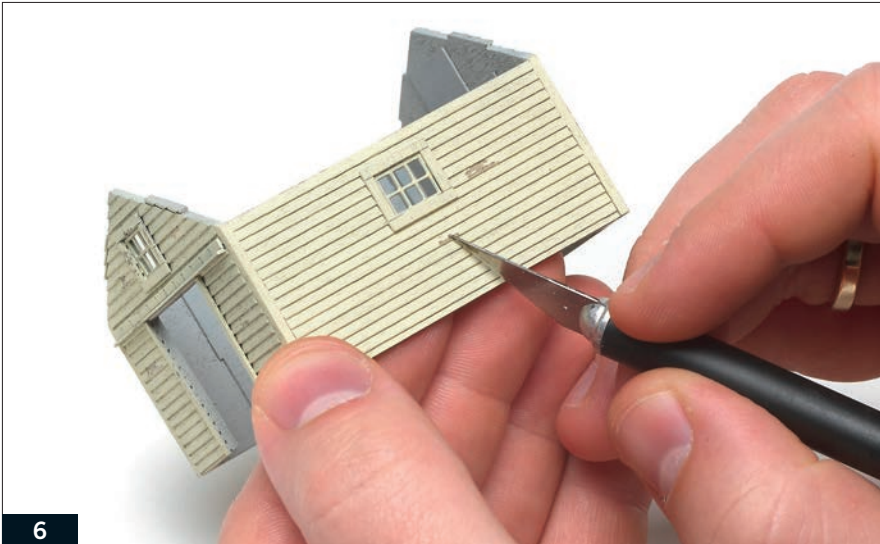
On older wooden structures, paint often peels off the siding, exposing the wood underneath. This is easy to simulate using stain and rubber cement. First, I stained the wood as described earlier. Then, after the stain had dried, I applied a rubber cement mask with a fine (no. 0) paintbrush, 5. For a prototypical finish, apply the rubber cement to individual boards, as shown, instead of trying to cover large areas. I apply most of the cement on the bottom two-thirds of each wall, where it would be most exposed to the elements.

Because rubber cement can be hard to see after the paint is applied, it's a



5

Apply masks of rubber cement with a fine-tip brush.



6

After applying the finish coat of paint, use a hobby knife to scrape away the rubber-cement patches, revealing the weathered wood underneath.



7

Micro-Mark's Distresser weathering brush can take the paint off of a model down to the weathered wood.

good idea to make a sketch of each wall and mark where you brushed on the cement. You can do just a few patches, or create a heavily weathered building with many areas of peeling paint.

Next, I airbrushed the garage with Polly Scale aged white. After the paint had dried, I used a fresh no. 11 blade to remove the rubber cement masks, 6. Do this carefully so you don't damage the wood (unless that's the finish you want).

You can also use a pencil eraser to remove the masks. However, I recommend testing pink erasers on an inconspicuous portion of the building, as some of these erasers will leave a pink residue on the paint. If you do get pink stains on your model, you can remove them by lightly scrubbing the building with a 3M wood finishing pad (found at most home improvement and hardware stores).

Distresser weathering

Not all prototype wood structures age in the same way. Some just have a few patches of paint peeling off, which I simulated on the garage. However, other buildings look downright dilapidated. The latter was the look I wanted on McCormac's Dry Goods.

As with the garage, I first stained the wood walls and let them dry. Then, after assembling the building, I airbrushed it with Polly Scale reffer white. After letting the paint dry for 24 hours, I used Micro-Mark's Distresser weathering brush to abrade the wood walls, 7.

This tool is versatile, as the length of the bristles can be adjusted depending on the degree of weathering you want: longer for a lighter touch, shorter for heavier. I set the bristles short since I wanted the building to be heavily weathered. Then I applied a second coat of my India ink wash. This served two purposes: it darkened the raw wood exposed by the Distresser's bristles, and it made the white paint less vibrant.

The doors, windows, and trim material is a peel-and-stick cardstock material. Because of this, I couldn't use the Distresser to abrade the painted surfaces like I did on the wood.

However, I didn't want these parts left unweathered, so I used an airbrush to dust them with thinned Polly Scale Union Pacific Dark Gray, Louisville & Nashville Gray, and steam power black (all mixed 1 part paint to 9 parts 70 percent isopropyl alcohol). Then I used the Distresser to stipple the doors, windows, and trim. This removed trace amounts of gray and black paint and exposed a bit of the white, helping the doors, windows, and trim blend in with the wood, 8.

Roof weathering

Most laser-cut wood kits have peel-and-stick roofing material. Moisture and enamel paints can affect the adhesive backing material, so I've found it best to weather the roofing with an airbrush or powdered pastels after it's been attached to the building.

On McCormac's Dry Goods, I painted the roofing material Louisville & Nashville Gray. I then used an airbrush to spray thinned Polly Scale Steam Power Black at the base of the smokejack, 9.

I then sprayed the roof with Model Master lusterless flat (Testor's Dull-cote will also work) in preparation for applying the powdered pastels. The dull surface is vital for pastel chalk weathering, providing some tooth for the chalk to cling to.

I used light rust from the Bar Mills Scale Model Works powdered pastels weathering set to add rust streaks at the base of the chimney, 10. Then I used the grimy black pastels to carry the soot streaks, which I first sprayed with an airbrush, to the edge of the roof. You could also use various shades of gray powdered pastels to make the roofing material look worn and faded.

You can even go beyond the techniques covered here. I've seen some wood structures where simulated nail holes have been added with pounce wheels and push pins. Some modelers will also use a hobby knife to peel back or remove individual boards, a technique that looks really neat.

Once you've studied a few prototype wood buildings, you'll see that the possibilities for weathering wood structures are seemingly endless.



8

After dusting the trim pieces with an airbrush, I used the Distresser tool to stipple the components.



9

An airbrush and thinned black paint created extra weathering at the base of the smokejack.



10

Chalk weathering completed the structure, including black, gray, and rust colors.



CHAPTER THIRTEEN

Realistic stone structures from balsa

By Jay Stradal

Photos by Scott Stevens

Jay Stradal grabbed a pencil to model fieldstone, and this mill is a great example of his creative embossing technique.

When I decided to scratchbuild a fieldstone mill for my HO scale circa-1950 Baltimore & Ohio layout, I faced the challenge of modeling realistic stone walls typical of century-old structures. Then I discovered a simple solution—grab a pencil!

There's a quick and easy way to use a pencil's metal eraser holder to emboss stones and mortar lines into a sheet of balsa, a soft, lightweight wood that's easy to cut with a hobby knife and easy to emboss. This "tool" and process can be used to make unique stone foundations, retaining walls, or—as I did—entire buildings, 1.

Walls of balsa and basswood

After making a full-scale drawing of the structure you've decided to build, scribe the wall dimensions onto sheets of 1/16"-thick balsa and basswood using a needle in a pin vise. (Placing basswood behind the balsa will provide reinforcement to strengthen the walls.) When finished, use a metal rule and a sharp no. 11 hobby knife to cut out the pieces of the structure, working with one layer of wood at a time.

I used commercial door and window castings, and at this point it's helpful to use the castings to cut out and test-fit the openings. Make adjustments in the wood with a small file as needed.

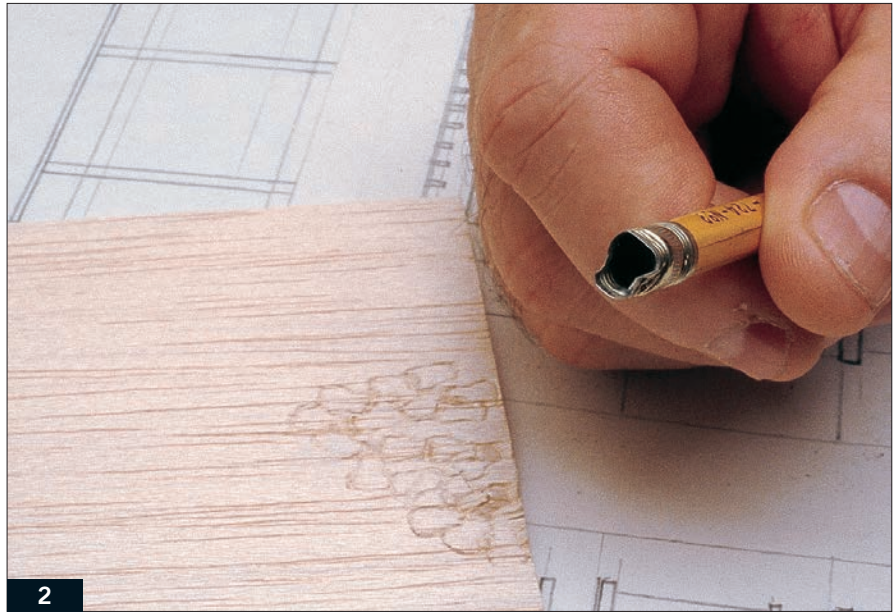
Once that's done, coat the back of the balsa wall and the front of the basswood wall with spray adhesive and press the two layers of wood together.

Penciling in the fieldstone walls

Now for the fun part—embossing the fieldstone surfaces. Remove the eraser from an old pencil and use a needle-nose pliers to gently bend the metal holder into an irregular shape, 2.

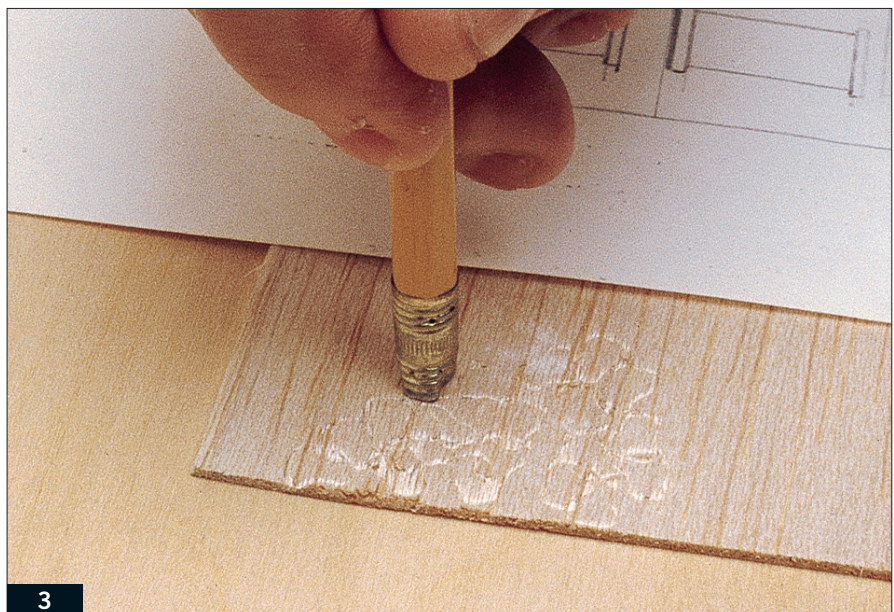
Starting in the lower corner of a wall, hold the pencil perpendicular to the balsa surface and press it into the wood. I found that turning the pencil between my fingers as I worked upward diagonally created a random and realistic appearance. Many times, I also overlapped a previous impression, 3. I occasionally had to straighten the edge of the metal eraser holder when it bent, so keep checking the metal to make sure it keeps the shape you want.

If the shapes appear too linear or uniform, emboss a few smaller shapes in different angles. Be careful not to overdo it, as having too many little stones in a large wall doesn't look right. Balsa varies in density, resulting in mortar lines of different widths and



2

Jay removed the eraser from a pencil and bent the metal holder into a more-natural shape. A standard pencil is just right for H0 or N scale, but a larger one is needed for S and O scales.



3

Push the pencil end squarely into the balsa, working diagonally from bottom to top in a checkerboard pattern. Turn the pencil as you work and overlap some previous impressions to vary the size and shape of the stones.

depths, further adding realism to the structure. Applying pressure with the metal eraser holder can also sometimes form depressions in the wood or cause the surface of some cuts to rise up or even chip off. But don't worry—I found that after adding a coat of paint, these imperfections make the walls look more realistic.

When you're done embossing the stonework, glue the walls together. Use modeling putty to fill any gaps at the

corners. When the putty dries, carve it to match the stonework.

Painting and finishing

My fieldstone has a basic grayish-white hue with streaks of color that reflect the mineral content and produce a realistic weathered effect, 4. You can tweak my painting techniques to produce an effect all your own.

I started with Floquil reefer white as my base coat. Then I held a spray



4

I used many colors, including shades of white, gray, red, brown, and black, to create this weathered look. The model illustrates the natural variations in color that occur in real stones.

can of reefer gray above and nearly perpendicular to the structure, spraying in short bursts. (Do this in a vented spray booth or outdoors.) I turned the structure upside down and repeated the process with Earth, a light brown color. Then I dry-brushed on streaks of reefer white, roof brown, oxide red (to look like rust), and engine black.

You don't have to be an expert modeler to use this technique for making great-looking stone surfaces for buildings, retaining walls, or foundations anywhere on your layout.

Designing the mill

I had a vivid mental image of my mill before I began construction. I pictured a textile mill built in the early 1800s from fieldstone gathered in the nearby Appalachian countryside. The mill would be long and narrow, several stories high, and have many multi-pane, double-sash windows on all sides. The roof would be cedar shingles, with windowed cupolas at both ends.

An example of this type of building is the old Savage Mill, seen in the background of a photograph (Page 423) in the 1979 book *Impossible Challenge: The Baltimore and Ohio Railroad in Maryland* by Herbert H. Harwood, Jr.

Armed with this partial photo and recollections of similar buildings I had seen while living in New England, I had to determine the right proportions for the mill in the layout space I had available. I made walls of various lengths and heights out of cardboard and tape and test-fit them on the layout.

I decided on a three-story building measuring 23 x 75 scale feet, with an overall height of 50 feet including cupolas. With those dimensions, I made an HO scale drawing as a construction blueprint. — J.S.



CHAPTER FOURTEEN

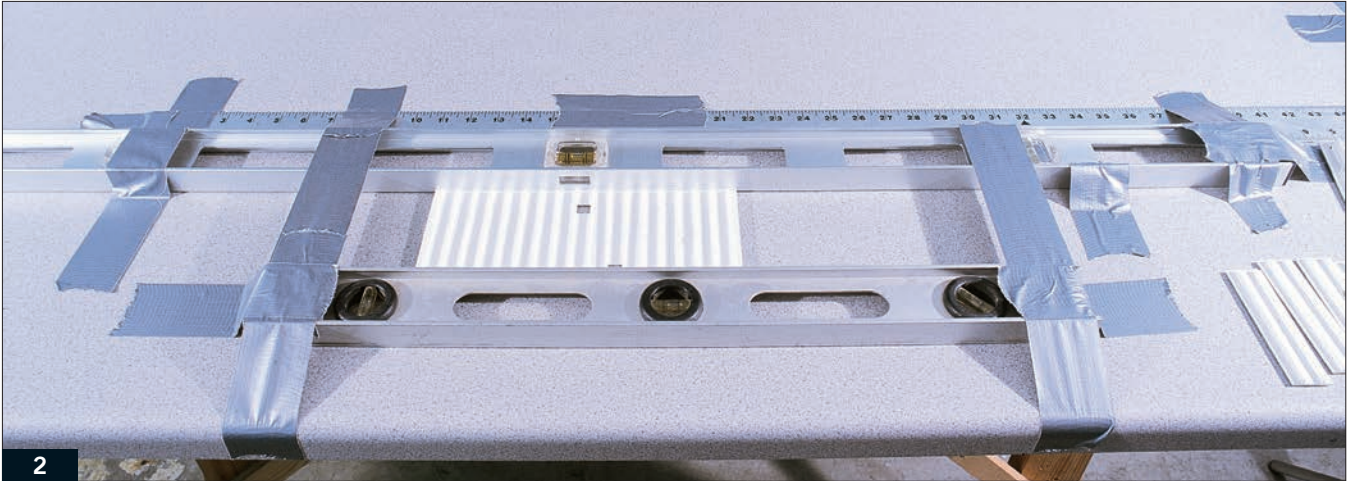
Build a modern prefab concrete warehouse

By Dave Davis

Photos by the author

It's a busy day at the warehouse on Dave Davis' HO scale Davis Junction Ry. The modern structure, built from precast concrete panels, is served by both railcars and trucks.

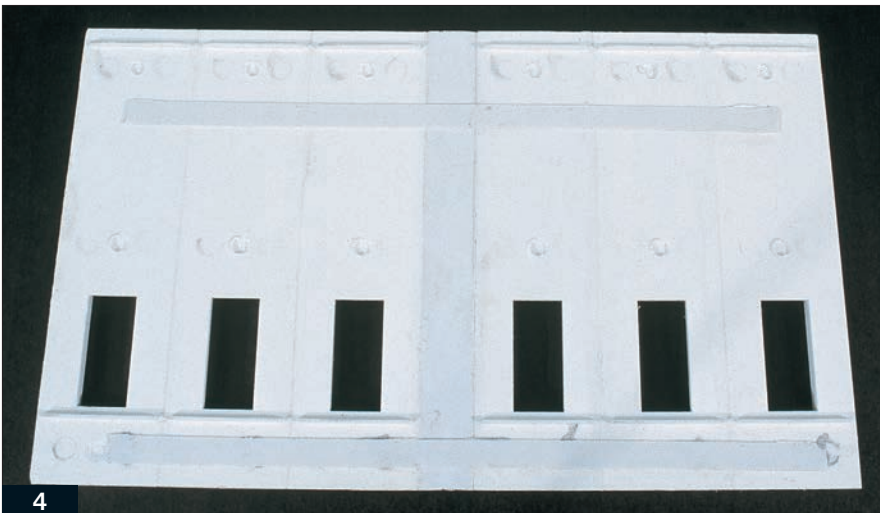
I set my HO scale Davis Junction Ry. in the 1980s because railcar service to warehouses was still fairly common. By that time, trucks had changed how warehouses operated, enabling businesses to build structures away from rail sidings, thus ending warehousing's reliance on railroads to deliver freight. These new opportunities for construction allowed builders to use the latest materials, like modular concrete precast panels. But I acknowledged the railroads' loss of business to trucks by modeling some abandoned sidings. Adding a modular warehouse with precast paneling to your layout, **1**, is a great way to reflect the changing nature of railroading.



