Thank you for your order!

Enjoy your *Model Railroader* Information Station package.

Please note that because of the size of some illustrations contained in this document, we've presented them in two formats: These include copies of the individual pages to make reading the story easier, as well as a copy of the multiple-page spread so that you can view the illustration in its entirety.

Also please remember that this copyrighted material is for your use only. It's unlawful to share or distribute this file to others in any way including e-mailing it, posting it online, or sharing paper copies with others.

Sincerely,

The staff of modelrailroader.com

Troubleshooting Guide:

Please note: *Packages are color intensive. To save color ink in your printer, change your printer setting to grayscale.*

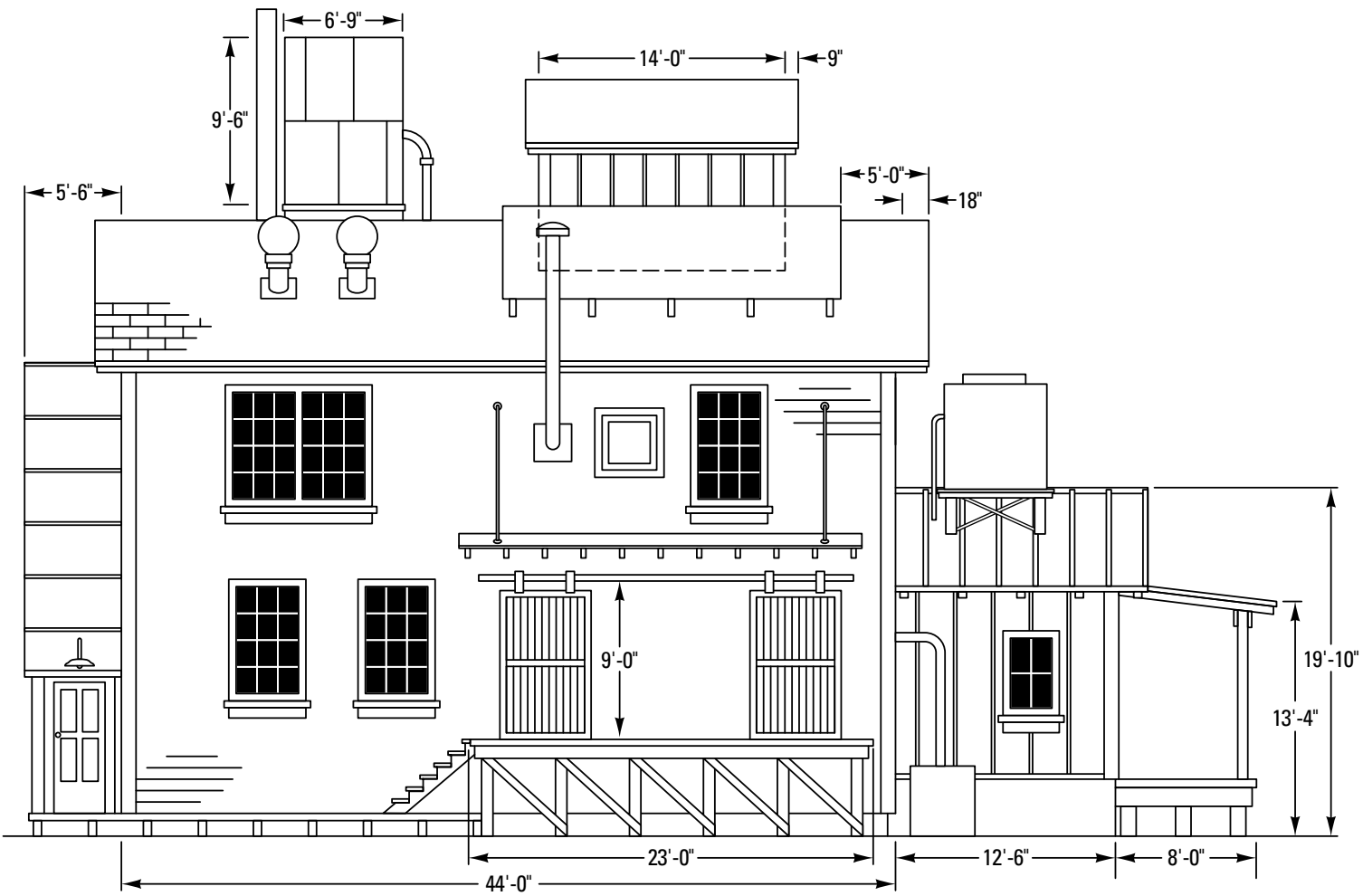
SAVING PACKAGE
Save the package when you download the PDF. Click on the computer disk icon in Adobe Acrobat, or go to File, Save.

MY PRINTER WON'T PRINT THE TEXT CORRECTLY
Close all other programs/applications and print directly out of the Acrobat Reader program, not your Web browser. Printing problems are caused by not enough free system memory.

PAGES ARE NOT PRINTING FULL SIZE
Set your printer to print 100% and make sure "print to fit" is not checked under printer setup or printer options.

If you have suggestions on how we can improve this product or have topics you'd like to see in future Information Station packages, please contact us at **infostation@trains.com**

Structure plans and projects



Scratchbuilding may be necessary to get a specific structure for your model railroad. David Leider used styrene to model the Central Wisconsin Seed Co. for his HO scale layout based on Waupaca, Wis., in the summer of 1947. David Popp photo

SCRATCHBUILD a styrene structure

These easy-to-follow techniques can be used in any scale

By David J. Leider • Photos by the author

My HO scale Soo Line layout, featured in the June 2008 issue of *Model Railroader*, depicts Waupaca, Wis., in the summer of 1947. One of my goals with this model railroad was to re-create the central Wisconsin town as accurately as possible.

While I was researching the community, I quickly realized that I'd need to scratchbuild most of the structures, including the Central Wisconsin Seed Co. With styrene and commercial door and window castings, I was able to build a convincing model of this rail-served businesses in a short time.

The full-size Central Seed Co. was built shortly after World War II. What made this business interesting is that it received rail shipments from the Green Bay & Western at one end of the building and Soo Line at the other. Truck shipments were handled at the covered dock.

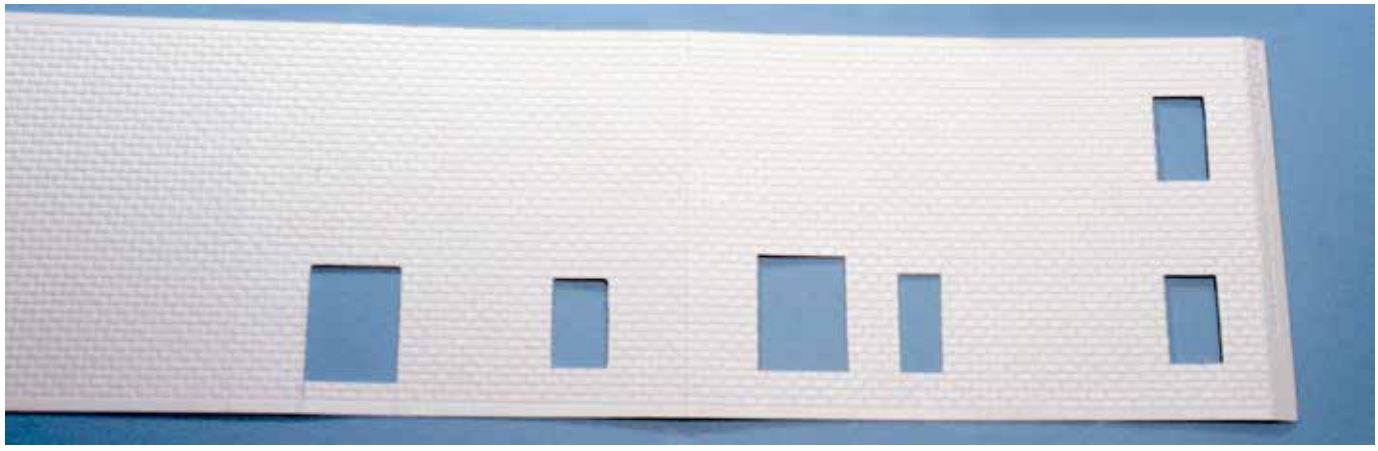


Fig. 1 Block siding. David used Holgate & Reynolds concrete block siding for the two-story warehouse, but similar products are offered by Plastruct and the N Scale Architect. He cut the material in one piece to eliminate corner joints.

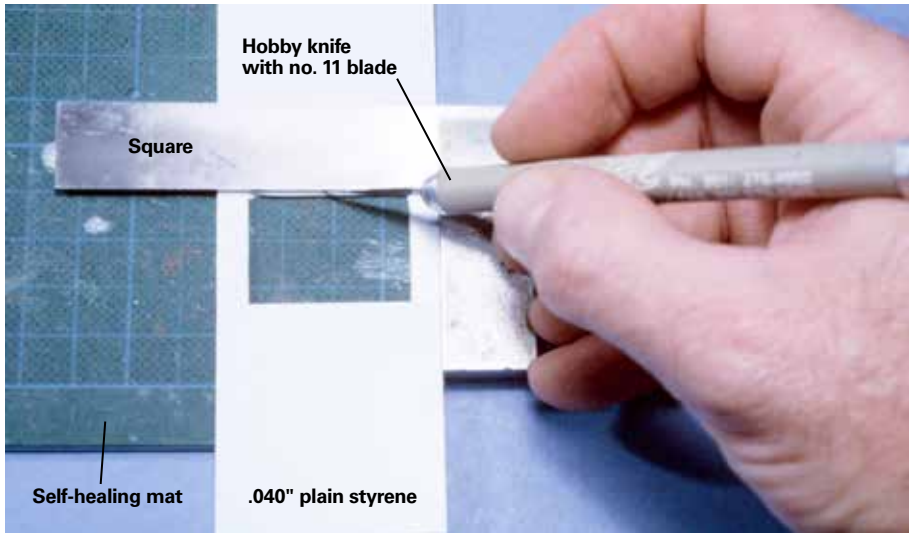


Fig. 2 Transferring the openings. After cutting the door and window openings in the concrete block siding, as shown in fig. 1, David traced the outlines on to .040" plain styrene sheet. He's using a sharp no. 11 blade and a machinist's square to make clean, accurate cuts.

Two-story warehouse and office

I built Central Seed Co. in three sections, starting with the 30 x 40 scale foot two-story warehouse and office. Note that three walls are a scale 27'-9½" tall, while the dockside wall is 26 scale feet.

I used Holgate & Reynolds concrete block patterned styrene sheet for this section of the building. I found out after I started the project that Holgate & Reynolds siding sheets are no longer available. Similar patterned sheets are offered by Plastruct (91620) and the N Scale Architect (50005).

After cutting the styrene sheet to the appropriate height, I used a fresh no. 11 blade to cut the door and window openings, shown in **fig. 1**. To prevent the thin styrene from bowing, I reinforced it from the interior with .040" plain styrene sheet. Before I attached the patterned styrene to the plain sheet, I traced and cut the openings for the doors and windows on the latter, as seen in **fig. 2**. Once all of the openings for the doors and windows were cut, I assembled the four plain walls with styrene cement.

I cut the floor and subroof from .040" styrene sheet. Then I attached the floor to the structure's base to keep the building square during assembly. After the styrene cement had dried, I finally attached the Holgate & Reynolds concrete block sheet with cyanoacrylate adhesive (CA). I also added .040" x .080" strips to the inside of three walls to support the subroof. All of this is shown in **fig. 3** on the next page.

Windows, doors, and paint

With the exception of the freight doors, which I scratchbuilt, I used Grandt Line door and window castings for the two-story warehouse. I test fit each door and window to make sure it seated properly and was level.

Materials list

Builders in Scale
532 ribbed-seam roofing

Evergreen styrene
119 .015" x .250" strip
144 .040" x .080" strip
264 .125" channel
8106 1 x 6 strip
8204 2 x 4 strip
8210 2 x 10 strip
8608 6 x 8 strip
9006 .010" clear sheet
9020 .020" sheet
9040 .040" sheet

Grandt Line
5179 42" x 72" double-hung window
5621 door

Holgate & Reynolds
1050 concrete block

Northeastern Scale Lumber
3022 HO scale 3 x 6
6509 scribed sheathing, 3/32" spacing

Plastruct styrene
90532 3/32" channel
90856 .045" rod
91620 concrete block

Polly Scale paint
414113 Reefer White

Miscellaneous
Contact cement
Cyanoacrylate adhesive
Fine sand
N scale ballast
Styrene cement

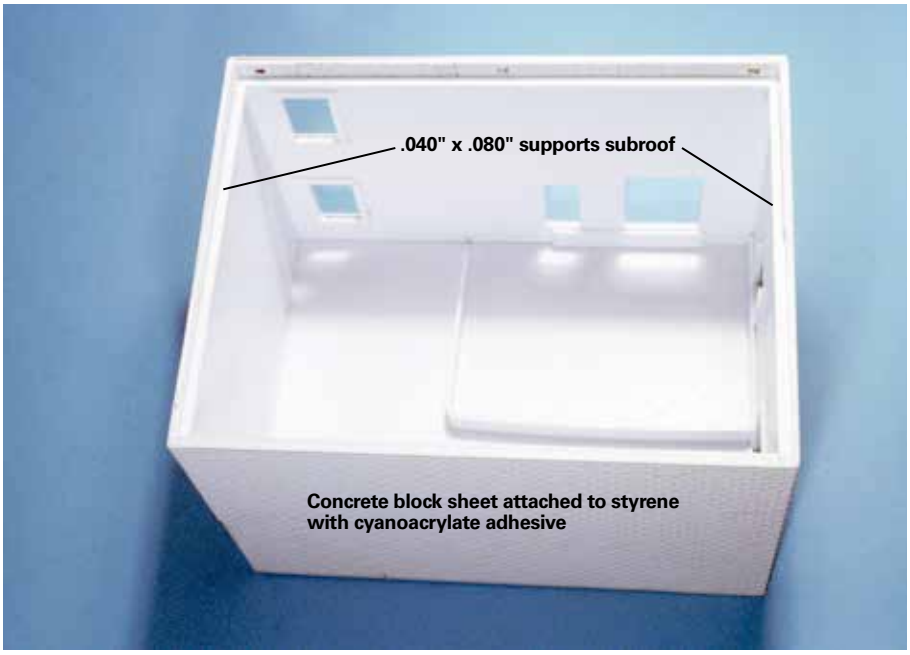


Fig. 3 Ready for painting. David used styrene cement to assemble the four wall sections he cut from .040" plain sheet. Then he attached the concrete block with cyanoacrylate adhesive and installed .040" x .080" strip to support the subroof. After taking the photo, David realized the wall should be shorter on the dock side, so he removed a portion of the wall to the height of the roof support.

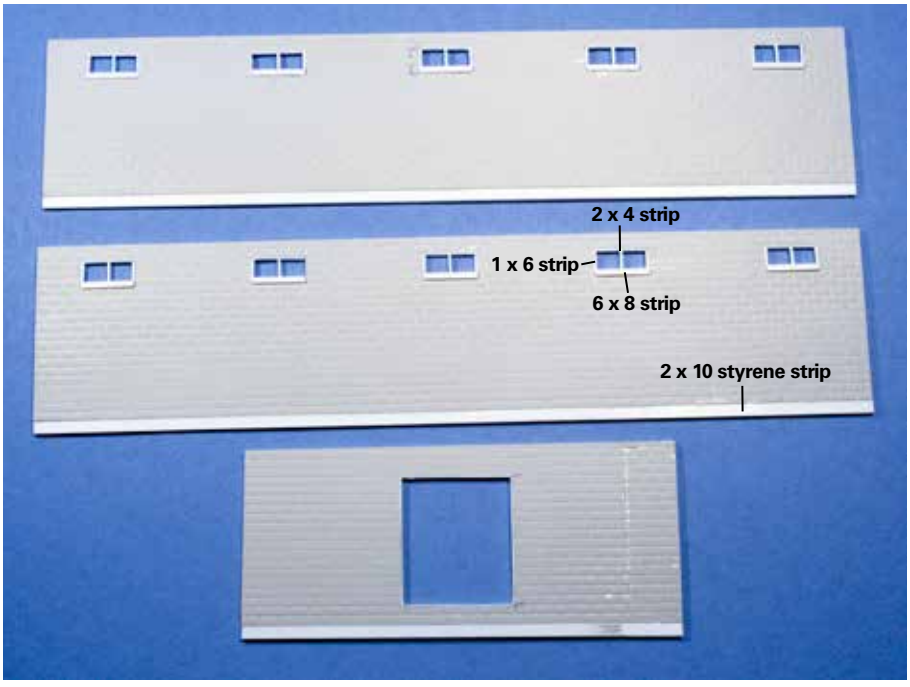


Fig. 5 One-story warehouse. David switched to Plastruct concrete-block patterned sheet styrene for the one-story warehouse. He scratchbuilt the windows and roll-up freight door from styrene strip and sheet.

I built the freight doors by laminating strips of .015" x .250" strip to .040" sheet, seen in **fig. 4.** I framed the inside of the freight door openings with .040" x .080" to recess the doors.

I then cemented a length of .125" styrene channel just below the roofline on the dock side of the building. I used a second piece of the channel, 37 scale feet long and 14 feet above the foundation, to make a support for the dock roof, which comes later.

Once the doors were completed, I painted the building, doors, and window castings Polly Scale Reefer White. After the paint dried, I glazed the windows with .010" clear styrene. I glued the windows into their openings so the frames were flush with the face of the concrete block; the doors are recessed into the frames.

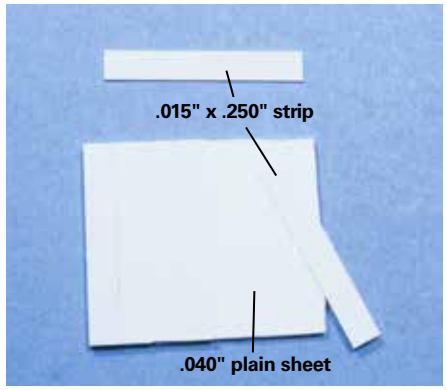


Fig. 4 Freight doors. Though David primarily used Grandt Line door and window castings, he scratchbuilt this freight door from styrene. He laminated strips of .015" x .250" styrene to .040" plain sheet to simulate a roll-up door.

Up on the roof

I glued the subroof to the .040" x .080" strip supports. Since part of the interior wall is visible above the roof, I cemented scraps of concrete block to the wall.