2 Several panels are lined up on a makeshift jig that enables keeping the walls straight and square during assembly.



3 You can see windows attached between the ribs in the paneling, and the gray strip in the center is the spacer added between panels. This allowed me to customize the dimensions of the warehouse.



4 On the back of the wall, the center gray vertical strip is the spacer, with gray horizontal reinforcing strips. The spacers and reinforcers are both .010" x .250" Evergreen styrene strip.

Making a model from a prototype

From prototype photos I learned that there are two styles of panels—flat and ribbed. The ribbed type (which I chose to model) is very common. I noticed that precast paneling, when visible from a road, is typically painted and/or accompanied by decorative brick to achieve a more finished look.

What ultimately made this warehouse project possible were Great West Models (GWM) warehouse kits, as well as other packs of plain panels that allowed me to create my own ribbed paneling. The number of packs you need will depend on how large a warehouse you build. You can, of course, make your warehouse any size you choose.

I named my kitbashed warehouse Acme Distributing. The fictional business name came with one of the GWM bulk pack kits. The kits include other business names and structure signs to help you outfit your own warehouse.

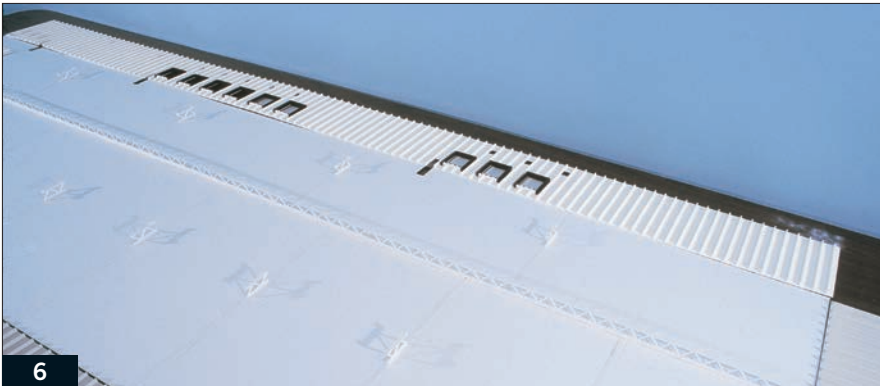
Although I had the kits, I still needed to scratchbuild a lot of the structure. I used Evergreen Scale Models styrene strip and sheet, Plastruct styrene truss and I-beam sections, and various doors and windows. Product quantities depend on the size of your warehouse. Use my project as a series of guidelines, not step-by-step instructions.

Planning the warehouse

I built my modular layout to sit on a two-foot-wide shelf that winds around my 25 x 35-foot basement. I had origi-



5 I thought it would work best to paint and add details to the paneled walls before joining the walls to the floor. Details include windows, freight-unloading doors, and ground-level doors for building access.



6 The warehouse floor is made from several sections of .060" x 7" x 9" Evergreen styrene sheet. It's positioned with the walls around it facing up. The Plastruct 1/4" floor trusses are attached at the seams of the joined styrene sections. The floor will eventually be turned right-side-up, placed on top of the subfloor, and the walls attached.



8 The access doors are at ground level, so I had to add stairways from the door on the ground-level subfloor to the warehouse floor.



7 The walls are temporarily positioned around the warehouse subfloor so the locations of the ground-level doors can be marked.

nally planned to build a large warehouse, but the shelf width didn't allow enough room for what I had in mind. However, the modules in the center of my layout saved me. I decided to dedicate an entire 4 x 8-foot module to the warehouse so I could build a really big HO structure.

To form my warehouse, I dry-fit the panels on a folding table. I stopped at 3 x 6 feet and realized I no longer would have enough space for the parking lot. So I reduced the warehouse dimensions to 16" x 5'-0", which left

room for a parking lot, rail siding, and service road. I then added a 4"-wide shelf along the rail-line side of the module to allow room for trees.

To break up the flatness of the scene, I made the railroad branch line 1" lower than the warehouse. This required the service road and the rail siding to travel up to the warehouse.

I modeled the road to look like asphalt using a latex-base product called ScaleCrete, which can simulate asphalt or concrete depending on how you paint it.

Building the warehouse

I began by lining up the panels on a makeshift jig, **2**. I could see that the length of the paneled walls was going to end up shorter than the length I had planned my warehouse to be. So I added .060" Evergreen strip between the sections of paneling to expand the total length of the walls, **3**. Then, to tie the walls together, I cemented .010" x .250" styrene strips to the insides of the walls horizontally, **4**.

I felt it was best to paint and assemble the warehouse details before

Adding a parking lot

To model the parking lot, I cut the piece I needed from a 4 x 8-foot piece of Plexiglas (on which the warehouse also sits). I roughed up the Plexiglas surface with fine sandpaper so the paint would hold. I then scribed lines to mark the sections.

Then it was time to paint! I applied Floquil gray Primer with an airbrush. After the paint was dry, I used several

fine felt-tipped pens to add the tar marks.

The chain-link fence is a scale seven feet high with posts every 10 scale feet. I used fence posts from Builders In Scale. I needed several kits to complete the 13'-2" perimeter.

With such a long fence to model, I needed a better way to construct the fencing than the kits offered. I used

.040" x .125" Evergreen strip on the entire perimeter base of the parking lot. After marking the locations for the fence posts and drilling the post holes, I drilled holes through the fence-post tops to clear .040" piano wire.

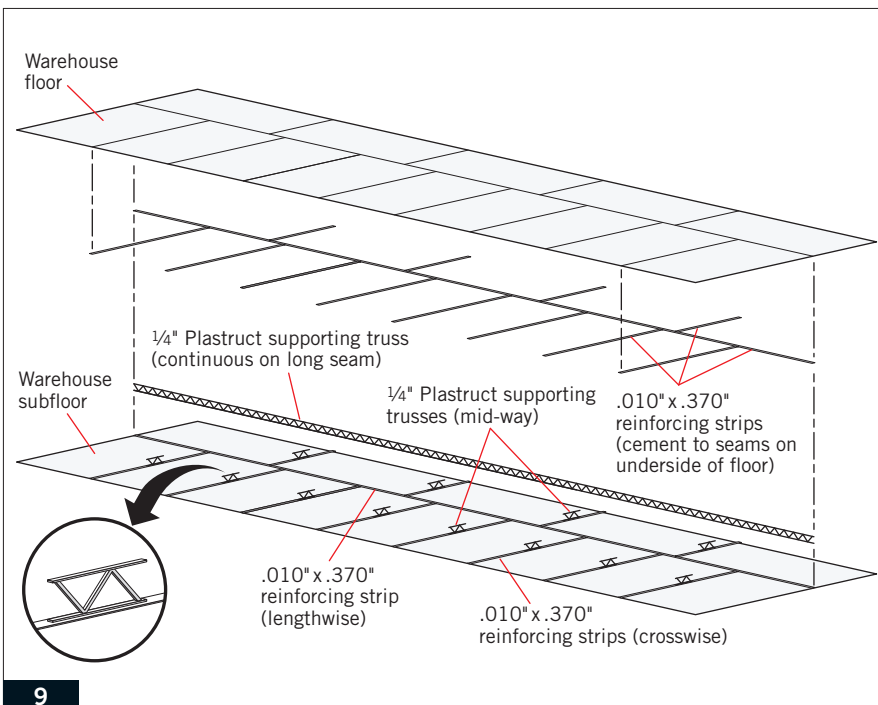
Once the fence assembly dried, I glued it to the perimeter of the parking lot and joined the corners. I used bridal-veil netting for the chain link material.



Several cars are parked on the Plexiglas parking lot outside the warehouse. Dave used the Plexiglas as a base on which to build the warehouse, then modeled the parking lot by sanding the surface and scribing the expansion-joint grooves before painting the parking lot gray.



The gate is open at Acme Distributing. To paint the chain link fence, Dave chose a hunter green, water-based spray paint. The asphalt parking lot surface takes a heavy beating from truck traffic, so Dave added lots of cracks and repairs using a variety of black felt-tip pens.

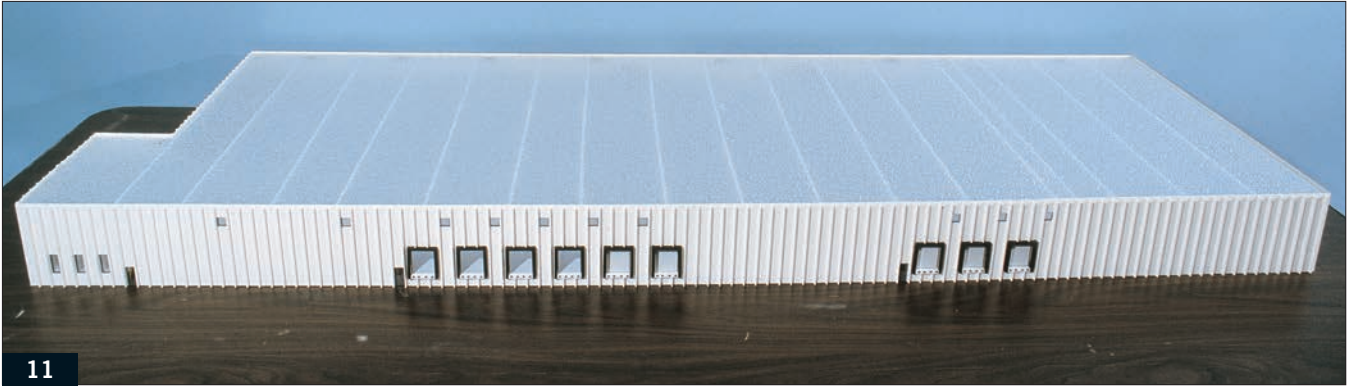


9

This exploded view shows how the two layers of floor fit together.

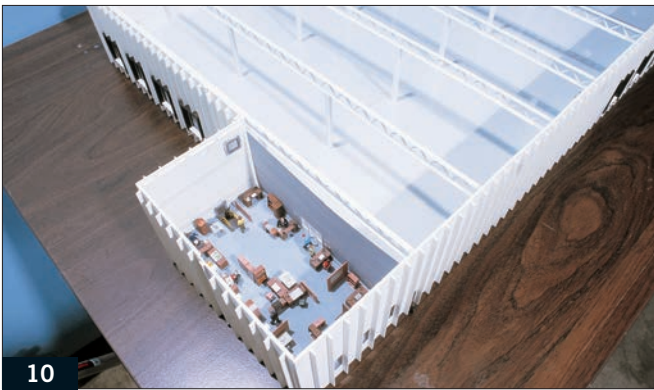
I attached the walls to the floor. I painted the building with gray primer and attached the ground-level doors for building access, as well as the doors to unload freight, 5.

Next, I laid out the warehouse floor and subfloor. The subfloor is at ground level, and the floor is even with the bottom of the freight-unloading doors. The identical layers of floor are made up of several .060" x 7" x 9" sections of Evergreen Scale Models styrene sheet. I joined the sections with Ambroid Proweld cement and reinforced the seams with .010" x .250" strip styrene. It was necessary to support all seams, so I made one continuous support for the floor braces on the long seam and mid-way supports for the short seams. You can see the upside-down, reinforced floor, including 1/4" Plastruct supporting trusses in 6, surrounded by the unattached wall panels.



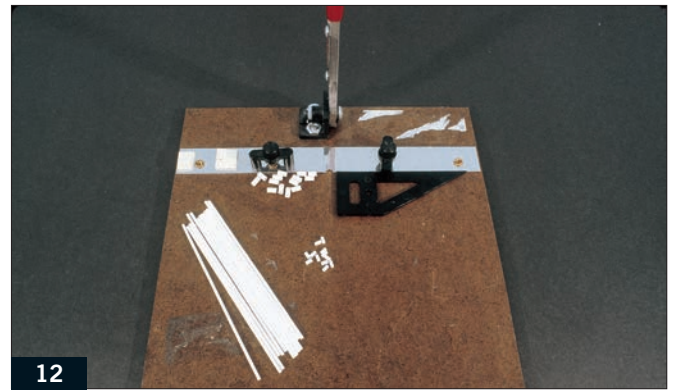
11

Drop-ceiling light panels formed the roof of the warehouse. This view shows the roof before adding the roofing grit, and the support trusses are visible through the translucent panels.



10

The roof trusses with their I-beam supports are visible in the upper right-hand corner. The drop-in office scene is also shown.



12

The separate gutter parts are laid out and ready to be assembled. These weren't added until the structure was glued in place.

After the painted walls had dried, but before I joined the two layers of floor, I matched the warehouse floor to the paneling, 7, so I could mark where the ground-level doors were. The doors are at ground level, so I would be adding stairways to the building's interior, leading up from the subfloor to the floor, 8, and would have to cut openings in the floor to accommodate the steps. I cut openings in the warehouse floor where the stairways would go, then I joined the two layers of the floor together, 9.

I used Proweld to attach the warehouse floor to the wall. To strengthen the joined pieces, I applied an extra-thick cyanoacrylate adhesive (CA) along the warehouse floor, sides, and corners. I applied at least four layers of the thick CA, using an accelerator on the first and last coats. This, and all other gluing steps, must be done wearing eye protection (a respirator mask rated for organic solvents would also be a good idea).

Now that the subfloor, floor, and walls were in place, all I needed to

complete my structure was the roof. I supported the roof with the same trusses I used to support the floor layers. To support the trusses, I used $\frac{3}{8}$ " I-beam stock; two supports per truss were adequate, 10.

Before I finished the roof, I created an office scene for the warehouse's interior. To do this, I used a drop-in section, 10. This allowed me to build my scene outside the structure on a sheet of styrene and place it inside when finished.

I made the roof by joining two .040" 2 x 4-foot pieces of drop-ceiling-light paneling, 11. To cut the light panels, I used a motor tool and a high-speed cutting bit to melt the panel. (Wear safety goggles and a respirator for this.) I used Elmer's rubber cement to hold the seams together, followed by clear, transparent tape.

I covered the roof with .001"-grain sand using matte medium applied with a 4" foam roller. Working two feet at a time, I sprinkled the sand on the roof through a fine screen to get even

coats. Be sure you wait until the roof dries before marking where the roof details will go. I scraped away the sand down to the light panel, which gave me a clean surface on which to glue the details. I attached the roof vents and air conditioner with Walthers Goo.

For the warehouse's gutters, I used scale 6" x 6" Evergreen styrene square stock and Evergreen $\frac{3}{8}$ " tubing for the downspouts, 12. I affixed the gutters after the building was on the module.

Since I've completed this project, GWM has come out with a myriad of details for its warehouse kits, including door seals. I had made mine with Evergreen $\frac{3}{8}$ " square stock.

I hope you can use the materials and techniques I used to build your own version of this warehouse. It's also a structure that you can easily customize to fit the space available on your layout and to suit your creative tastes. The materials and techniques are extremely user-friendly, and the warehouse will add a great touch of history to your model railroad.



1

CHAPTER FIFTEEN

Build a warehouse on a curve

By Bob Smaus

Photos by the author

The inset photo from the Harris family shows 40-foot boxcars lined up three deep for unloading at Davies Warehouse in the early 1950s. Steel bridge plates spanned the openings between the car doors. Bob Smaus's HO version is mostly scratchbuilt with a commercial front wall.

Davies Warehouse was a distinctive commercial building in downtown Los Angeles, Calif., with a curved wall of loading doors parallel to the tracks on one side. It was nestled into an odd-shaped lot inside a curved spur that was part of a maze of tracks which snaked between old brick buildings. This interesting switching district was served by Southern Pacific's "Rathole Job."

My HO scale model, **1**, isn't an exact replica of the real thing, but captures the prototype's flavor. The model is modified to fit a similarly odd-shaped space on my layout, and it's about a car length shorter than the prototype.

I built the model from sheet styrene so I could take advantage of the material's flexibility and use the three interior floors as formers to support and shape the curved wall. Two of the walls, including the curved one, are covered with embossed styrene brick sheet. The third (rear) wall is plain sheet styrene since it's not visible from the aisle. The front wall, the one with numerous windows, is a modified part from a City Classics kit.

The curved track was already in place on my layout, so I traced the area and from that made a pattern of the building's footprint. My curved wall measures a scale 64 feet long while the opposite wall is 62 feet long. The rear wall is 37 feet wide and my front wall measures 24 feet.

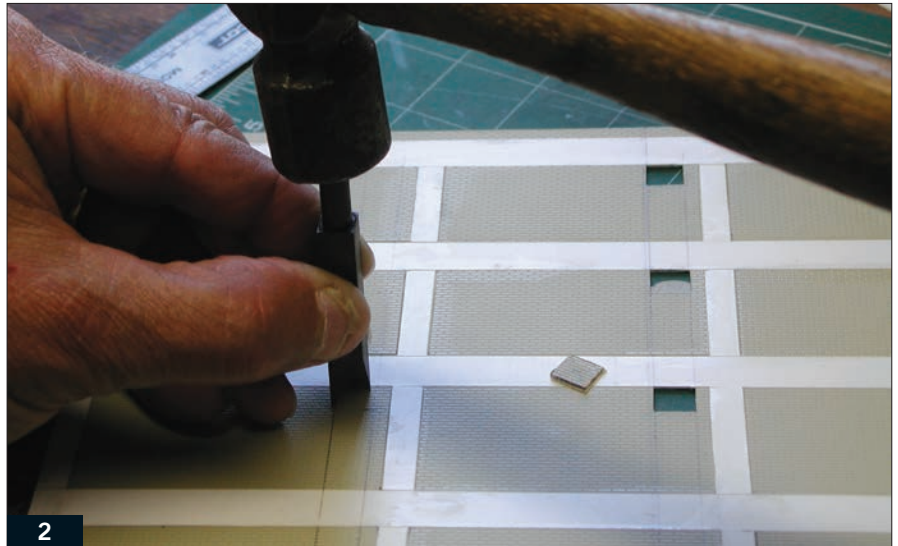
Front wall

Since the front wall is modified from a wall in the City Classics East Ohio Street Building plastic kit, its dimensions are the basis for sizing the other walls. I shortened this wall by one floor and sanded off all of the brick relief as well at the window lintels. This made the wall look as if it were covered with rough stucco, like the prototype.