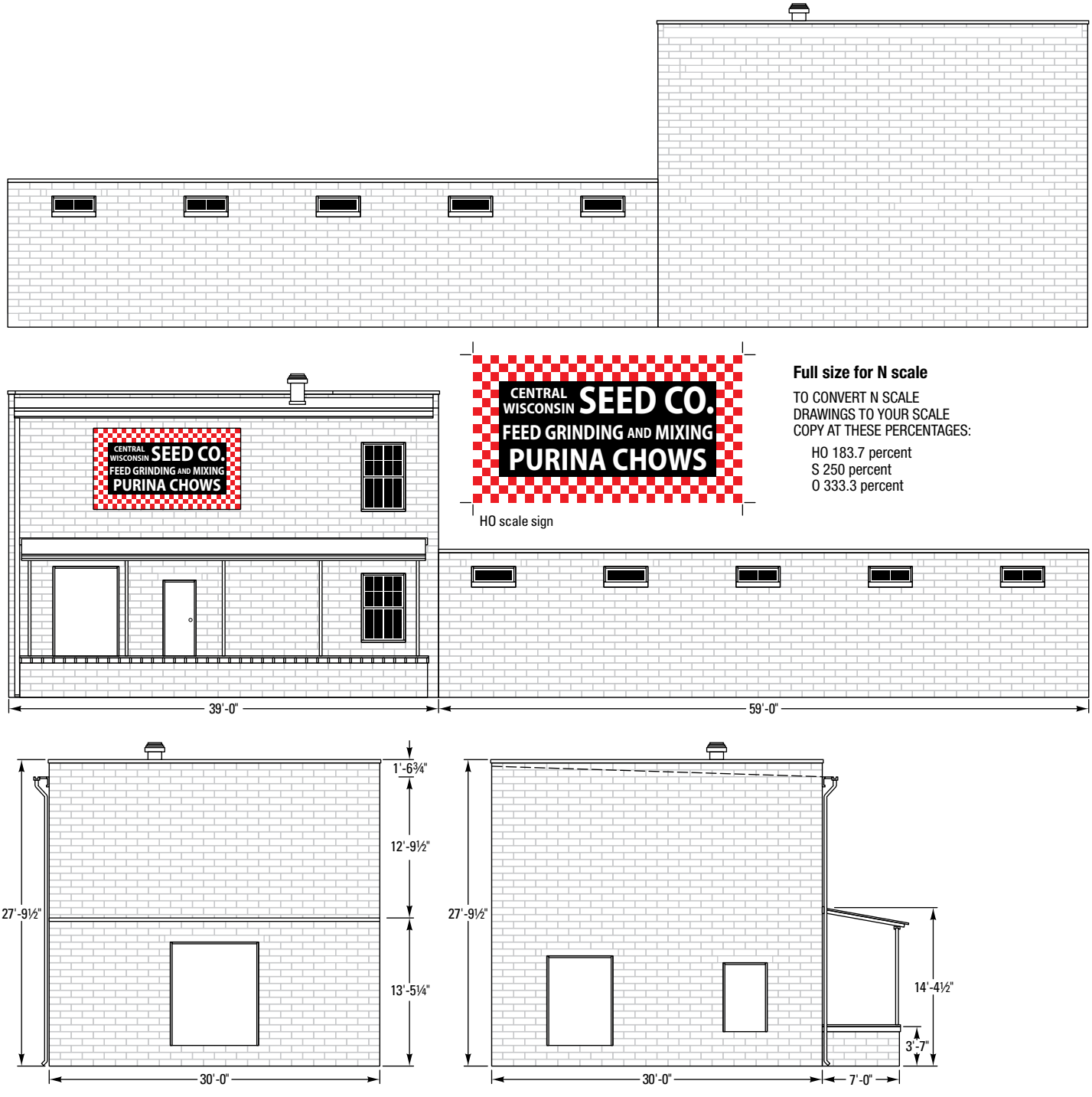
I used .020" styrene for the roof, which overhangs the dock side by a scale foot. I coated the styrene with a thin layer of rubber cement. With the cement still wet, I sprinkled on a layer of fine sand. When the cement dried, I sprayed the roof flat black, simulating a tar-and-gravel coating.

Then I attached the main roof to the subroof with CA and added the gutters (3/32" channel with capped ends). I used .040" x .080" strip for the downspouts, rounding the corners with sandpaper and bending the ends with pliers before cementing it to the building. The roof-caps are .040" x .080" strip.

One-story warehouse

Next, I turned my attention to the 30 x 58 scale foot one-story warehouse. I started by cutting the inner walls from .040" sheet. Then I used styrene cement to attach a 2 x 10 strip foundation; this part of the building is a scale 13'-9" tall. I aligned the Plastruct concrete block along the seam between the wall sections and foundation. Don't put concrete block on the wall that attaches to the two-story warehouse.

I overlapped the concrete block by .040" plus the thickness of the siding. I tried to cut the patterned styrene sheet at a full or half block so the seams wouldn't be too obvious.



HO scale sign

Full size for N scale

TO CONVERT N SCALE DRAWINGS TO YOUR SCALE COPY AT THESE PERCENTAGES:

HO 183.7 percent
S 250 percent
O 333.3 percent

Then I cut the openings for the doors and windows in the concrete block and styrene sheet and smoothed the edges with fine sandpaper. I used 6 x 8 styrene for the window sills. I cemented the sills flush with the back of the patterned sheet so they'd protrude slightly from the blocks. I framed the windows with 1 x 6 strip and used 2 x 4 strip for the center partition, seen in **fig. 5**.

I assembled the four walls, making sure they were square and fit properly against the two-story warehouse. I didn't put a floor in this part of the structure. Instead, I made braces from scrap styrene to keep the walls from bowing.

Once the glue dried, I painted the one-story warehouse to match its two-story counterpart and used the same roofing techniques as before. After attaching the roof to the building, I set it aside.

Loading dock

The last part of Central Seed Co. is the 7 x 38 scale foot loading dock. The prototype dock has a concrete block foundation with a wooden deck. To build this, I cemented Plastruct concrete block siding to .040" plain sheet for the base. I used scribed wood siding with 3/32" spacing for the deck and attached 3 x 6 stripwood stringers to the bottom. Make sure the dock height (3'-9") matches the door height before gluing the deck to the base.

Next, I cut the support posts for the dock roof from .045" rod. I used a no. 56 bit to drill holes through the wood deck

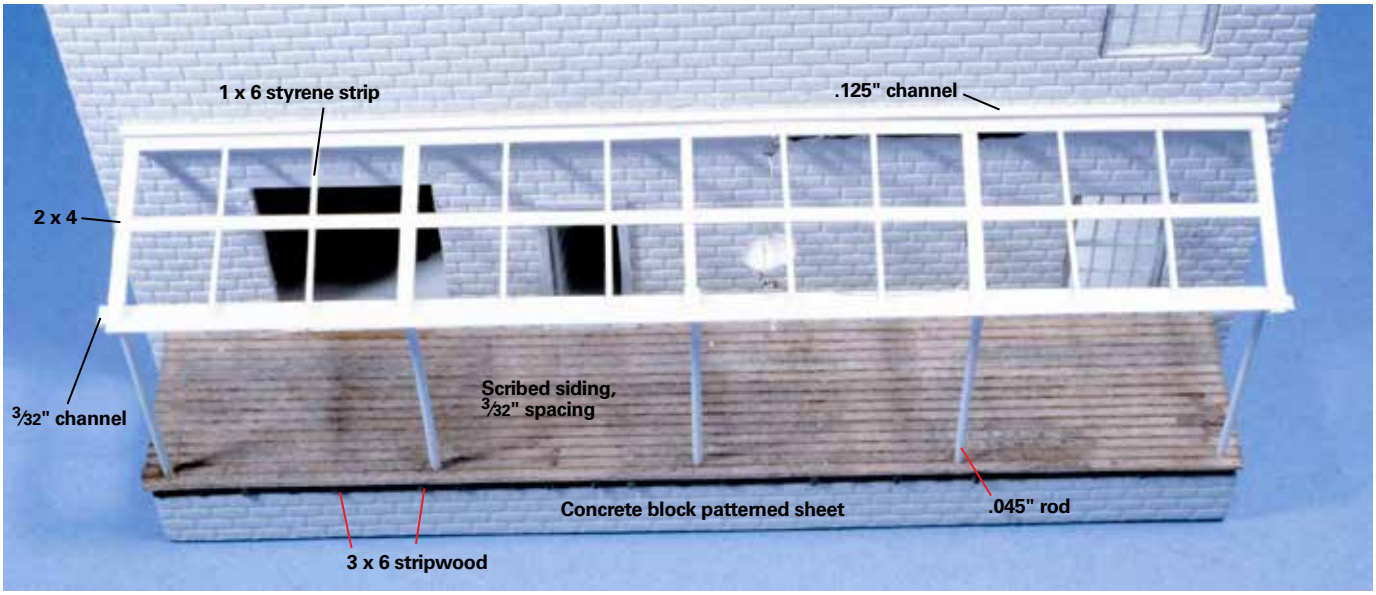


Fig. 6 Dock roof. A mix of styrene and stripwood was the perfect recipe for the seed company's dock. David later attached Builders in Scale ribbed-seam roofing to the styrene rafters with CA.

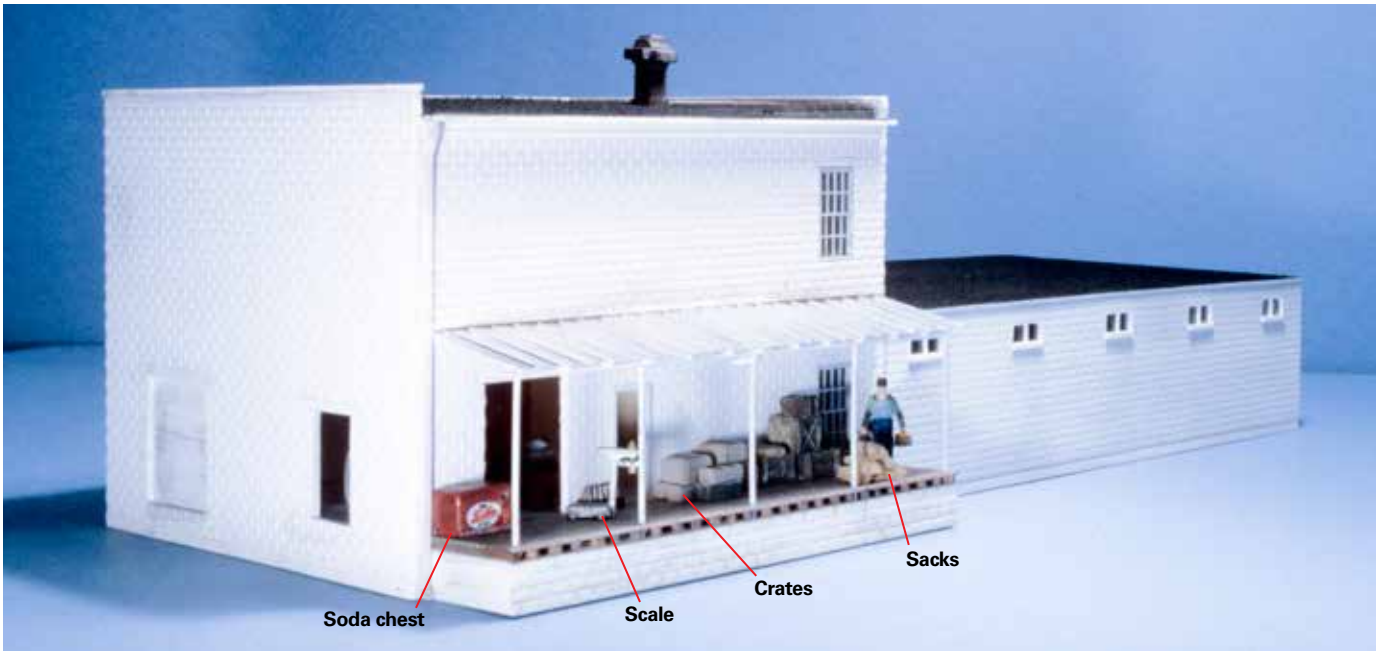


Fig. 7 Dock details. With the building painted and assembled, David added cartons, barrels, and sacks to the loading dock. Since the building was just one year old in 1947, he weathered the structure only lightly.

into the styrene foundation. I topped the posts with a piece of 3⁄32" channel, which I drilled to accept the posts, and glued them in place. This assures the posts are square.

I then turned my attention to the 2 x 4 rafters, which I cemented into the .125" channel on the wall and to the top 3⁄32" channel on the posts. Above this I glued several 1 x 6s lengthwise, as shown in **fig. 6**.

I cut the Builders in Scale ribbed-seam roofing to fit in the .125" channel yet slightly overhang the rafters. After I attached the metal roofing with CA, I toned down the sheen of the real metal with black shoe polish diluted in rubbing alcohol. Since the building was just a year old in 1947, I weathered it only lightly.

Final details

I added cartons, barrels, and sacks to the loading dock so the Central Seed Co. would look like a busy industry, as seen in **fig. 7**. I left three doors open and added an inner partition, which I filled with boxes and barrels. The model also has lights on the dock and inside the building for night operations.

I made the sign, shown on the previous page, on a computer and printed it on color printer. After attaching the paper to a piece of .005" styrene sheet, I cemented it to the building with CA.

If you need a prototype-specific structure, try building it from styrene. The material is readily available, easy to cut and glue, and it takes paint well. And if you haven't scratchbuilt a model before, give it a try. You'll be happy with the results. MR

David Leider lives in Prospect Heights, Ill., and is National Model Railroad Association Master Model Railroader no. 413. He is a member of the Soo Line Historical & Technical Society.

This model of the Union Pacific's freight station in Glendale, Calif., is part of the last module that will complete Bruce Petty's HO layout. Its loading dock serves four freight cars, and the spur in the driveway can be used as a team track.

Scratchbuild a freight depot

This HO model of Union Pacific's Glendale, Calif., postwar freight station is built from styrene with a loading dock made from real concrete

By Bruce Petty • Photos by the author

Union Pacific built this modern-looking freight station midway along the 1.25-mile Glendale Branch that once was part of the former Glendale & Montrose Ry. The post-World War II structure was built of brick with large windows for natural light, and topped with a white gravel roof.

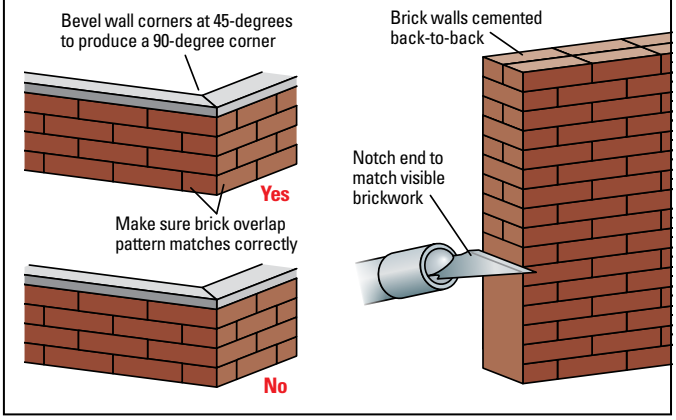
The branch was a joint operation, with Southern Pacific and UP operating it during alternating years. A retired SP conductor who worked this job says the lack of a runaround track on the branch meant cars had to be pushed up to the freight station from a connection off SP's main line north of Taylor Yard.

Gathering information

I've discovered much of the fun in scratchbuilding models is researching the historic background of the project I'm building. This includes searching out information from books, magazines, and the Internet. The plans for this structure were originally published in the June 1967 *Model Railroader* in an article by hobby pioneer Whit Towers.

To keep things organized, I have a binder filled with clear 8½" x 11" vinyl page protectors. Each future project has a folder that contains my own hand-drawn plans done on 8" x 10"

Fig. 1 Brick construction details



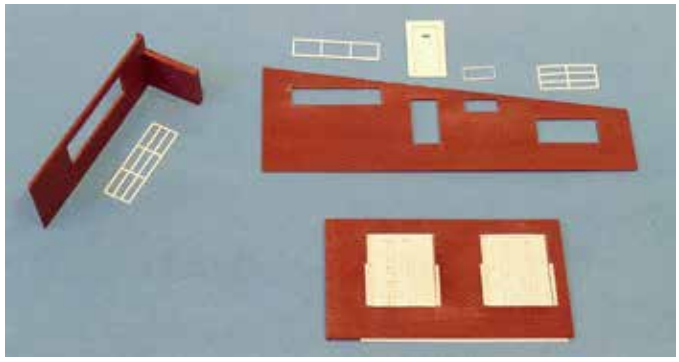


Fig. 2 Brick walls. Bruce made three of the office walls from brick-textured styrene. He made multiple cuts with a hobby knife to rough cut the door and window openings, and then finished them to exact size with needle files.

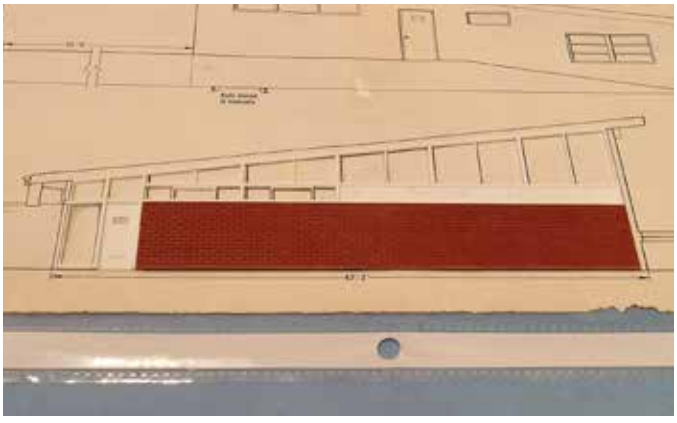


Fig. 3 Front wall. A single brick panel makes up the lower front wall. Bruce used pieces of .030" square strip styrene to fabricate the doorway and upper window framing.

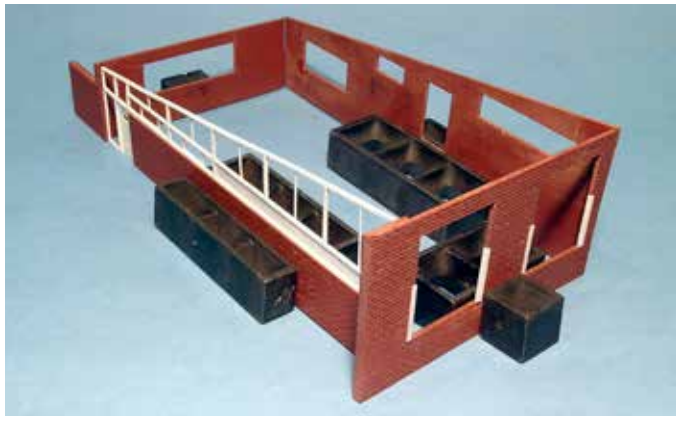


Fig. 4 Wall assembly. The front corner is a T joint, but the other three have filed 45-degree bevels as shown in fig. 1. Steel blocks held these joints square while the glue set.

sheets of graph paper, photocopies of published plans, and any photos I've found that will enhance the modeling project.