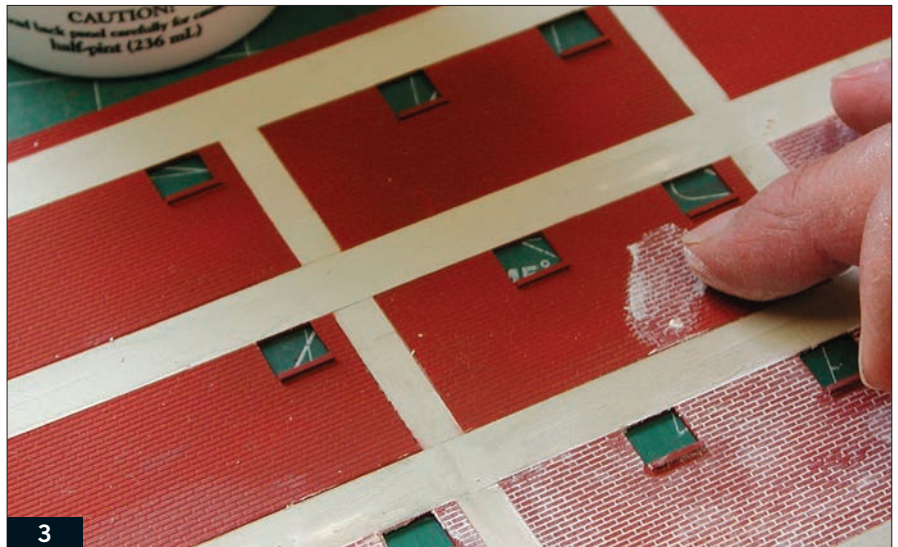
I added a Grandt Line cornice and new window lintels using short strips of styrene. Then I enlarged the truck doorway by scribing and snapping off the bottom of the wall, cutting away the old door, and framing a new one with strip styrene. It looks fine from the front, but it's held together like a Hollywood prop with pieces of styrene on the inside as you can see in several construction photos.

Using this modified front wall and prototype photos, I marked the locations of the windows, concrete beams, and pillars for the remaining walls on a 12" x 24" sheet of .020" styrene.

Next, I cut strips of .020" styrene into scale 24"-wide pillars and 36" horizontal beams to simulate the reinforced concrete structural parts. They're



A corner punch, driven by light taps with a small hammer, quickly produces accurate window openings in the styrene walls.



I used my finger to work the spackling compound into the brick sheet to represent mortar. A little variation here adds realism.

laminated to the styrene walls with Testor's liquid plastic cement. After the joints hardened overnight, I cut and fit the Plastruct styrene-sheet brick panels and cemented them in place as seen in **2**. Later on I filled any gaps along the edges with spackling compound to simulate mortar.

I cut the openings for the small windows in the curving wall with a clever tool from Micro-Mark; they call it a 90-degree punch, **2**. It makes neat right-angled cuts with its super-sharp edges. Although it's meant to be used in a drill press (not rotating), I simply tapped the punch with a small hammer. It's the quickest and easiest way I've

found yet for making window openings in styrene.

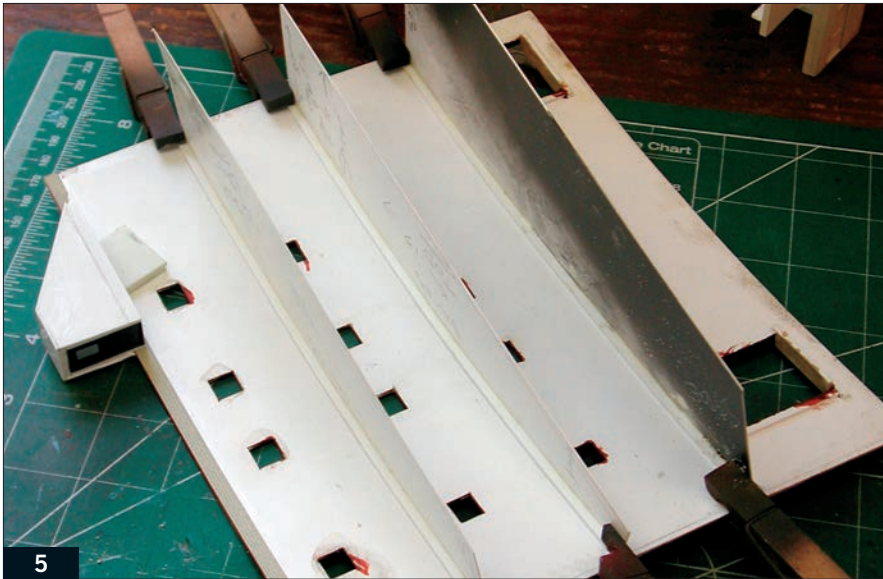
My scale 27" x 30" factory windows are made from Grandt Line six-pane attic windows. I modified the castings by sanding all the details off the front before setting them aside for installation after I had painted the walls.

The back wall is constructed in the same fashion, but I started with a sturdier piece of .060" styrene sheet since it doesn't have to curve. It has no windows or doors, and I roughed it up with coarse sandpaper so it looks stuccoed.

My warehouse has a pair of trackside doors spaced to receive 40-foot boxcars.



4 I assembled and braced the corners of all three straight walls before determining the final outline of the styrene roof.



5 Reinforcing strips along the curved floor edges help hold the shape of the curved wall.

Unfortunately, I forgot to add the concrete beams above the doors to support the brick walls overhead. The rusted strips of styrene angle over the doors are not wall supports—they just deflect rainwater running down the wall.

Paint and mortar

Before assembling the walls, I painted them and added mortar between the bricks. I first airbrushed everything a concrete color, using my favorite mix of 6 parts Floquil reefer white, 4 parts antique white, and 1 part concrete.

Next, I masked off the brick wall areas with bits of paper and tape and

painted these panels with Floquil oxide red. When the paint had dried, I used my finger to gently spread a soft ready-mixed spackling compound between the bricks and gaps or voids caused by careless cutting and fitting, 3. I wiped off the excess, but not too carefully since I wanted streaks and irregularities to show. After the mortar dried, I went back and added several thinned washes of Polly S Grimy Black for weathering.

While the walls were drying, I made an angled stair enclosure and a styrene box to simulate the top of the elevator shaft on the roof.

Materials list

Cal-Scale

361 globe valves

City Classics

106 East Ohio St. Building kit

Evergreen styrene

153 .060" square strip

164 .080" square strip

290 .080" angle

9007 .015" clear sheet styrene

9060 .060" sheet styrene

19020 .020" sheet styrene

Floquil paints

110011 Reefer White

110013 Grimy Black

110082 Concrete

110085 Antique White

110186 Oxide Red

Gold Medal Models

8701 standard fire escape

Grandt Line

5076 cornice

5112 six-light attic window

Micro-Mark

81652 90-degree corner punch

Pikestuff

1113 roll-up corrugated door

Plastruct

91611 embossed brick sheet

Testor Corp.

3502 liquid plastic cement

Miscellaneous

Premixed spackling compound

Assembling the building

I began the structure's assembly by cementing together the three straight walls. Thick styrene triangular braces keep things square, 4.

I cut the roof out of .060" styrene, making sure it fit snugly between the straight walls and followed the curved wall in the building's footprint. Using the roof as a pattern, I made three partial floors to support the curved wall and fit between the end walls. These floors are wide enough to support only the curving wall.

I cemented strips of .060"-square styrene to the curved edge of each partial floor to reinforce the joints with the curved wall. Then I cemented the three partial floors to the curved wall, added clothespin clamps at both ends,

5, and allowed the joints to harden overnight. At this point I installed window frames and clear glazing behind the wall openings.

My last step was to cement the curved wall in position and reinforce its corner joints with .060"-square styrene.

My version of Davies Warehouse has no floor; instead, it sits on a foundation of .080"-square styrene strips glued to the layout, allowing me to remove it when I need to. Additional pieces of styrene fit up inside the walls to keep the building from shifting.

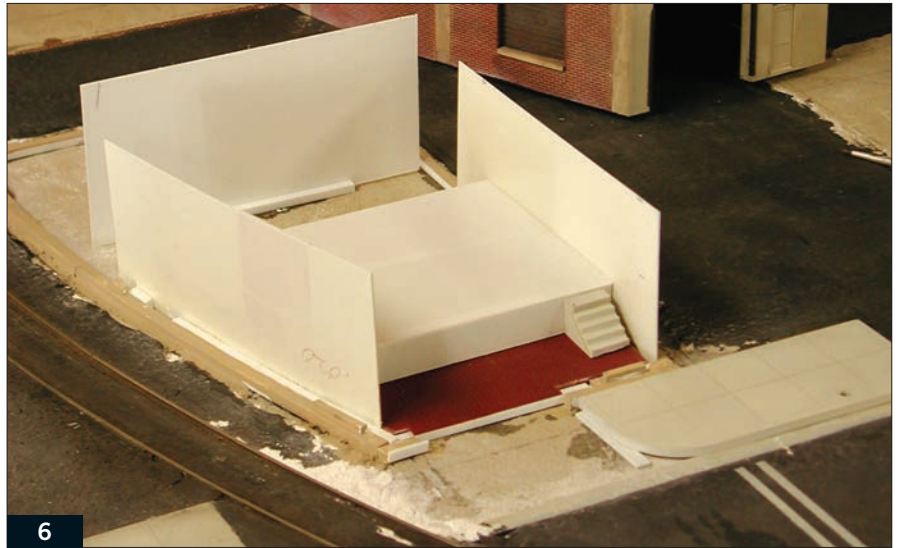
The truck loading dock, 6, is also attached to the layout and not to the warehouse, as is a 12-volt bulb that illuminates the dock. To make the dock more dramatic, I enclosed it with short styrene walls painted black so the dock is lit like a stage and really stands out. Then I added a little brick paving inside the dock doorway.

Details add character

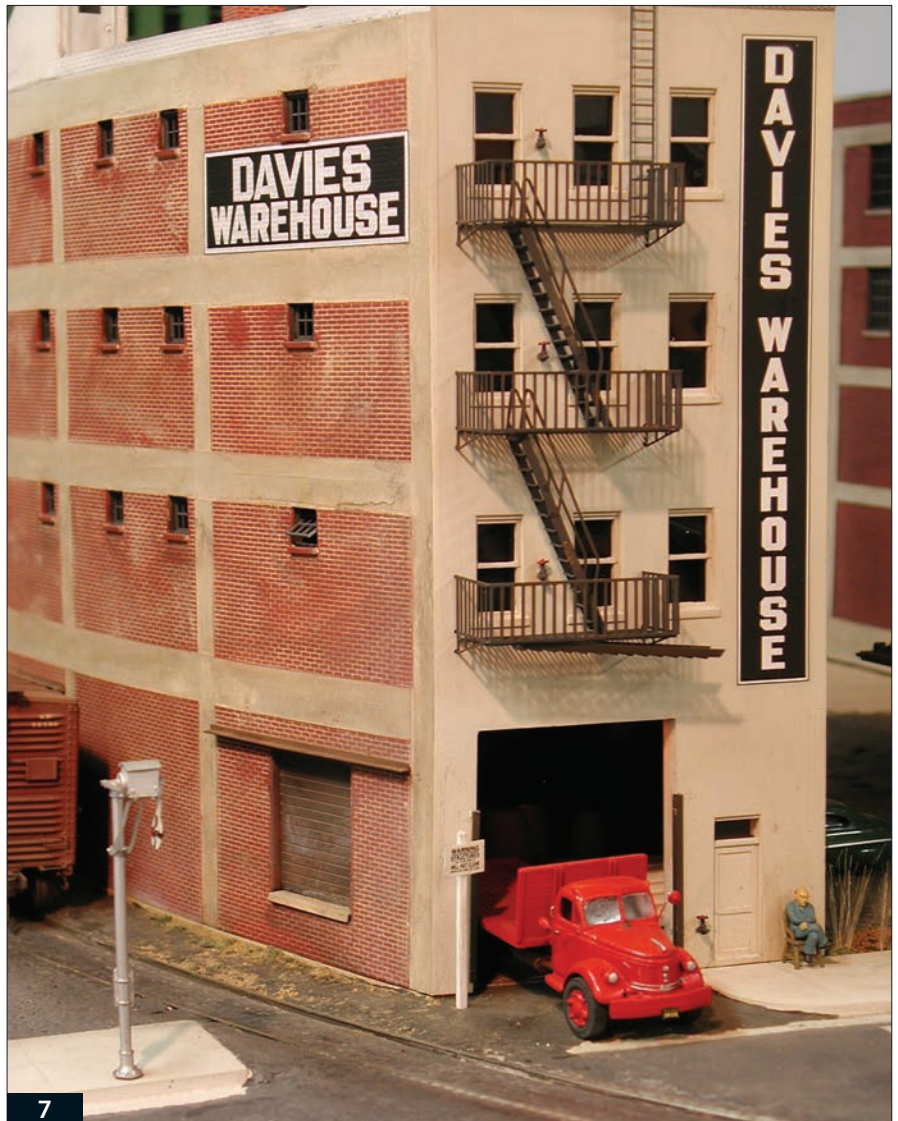
Since the warehouse building itself is rather plain, its exterior details become very important to its character. The vintage front fire escape came from an etched-brass kit made by Gold Medal Models. It's mounted in holes drilled into the wall with the help of a template provided in the kit. The standpipe connections on each floor are Cal-Scale 3" globe valves mounted in drilled holes, 7.

I could have added signs using common painting and decaling or dry transfer techniques. However, I was lucky because my friends Don Ball and Matt Zebrowski collaborated to make the custom decals for my building on an Alps printer. Finally, both ends of the building need railroad close-clearance warning signs—I had located my warehouse close enough to the track to make that true!

My finished Davies Warehouse is a busy and exciting place to watch, with barely enough clearance for the cars or the switcher. I only wish that I had enough room to include all three spur tracks of the real warehouse. Then my switch crew would have to align the car doorways on all three tracks so the warehouse crew could work through all of them.



Davies Warehouse fits over the dock. After painting this rough box black, Bob added an overhead light. Boxes and figures will complete the scene.



Small details like the signs, seated figure, and etched-brass fire escape are details that add realism to the finished warehouse.



1A

CHAPTER SIXTEEN

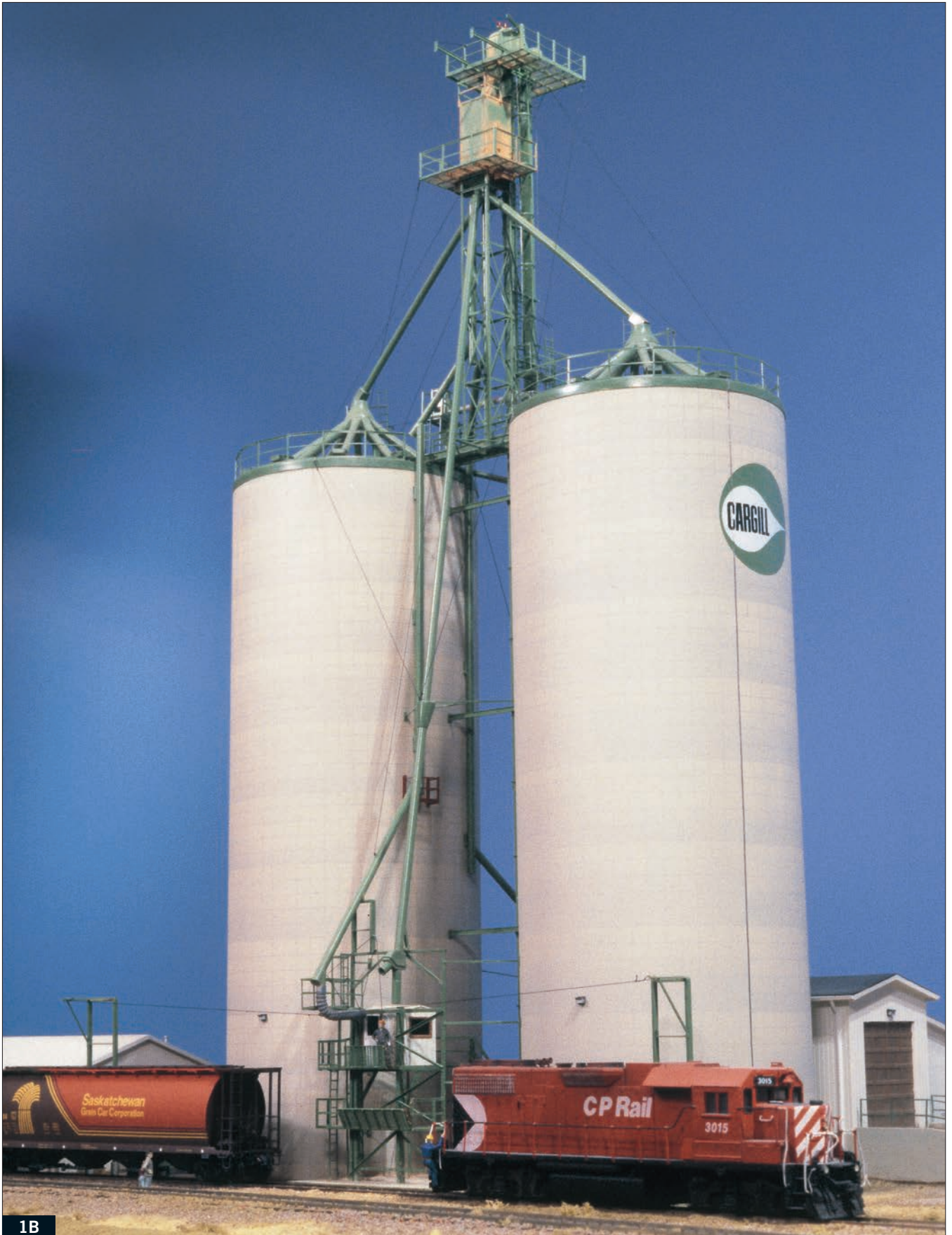
Scratchbuild a modern concrete grain elevator

By Jon Greggs

Photos by the author

This prototype grain elevator located in Saskatchewan inspired Jon Gregg's magnificent HO model.