During construction, I try to do a little each day. This adds up to many hours of pleasure without being onerous. By not rushing the project, the finished model turns out much better.

Styrene construction

The prototype depot's brick appears to be slightly larger than common brick, but the Vollmer brick sheet is pretty close in appearance. I used two sheets to make the three full sides of the building and the low front wall. As I marked the outlines to cut out the walls, I was careful to align the bricks at the corners so the overlaps would match, as shown in **fig. 1**.

I cut out the window and door openings in my walls using a straightedge to guide my careful scribing along the mortar joints into the window corners. I was able to cleanly remove the waste brick, as shown in **fig. 2**. Then I smoothed the inside edges of the wall openings with needle files.

There are two extended wing walls on the front corners of the station. I cut matching pieces of scrap brick that I cemented back-to-back to make the wing walls. The trick here was to align the bricks so I could scribe the mortar joints across the visible edge after the cement hardened. See **fig. 1**.

Windows and doors

I cut Evergreen scale 2 x 4 and 2 x 6 styrene strips to frame each window opening. First, I cut the long top and bottom 2 x 4s and then the upright sides and post. The prototype windows were wider than standard, as they were hinged to open out from the bottom. I used a small brush to apply a minimal amount of cement to hold these parts together without bonding them to the brick. My plan was to paint the windows individually and add clear glazing before installation. See **fig. 2**.

I fabricated the two roll-up doors by using .020" sheet as a backing behind the freight door openings. Pieces of blue painter's tape held these sheets in place while I used scale 2 x 6 styrene to frame each doorway and cut pieces for the intermediate cross-members. However, I didn't glue these doors in place until after they were painted.

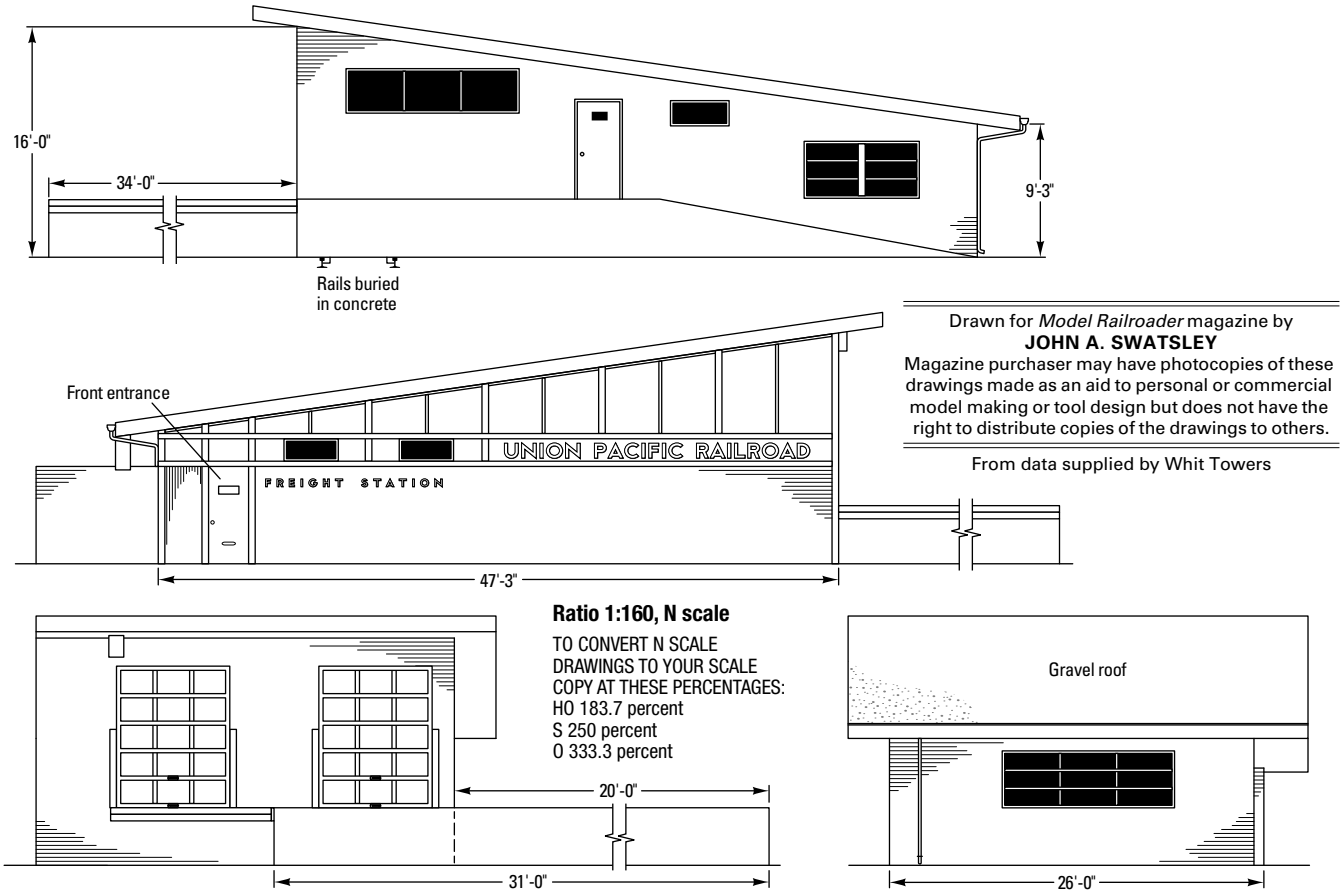
On the street side, a low brick wall supports the large windows. For this wall, I taped a vinyl sheet over the model plan and used .030" square styrene to fabricate the windows and door frame right on the plan as shown in **fig. 3**. The glue I used doesn't stick to the vinyl, so I could fit and glue the small parts in place and let them harden overnight.

There are three corners where I used a flat file to bevel the corner joints before assembly. The corner next to the wing wall forms a T-shaped joint, so beveling wasn't necessary. **Figure 4** shows the building after I assembled the four walls.

The flat roof

The roof consists of three layers of .040" styrene that fit together as shown in **fig. 5** on page 46. The bottom panel has a centered opening a scale 26'-0" x 47'-3" that slips easily over the walls. Then I framed all of the inside and outside edges with .040" strips and added the top panel to make a roof .120" thick.

I sanded both long sides smooth by laying the sandpaper on a plate-glass backing. Then I marked the vertical angles at both



From data supplied by Whit Towers

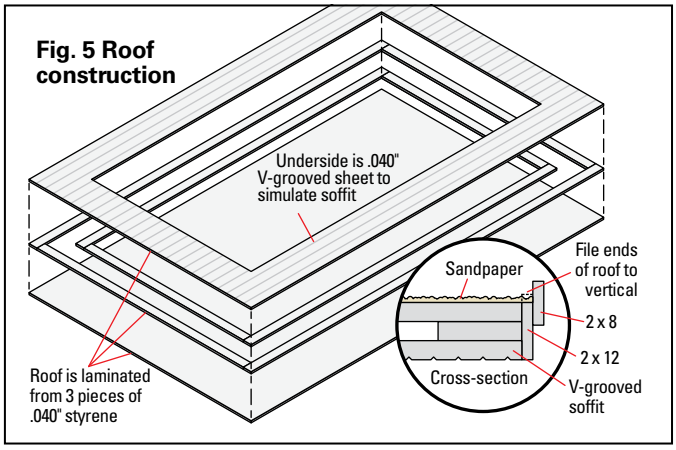


Fig. 5 Roof construction

ends of the roof and sanded them smooth. Finally, I applied 2 x 12 styrene strips around all four roof edges. See **fig. 6**.

Roof end support

Because of the wide overhangs, the UP added a decorative block to support the corner of the roof used by workers needing ladder access to the roof. This block was connected to the bottom edge of the roof and the low wing wall.

I laminated four small pieces of .040" styrene and clamped them tight. The following day, I sanded the block to shape, being careful to match the angle of the roof, as any discrepancy will be easily noticed. Then I glued the block to the underside of the roof, **fig. 6**, but not to the brick wall. I also didn't glue the roof to the structure until after I finished all the painting and installed the clear styrene windows.

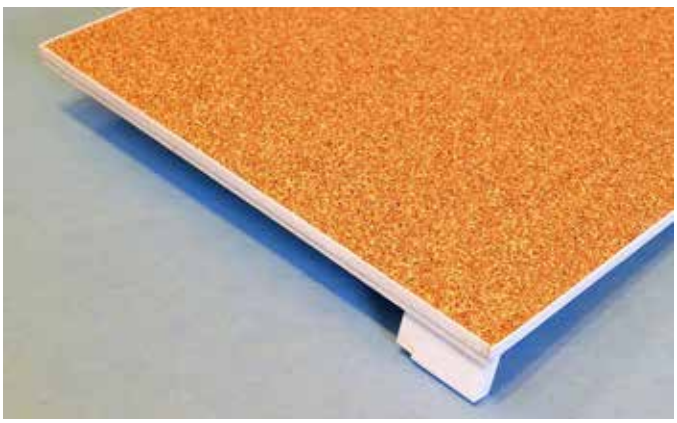
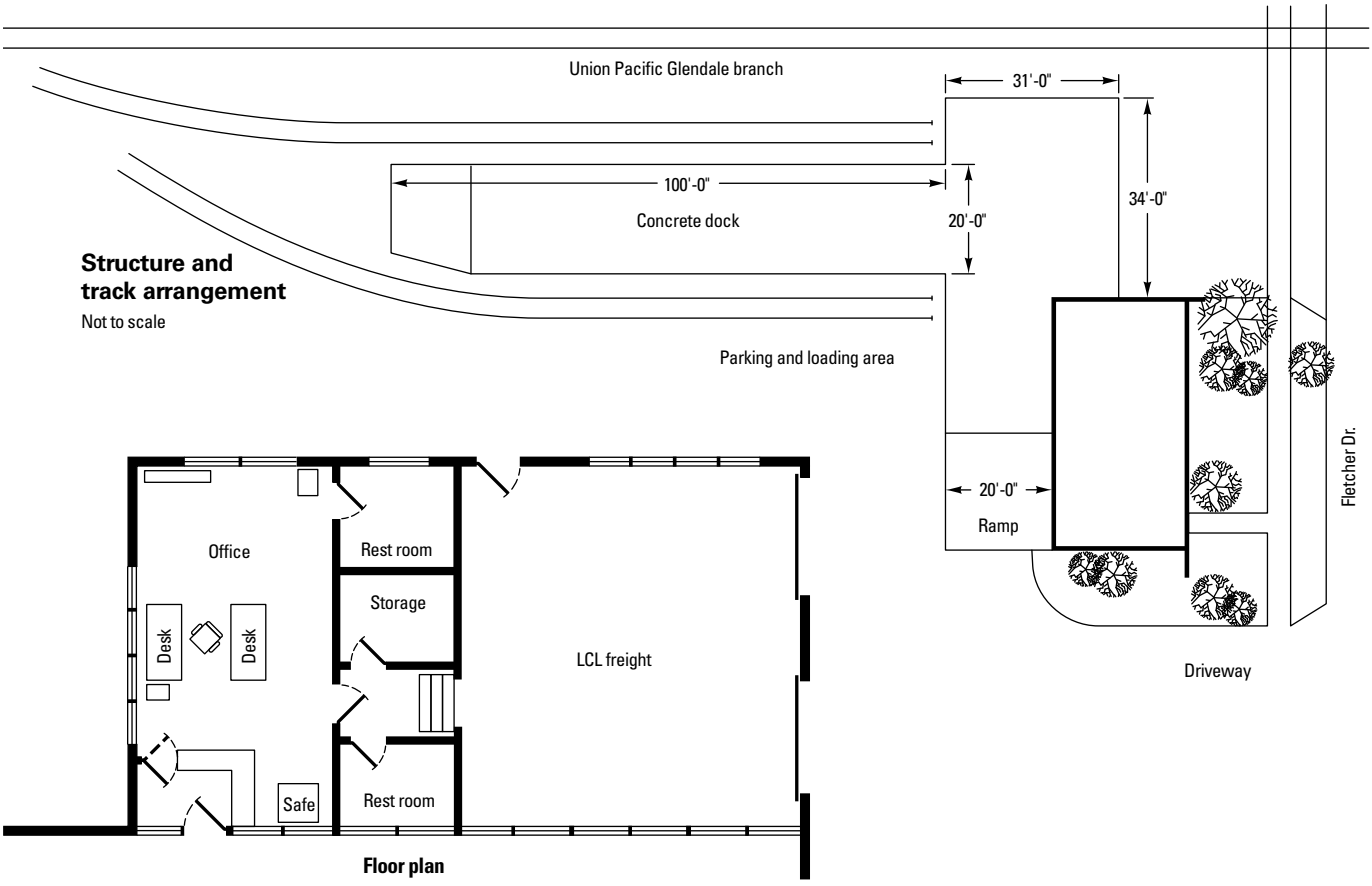


Fig. 6 Roof assembly. Once the laminated roof panels were dry, Bruce applied a sheet of coarse sandpaper he later painted light gray to simulate a gravel surface.

Gravel roof

A white limestone gravel roof was common on buildings in Southern California. A piece of 80-grit sandpaper mounted on the roof with Zoom Creative Products double-faced adhesive film captures this appearance. I cut the adhesive sheet to fit the roof, leaving a .030" border all the way around. Then I removed one side of the protective waxed paper from the film and carefully laid it on the styrene roof without any bubbles or wrinkles. I then removed the top piece of waxed paper and laid the roof on the back of the sandpaper. Using finger pressure on the sandpaper, I pressed it tight to obtain a good bond.

Using the roof as a guide, I trimmed the sandpaper flush along all four edges and finished smoothing the edges of the roof with 320-grit emery paper. I turned the roof over so it was face down on a clean, flat surface and added a 1 x 8 trim strip made of scale styrene, as shown in **fig. 5**. Following a test fit, the roof and office structure were ready for paint. See **fig. 7**.



Painting

I never did get around to taking a picture of the prototype Glendale freight station, though I saw it many times. I sprayed all of the styrene parts with primer and let them dry for a few days. A close look at the available black-and-white pictures led me to believe the station's brick was a lighter color than the standard brick red. With this in mind, I used an airbrush to spray all of the walls with a lighter red I bought at an art store that was a closer match to the prototype's rusty-red brick.

After the color dried, I used a ½" wide brush to apply a water base gray wash to represent the mortar lines. Each wall was done upright by itself and allowed to dry before I used a soft damp rag to rub the excess gray off the brick faces.

While the roof was still unattached, I sprayed the eaves, edges and sandpaper top with light gray paint. This color photographs as white, so the trim and roof gravel still look right.

My black-and-white photos weren't much help as I tried to decide on the paint color for the front window trim and roll-up doors. This building's modern design called for something other than UP's normal green trim. I learned a rusty red was used up to 1940, so I mixed brown and light gray to get a medium brown that fit with my brick color. Then I spray-painted the doors and front window frames with this mixture.

Module construction

Building this freight station required construction of a new 18" x 60" module for my Los Angeles & San Fernando Valley RR [featured in the *2006 Great Model Railroads – Ed.*]. With some greatly appreciated help from a friend with woodworking machinery, it only took a few minutes to cut the materials.

I assembled the frame at home and installed a ½" plywood top. Next, I cut a sheet of ½" SoundBarrier, a high-density specialty structural board made by Homasote Co., to fit and glued

Fig. 7 Test fitting. The finished roof should fit snugly on top of the office walls. It wasn't fastened to the walls until after the structure was painted.

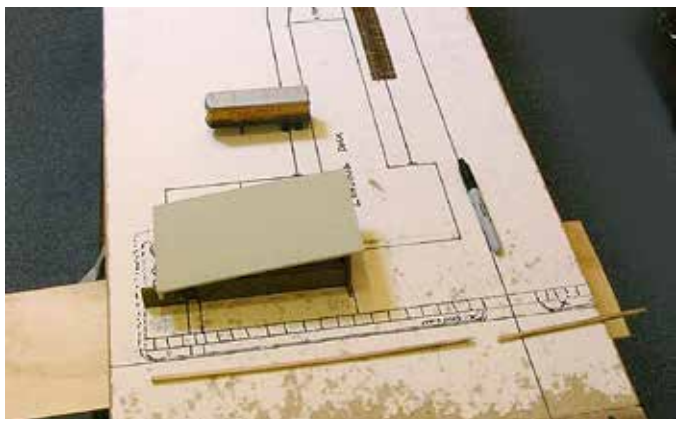
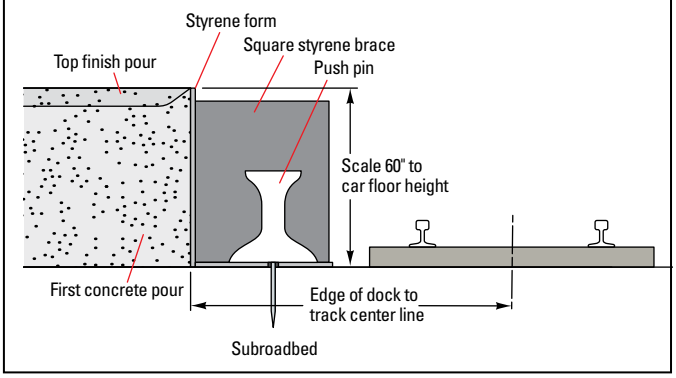


Fig. 8 Layout site. Bruce's next step was to build the layout section the depot would occupy in order to provide real estate for the concrete dock's construction.

Fig. 9 Concrete dock forms



Materials list

DAP
10466 Concrete patch (dry)

Evergreen styrene
8108 scale 1 x 8
8204 scale 2 x 4
8206 scale 2 x 6
8212 scale 2 x 12
9005 .005" clear sheet
9020 .020" sheet
9040 .040" sheet
4100 .100" V-groove sheet

Paint colors
Light gray
Light gray primer
Rust
Medium brown

Vollmer
6028 brick sheet

Zoom Creative Products
Clear, 2-sided adhesive film
stuff4scrapbooking.com

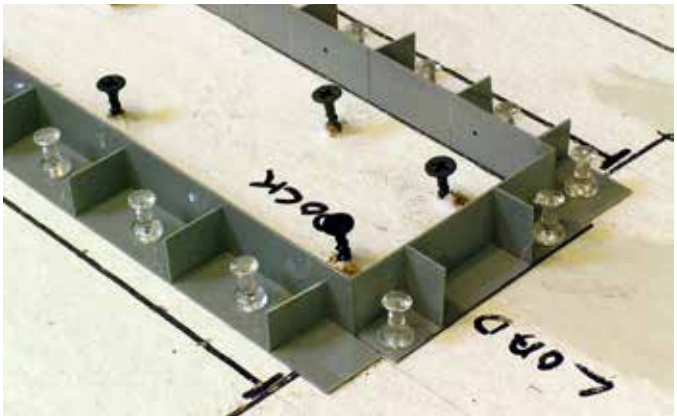


Fig. 10 Concrete forms. Push pins hold the styrene forms in place when the concrete is poured. The screws driven inside the form anchor the cured concrete in place.

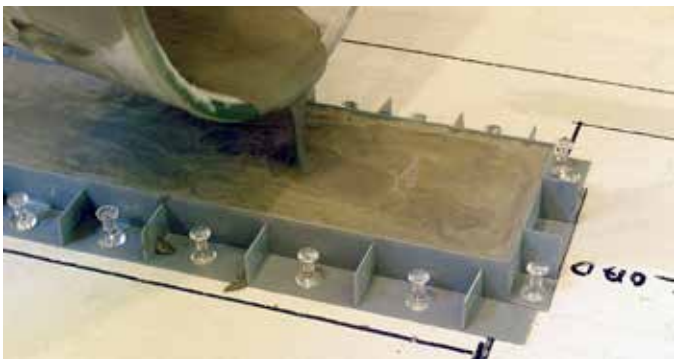


Fig. 11 Concrete. Bruce mixed the concrete in a glass bowl and gently poured it into the forms, stopping about 1/32" from the top. A second small pour would finish it off.

Fig. 12 Form vibration. Bruce used an empty mandrel mounted in a motor tool to vibrate the sides of the forms to release any air bubbles that might be trapped inside.

it to the plywood, leaving ¾" end setbacks. Then I glued the ½" x ¾" pine strips into these end spaces to complete the module shown in **fig. 8** on page 47. I use these pine strips on all of my module ends to secure the flextrack. Then I used a felt marker to lay out the turnouts, track, and building site.

Concrete loading dock

The large loading dock is a major feature of this freight station, so I decided to try using real concrete. Using concrete was going to be an interesting learning experience, since I wanted to capture the texture of the prototype's form lines and wood grain that remain in the concrete after the forms were removed. I cut .030" styrene into strips a scale 60" wide (the height of my boxcar floors above the subroadbed on code 83 flextrack).

The prototype loading dock was made with plywood forms, so I scribed vertical joint lines into my styrene forms at 8-foot intervals. I scribed these lines about halfway through the styrene to make sure they'd show up on the finished dock. Then I used rough sandpaper to scratch in simulated wood grain.

The base of my form was the same width as its height, and I drilled holes through it for push pins that held it in place. See **fig. 9**. Then I made square (right angle) supports slightly lower than the form top to clear the concrete finishing tools.

My first forms were made for the long loading dock, with plain ends where the end loading ramp and the main dock would be added later. I glued the corners of the vertical forms together; these joints would later be split with a hobby knife to remove the forms after the concrete cured. Then I added some screws to hold the finished concrete down, as shown in **fig. 10**. I drove these screws through the SoundBoard and into the plywood so their heads were about midway in the slab.

Before pouring the concrete into the forms, I rubbed a disposable brush on wet bar soap and coated the inside surfaces of the styrene to keep the concrete from sticking to the forms.

I used a medium-size glass bowl to mix a 50-50 blend of DAP Concrete Patch and Hydrocal that still sets properly and produces the correct color. I put about a third more of the 50-50 dry mixture into the bowl than I thought I'd need to fill the forms. Dry mixing of the concrete patch and Hydrocal was necessary to crush any clumps and work it all into a uniform, smooth mixture. Otherwise, the clumps will break up during mixing and produce discolored spots in the concrete.

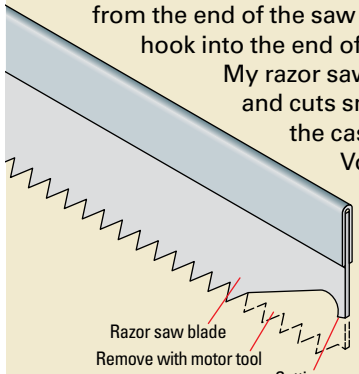
Be careful adding water to the bowl, as I found it doesn't take very much to reach a thick soup-like mixture for the pour. See **fig. 11**. I filled my form to within 1/32" of the form tops to leave space for a final surface pour later on. Then I used a motor tool, running at slow speed with an empty mandrel, as a

Styrene cutting tool

Cutting along the groove between molded brick or grooved styrene siding with a hobby knife leaves an angled edge that should be square. This narrows the shape of the brick or board so it's noticeable later on.

To avoid this problem, I made a tool that produces a square, straight cut along the brick mortar line. My cutter is a modified razor saw blade that I shaped with a motor tool grinding disk. I removed a small portion from the end of the saw blade and cut a sharp hook into the end of the thin blade.

My razor saw blade is only .008" thick, and cuts smoothly and quickly along the cast mortar joints in the Vollmer brick sheets. I use a steel rule as a guide on the good side of the cut to prevent damage if I slip. I also use small clamps to sandwich the brick sheet between the straightedge and the cutting board. – *B.P.*



Styrene scribing tool

vibrator to lightly run along the form sides and release any trapped air bubbles or voids in the concrete forms. See **fig. 12**.

I allowed the concrete patch to cure until it had a firm top surface before I mixed a second small batch and applied it. Then I used a drywall filler knife (it looks like a big putty knife) dipped in water to smooth the surface. After the concrete cured for several days I carefully removed all the forms. Then I laid out the next section making sure the forms matched the building and the finished dock shown in **fig. 13**.

My dock ramps were done similarly, using two side forms that must be parallel. I cut a sheet of styrene to fit between the forms and extend the length of the ramp. This ramp required a small, slightly thicker batch of concrete so it wouldn't run while I used the loose styrene panel as a dam, and filled the ramp area about halfway with concrete. Holding the bottom end tight, I tipped the styrene panel forward and pressed it down to squeeze the trapped concrete into the ramp shape. I added push pins across the lower end to secure it while the concrete cured. Then I removed all the forms and smoothed any rough edges with emery cloth as shown in **fig. 14**.

I installed a hardboard foundation for the office building, and the depot site was ready for final detailing with streets, driveways, the lawn, and foliage.

Figure 15 shows the ramp side of the finished office. The primary truck transfer point for most customers was the front dock that faced Fletcher Drive. See **fig. 16**. To protect the building I mounted a heavy timber "truck bumper" under the freight door and along the edge of the concrete dock.

My last step will be to add some railroad-owned trailers in the parking lot and a flatbed or two at the docks. MR

Bruce Petty has been an HO modeler since the early 1960s. He's published five volumes of Southern Pacific Common Standard Plans, *and several other books on SP subjects. He and his wife, Cheryl, live in Dunsmuir, Calif. You can also visit his website at http://lariverrailroads.com.*

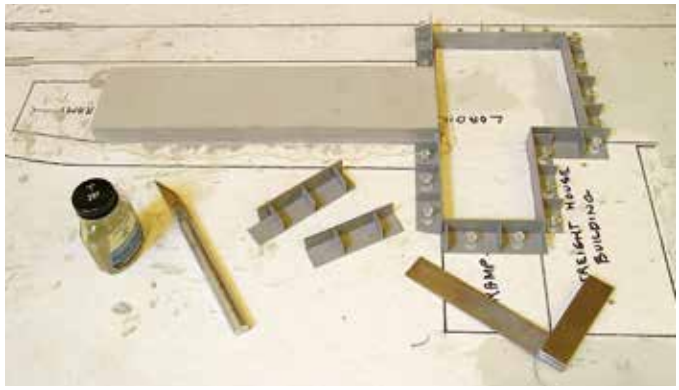


Fig. 13 Extended forms. Once the long dock was cured, Bruce removed and repositioned the forms and push pins to make the truck dock that fits squarely around the building.

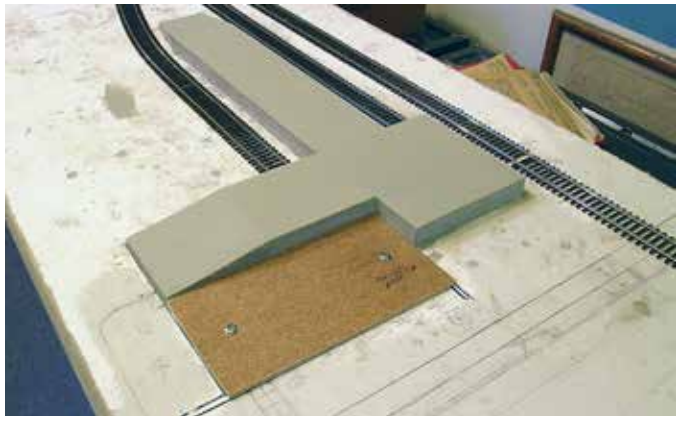
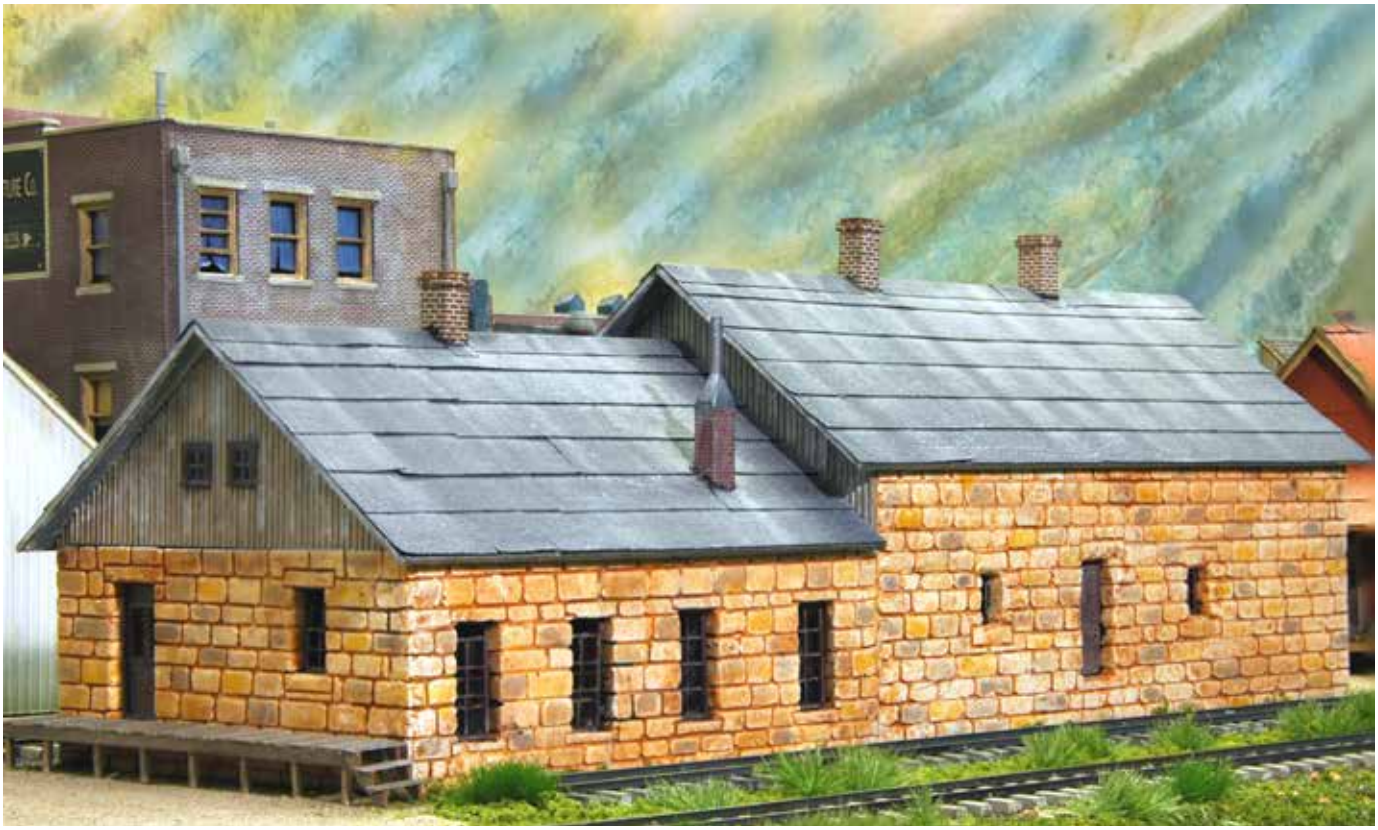


Fig. 14 Edge cleanup. After the dock sections cured, Bruce used fine emery paper to smooth off the rough edges. Then he added a hardboard office foundation.

Fig. 15 Ramp side. The large parking lot is paved right up to the docks so the track is imbedded in the pavement. Clear windows, a lawn, and shrubs complete the scene.

Fig. 16 Street side. A small lawn and some shrubs finish off the street side of the building. The black line along the concrete dock edge is a heavy timber truck bumper.



To reproduce Nuckolls Packing, a structure seen in photos of Telluride, Colo., Steve Harris decided to cast the building's stone walls in Hydrocal. Steve hand-carved the stone courses and colored the castings with acrylic washes.

HOW TO cast a stone building from plaster

By Steve Harris • Photos by the author

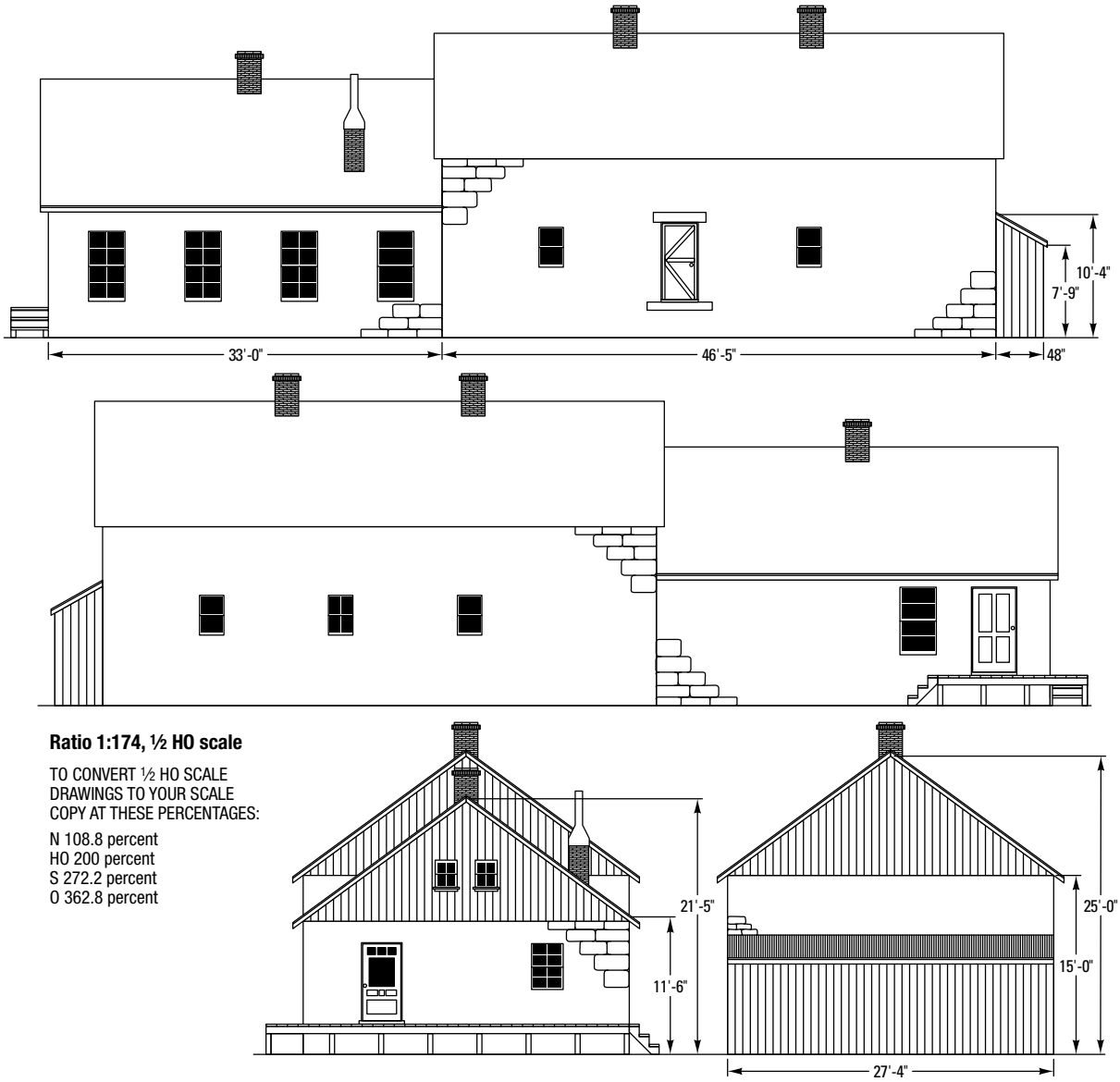
Sometimes, scratchbuilding is the best way to model a prototype structure

Scratchbuilding gives me the opportunity to learn new techniques, and, once completed, a feeling that I "own" the model. I get the challenge of planning and thinking through the construction. That provides a sense of satisfaction far beyond building someone else's kit. Sure, it does take more time, but this is a hobby, after all.

Ever since I read C.C. Crow's article on casting and carving plaster buildings in the November 2000 *Model Railroader*, I wanted to try my hand at building a stone structure. It took me a while to get around to this project, but I'm currently building structures for my version of Telluride, Colo., on my HOn3 Rio Grande Southern layout, and the Nuckolls Packing building presented a good opportunity to learn a new skill. Follow along as I take you through the steps in building this structure.

Steve Harris has contributed several articles to Model Railroader. *His HOn3 Rio Grande Southern layout appeared in the November 2004 issue.*

STEP 1 Planning



Ratio 1:174, ½ HO scale

TO CONVERT ½ 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

Nuckolls Packing is one of many structures depicted in period photos of Telluride shot from the mountain south of town and published in *The RGS Story, Volume II* by Russ Collman (Sundance Publications, out of print). The industry was on a siding, so it was an ideal subject for my model, which would serve as a shipping/receiving point.

The photos in the book reveal little detail, but my friend Herb Koenig was able to use them to draw plans of the structure to fit my layout space. Herb had to estimate the dimensions from the photos, and I took some liberties with his plans, but my goal was simply to capture the essence of the building.