The traditional wooden grain elevator is fast disappearing from the Western skylines of both Canada and the United States. In its place are giants following new designs and made of modern materials. In western Canada concrete is the principal choice, although there are new elevators built of steel as well. My HO model, **1**, represents a prototype built in 1983 in the farming village of Marsden in east-central Saskatchewan. It's located on the Lloydminster branch of the Canadian Pacific Ry.



1B

A Canadian Pacific diesel switches hopper cars serving the HO grain elevator. This extremely realistic HO model was scratchbuilt using acrylic tubes as the base for the silos.

The prototype

The elevator has four main components—two concrete silos, the grain handling system, and a combined office/truck unloading building. Hidden inside each silo is a central 22,000-bushel bin, which is surrounded by ten 5,500-bushel bins. The elevator can handle any local crop, including grains such as wheat and barley, but also oil seeds like canola and flax.

The CP typically visits twice a week: once to drop up to nine empty grain cars and then a few days later to take them away. It takes about an hour to fill each car, and they are moved with a car puller during loading operations.

The grain handling system includes the lifting leg, scales, distribution and loading piping, and augers at the base of each bin. Grains and oil seeds are delivered by truck and unloaded inside the office structure.

Before construction, I took many photos of the elevator. I was even permitted to climb to the top and shoot from there. Using the photos and a few essential dimensions, I drew a general plan, elevations, and many details.

I wasn't concerned about exact dimensions, partly because elevators are built in a variety of sizes, but also because I planned to make my model about 80 percent the size of the original. This selective compression, reflected in the plans, resulted in a very compact structure, but one with major visual impact. It's 165 scale feet tall, but will fit into an area just 15" x 17"!

Construction

I cut a base from $\frac{3}{4}$ " plywood, making it a free-form shape for visual interest as the model, at that time, was not incorporated into a layout. The base has some $\frac{3}{4}$ " medium-density fiberboard (MDF) on the underside for reinforcing.

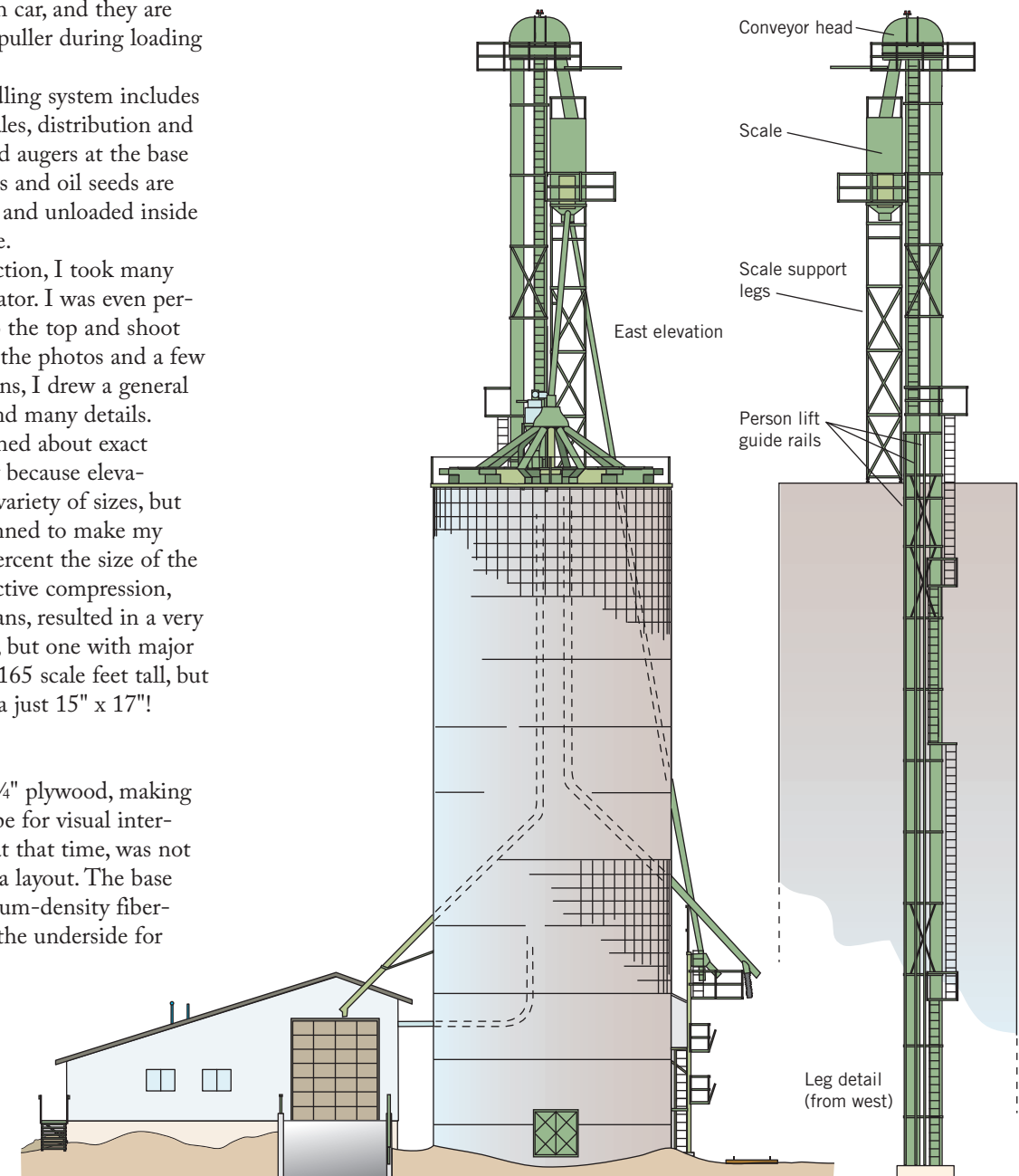
I also used a piece of MDF for a working base, drawing the major outlines of the plan on it and using it for temporary alignment of the many parts, as well as for a cutting board and general work surface. The material is flat, smooth, friendly to cutting tools, and very cheap.

The office/truck unloading building is plain and makes a good warmup for the rest of the project. I started with the foundation walls, making them from .040" sheet styrene. You can determine the dimensions from the

plans. I made them a scale 8'-0" high. Corner braces and internal cross bracing ensured the foundation was strong as well as square and flat. You can see some of this construction in 2, even though this photo shows the structure further along.

The truck ramps were also made from .040" styrene, 3. Walls of .040" on the outside made the edge curbing.

I cut the building walls from .020"-thick V-groove styrene sheet with .100" spacing. After cutting in the window and door openings, I framed them



with 1 x 2 and 1 x 3 strip styrene and made shallow blackout boxes for the inside of each, 2. After clear glazing is installed in the window openings, the black-painted boxes provide a non-eye-catching interior finish. I glued the walls in place one at a time, again with lots of bracing.

You could use commercial castings for the truck bay doors, although mine are scratchbuilt. I built them with styrene strips on .030" sheet styrene.

The roof is Pikestuff asphalt shingle sheet. Three pieces are required, and they need to be fitted together carefully to minimize the seams. I finished the roof with styrene soffit and trim.

To paint the building I masked the windows, then airbrushed the walls a very light semi-gloss gray, the roof black, and the foundation a concrete color. I brush-painted the truck bay doors and the window frames. Final details were the 1 x 4 and 2 x 2 eave troughs, 4 x 4 downspouts, the front platform, and various roof vents.

Silos

I chose 5"-outside-diameter acrylic tubing to represent the silos. This material is expensive compared to other plastics such as PVC, but it comes in more sizes. The 5" diameter equals 36 scale feet, close enough for 80 percent of the original's 40-foot diameter. I cut each silo 106 scale feet high.

I was stuck for an idea on how to achieve the concrete texture as well as the pattern of squares left by the forms. After rejecting carving or texturing the acrylic, I settled on wrapping painted paper covers over the cylinders. First I drew a grid of 2" squares on textured watercolor paper with a soft lead pencil and a T square.

Concrete's appearance varies by age and in different lighting and at various distances. It's gray close up and tan farther away. For my basic color I used Testor's Model Master enamels: four parts Russian topside gray with four parts Panzer interior buff. To make the

various shades I lightened this with two, three, and four parts of semi-gloss tinting white. Then I airbrushed on the various bands, using another sheet of watercolor paper to mask the hard edges.

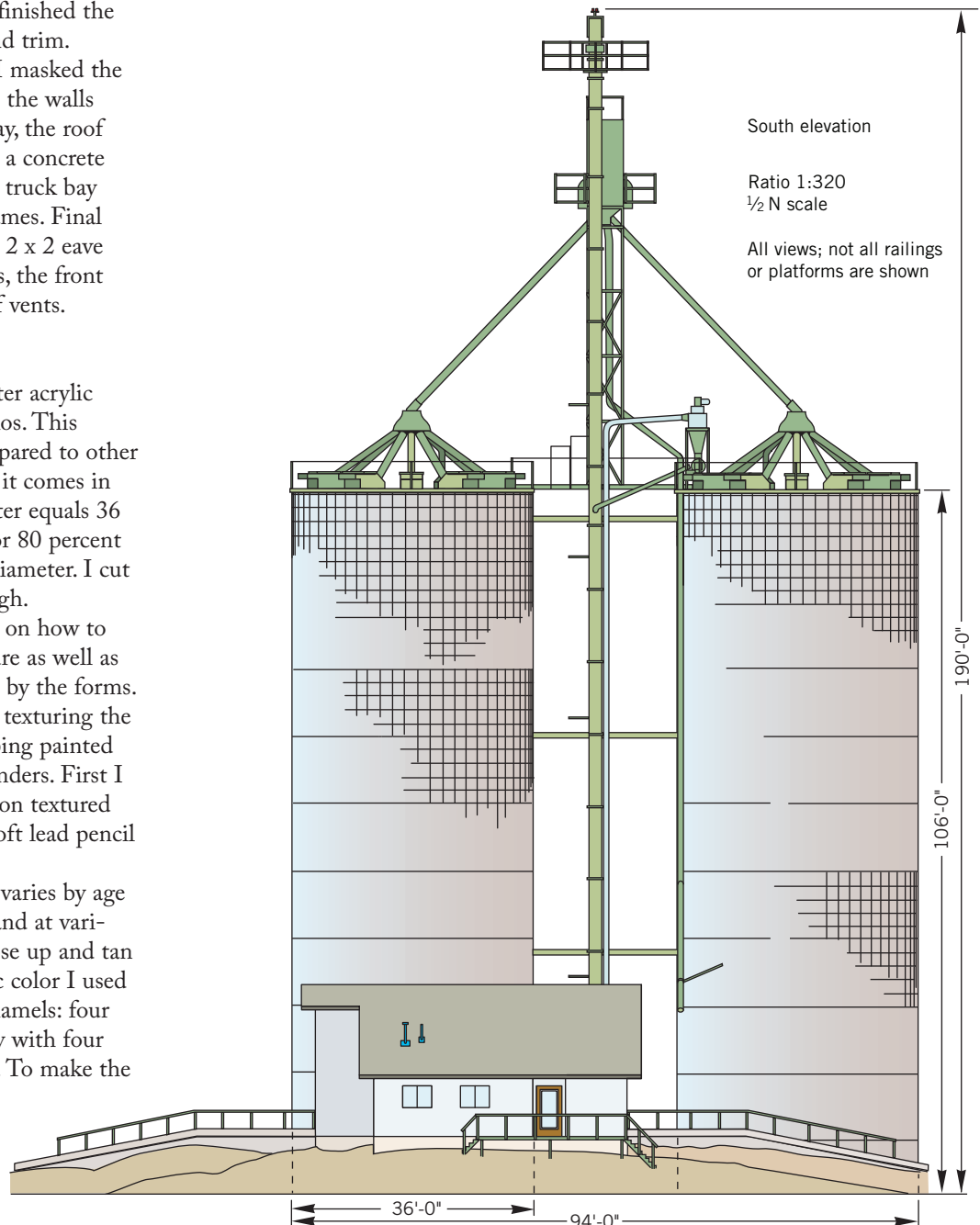
After the paint was thoroughly dry, I glued the paper to the cylinders using CA (cyanoacrylate adhesive). The seams are hidden behind cables and piping.

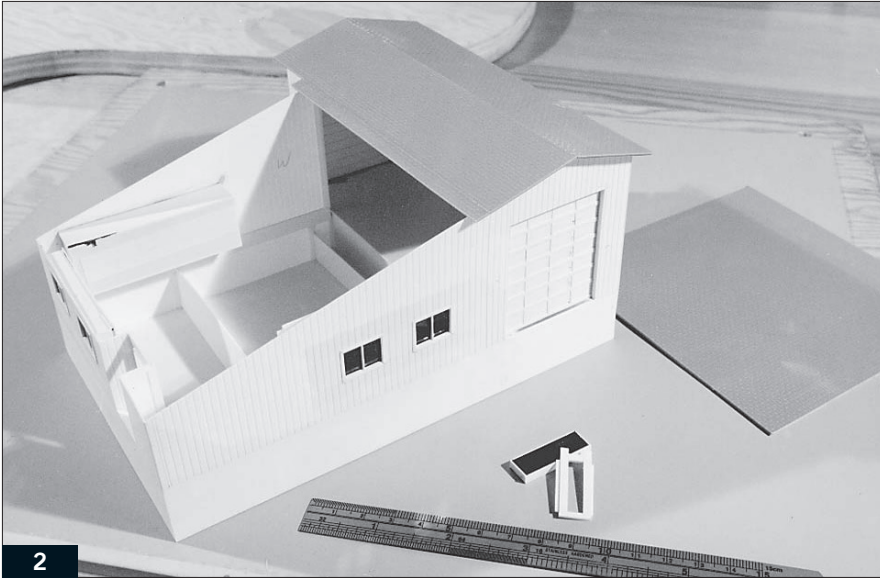
The cap for each silo is a double thickness of .030" sheet styrene with a rim of 1 x 8 strip to hide the joint. I

left the caps off until after they were detailed and painted.

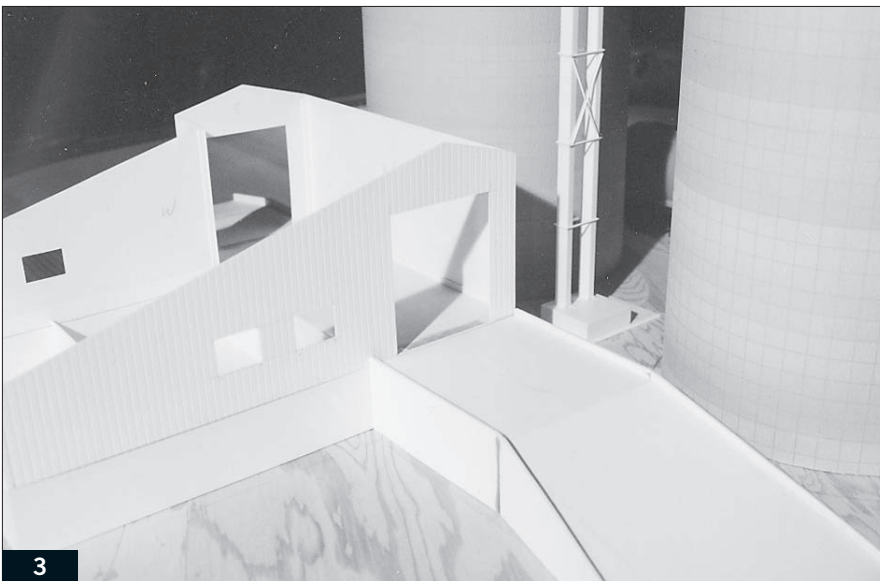
The access hatches on the sides of the silos were made from embossed .010" sheet, 4. Their grid pattern, which provides strength, was duplicated by using an eraser to press the thin sheet over a piece of wire. After painting, I glued these pieces on and then added a frame of 1 x 6 strip.

A note about the green paint: The formula I came up with to match the original is a 1:1 mixture of Testor's Model Master Russian interior blue/





2 Plenty of internal bracing makes the office building square and sturdy. The two windows are backed up by light boxes made of .020" styrene. In the foreground is another one to be installed behind the office door.



3 The truck ramps are .040" sheet styrene. In the background are the partially built leg and silos, evidence that, as often happens, I skipped around between parts of the project.

green and willow Green. Light green paints are very transparent and require several coats. A gray undercoat helps, but I found most parts needed three coats of paint, whether by airbrush or brush.

The large Cargill decals on the silos came from Microscale set no. 87-898. However, the green I was using was very different so I cut away the green from the Microscale logos and just used the white teardrops. Then I painted plain decal paper with my green and cut circles from it.

I applied the green circles first, let them dry, then added the rest of the logos. The watercolor paper puckered a little, but flattened after drying.

Ladders, railings, and platforms

Tichy makes excellent ladder stock, and I used it where short lengths were required. However, the elevator leg needs over 160 scale feet of ladder in lengths longer than the Tichy product. I built a jig from styrene and painted it green for contrast (choosing green just because it was handy!), 5.

I cut the 18"-long rungs with my NorthWest Short Line Chopper. After loading these into the jig, I carefully glued a length of styrene 1 x 3 to the extending ends, being careful not to glue the ladder to the jig. After 15 minutes or so I removed the half ladder from the jig and glued on the other 1 x 3 rail. Even though I had to make minor adjustments to get every rung straight, I discovered I could make lots of ladder very quickly. I used Tichy safety cage hoops on my ladder stock, with 1 x 2 vertical strips between the hoops.

I also made the railings from 1 x 3 styrene strip. The uprights are 40" tall and generally spaced 5 feet apart. The upper 1 x 3 is capped with a 1 x 2. I made the railings for the tops of the silos flat, then bent them at the posts before gluing them on.

I added the railings to the truck ramps before adding the ramps to the base. I also broke them many times, so I recommend you leave them off until the end of the project! Add the other railings to the subassemblies.

The platforms and walkways all follow the same basic construction, 6. To make the platform bases I laid 2 x 4 styrene strips on edge. Then, using CA, I glued Scale Scenics aluminum MicroMesh over each frame section and trimmed it after the glue had set, using a chopping cut and a very sharp knife blade. I glued 1 x 3 around the edge of each platform to provide a base for the railings.

The leg

This model owes its visual interest to the complex-looking and very tall elevator leg and associated piping. It looks daunting, but I found it easy—just keep adding parts! Not every last detail is modeled, I confess, but most are, all garnered from the photos.

To make the sides of the leg I used two scale 160-foot-long .100" x .250" pieces of strip styrene, 7. (You'll need to butt-glue two pieces together to get the length required.) I then added angle stock (made from 1 x 3s) to tie the sides together. Most of the braces are horizontal, but there are a few X braces, too.

Materials list

Evergreen styrene

179 .100" x .250" strip
219 .025" rod
274 .125" I beam
8102 1 x 2 strip
8103 1 x 3 strip
8104 1 x 4 strip
8106 1 x 6 strip
8108 1 x 8 strip
8202 2 x 2 strip
8204 2 x 4 strip
8404 4 x 4 strip
9006 .010" clear sheet
9010 .010" sheet
9020 .020" sheet
9030 .030" sheet
9040 .040" sheet
12100 .020" V-grove siding,
.100" spacing

Microscale decals

87-898 Cargill

Pikestuff

1015 shingle roof (3)

Scale Scenics

3500 MicroMesh

Testor's Model Master enamels

2104 Panzer interior buff
2120 Russian topside gray
2028 willow green
2135 Russian interior
blue/green
2143 Semi-gloss tinting white

Tichy

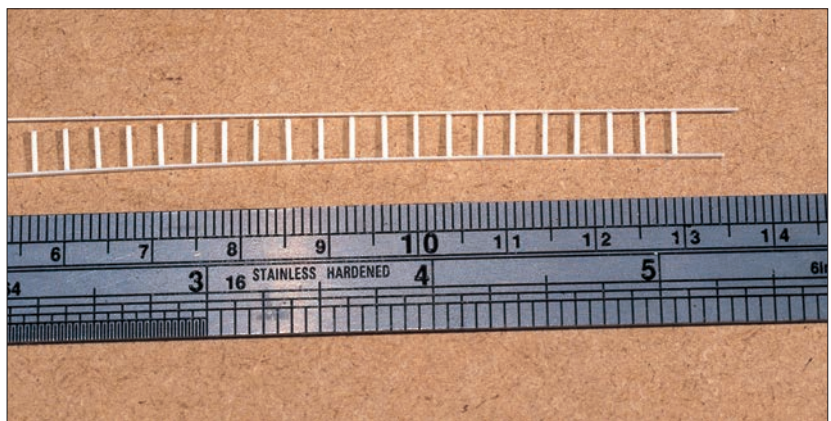
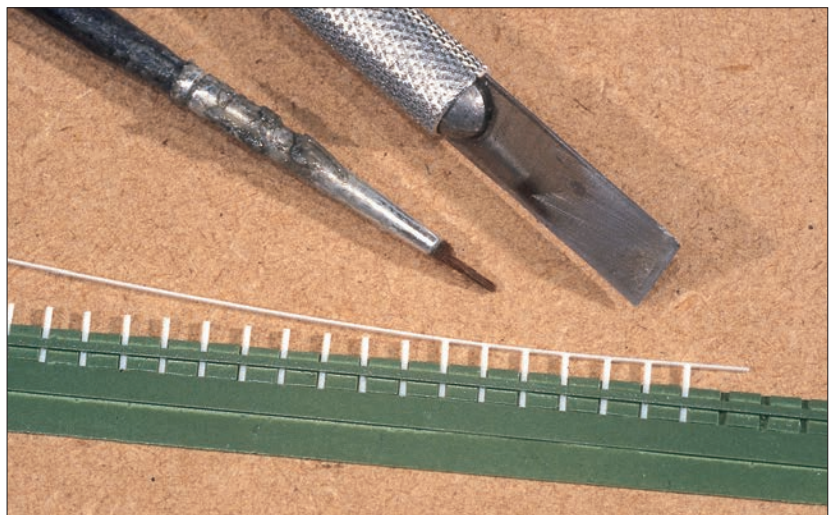
ladder stock
safety cage stock

Miscellaneous

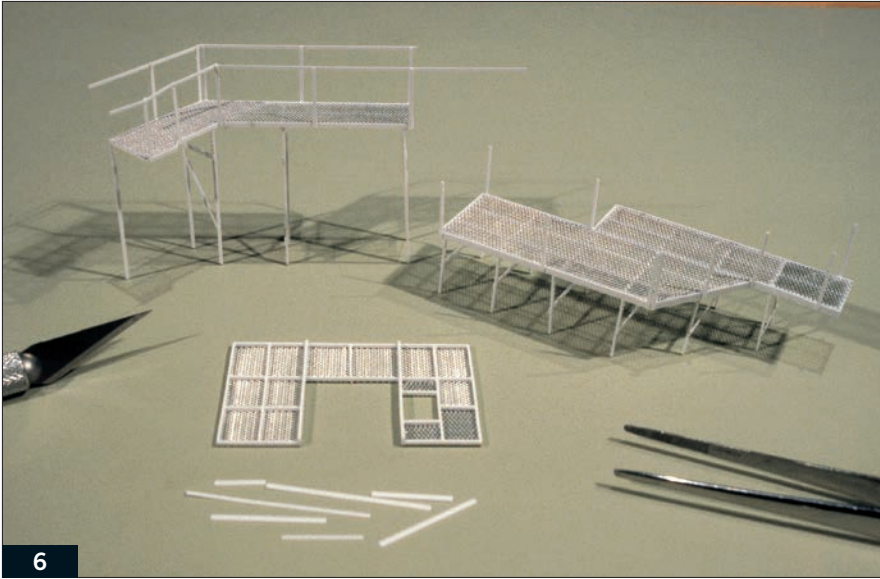
acrylic tubing, 5" o.d.
Alumilite casting resin
(alumilite.com)
black thread
blank decal paper
RTV rubber
watercolor paper



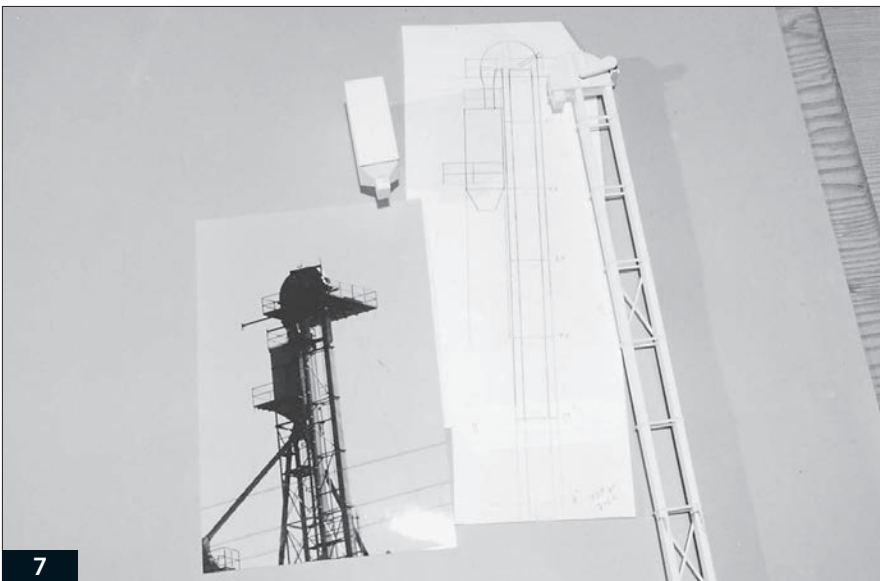
The silo door panels are .010" styrene, with the embossed stamped-diamond pattern made with an eraser and wire. The materials rest on a prototype photo.



With my method, you can make ladders as long as you want. The ladder jig is made of styrene strips as indicated. Each slot is charged with an 18" length of .020" rod, then the 1 x 3 side rail is glued to the rung ends, using liquid cement and a small brush. Once the cement has set, the half-ladder is removed from the jig and the other rail is added.



6 You can't beat the see-through look from using Scale Scenics MicroMesh to finish the platforms. The framing is styrene 2 x 4. The legs and railings are 1 x 3. This small stock looks tiny, but is very close to scale.



7 The lifting leg is the elevator's heart. Everything to go in the bins is first hoisted to the top by small buckets on a continuous belt inside the uprights. This leg is built entirely of styrene.

After the braces were dry, I made a top from sheet stock and various strips to represent the housings for lifting motors and gears. Also I made a base for the leg from sheet stock. The ladder supports were added next, then the vertical rails and I beam which hold the people (well, actually, person) elevator, **8**.

The elevator is like a stunted telephone booth and is very light. The lifting power is provided by the operator's arms! There's a deadman-style brake pedal and fat soft rope to hoist yourself

up 100 feet. The sides are chain link fencing. I found the whole thing very scary and took the ladder.

Next I added the ladders and safety cage, with platforms between the lengths of ladder. The several runs of electrical conduit I represented with brass wire painted black and attached with CA.

Once I was spending more time repairing the leg than adding new components, I stopped working on it at my workbench, glued it to the plywood base, and attached the remaining

details later. These included the platform at the very top, the lifting cranes, the tiny horizontal X braces, and the dust extractor pipe. Look over the drawings and photos for these.

The final item added was the pair of aircraft warning lights at the very top. They are just red-tinted clear plastic on a simple support stand. The leg is braced in position by three I beams which span the gap between the silos.

The scale just below the top of the leg is used to weigh the grain during movement. Mine is a box made of .030" styrene sheet with a pyramid-shaped bottom and round top side vents. The legs beneath it are 1 x 6 and the braces are 1 x 3. The legs sit on a pair of 4mm I beams which also supports the walkway between the two silos. The piping from the scale seems to go all over the place, but the drawings show the correct locations.

I made the dust extractor atop the east silo from bits of plastic and connected it to the office building with an aluminum-colored pipe fitted after the leg and buildings were permanently attached to the base.

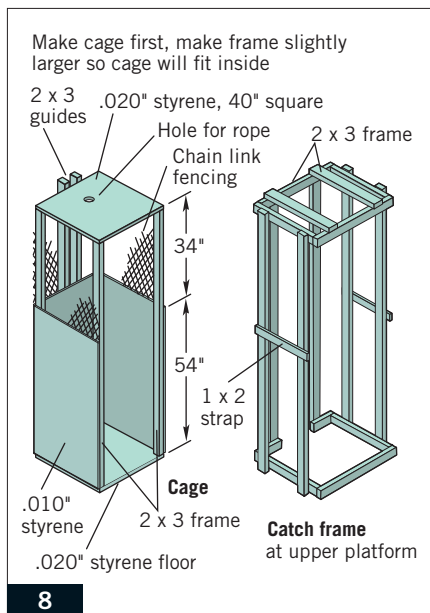
The control booth is made from scraps of Evergreen and Pikestuff siding and a Pikestuff door, **9**. The booth and the car-loading platform (made from styrene strip) are connected to the office building by a raised platform (also made of styrene).

The end of the car-loading pipe is the flex joint of a straw from a juice box. The size is perfect—it just needs paint! Also, be sure a railcar will fit under it with sufficient clearance. I used a National Model Railroad Association standards gauge to make sure.

Piping

The many pipes through which the grain moves are all 5/32" tubing which I prepainted in long lengths. From the top of the leg the grain flows through the scale, then down to a specific bin in either silo or to trackside.

At the top of each bin on each silo are inspection and cleaning hatches, 22 in all! I made a master of a hatch from bits of styrene, **10**, and then made a mold with RTV (room-temperature vulcanizing) rubber. For castings I



Here's how Jon built the one-person elevator from styrene strips and sheet along with chain-link-fence material.

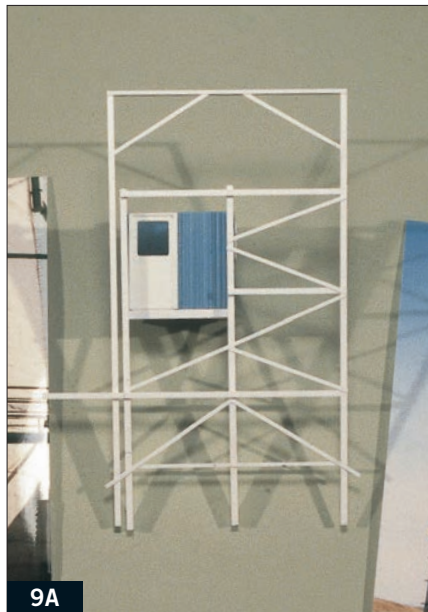
used Alumilite two-part resin casting material.

I made several good copies, then used those to make another RTV mold with four cavities to speed the hatch-making process. Casting was new for me, but I recommend it for making multiple copies of simple parts. I did end up with many duds—but some practice and careful attention to the instructions improved my results.

I also made a master of the distribution cone at the top of each silo and then made two castings, **10**. For the conical portion I used the jet engine exhaust from a 1:72 scale Tomcat fighter plane kit. Chances are you won't have one of these, so you'll have to get creative. You might find something similar in your scrap box, or you could chuck a piece of ½" dowel in an electric drill and make a simple turning.

These larger castings were easier than the small ones because the resin must reach a certain temperature to cure properly, a temperature not always achieved in the small castings. Alumilite sets very quickly, and while pricey, makes very precise copies.

Joining the 11 hatches per silo cap, 11 pieces of ½" rod, and the distribution cone was easier than you might think. I was careful to keep everything



Jon built the car-loading platform from lots of photos and a few measurements. An operator inside the small control booth oversees car-loading operations.



The white (unpainted) parts were added after the major components were attached to the base and then painted by hand. A drinking straw is the loading spout.

square and straight. Once I had a single unit, I painted it and then glued it to the silo top with CA. The final piece of pipe joined the top of the cone to the base of the scale.

Most of the other pieces of pipe were straight lengths attached with either CA or styrene cement. For joints between sections I used fine sandpaper wrapped around a length of ½" pipe to sand a seat in one pipe. The width of the sandpaper provides just enough space for the glue joint.

Landscaping

I used lots of thick CA to glue the small buildings to the plywood and four short coat hanger wire pins running up through the base to help secure the tall and heavy silos.

To get the proper rail height I added a layer of ⅛" cork under the track, making sure there was sufficient clearance for the loading platform. The loading chute should be directly over the roof hatches of a grain car.

All the small details need to be added to the base—the car puller, **11**, the safety cable frames, the steps into the office, and the concrete pad in front of the garage/storage building. There's also a pad between the office building, the silos, and the track. For this I used

a sheet of .040" plastic with bracing underneath. The leg and walkways were glued to this pad.

Any scale building must be properly blended into the ground. Gaps around (or worse, under) buildings will make a model look toy-like. I used small chunks of blue Styrofoam to rough in fills around the office building.

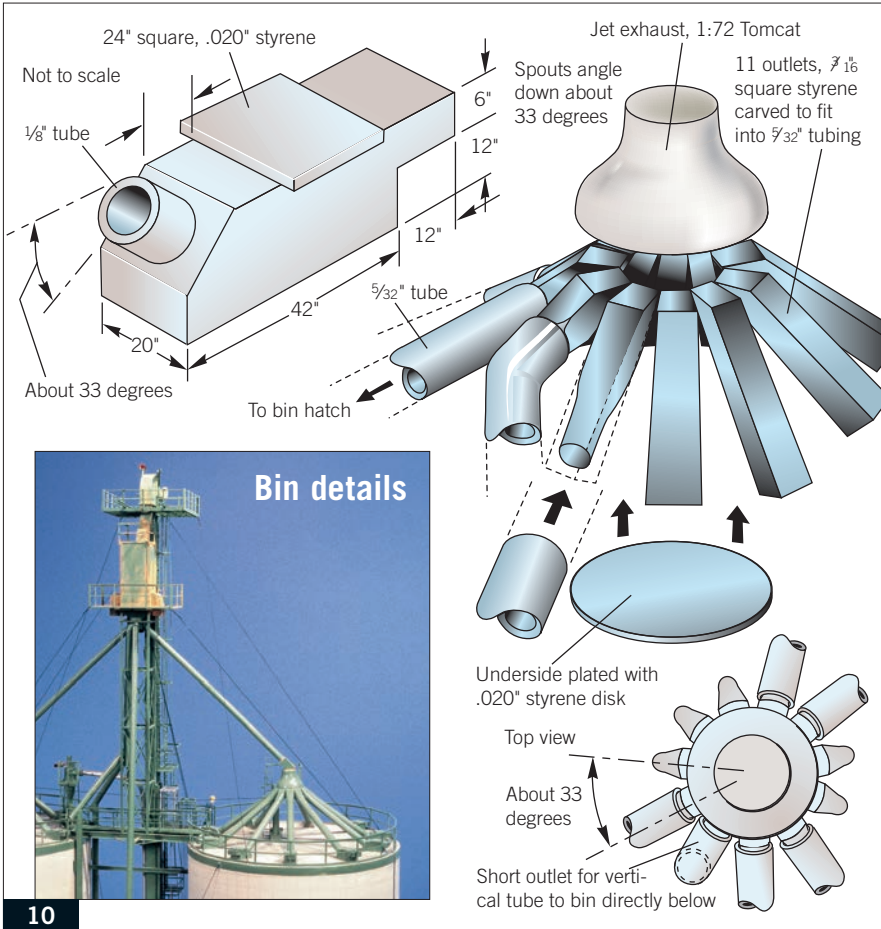
To cover the Styrofoam and the remainder of the base I poured a thin layer of plaster of paris over the entire area and brushed it smooth.

I painted the plaster with a mix of burnt sienna and raw umber poster paints to be sure that no white plaster would show through the ground cover.

For ground texture I used fine sand and silt collected from the elevator's parking lot, sifting out the coarse grains. I sprinkled the dirt onto brushed-on diluted matte medium.

The matte medium will darken the dirt considerably. To lighten it again, I waited until it had dried completely, then spread small amounts of dry dirt over the surface, brushing it around with a wide soft paintbrush. Then I removed all the extra dirt, leaving the finest materials behind.