Materials List

Grandt Line
5021 Five-panel door with frame
5030 Eight-pane double-hung window
5057 Station chimney
5059 Single-hung window
5197 RGS-style depot door with window and transom

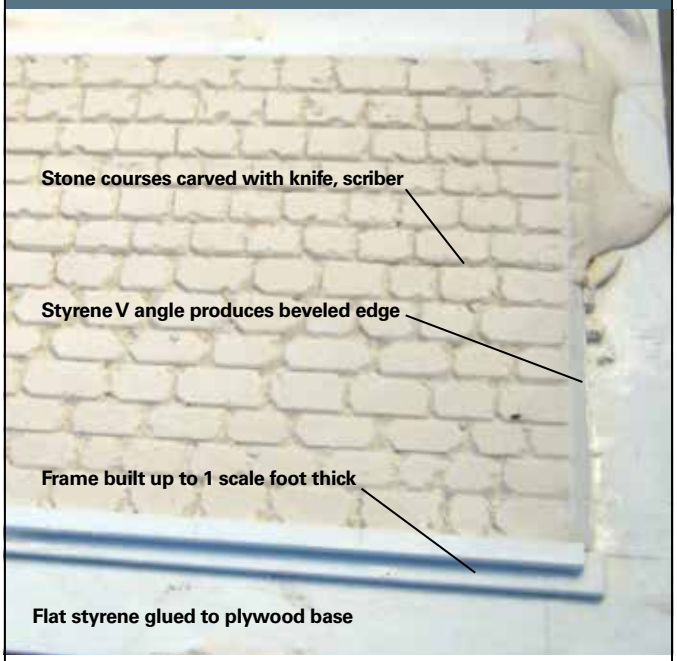
Sennelier dry pigments
116 Titanium White

Tichy Train Group
8069 4/4 double-hung open windows
8123 Chimney

Woodland Scenics
1201 Lightweight Hydrocal

Miscellaneous
Stoney Creek Designs roofing paper
.044" Strathmore illustration board
1/16" plywood
Liquitex Basics paints

STEP 2 Casting and carving the walls



I started by gluing a piece of .040" styrene onto a scrap piece of ¾" plywood, then building up a form to the dimensions of each wall section on this base. I made sure that my forms were square to the plywood edges, since I would be using a machinist's square to guide me as I carved masonry joints into the castings.

I used inverted styrene angle strips as forms for the ends of the walls. This provided a 45-degree bevel on the edges of my castings so they would mate with the adjoining walls. I wanted my walls to be about one scale foot thick, so I made sure that the styrene forms were all this depth.

Next, I coated the surfaces of the mold with petroleum jelly as a mold release, and mixed up a batch of Hydrocal to the consistency of pancake batter. I poured this mixture into the mold, letting a little of it overflow. Before the Hydrocal set up, I used a large putty knife to scrape off the excess to make a flat surface.

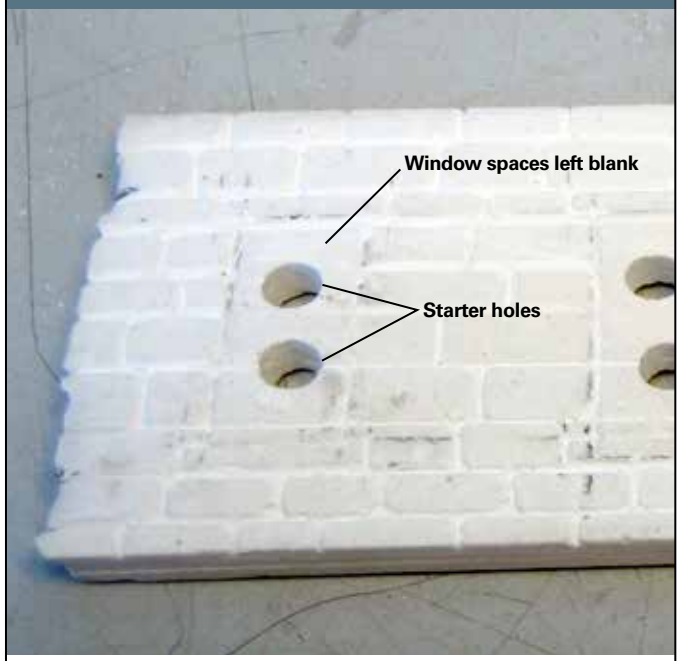
Since I would be carving the cut stones and milling out door and window openings, I used Hydrocal instead of casting plaster because Hydrocal is much harder. I found that the extra hardness didn't present a problem when I carved the stone work.

I left the casting in the mold when carving the mortar lines so the pressure wouldn't crack the castings, especially at the thin, tapered ends. I used a pencil to mark horizontal lines for the stone courses and carved them in using a scribing tool and the point of a hobby knife. I measured carefully so the lines on all the walls would match at the corners when assembled. Finally, I scribed the vertical lines.

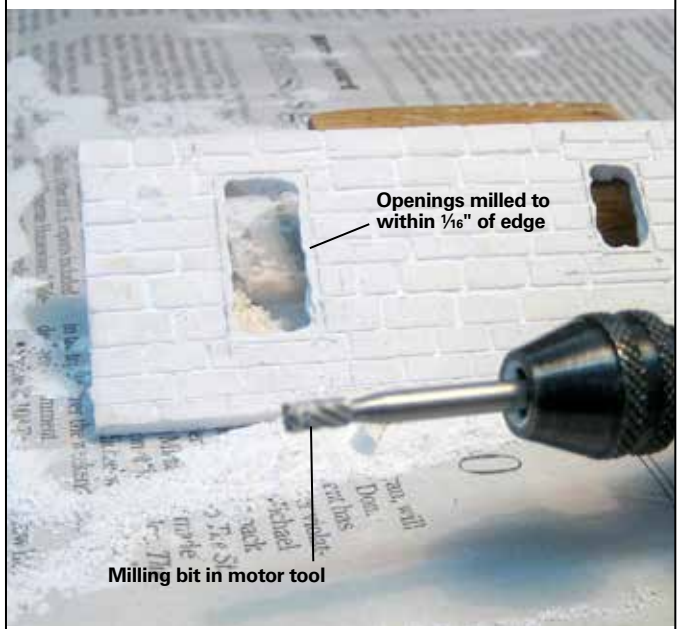
All of this scribing and carving seemed daunting at first, but I took my time and found that with some good music to entertain me and a few rest breaks, it wasn't as tedious as I'd feared.

The end wall shown in the photo above was my first attempt at scribing; fortunately, my skill improved on the other walls.

STEP 3 Making window and door openings



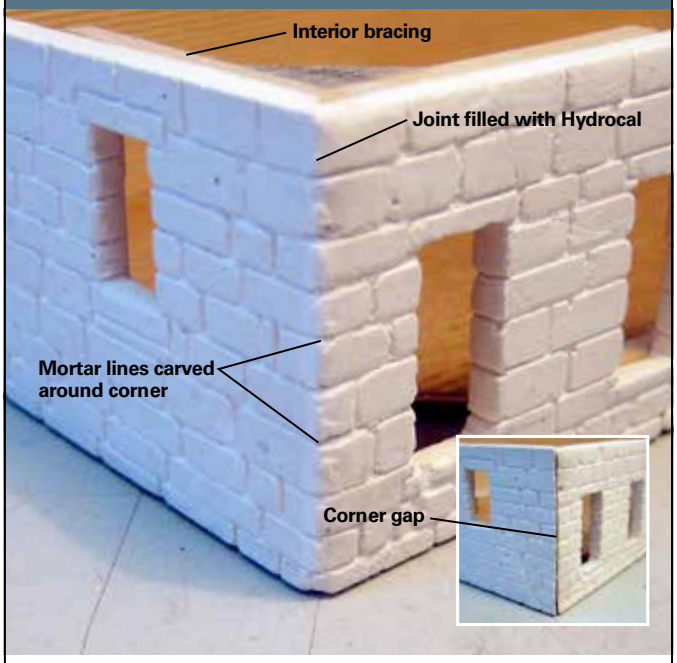
I left blank areas for the door and windows as I scribed the stones. Then, after carefully removing the casting from the mold, I drilled holes in these areas so I could mill them out to size.



I used a hardened cylindrical milling bit in my motor tool to enlarge the openings to within about 1/16" from the edges. I then used my a hobby knife to carefully carve out the remaining plaster. I worked carefully during this step, continually checking the size of the openings against my styrene door and window castings. These would have to fit perfectly, since they would be inset in the walls with no casing on the outside to hide gaps or slips of the knife.

Finally, I continued the scribed mortar lines around the corners to the inside of the openings, making the openings look as if they were surrounded by entire stones. You can see the results in the next photo.

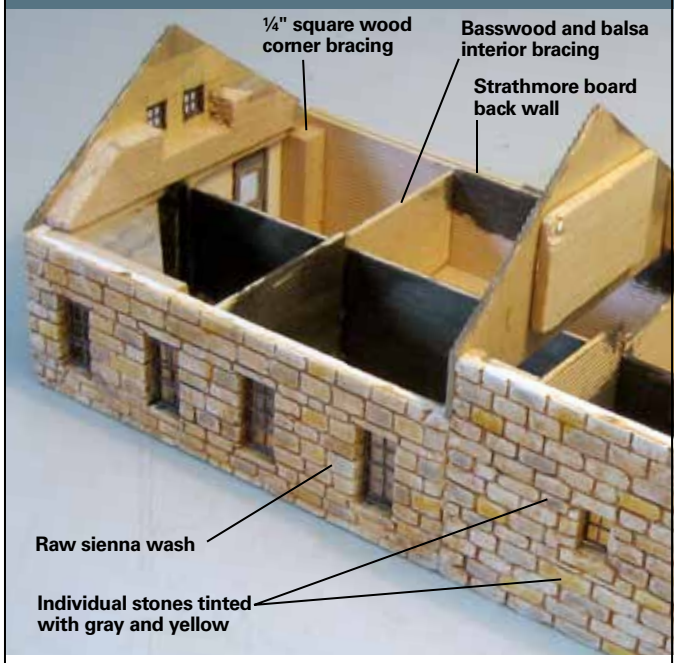
STEP 4 Assembling the walls



I assembled the walls using wood glue, making sure to brace each corner from the inside with a piece of square stripwood. Since the bevels on the corners weren't perfect, that left a gap at each corner that required filling.

After the glue had thoroughly dried, I finished these corners by mixing up another small batch of Hydrocal, this one a bit thinner than the first. I worked the plaster into the gap with my finger, filling it in completely. Then after it had set, I carved the horizontal mortar lines across the corner. This made it look like you see two sides of each stone block at the corners.

STEP 5 Interior bracing and coloring



Because the wall castings are brittle, I used more interior bracing than I would have on a wood structure. First I added a floor of 1/16" plywood. I used basswood sheet for the lengthwise and cross bracing, and other pieces for the wall and corner bracing. Since the back of this structure won't be visible, the rear wall is simply a piece of Strathmore board. I painted the interior black.

I colored the stones with very thin washes of water-based acrylic paint. I simulated sandstone by applying an overall wash of raw sienna to the walls. I then variegated the stones by randomly applying neutral gray and yellow oxide washes to individual stones.

STEP 6 Roofing and details

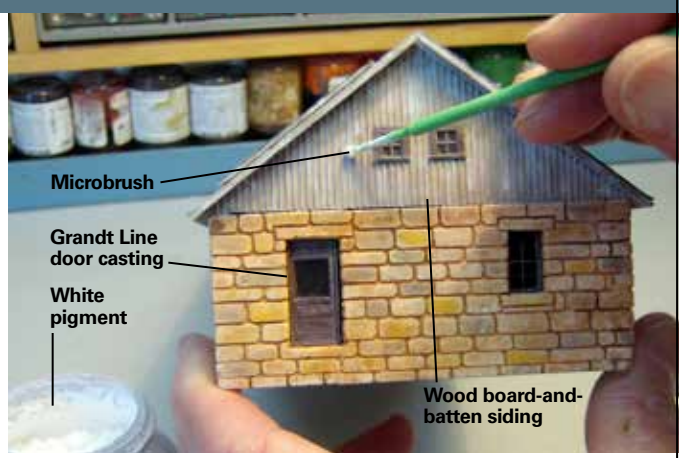
Because of the difficulty of cutting stone at an angle to fit the roofline, builders often used wood gable ends above stone walls. This was the case here. I replicated these gables with basswood board-and-batten siding.

Before mounting the gables, I stained them with a light wash of India ink thinned about 10:1 with rubbing alcohol. Then, once assembled, I rubbed on white Sennelier dry pigment with a Microbrush to simulate peeling paint.

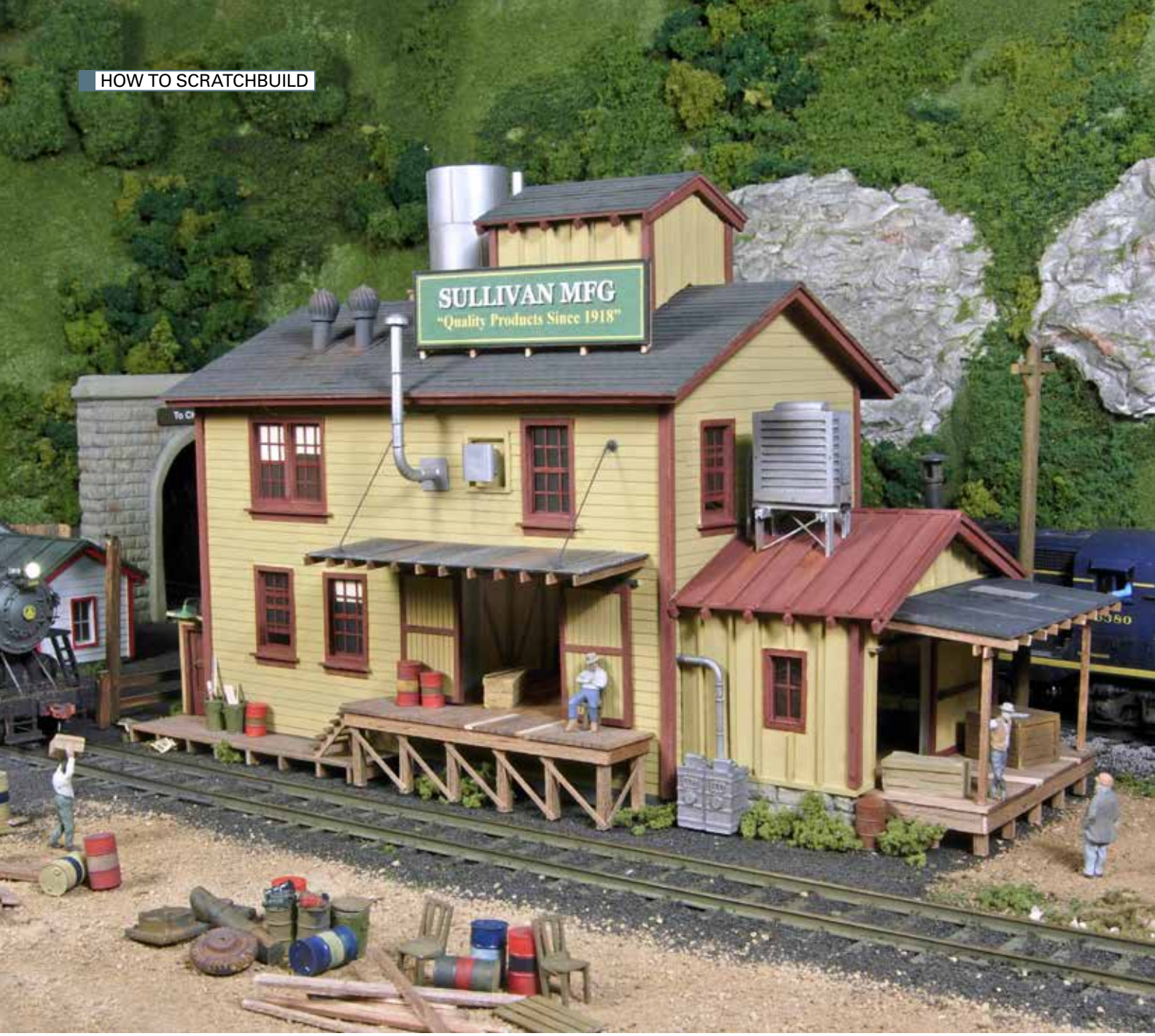
I used Tichy Train Group and Grandt Line castings for the doors and windows. Stone structures typically don't have external window casings, so I mounted the windows on the inside, with the inside of the casting facing out. I turned the castings upside-down so the orientation of the sashes would be correct.

I used Strathmore board to make the roofing. To avoid warping, I first painted both sides of the panels. I stained basswood 2 x 4s with my ink wash, then glued them to the edges of the panels and "painted" them with Sennelier dry pigment, as I had the gables.

The tarpaper is from Stoney Creek. I cut it into sections 3 scale feet wide, then applied it over a layer of thin two-sided tape while the panels were still flat on my workbench. After I assembled the roof, I weathered it with powdered pigments.



Last, I mounted the chimneys, also Tichy castings. I used a syringe to apply a thin line of black acrylic artist's paint (the kind that comes in a tube) around the edges to simulate sealing tar. Nuckolls Packing was then ready to go on my layout. MR

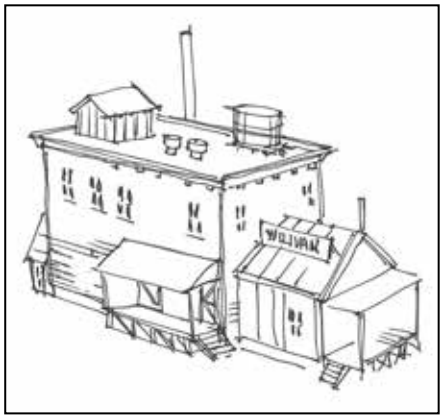


At first glance, you wouldn't think Brooks Stover used paper-based materials to build Sullivan Manufacturing for his S scale Buffalo Creek & Gauley. The structure was built using mat board, cardstock, and index cards.

Scratchbuild a small factory

How to use mat board and cardstock to build an S scale structure

By Brooks Stover • Photos and illustrations by the author



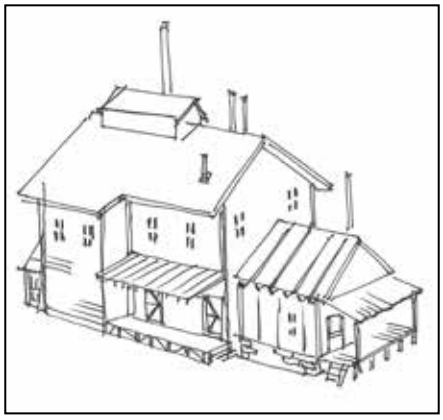


Fig. 1 Testing ideas. Brooks made sketches of Sullivan Manufacturing to evaluate the structure's shape, roof line, and detail placement before he started construction. He used a modified version of the plan at right.