The vegetation is Woodland Scenics ground foam, from light tan to green to represent both old and new grasses.



10

To represent spilled grain under the loading chute and the leg I used whole wheat flour and whole wheat grains milled in a coffee grinder! Use light sprays of water to attach the flour—it will glue itself. Don't "spill" too much: This is the elevator's product and they try not to waste it.

Weathering and details

I like to weather buildings with colored blackboard chalks, both dry and wet, ground on medium grade sandpaper. I use browns, tans, grays, black, and white. Just brush it on—any slightly nubby surface will hold the chalk.

The wet version is a personal recipe. I mix the chalk with a generous amount of rubbing alcohol, then paint the mixture on any surface needing dust. The alcohol will spread the chalk in very fine layers.

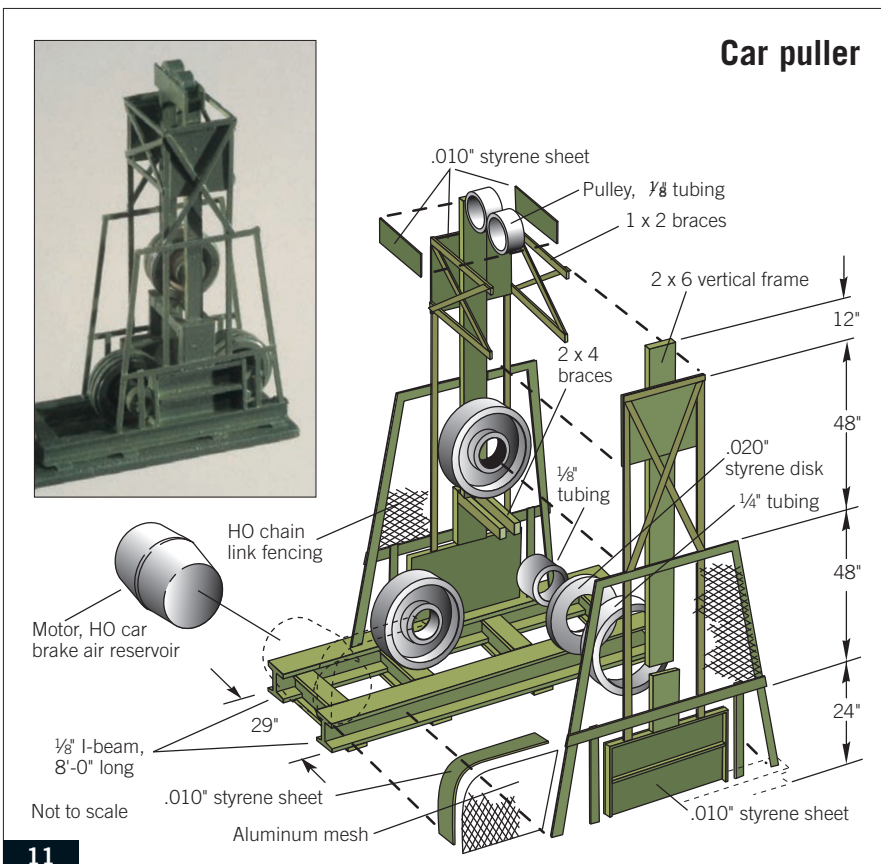
One beauty of this technique is that it's reversible. If you don't like the look, just wash it away with more alcohol. If you use methyl alcohol, the chalk is more permanent. I try not to use this technique on models painted with acrylic paints, as the alcohol tends to soften the acrylics.

On this model I chalk-painted all the horizontal surfaces, with special attention given to the tops of the silos. The roof of the office building was done dry and all the extra chalk removed with a soft cloth, thereby highlighting the shingle pattern.

The guy wires are fine black thread purchased from a fly-tying supply store. They are attached at some places with Grandt Line eyebolts and at others just tied around railings and frames. The leg control cables are the same material and run from the office building up between the silos, through the supporting I beams, and on to the scale and silo heads. I attached the threads to the office building before gluing the office to the base, then ran them through the I beams at the end of construction. After tensioning each length I glued it with CA, then trimmed away the excess.

You'll want to add car puller lines, also of thread.

This project was so much fun I'm already working on another modern grain elevator—one made of steel.



11



CHAPTER SEVENTEEN

Realistic brick and stone

By Kathleen Renninger
Photos by the author

Kathleen Renninger used cosmetic sponges and model colors to paint and weather this HO South River Modelworks structure.

The women's cosmetics aisle is probably the last place most of us would look for products to enhance our model buildings. However, amongst the sea of nail polishes and hair-care products are some tools which are ideal for applying paint to brick and stone structure kits: cosmetic sponges. I like to use cosmetic sponges as paint applicators because the color covers only raised surfaces and leaves the mortar lines untouched. Also, since the sponges are mottled, the painted surfaces will have a texture similar to that of brick and stone, **1**.



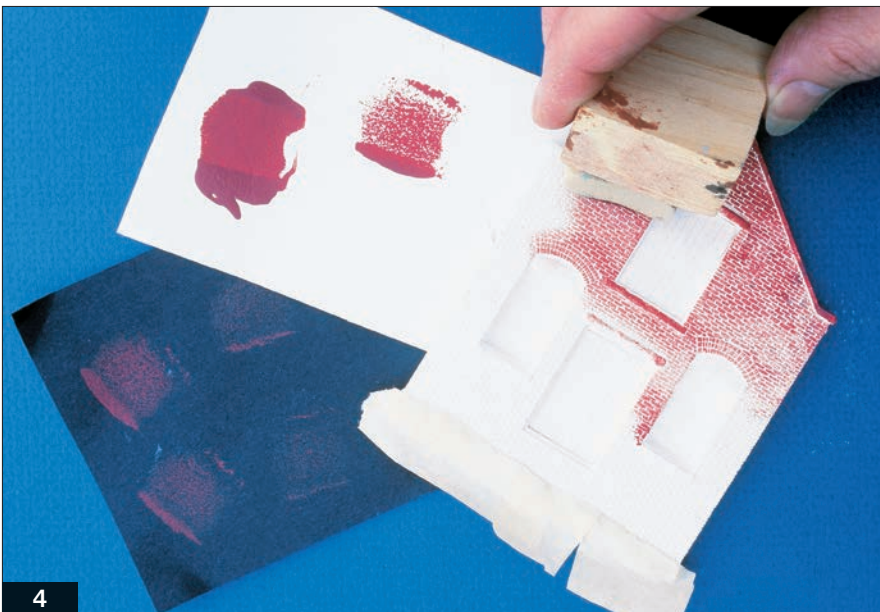
2

Cosmetic sponges come in a variety of shapes and sizes.



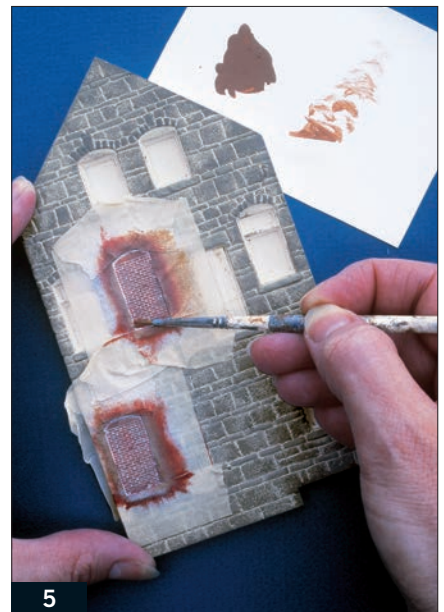
3

Apply the mortar color with a wide brush.



4

Dab the brick or stone color to the wall's surface with a sponge. Use a light touch to avoid getting paint in the mortar lines.



5

Use a smaller brush and a drybrush technique to get color in hard-to-reach areas.

These techniques work in any scale and can be used on plaster (such as the South River Modelworks HO no. 120 Threadwell Textiles kit shown) or plastic structures. Since the depth of mortar lines varies from kit to kit, you'll want to apply the paints with care. With practice you'll discover that these techniques produce realistic results.

Cosmetic sponges

There are a variety of cosmetic sponges to choose from, **2**. I've found

that square sponges work best for painting brick structures, while round sponges are better suited for stone buildings.

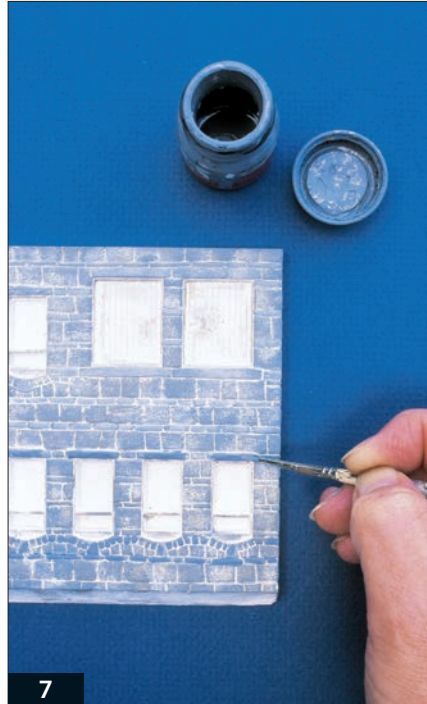
I made the paint applicator for brick structures using a ¼"-thick square cosmetic sponge and a small piece of plywood for the handle (extruded-foam insulation board also works). I then cut a 1"-square piece out of the sponge and lined up its corner with the edge of the handle. Once the two items were aligned, I removed the sponge, applied

rubber cement to it, and secured it to the wood handle. The finished applicator can be seen on the right side of the photo.

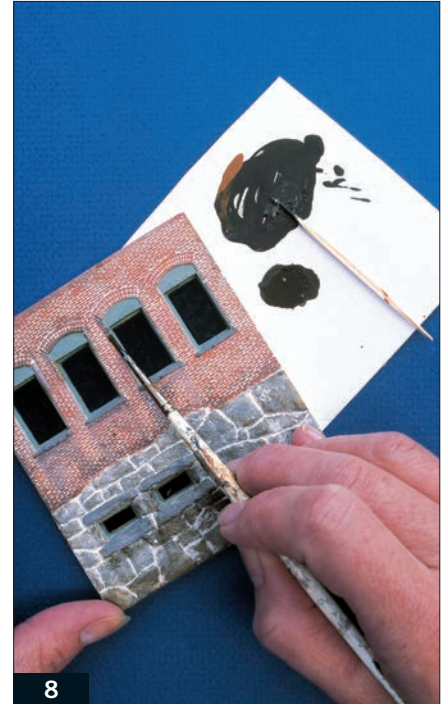
I also made an applicator for stone structures (at upper right in photo **2**). This was easier to produce since no handle was needed. Instead, I started with a round cosmetic sponge that was roughly ⅜" to ¼" thick, bundled it together to make it ball shaped, and wrapped a rubber band around the ends.



6 Add texture to stone walls by adding color in layers.



7 Brush-paint details such as window sills.



8 Weather the walls with a mix of grimy black and dirt.

Applying the paint

Since I wasn't able to find a color that resembled mortar, I added a few drops of Polly Scale aged concrete to Polly Scale reefer white, which made a pale tan. I then applied the mortar-colored paint to the structure with a soft, medium-sized paintbrush, 3.

Before applying paint to any model it's good practice to prepare the surface. For example, the South River Modelworks building is cast plaster, so I sealed it with Testor's Dullcote. I clean plastic buildings in warm, soapy water to remove any mold-release residue and oils from my skin from handling it.

Painting bricks and stones

I began painting the bricks by pouring Polly Scale Pennsylvania RR Tuscan onto a piece of posterboard. Next, I took the square cosmetic sponge, dipped it in the paint, and blotted it on a piece of construction paper until it was damp (not wet) with paint.

Then I pressed the sponge against the brick wall, being careful not to apply too much pressure, 4. My goal was to cover the structure with several light layers of paint, not one coat. If I had pressed the sponge too hard, the

brick color would have run into the mortar lines.

After the first layer of paint was on, I cleaned and dried the sponge and applied a coat of Polly Scale rust. Once the paint had dried I checked for any light spots and applied a second coat of each color as necessary. I used Polly Scale aged concrete to tone down areas where the paint was too vibrant.

I used the same techniques (but with a round applicator) for the stone structure and the stonework on the brick building.

Sometimes it's difficult to get paint to completely cover a structure, particularly around doors and windows. To remedy this problem, I drybrushed those hard-to-reach areas.

To drybrush, I dipped the paintbrush into the desired color and stroked it on a piece of construction paper until most of the paint was removed. Then I gently ran the brush over the unpainted surface. I repeated the process until the exposed areas of plaster were covered, 5.

Texture, details, and weathering

Too often stones are painted with a cool-toned gray; however, most real rocks have light shades of red, brown,

and tan in them. To simulate this on my structures, I painted the stones Polly Scale Delaware & Hudson Gray using the round sponge. After applying the paint I cleaned the sponge and dipped it in Polly Scale rust. Then I gently blotted it onto the stones, 6. I used additional layers of Polly Scale rust and aged concrete to darken and lighten the stones.

I brush-painted the details on my structures to help them stand out. For example, the windows on the stone building had nice sills that didn't contrast with the overall structure. To make these details more apparent, I brush-painted the sills with Polly Scale Southern Pacific Lark Dark Gray, 7. I also painted the sills and sash on the brick structure, 8, to help set them off from the rust-colored brick.

I finished the project by weathering the walls with a mixture of Polly Scale grimy black and dirt, 8. I dipped the paintbrush in the paint and ran it along the sides and bottom of each window. With the paint still wet, I used a cotton swab to pull the paint down and blend it into the rest of the building. I used similar techniques at the tops of walls and sparingly along the corners of the building.



CHAPTER EIGHTEEN

Scratchbuild a stucco depot

By Bob Foltz

Photos by the author

Bob Foltz modeled the Santa Fe depot at Lamy, N.M., for his New Mexico Division HO layout. Bob explains how to add stucco texture to plywood walls and also how to modify window castings for masonry structures.

My Santa Fe Ry. New Mexico Division HO layout needed several stucco depots, **1**. With no kits available, I knew I'd be scratchbuilding them. Of those I wanted to model, the station at Lamy, N.M., **2**, would be the most complex. If I could build this one, I thought, the others would be easy.



2

Here's the former Santa Fe depot at Lamy, N.M., as it appeared in the early 2000s. It's still a stop for Amtrak's *Southwest Chief* and the southern terminal for the Santa Fe Southern's mixed train.

Although I wanted a fairly accurate model, I was willing to use commercial window and door castings wherever possible. Even if you aren't building the Lamy depot, the methods I used for kitbashing window and door castings and modeling stucco may be useful in other projects.

I thought I'd have to draw my own plans, but learned that Leslie Trill had drawn excellent plans of the depot as it was originally constructed in 1909. Even though I was going to build my model as the prototype looked in 1951, I could follow his drawings and make adjustments to model the latter-day modifications. With Leslie's generous permission, his plans are included here.

Windows and doors

The windows and doors are the first thing I tackle in any structure project. I found that Grandt Line no. 5193 windows are only a few scale inches smaller than the prototype's. The major difference is that the Grandt windows have nine panes in the upper sash and two in the lower, while the Lamy depot windows have eight panes over one. This is easily corrected, 3. The fact that the horizontal mullion overlaps the verticals isn't obvious from more than a few inches away.

As with most masonry structures, the windows are set into the wall and don't have exterior trim or facing. This requires that the windows be mounted

from inside the walls and upside down to have the upper sash correctly hanging outside the lower.

I also added casings to the windows, 3. These extend through the walls and leave about a .020" lip exposed on the front to work the stucco material up against. Adding this casing also brings the window very close to prototype dimensions.

The small windows for the rear bay and the express room required a little more work, but I also modeled them by modifying no. 5193 windows. I added casings to these windows too.

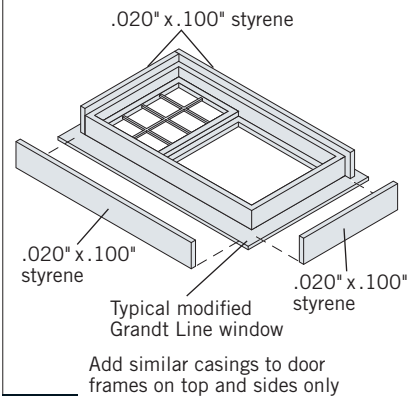
The Grandt no. 5163 door has a frame with a tall transom, but again the multi-pane windows don't match the Lamy depot. There are other differences I decided I could live with, so I again changed the mullions, 3.

I scratchbuilt the large front window in the agent's office and the express room doors, 4. The original express room doors had quarter-circle windows and raised trim. I thought these looked too old-fashioned for 1951, but the current roll-up doors look too modern. The grooved styrene siding I used looks more "fiftyish" to me.

I airbrushed all of the completed windows, including the transom windows, with Polly Scale reefer white, then brush-painted the casings and door frames Great Northern Big Sky Blue. I used the same blue for all the doors.

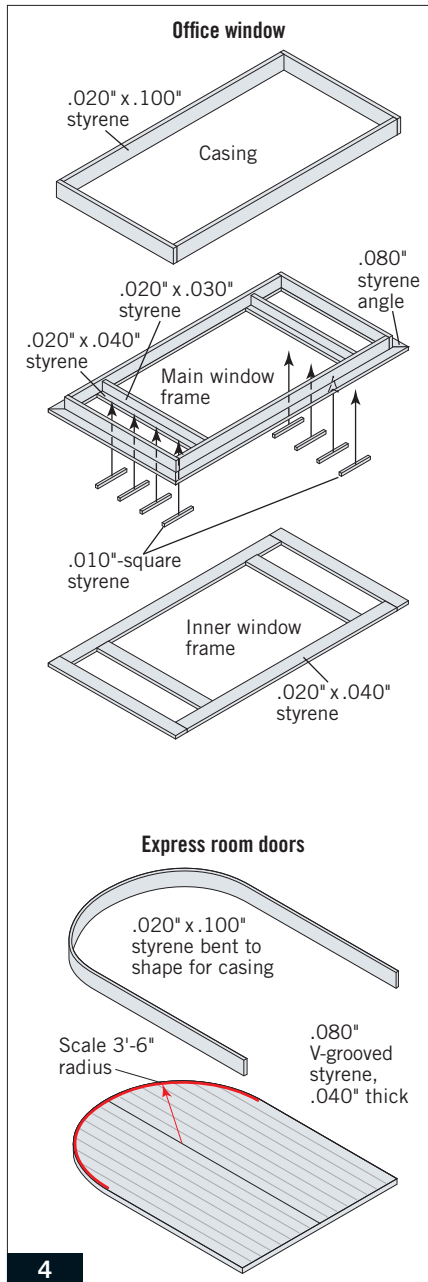


Window casings for stucco walls



3

The photo shows how Grandt Line window and door castings were modified to better match the prototype at Lamy. The drawing shows the casings added to the altered windows and doors so they'd project through the structure's walls from the inside out.



Here's how I made the window and doors.

Construction techniques

I first read about modeling stucco with Durham's Water Putty in an article by Michael Gross in the Second Quarter 1993 issue of the old Santa Fe Modeler's Organization magazine, *Santa Fe Modeler*. That's what I decided to use for Lamy station, but I tested several materials. The sidebar on page 82, "Searching for perfect stucco," shows some other alternatives.

I didn't think the putty would stick well to styrene, so I used 1/16"-thick model aircraft plywood for the depot's walls. Plywood has a little "tooth" for



I used a nibbler, a tool designed to cut openings in electronics cabinets and panels, to cut out the windows in the station's plywood walls.

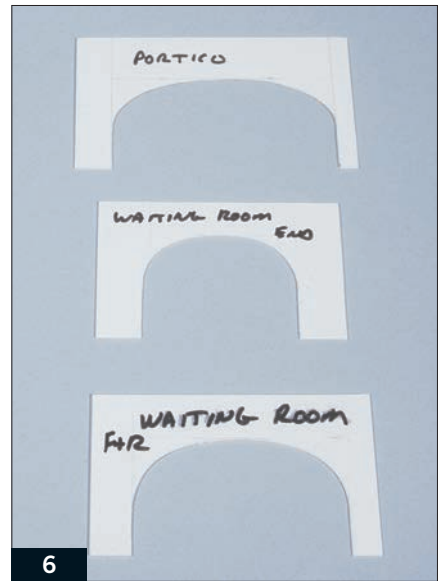
the putty to grab, and the multiple plies resist warping better than plain sheet-wood. Since I'd be using a water-based medium for stucco, I also added a lot of interior bracing with scale 12 x 12 lumber.

Plywood is much tougher to cut than basswood. I tried a circular saw blade in a motor tool and found it made quick work of straight cuts. I sawed just outside the wall outlines I'd drawn on the plywood and sanded the pieces to their final dimensions.

Window and door openings can best be cut with a nibbler designed for electronic cabinetwork. This tool is well worth its modest cost, and it also works well in styrene. To use it, drill a 1/4" hole in each opening and square it with a knife until the opening is large enough for the nibbler head. Next, use the nibbler to trim the opening to the final dimension, 5.

If you look closely at the nibbler head you'll see that one corner is a little deeper than the other three. I got the cleanest cuts by placing the deepest corner right along the cut line.

The many arches are elliptical, so I made templates from .020" styrene for each of three different arch shapes, 6. After cutting out most of a template with a knife, I used a sanding drum in



To lay out the station's elliptical archways on plywood, I made these styrene templates following the prototype drawings. The templates make it easier to achieve consistent arches on the model.

a motor tool on low speed to carefully remove the last of the styrene. I worked slowly and kept comparing the templates to the drawings until I had each one just right.

Using the templates, I traced the arches onto plywood. After cutting the straight sides with the circular saw, I roughed out the arches with the nibbler. Then I used a sanding drum in the motor tool on high speed to smooth the arches to their final shape.

Since 1/16" plywood is roughly 6" thick in HO scale, I laminated a second layer of plywood onto the free-standing walls to give them a realistic thickness of about a scale foot.

Subassemblies

This station is a little more complex than you might think, since I had to figure out how to get stucco inside the porticos and open-air waiting room. I ended up building the central structure, the express room, the open-air waiting room, and the front and rear bays as separate substructures. Also, I added the front portico walls separately after I'd stuccoed and painted the front walls of the main building, 7.

For strength and simplicity I made the front and rear walls of the main structure from single pieces of plywood,

Materials list

Grandt Line

5163 33" doors
5193 36" x 76" windows

Evergreen Scale Models styrene

292 .080" angle
4080 .040" V-groove siding,
.080" spacing

Floquil paint

110791 rosewood stain

Plastruct styrene

90709 .010"-square rod
90721 .020" x .030" strip
90722 .020" x .040" strip
90725 .020" x .100" strip
90767 .080" x .156" strip
91104 .040" sheet
91638 HO scale Spanish tile
sheet

Polly Scale paint

404055 TH&B Cream
404079 oxide red
414113 reefer white
414203 GN Big Sky Blue
414320 aged concrete
414323 rust

Walthers

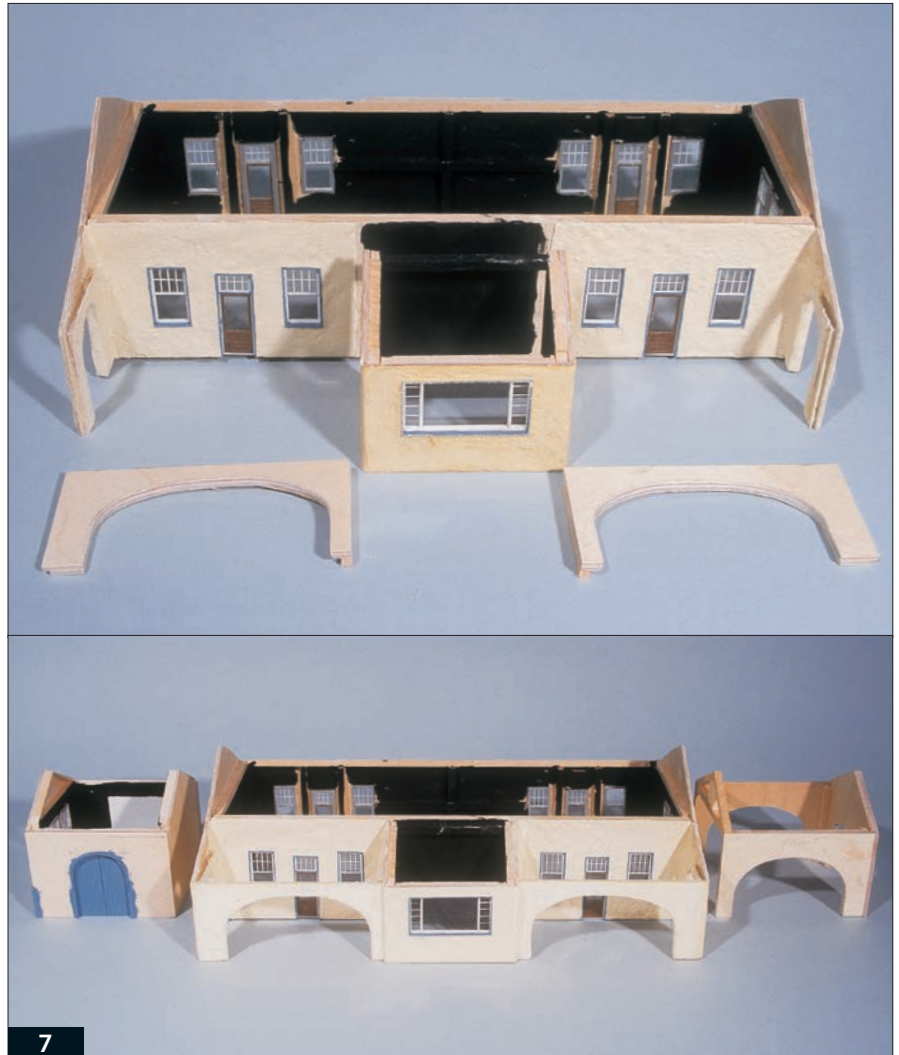
933-3156 brick straight street
sections

Miscellaneous

birch aircraft plywood,
 $\frac{1}{16}$ " x 6" x 12"
Durham's Water Putty
12" x 12" HO scale lumber

leaving solid walls behind the bays. With those areas painted flat black, you can't tell through the windows that there are no openings inside. If you want a detailed interior you'll need to build these walls differently.

I used my photos of the Lamy depot to make reasonable guesses for adjusting dimensions from the drawings. Assuming the side roofs are three feet lower than the main structure at the peak, and that the front and rear walls remained 11 feet tall as shown on the



7

Complex structures can usually be broken down into simpler box shapes that are easier to build. At top is the main building, with the front bay and front portico walls as separate parts. The lower photo shows the express room and open-air waiting room ready to be added as extensions of the main building.



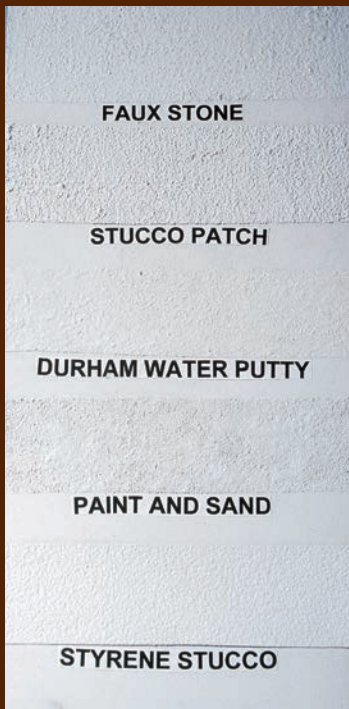
8

Before applying stucco to the walls, I protected areas where other walls will be glued with strips of masking tape. After the walls are assembled, more stucco can be added to disguise the joints.

Searching for perfect stucco

I made the test panel at right to see how five different materials capture the look and texture of the real thing.

Faux stone in a spray can was disappointing as I sprayed it on. However, I was surprised by how good it looked afterward. It seems that it would be very easy to use, but it might be tough to get good coverage in corners and other tight spots with the spray can. For a plain rectangular building, this may be the simplest material to use.



Stucco patch is sold in home improvement stores for patching real stucco. I bought it pre-mixed and spread it with a small putty knife. The texture looks too heavy for HO, but it might work in larger scales.

Durham's Water Putty is a powder that's mixed with water. Don't be surprised if it doesn't look much like stucco at first—working texture into it with your fingers as described in the text makes all the difference. To my eye, this material produces the best stucco texture and is the easiest to work into tight places.

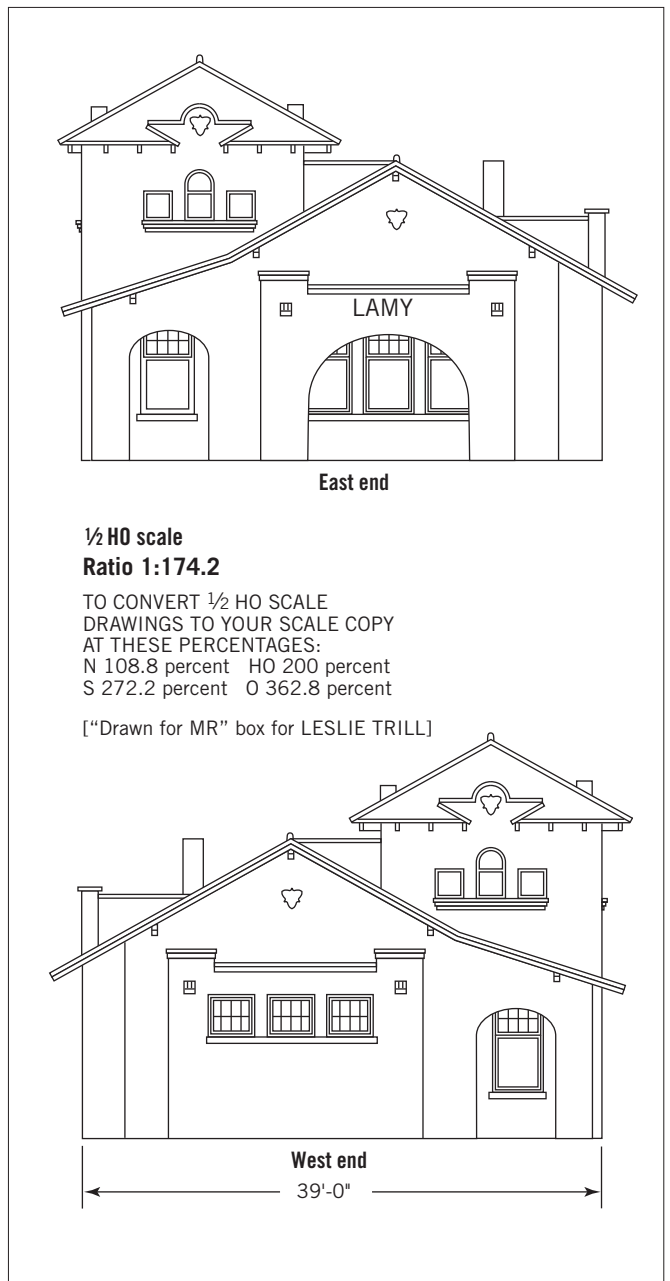
Sand and paint mixtures are often used for textured ceilings in dollhouses and miniature rooms. Using regular latex house paint, I put a little paint into a disposable plastic cup and mixed in sand until I had a fairly gritty mix any fine-grained sand will do). Then I painted it on with an old brush. The mixture quickly becomes stiff, so it's best to work in small batches. As the mixture began to dry, I worked it with my finger until I got a texture I liked. The end result looks much better after it's painted.

Textured styrene sheets by Plastruct come with fine or heavy stucco textures. The back of the heavy sheet looks closest for HO scale. I had great hopes for this material, but when painted its texture looked too uniform compared to the other materials. Corners and seams might be another problem, although modeling putty or plaster could probably hide these, especially if stippled while still soft to match the sheet's texture.

Perception is subjective, so pick the material that looks best to you.—*B.F.*



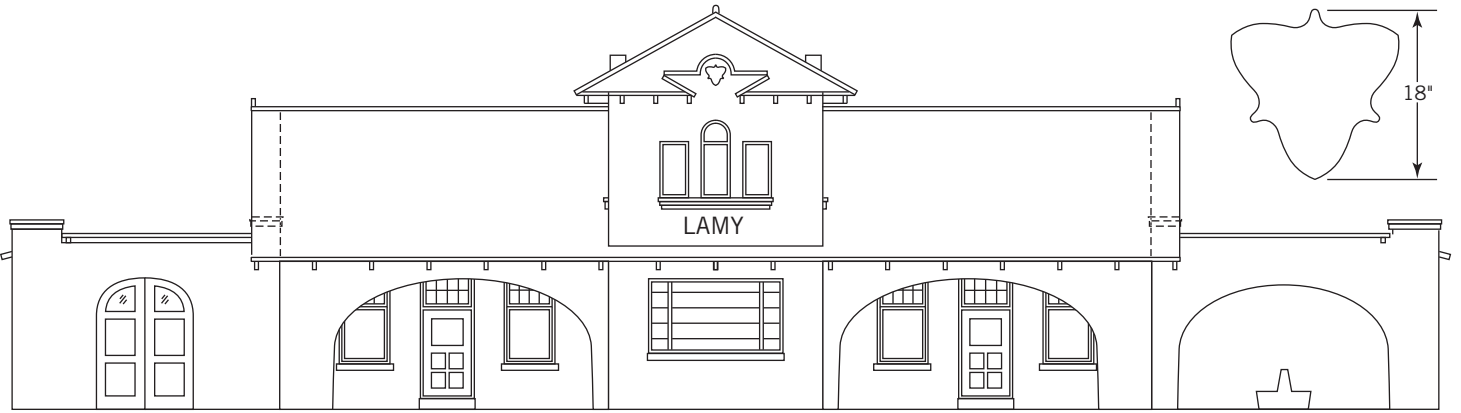
9 To simulate stucco, spread a thin layer of Durham's Water Putty with a plastic knife. It's easy to spread right up to the window and door casings.