Materials list

- 1/16" mat board
- .020" cardstock
- 3" x 5" index card stock with 1/4" rule
- Chartpak graphic tape
- Blue painter's tape
- Paper shingles
- Assorted stripwood and ship decking wood
- Acetate sheet protectors with one side frosted
- Miscellaneous chimneys, vents, and roof detail castings

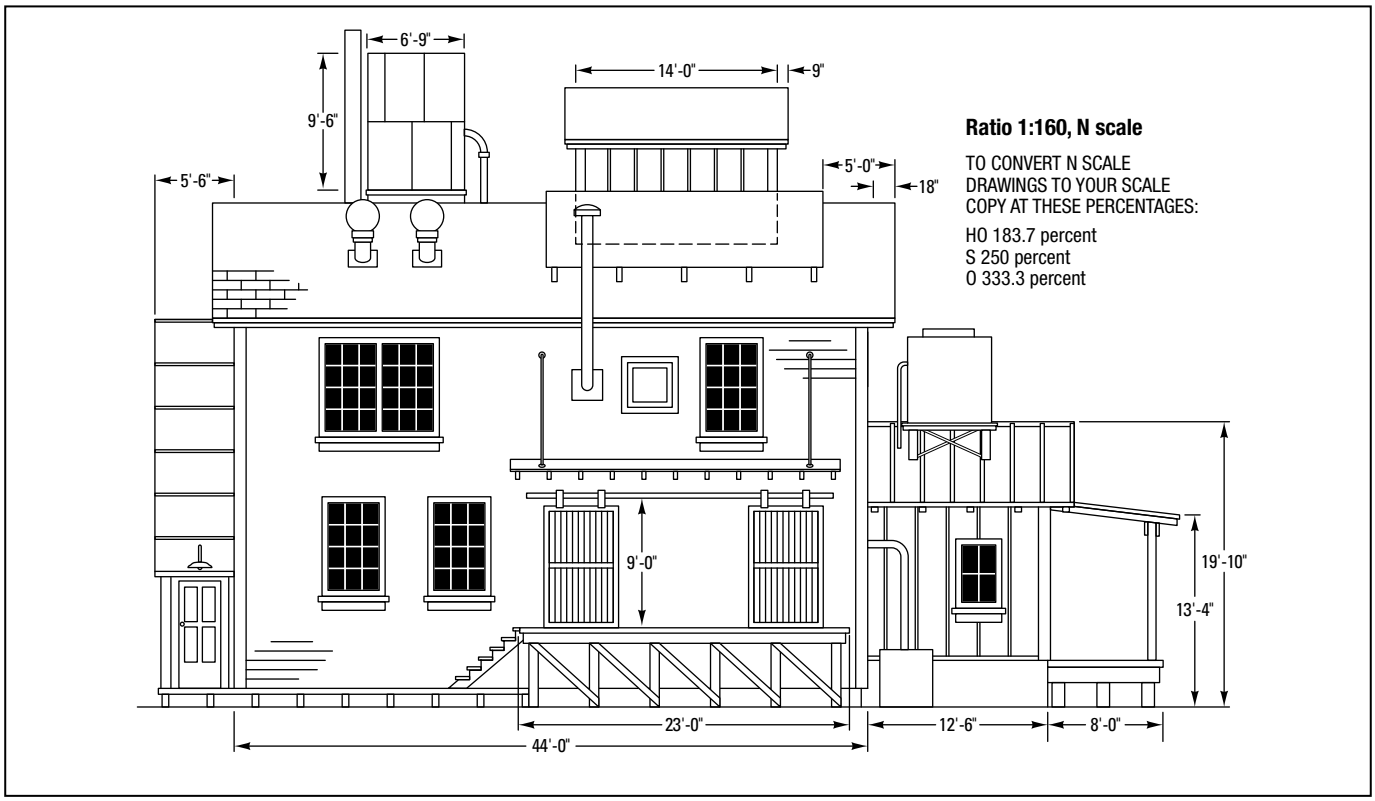


Fig. 2 From rough to refined. Once Brooks was satisfied with his conceptual sketch, he made drawings with door and window placement, detail locations, and dimensions. The back of the building has no doors or windows.

Today's modelers are blessed with an abundance of materials for scratchbuilding. Sheet and strip styrene, ABS plastic, brass, copper, aluminum, and wood are just some of the products available. However, when I build structures for my S scale Buffalo Creek & Gauley RR (see *Great Model Railroads 2011*), I use mat board, rose board, and index cards, materials that were commonly used decades ago. I used these materials when I scratchbuilt my first structure in the mid-1970s, and happy with the results, have stuck with them ever since, building more than 50 structures to date.

With my latest project, Sullivan Manufacturing, I'll show you how to use tried-and-true materials to make a great looking structure.

The four main advantages of mat board, sold under the brand name Strathmore, as a building substrate are its low cost (around $8 for a 30" x 40" sheet), ease of cutting with a sharp hobby knife, ease of gluing, and the way it takes paint. It absorbs paint in a somewhat irregular way, resulting in a sort of instantly weathered appearance.

Mat board is fairly rigid, but it can warp over time. To reduce the chances of this, I brace larger walls with 1/4" x 1/4" balsa or basswood. I use Duco Cement almost exclusively for bonding, but other products will work as long as they are intended for paper products so they won't delaminate the mat board.

I further minimize the risk of warping by painting both the front and back of the board, although I have structures that are more than 30 years old that show no sign of warping even without interior painting.

Conceptualizing a small factory

While my BC&G layout is primarily based on the prototype, there is a section along one wall that is freelanced. In this

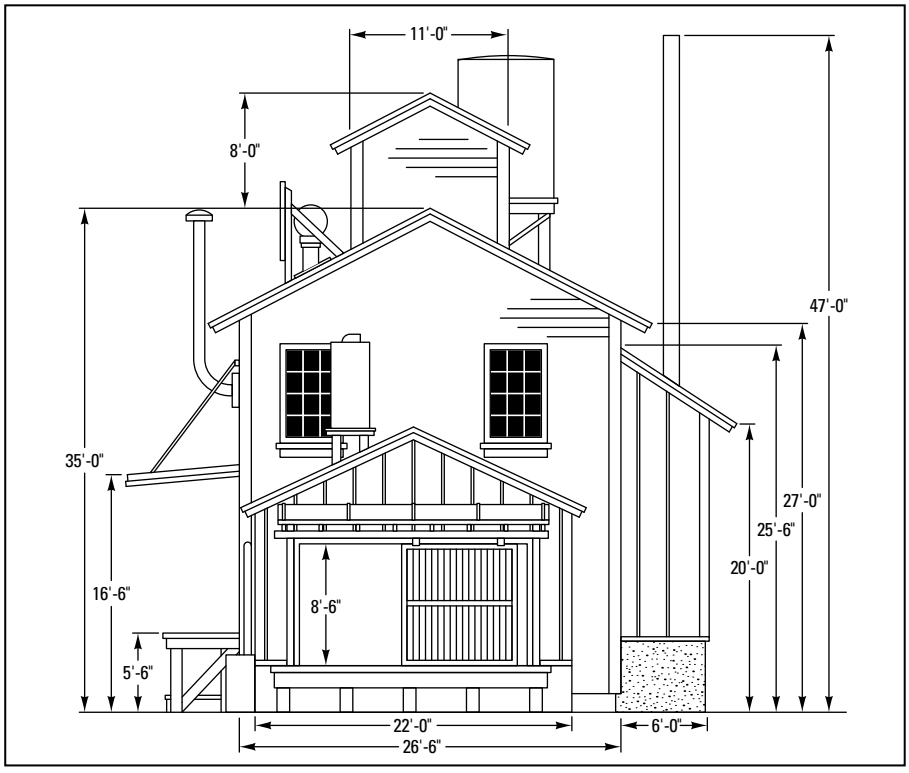


Fig. 3 Loading dock annex. Sullivan Manufacturing is served by rail and by truck. Though the main building uses ship-lap siding, the annex features board-and-batten construction.

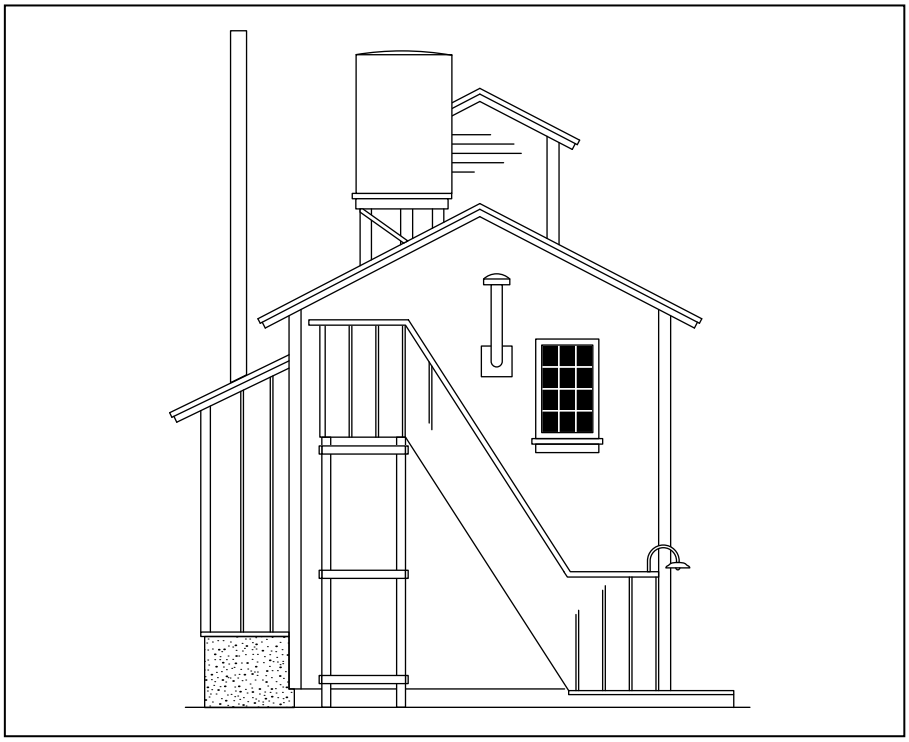


Fig. 4 Up to the office. The opposite end of the building has a covered stairway that leads to the business offices.

portion I've modeled industries named for friends and a former employee of the full-size railroad. Sullivan Manufacturing, a freelanced, medium-sized generic industry, is named after longtime friend Paul Sullivan. This structure is one of the last significant buildings to be completed on my model railroad. For the past decade, a mock-up has been serving as a placeholder.

I made a number of thumbnail sketches of Sullivan Manufacturing, some of which are shown in **fig. 1** on the previous page, to explore concepts for the structure until I arrived at an overall configuration that felt right to me. I took into account what is prototypically logical as well as what other structures are nearby on the layout. I settled on a 2-story primary structure with a pitched roof plus a small pitched-roof annex intended to look like it was added in later years. Once I was happy with my sketch, I made detailed drawings with dimensions, as shown in **figs. 2** through **4**.

Building Sullivan Manufacturing

Using my detailed drawings as a guide, I laid out all of the walls on the mat board. See **fig. 5**. This improves the dimensional consistency between adjacent walls. To simplify handling, I cut out the doors and windows while the walls were still connected to the mat board. Two or three passes with a sharp hobby knife was all it took to cut through the mat board. I also cut the triangular roof braces at this time so the angles matched the end walls.

Next, I made the peel-and-stick boards for the lap siding by applying 3M adhesive transfer tape to the back of 3" x 5" index cards with ¼" rules. I cut the cards into strips with scissors. This yields boards that aren't perfectly true, giving the siding a rustic look, as shown in **fig. 6**. If you want siding that looks pristine, cut the cards with a hobby knife and rule or paper cutter.

Then, starting at the foundation line, I applied the index card boards, each overlapping the one below. See **fig. 7**. Occasionally I left joints misaligned where the boards butted together to suggest the siding has been exposed to the elements for many years.

When the wall was completely covered with siding, I flipped the wall over and used a sharp hobby knife to cut the siding out of the door and window openings. I also trimmed the overhanging siding from the perimeter of the wall, as shown in **fig. 8.**

Next, I shifted my attention to the windows. I cut the frames from .020" cardstock and applied adhesive transfer tape to the back. See **fig. 9**. Then I used 1/32", 1/16", 1/8" and Chartpak graphic tape to form the inside window frames and mullions, as shown in **fig. 10**. After I painted the windows, I attached glazing to the inside. I used acetate sheet protectors that are frosted on one side for the glazing. By installing the shiny side out, the appearance of glass is created from the outside, while the frosted inside

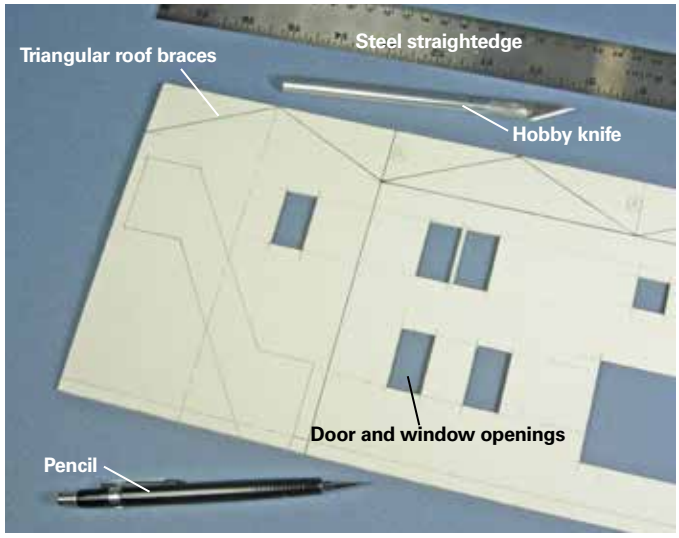


Fig. 5 Making the cuts. Before cutting the walls from the mat board, Brooks used a sharp hobby knife to cut the door and window openings. The triangular pieces are roof braces that will be used later in the construction process.

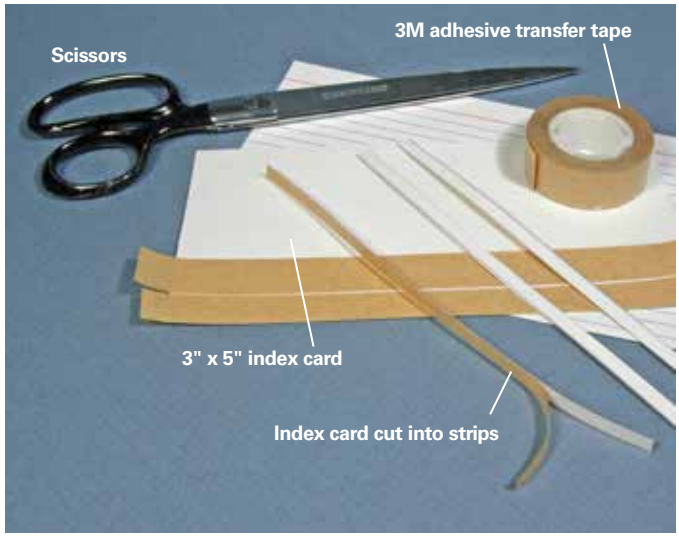


Fig. 6 Note card siding. Brooks used 3" x 5" index cards with ¼" rules and 3M adhesive transfer tape to make his own peel-and-stick siding. He cut the card into strips with scissors to give the boards a rustic look.

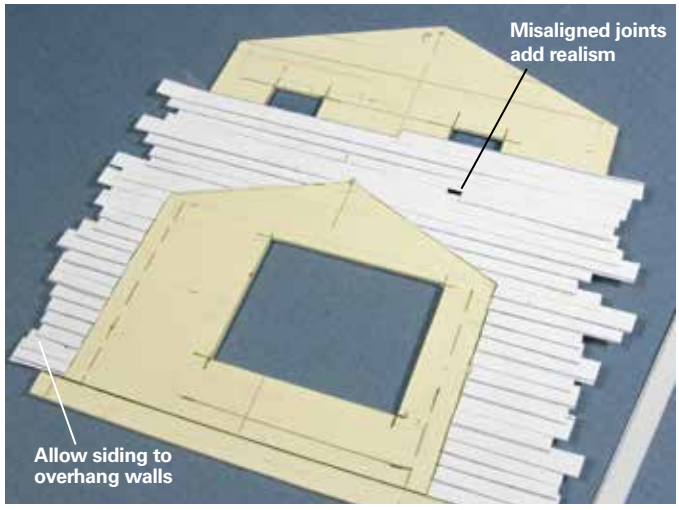


Fig. 7 Applying the siding. After cutting several index cards into strips, Brooks began applying the siding from bottom to top. He intentionally misaligned some joints to give the building an aged appearance.

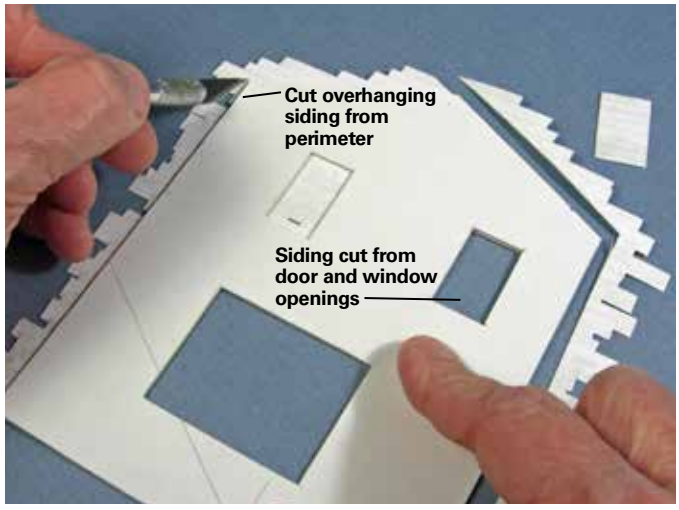


Fig. 8 Quick trim. Once Brooks covered an entire wall section with siding, he cut the excess material out of the door and window openings. Using the mat board as a guide, he also trimmed material from the wall's perimeter.

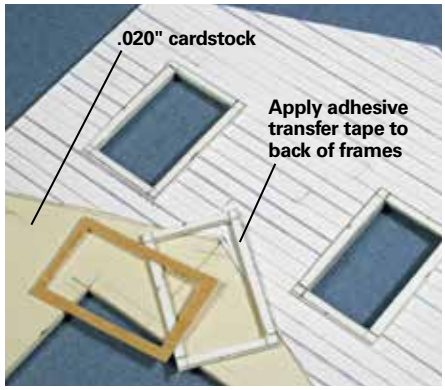


Fig. 9 Easy frames. Brooks used .020" cardstock to make window frames. As with the siding, he attached adhesive transfer tape to the back of the frames. Brooks used sheet protectors for the window glazing.

Fig. 10 Do-it-yourself windows. Assorted sizes of Chartpak graphic tape was all Brooks needed to make realistic windows. You can find Chartpak tape in art supply and well-stocked craft stores.