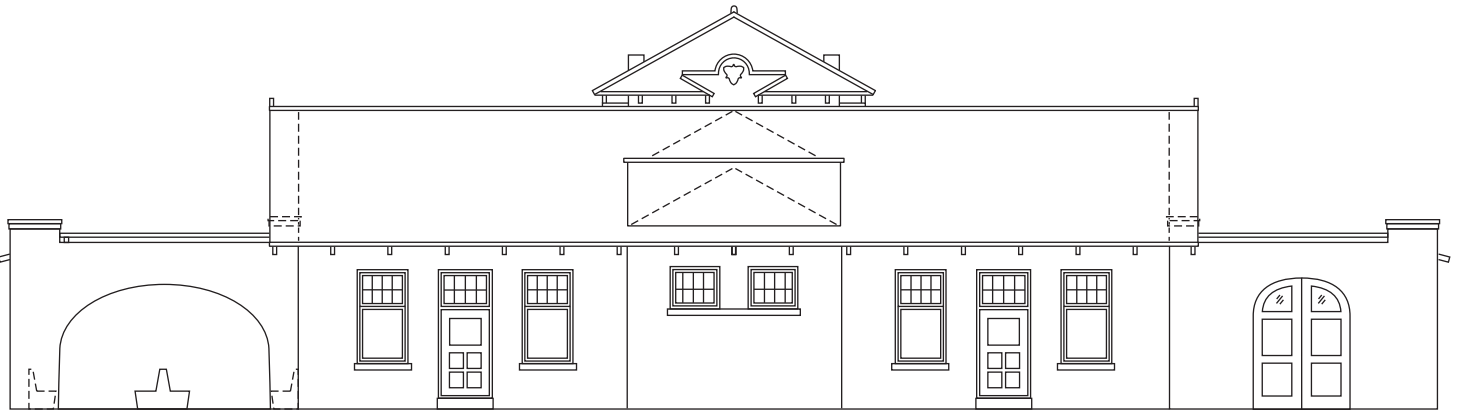
1/2 HO scale
Ratio 1:174.2

TO CONVERT 1/2 HO SCALE DRAWINGS TO YOUR SCALE COPY AT THESE PERCENTAGES:
N 108.8 percent HO 200 percent
S 272.2 percent O 362.8 percent

["Drawn for MR" box for LESLIE TRILL]

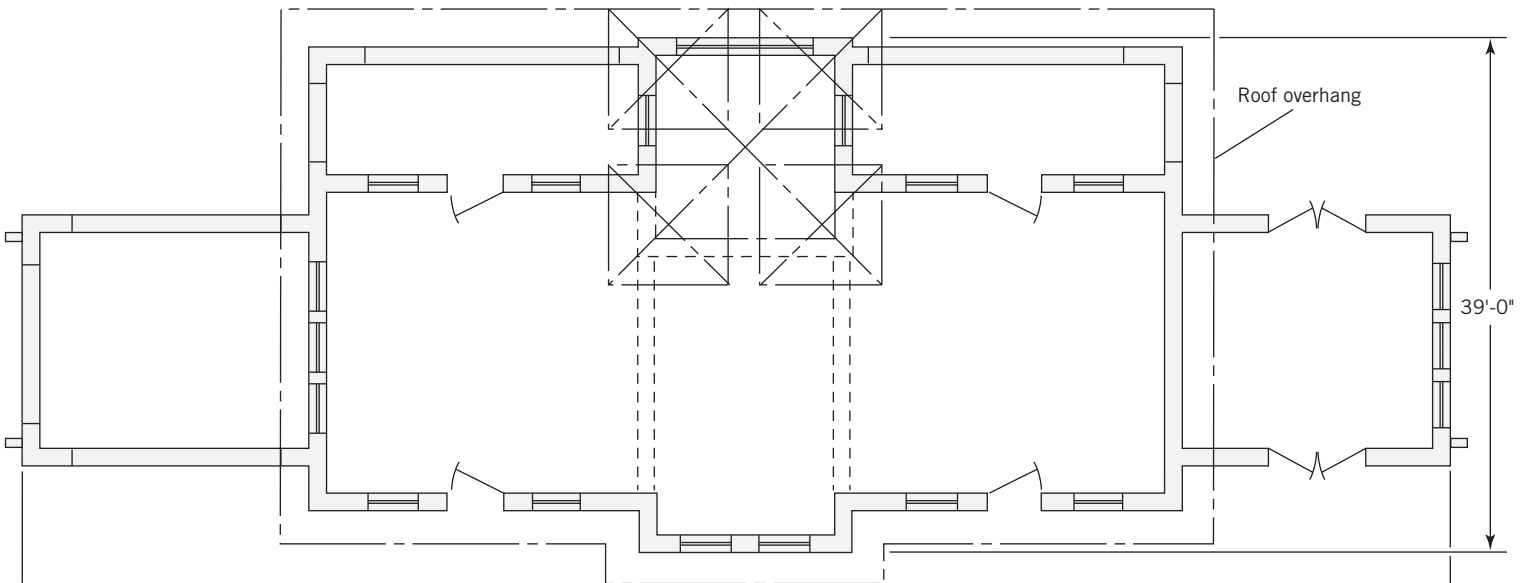


Track side (south)



North side

108'-0"



Floor plan

108'-0"

39'-0"



10

I work the putty with my fingers to get the proper texture on the walls.

drawings, I made the peak of the main roof 15 feet high.

After cutting out the plywood wall sections, I installed the modified and scratchbuilt windows and doors and applied strips of masking tape, 8, to keep putty off places where I'd need to glue wall sections in the later assembly. Note that the main structure's side walls extend past the front wall to form the sides of the front portico.

Stucco

After joining and bracing the walls, I used sandpaper to take the sharp edges off the outer corners to give them the slightly rounded look seen in stucco buildings. If I were modeling an adobe structure, I'd round the corners even more. I then installed the windows with thick cyanoacrylate adhesive (CA). The extended casings on the window frames came through the openings past the plywood, forming a nice dam to work the stucco material up against.

Next I mixed Durham's Water Putty in a small batch the consistency of thick pancake batter and started applying it to the walls with a plastic picnic knife. It takes very little putty to cover the plywood with a thin layer. I found it surprisingly easy to work the putty up to the styrene window casings, 9, without getting much, if any, on the front of the casing itself. Capillary

action tends to pull the putty into the seams between the window and wall.

When the water putty began to set, I patted it with a finger to give it an irregular surface and continued to work it in that way as it dried. This smoothed out some of the larger bumps while retaining the small peaks and valleys characteristic of stucco. When the putty was almost dry, I rubbed it very lightly to even the surface a bit more. If it didn't look right, I just dampened my finger with a little water and worked it again.

The final texture is probably a little rough to be exactly to scale, but it conveys the general look and texture of the real thing. Truly scale stucco texture probably wouldn't be visible at normal viewing distances.

I scraped off any stray material from the window frames with the edge of a knife and touched up the paint with a fine brush. I brush-painted the finished stucco with a Polly Scale mixture of about 75 percent reefer white and 25 percent Toronto, Hamilton & Buffalo Cream. I just kept adding Cream until it looked close to the color in the photos.

Photo 10 shows the finished stucco on the rear bay, which I built as a practice section to perfect my technique.

Roofs

For the subroofs I used plywood over the wings, where the roofs are perma-

nently attached, and styrene sheet over the main structure where I made the roof removable. I measured the model and added three scale feet for overhang for the express room and open-air waiting room roofs. For the main roof I started with dimensions from the drawings and cut and fit as necessary for my 1950s version.

The Spanish tile roofing is vacuum-formed styrene by Plastruct. The sheets have to be spliced to cover the main roof. I carefully matched the pieces to be spliced, coated both edges with Plastruct liquid cement, and pressed them together. The softened plastic welded itself together well enough that I didn't need to use any filler putty.

I attached the tile to the plywood with 3M spray adhesive, and to the styrene with styrene cement. The tile sheets include single rows of tile for the roof caps and eave trim; I added them with styrene cement too. I painted all the roofs Polly Scale rust mixed by eye with a little red oxide.

Platform

For the platform at Lamy I used Walther's brick straight street sections. The prototype platform is straight, but my modeled platform has to bend around a curve on my railroad, 11. Since there would have to be seams in the brick anyway, I made the platform in segments to keep the rows of brick as close to parallel with the track as possible. Brick paving extends inside the portico and the open-air waiting room, and it also forms walkways around the depot.

To provide a base for the platform I used cork roadbed to build up the height of the platform area. Then I fit the brick segments together and added styrene strips across the seams on the bottom side to both reinforce the splices and raise the platform close to railhead level. When all the pieces were ready, I glued the platform to the cork with Walther's Goo.

I painted the brick with Polly Scale rust, and I thinned aged concrete to use as a wash for the mortar lines. The wash settles into the crevices, mottles the uniform color of the brick, and tones it down. Don't forget the brick



11

Walthers molded street sections represent the brick station platform. Notice the platform between the tracks and the wooden crossing for passengers and baggage carts.

platform between the two tracks and wooden crossings to let passengers and baggage carts reach trains on the outside track.

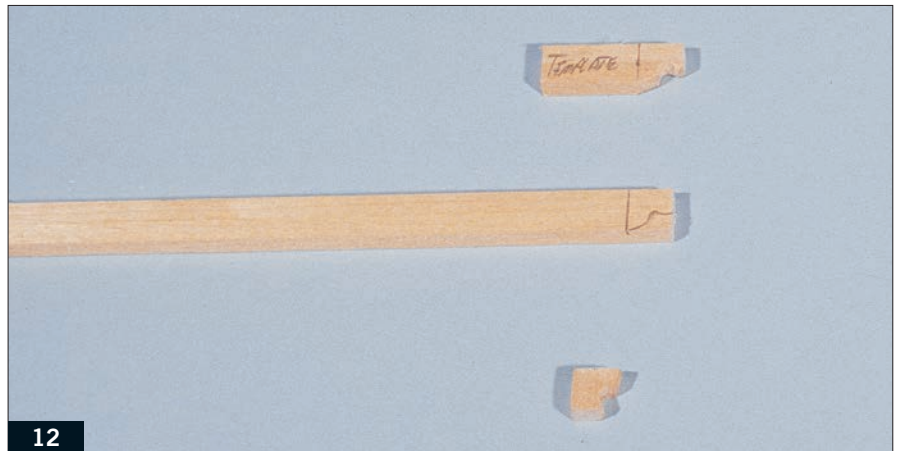
Details

The Santa Fe provided cast concrete benches for its patrons in the open-air waiting room. I used some wood seats from an old passenger car interior kit, but it wouldn't be hard to shape benches from styrene or wood.

I made the chimney from four pieces of scrap wood that gave it roughly the correct girth. The plastic vent cap on top came from my scrap box, and I covered the rest of the chimney with stucco. The plumbing vent is a short section of scrap aluminum tube.

The decorative corbels are doubled-up 12 x 12 scale lumber. First I carved a pattern for them and traced it onto the wood stock, then I shaped the corbels using files and a cutter bit in a motor tool. After each corbel was shaped, I cut it off the stock with a razor saw, **12**. I stained the corbels a rosewood color.

The prototype has angle iron to protect the express room door frames and corners against baggage carts. For



12

After carving a pattern for the decorative corbels, I traced the outline onto wood stock and shaped it with a cutting wheel in a motor tool and files. Then I cut off the finished corbel and repeated the process.

the express room corners I used 1/8" styrene angle, but for the doors I used strips of .030" x .040" styrene to make my own angles. Estimating from the photos, I made all of these four scale feet high and painted them Big Sky Blue.

The station signs on the prototype are freestanding metal letters painted white. To model them I applied scale 12" decal letters to .010" styrene, then cut out the letters with a hobby knife. I painted one set of letters white and glued them to a small piece of styrene

angle. After painting the angle to match the roof, I glued the assembly in place above the office bay.

I painted the end letters white too, but they didn't contrast well with the light-colored walls. I repainted them black and glued them directly to the walls. I used the edge of a sticky note as a straightedge and also marked it for use as a spacing guide for applying the letters.

This was my first stucco structure, but now I won't hesitate to tackle the others I need.



CHAPTER NINETEEN

Model a demolished house

By Al Skinner

Photos by the author

Al Skinner shows how he modeled a demolished structure using scraps from laser-cut wood kits and a scratchbuilt foundation.

I enjoy modeling things for my N scale layout that are often overlooked, like this house being razed. Adding a demolished structure to your model railroad, **1**, is an easy task that can be finished in one or two evenings.

Getting started

Once you have a place to put the doomed structure, determine its footprint size and shape. Cut some cardboard into shapes you think might look good and try positioning them on the lot. I used cardboard from a cereal box as a template to cut a base of .020" styrene sheet.

Foundations for a house without a basement are no deeper than three or four feet. I used .080" thick styrene sheets, 2, cut in strips a scale 3/6" wide, for the foundation walls.

After connecting the walls and securing them to the base, paint them a suitable concrete gray. Make sure you paint the interior sides too.

I used Woodland Scenics' foam putty to make the dirt floor. Vary the dirt level but make sure the foundation walls are visibly higher than the dirt floor. Don't bank the dirt high up against the walls.

Once the putty dries, you can add piping or conduit sticking out of the dirt. I made the black soil pipe using solid no. 22 insulated wire and the cinder blocks that have been knocked loose are made from short pieces of .080" x .080" styrene strip.

Model debris

I avoided large chunks of debris. Breaking up pieces with your fingers and cutting different lengths of wood make the pieces look realistic. Doors and window frames can be made by cutting just outside the edges of any rectangular hole in the styrene sheets.

Scraps with overspray on them also work well for this. If you don't have any scrap pieces like this, I recommend splashing some paint, stain, or weathering washes on pieces of unpainted wood.

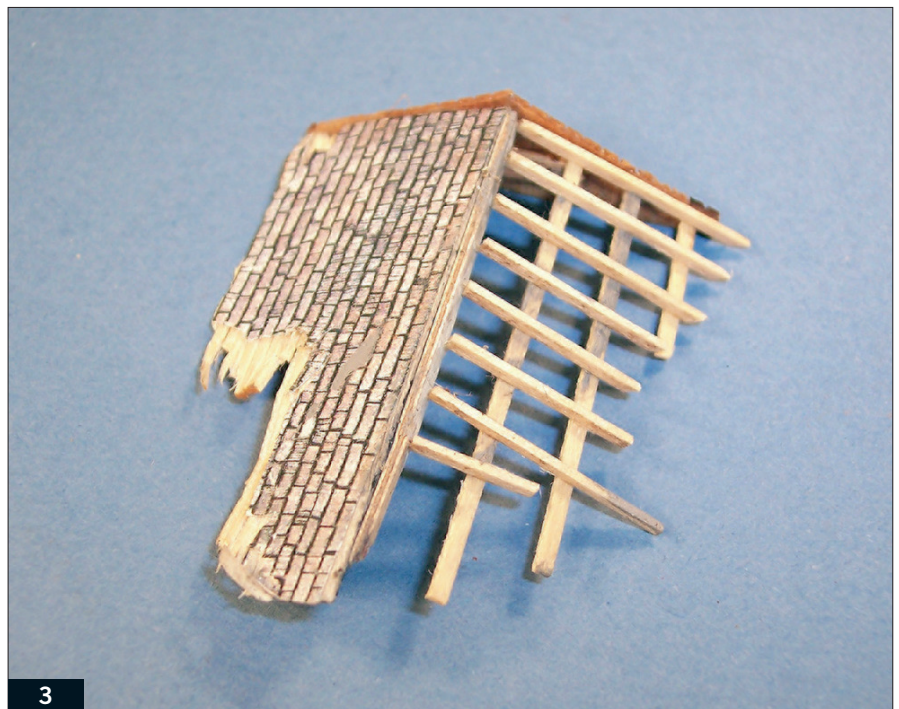
You can add detail to the pile of scrap wood by adding a section of the structure that's not fully demolished. As you can see in 3, I chose part of the roof, but you can use this same technique to make a porch or an interior or exterior wall.

Once the debris pile is complete, I position the foundation on the lot. It will look best if the walls are parallel to the lot lines, but set it as you like and



2

I used .080" styrene to model the house foundation, then added a knocked-down wall, piping, and cinder blocks for more detail.



3

This corner of the roof was left largely intact to give the debris pile more detail.

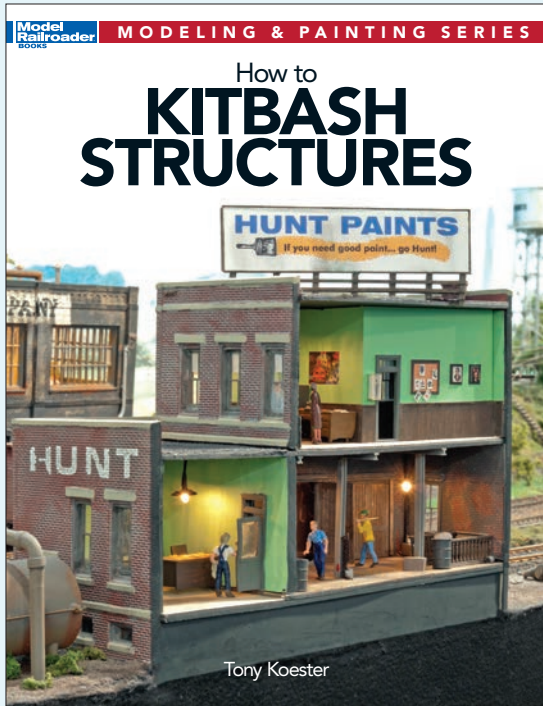
mark the outline on the scenic base. The top of the foundations should be at a scale foot above ground level.

To make this scene more convincing, I heaped up a little pile of debris, glued the roof onto the pile, then added more debris where needed. When the pile looks the way you want it to, cement it down with diluted white glue.

Another application

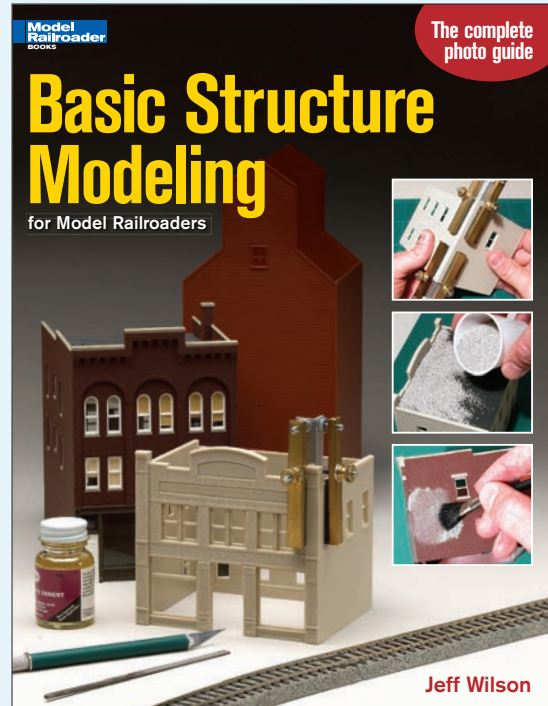
To take this project in the opposite direction, you can apply the same foundation-making steps as the start for a house under construction. Instead of broken bits, add details such as a neat pile of lumber, carpenters working, and tools. Either way, this technique will provide an interesting scene for your layout.

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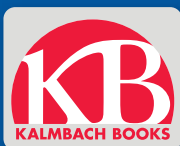
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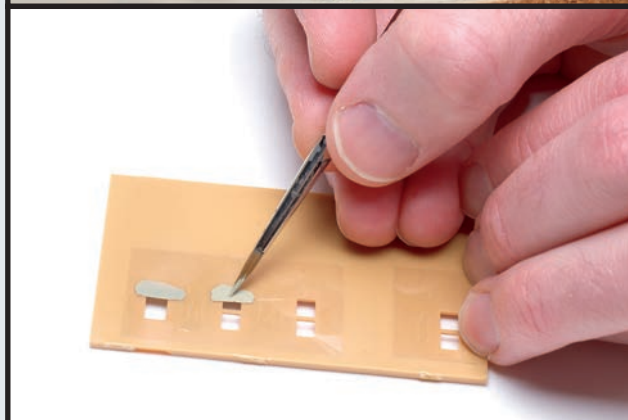
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