Fig. 11 Stripwood sills. Brooks used stripwood for the window sills. To give the manufacturing plant a "lived-in" look, he modeled some windows in the open position (left), while others are closed.

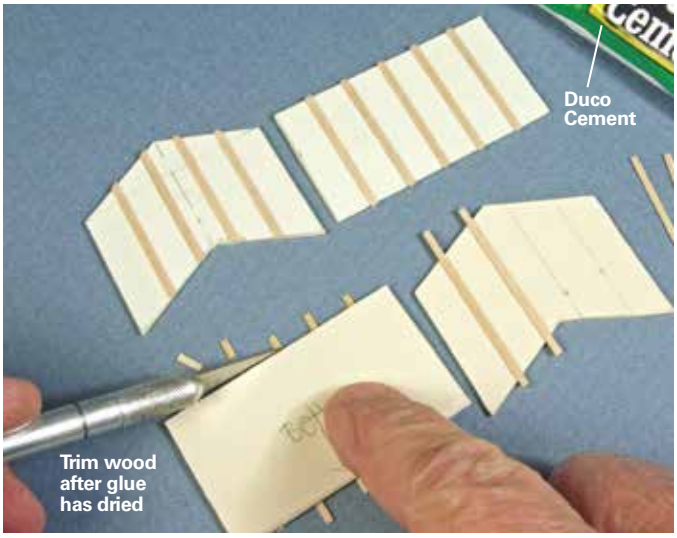


Fig. 12 Board-and-batten siding. To suggest the annex was added at a later date, Brooks covered the walls with board-and-batten siding. He attached the stripwood with Duco Cement, a glue that won't delaminate the mat board.

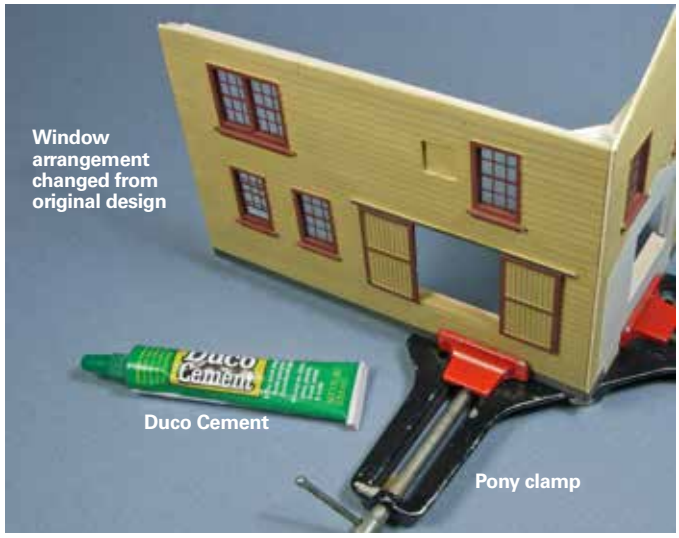


Fig. 13 Painting and assembly. After painting the walls and windows, Brooks assembled the building with Duco Cement. He used a Pony corner clamp to keep the walls at a right angle while the glue dried.

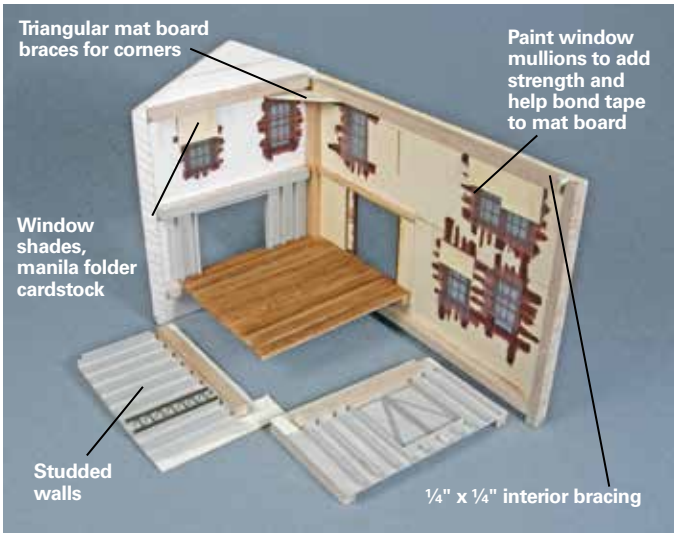


Fig. 14 View box. Since the large freight doors are open, Brooks made view boxes to suggest something is going on in the building. The two studded walls frame the scene. Later he added a roof and ceiling-mounted lights.

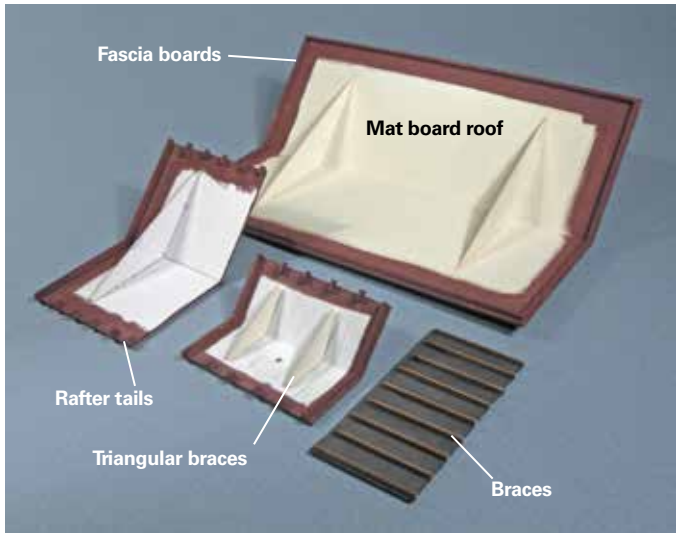


Fig. 15 Roofs for all occasions. Mat board was the substrate of choice for the roofs. The triangular braces are visible on three of the four roof sections. He used stripwood for the fascia boards, rafter ends, and braces.

prevents seeing into unfinished parts of the interior. I used stripwood to form the window sills, as seen in **fig. 11**.

Though most of the building has ship-lap siding, the annex has board-and-batten siding. I modeled this by cementing appropriately sized stripwood to the mat board walls. See **fig. 12**.

After I completed the individual walls, I painted the siding and windows before assembling the structure. I used a Pony corner clamp **(fig. 13)** to keep the walls at a 90-degree angle before applying glue. To suggest the interior is detailed, I made view boxes. See **fig. 14**.

I also used mat board as the substrate for the roofs. On the large roof I used stripwood, slightly inset from the end, for the fascia boards. I covered the roof with paper shingles.

On the two smaller pitched roofs, I attached short lengths of stripwood to suggest rafter ends. I also used stripwood to simulate metal roofing on the annex roof. I simulated the tar paper roofing on the truck loading dock by painting blue painter's tape Floquil Grimy Black. All of the roofs are shown in **fig. 15**.

An enclosed stairway leads to the second floor management offices. I again turned to the painter's tape for roofing material. See **fig. 16**.

Final details

The building's overall proportions must look right. I take considerable time with sketches and mock-ups to get them to my liking, but much of the visual success of a structure lies in the details.

I like to include multiple textures in the siding and roofing materials, but a nice variety of other details is equally important. In the case of Sullivan Manufacturing I added an assortment of vents, chimneys, and details on the roof, plus a storage tank

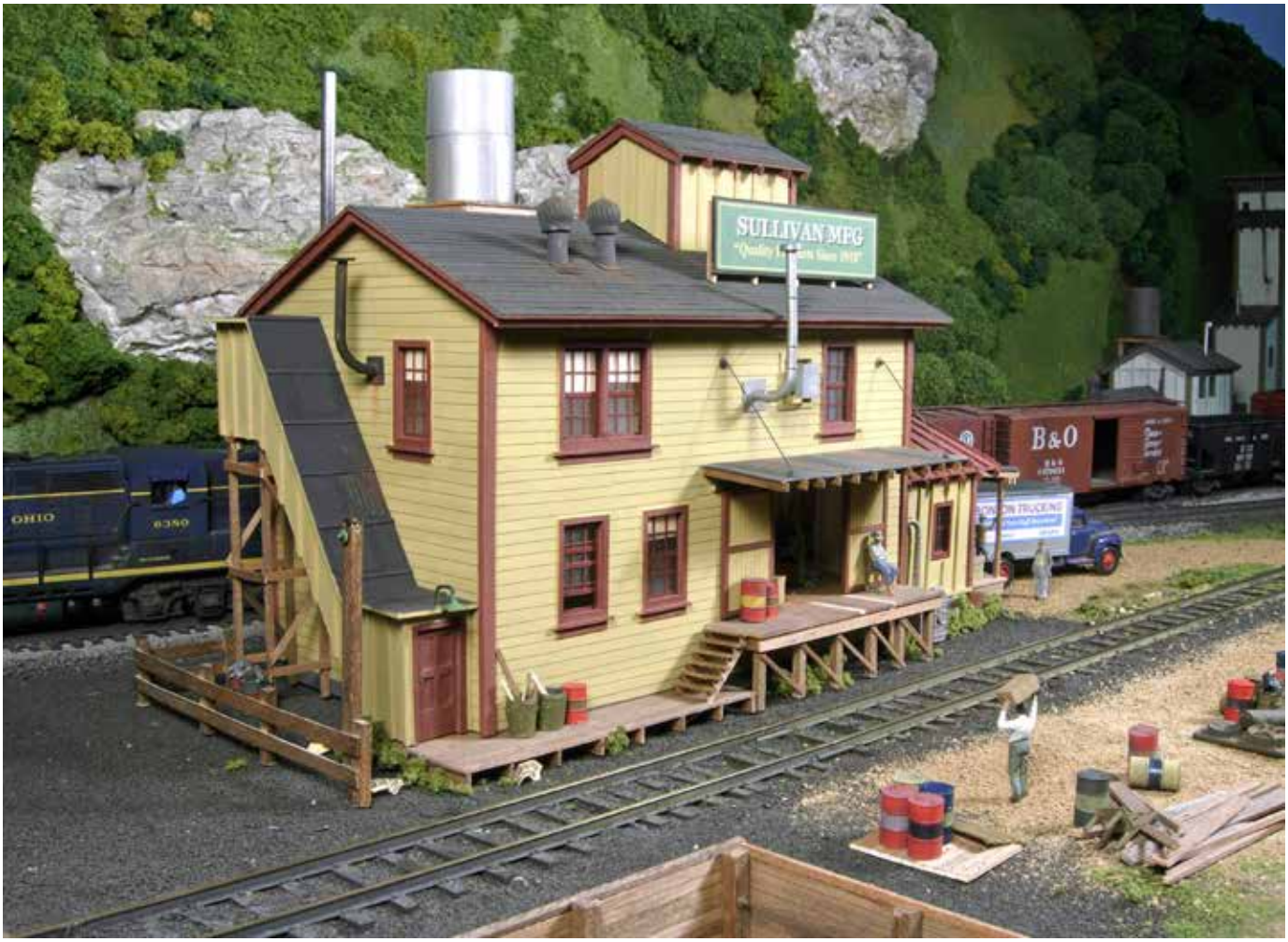


Fig. 16 Business office. An enclosed stairway at the left end of Sullivan Manufacturing leads to the second floor management offices. Brooks used blue painter's tape, painted Grimy Black, to simulate roll roofing.

and sign made on the computer. I installed an assortment of shelves and machine tools from Model Tech Studios (www.modeltechstudios.com), Arttista figures (www.arttista.com), and miscellaneous barrels, boxes, and clutter. I illuminated the view box with 12V bulbs on a 9V circuit, as shown in **fig. 17**.

It took about 10 years to finally get around to it, but I'm happy with the way Sullivan Manufacturing came out, old fashioned materials and all. It makes a great industry for crews to switch, and the view box draws viewers in to take a closer look. Though some of these techniques might not be directly applicable to smaller scales, and most modelers will likely choose to use molded windows, I trust there are some ideas here that you can apply the next time you need a unique building for your railroad. MR

Brooks Stover has been into S scale since he was a child. The former automotive engineer lives in the Detroit area with his wife, Carol. They have two grown daughters and four grandchildren.

Fig. 17 Illuminated view box. This night view shows the assorted boxes, barrels, and clutter that Brooks added to his view box. The machine tools are by Model Tech Studios; the figures are Arttista products.

Lorne Munro's HO brick depot is modeled from a Canadian National prototype that he photographed during a vacation. It still stands in Fenelon Falls, Ont., on an abandoned branch line northeast of Toronto. All of the brickwork is hand-carved.

SCRATCHBUILD A BRICK STATION

Most of this masonry HO structure is made from Hydrocal castings

By Lorne Munro
Photos by the author

During a family vacation several years ago, I photographed the former Canadian National Ry. Fenelon Falls, Ont., station. This building stands on a now abandoned 55-mile-long rural branch line that once connected the town of Lindsay to Haliburton.

The station houses an art gallery and now has board-and-batten sheathing. However, I've found several old pictures that showed the station was originally covered with Insulbrick or some other type of simulated brick siding. See www.niagararails.com.

When I took my photos I didn't have a tape measure with me, so determining the station's major dimensions became a matter of counting boards to estimate the window and door sizes and the wall heights. Thus my HO model is a scale 48 feet long, 16 feet wide, and 16 feet tall at the ridge. The operator's bay is a scale 9'-0" wide, 4'-6" deep, and 16'-0" tall. From this data, I made my own scale drawings.

I modeled my station using plaster castings. Although I had previously used Hydrocal plaster to make rock castings, I've never attempted to build a structure, so this was going to be a bit of a learning experience. I studied several useful how to articles on modeling with plaster including C.C. Crow's "Modeling a masonry structure with Hydrocal" that was published in the November 2000 *Model Railroader*. He also has a great website on modeling techniques with Hydrocal castings at www.cccrow.com.

Building the forms

I cast the structure using the same technique builders employ to pour a concrete foundation. To build my forms, I purchased a stiff corrugated plastic sheet material called Hi-Core at the local building supply store. This material has two smooth surfaces with 10mm square cells between them, so it's perfect for the exterior forms, but any rigid plastic sheet will also work.

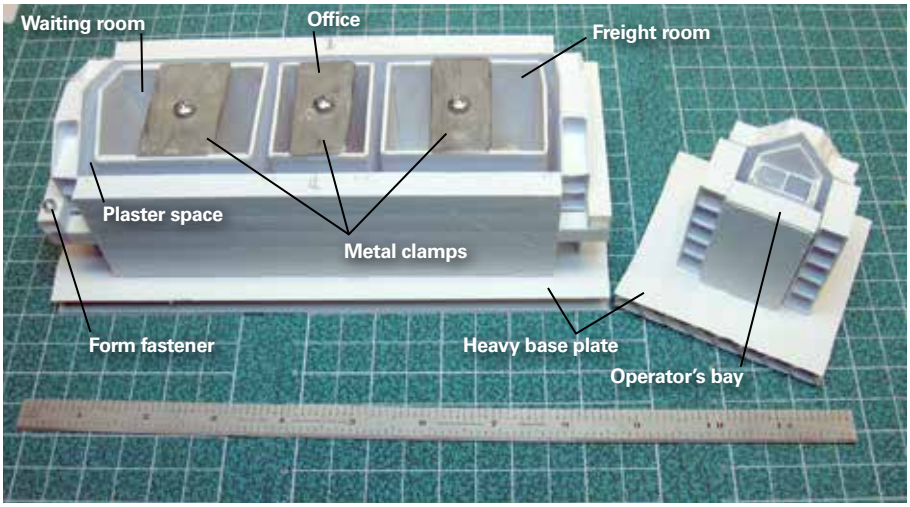


Fig. 1 Building form. Lorne's form has exterior walls made from Hi-Core corrugated plastic sheet, but thick styrene will also work. The inside walls are removable 1/16" styrene boxes. With care, this form can be cleaned and reused after each casting is removed. The steel plates keep the inner forms stable.

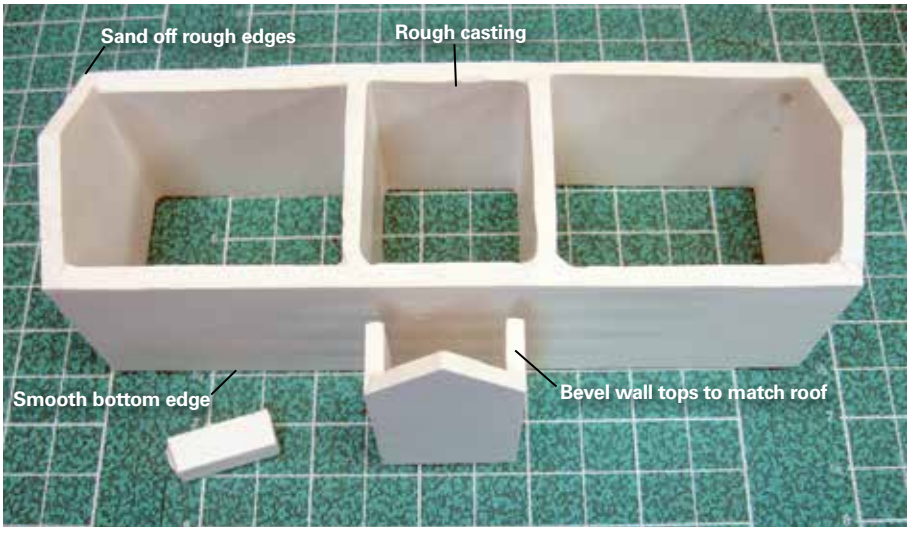


Fig. 2 Raw castings. After Lorne removes the raw castings from the forms, he does a light sanding on the exterior walls to remove the mold marks. Once the walls are smooth, it's easier to mark and drill the window and door openings.

I also purchased 5/16" square styrene tubing to brace the exterior wall forms and help attach them to the .060" thick styrene base plate. Two building forms were required for my HO structure, starting with the main rectangular exterior, which I tacked to the base plate with Testor's liquid plastic cement.

To form the interior walls, I constructed three boxes from 1/16" thick sheet styrene. I sized these boxes so the plaster walls would be about 3/16" thick. Each of these interior forms has three solid corners with the fourth one lightly tacked to facilitate its removal after the plaster set. I smoothed the outside corners to eliminate any rough edges that might impede removal of the wall casting. Each interior form is secured with a metal bracket, cut from a freight-car weight, that's secured with a long machine screw and a nut. See **fig.1**.

The second form is for the operator's bay, and I made it using the same techniques and matching wall thicknesses.

Casting with Hydrocal

I mixed up a soupy batch of plaster by adding Hydrocal to the water and gently mixing it to remove any lumps and avoid creating any air bubbles within the mixture. I poured this creamy mixture into the form, being careful to completely fill all of the corners. Tapping or vibrating the forms helps release any trapped air. Then I gently stuck a thin probe into the poured mixture and worked it around the form in the same way foundation contractors do it to release any voids in poured concrete.

Materials list

Delta Ceramcoat acrylic paint
www.deltacreative.com.
2020 Red Iron Oxide
2030 Burnt Sienna
2452 Drizzle Gray (concrete)
2488 Mudstone
2505 White
2506 Black

Miniatronics
72-105-05 lamps and shades

Pikestuff
2103 baggage room windows

Plastruct
90624 5/16" square styrene tube
91105 .060" styrene sheet

Testor Corp.
1260 Dullcote

Tichy Train Group
8062 window
8103 window
8125 baggage room door
8197 five-panel door
8200 window group

U.S. Gypsum
Hydrocal

While the plaster was setting up, I trimmed off any overspill from the tops of the forms. After about 20 minutes, I removed the forms, starting by removing the inner boxes.

If any voids were visible, I mixed up a small quantity of Hydrocal and immediately repaired the "fresh" casting while it held enough moisture for a good bond.

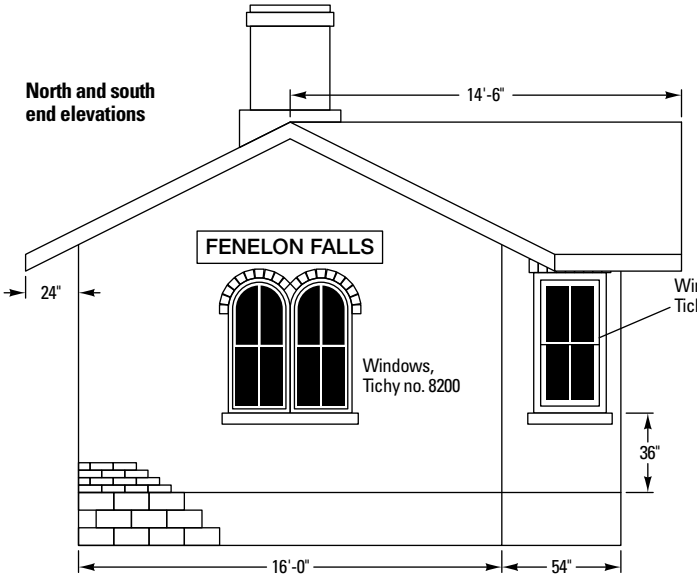
After the Hydrocal dried, I smoothed the outer walls using 120-grit sandpaper laid on a flat surface. The Hydrocal continues to get harder for some time, so gently sanding the fresh casting with light pressure did the job, as the plaster cuts quickly when soft. I was careful to keep the walls even all the way around.

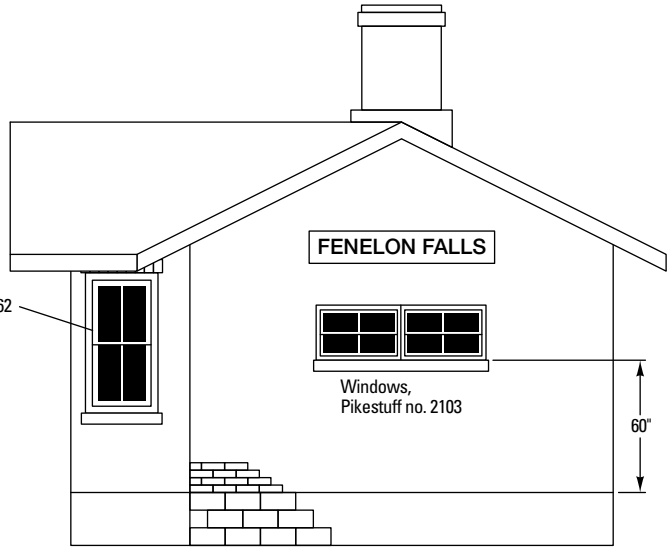
I used a small file to remove any flash from the edges of the inner walls. Then I used white glue to add 1/4" square stripwood around the interior to help reinforce the casting. My finished castings can be seen in **fig. 2**.

Windows and doors

Most of the plastic windows and doors that I used came from Tichy, though I modified some of them to fit

North and south end elevations

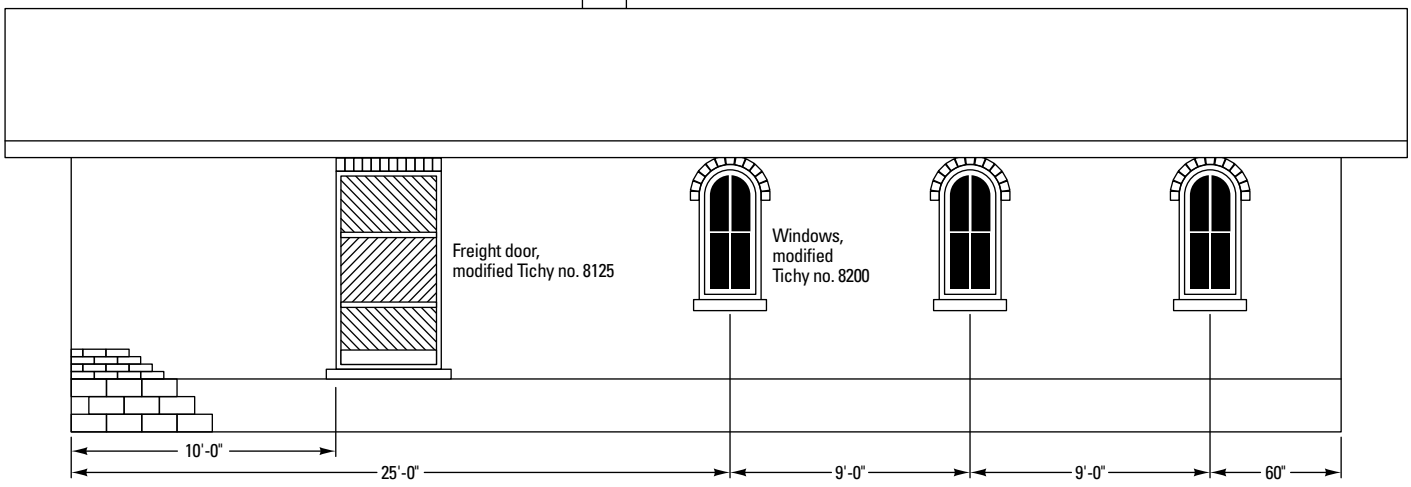




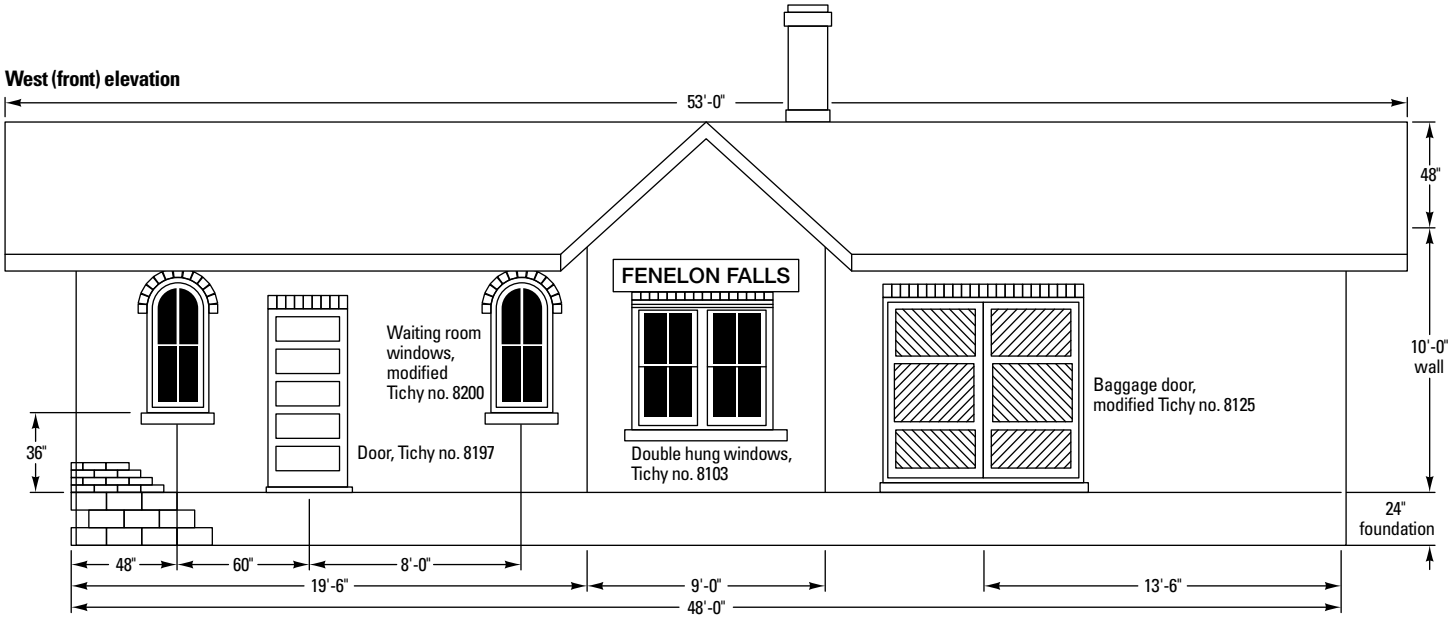
Ratio 1:87, HO scale

TO CONVERT HO SCALE DRAWINGS TO YOUR SCALE COPY AT THESE PERCENTAGES:
N 54.4 percent
S 136.1 percent
O 181.4 percent

East (rear) elevation



West (front) elevation



specific locations. The two end windows in the baggage room are Pikestuff items I mounted horizontally.

I used the plastic windows and doors as templates to mark the openings on the wall castings. My initial thought was to scribe the brick first and then cut out the openings. I quickly realized that this wasn't going to work, as the rough openings would have to be determined by the brick size. I tried carving some experimental brickwork and concrete blocks on sample plaster castings, so I knew the best looking sizes for these items. I proceeded to mark the openings with a pencil, as I felt that I could adjust the horizontal location of the openings and also slightly adjust the brick size to suit the openings without compromising the structure's appearance.

With the openings marked, I placed the casting on the drill press and used a 1/8" diameter bit to drill out the openings, being careful to stay within the lines. This is an extremely dusty job, so I set up my shop vacuum inlet to capture the plaster dust. This left rough edges that I finished with files to fit the windows and doors as seen in **fig. 3**. Note that the Hydrocal must be dry for this step, or the files will rust.

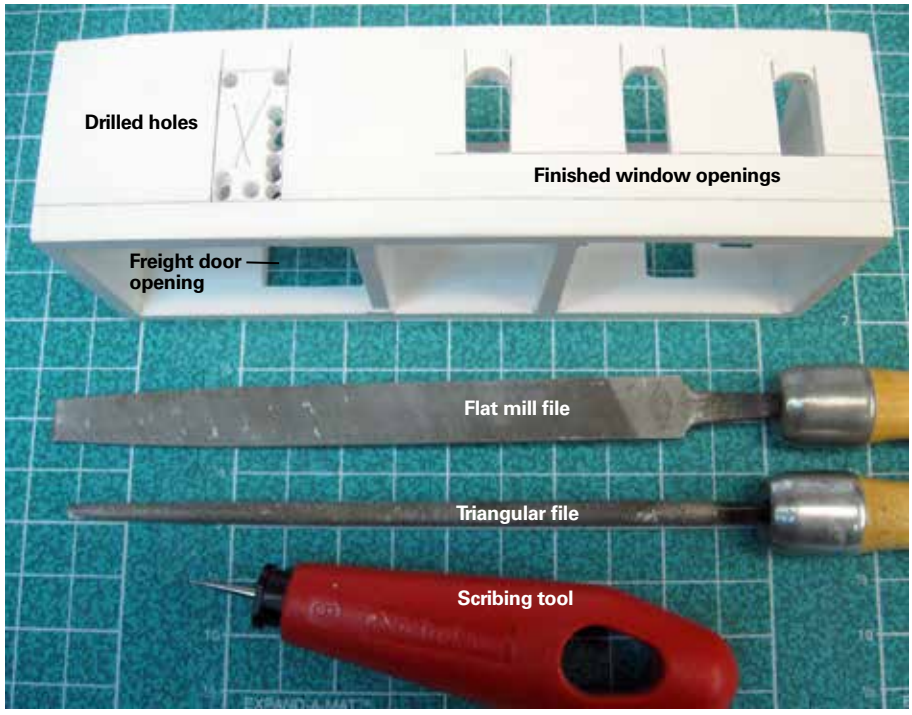


Fig. 3 Wall openings. A rough door opening is shown partially drilled, while the other openings have been filed to fit the plastic window frames.

Fig. 4 North end. This end includes a double window to provide light in the passenger waiting room. Lorne had to carefully carve all of the building's corners and window openings so the bricks overlap properly between the two walls.

Scribing the brickwork

My next step was to make a stainless steel scribing tool with a 1/32" diameter tip, also shown in **fig. 3**. I began by scribing a fairly deep groove, a scale 24" from the bottom, around the perimeter of the building to separate its foundation from the brickwork.

Using a scale rule and a sharp pencil, I marked all four corners of the long walls with the horizontal mortar lines, spacing the bricks at scale 3½" intervals.

As I scribed the mortar lines, I found it difficult to see them on the white Hydrocal, so I applied a very light wash of oxide red acrylic paint to the brick area and a light wash of gray on the foundation. Since the plaster becomes harder with time, I applied water with an eyedropper from time to time to soften the surface and make scribing easier.

I continued to apply the horizontal mortar lines, leaving unscribed areas around the window and door headers and sills. These areas were finished later when I scribed the vertical lines. Finally, I scribed the end walls by aligning their mortar lines with the side walls.

I marked the vertical mortar lines with pencil at the base and top of the walls. My brick length is 10½", so I used that dimension and a straight edge to add the mortar lines in every other course from bottom to top. Then I scribed the intermediate rows, slightly adjusting the brick lengths to accommodate the wall openings.

Next, I began adding the header details at the window and door locations. Since the windows and doors will be recessed, I needed to include the visible ends of the bricks around them.

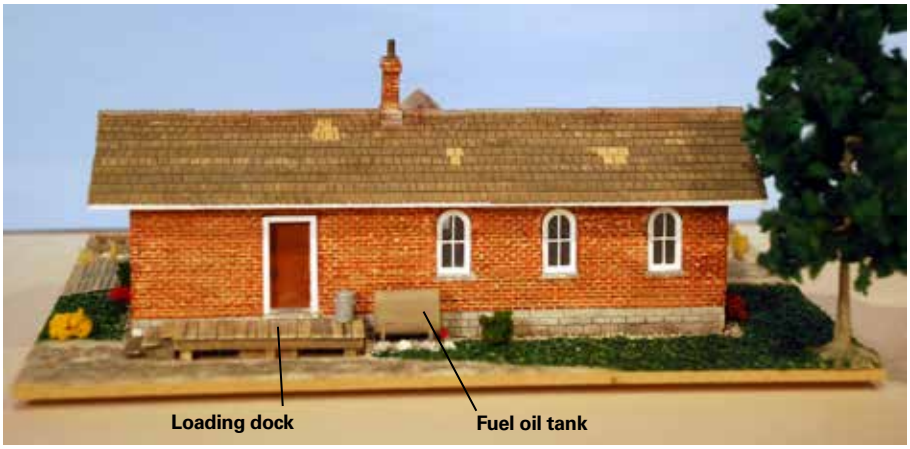


Fig. 5 East wall. A few small details add life to the back platform, including a trash can, the oil tank for the stove, and some minor roof shingle repairs.

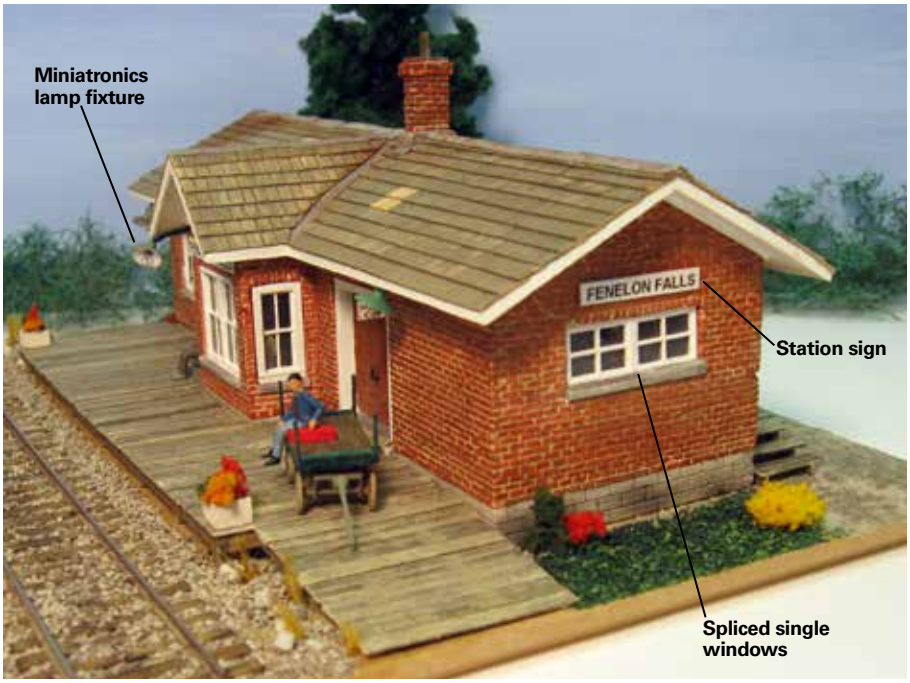


Fig. 6 South end. Since this is the end with the freight room, its smaller windows are set high on the wall to provide security for stored shipments.

To accommodate concrete sills under the windows and doors, I gouged out the plaster with a chisel bladed hobby knife so I could add this detail later on.

Finally, I marked and scribed the operator's bay casting, making sure that its brick courses lined up with the main walls. I finished this step by scribing the scale 9" x 18" concrete blocks on the foundation walls in the same manner.

Coloring the castings

I didn't seal the raw Hydrocal before applying a coat of Delta Ceramcoat Red Iron Oxide acrylic paint on the brickwork using a cotton swab. Some paint still flowed into mortar lines so I carefully removed it with a hobby knife.

Again with a swab, I applied a coat of Ceramcoat Burnt Sienna paint full strength, so I could easily vary the final color of the brickwork.

After the previous color dried, I stained the mortar lines with a wash of Ceramcoat Mudstone, controlling the intensity with varying amounts of water.

The color on the foundation blocks is a mix of Ceramcoat Black and White thinned with water to make a light gray. The mortar lines for the blocks didn't need any further finishing to make them more visible.

Then I sprayed the entire structure with Testor's Dullcote to seal the colors on the brickwork and foundation.

Window and door installation

I used white acrylic paint on the window and door frames and painted the doors Burnt Sienna.

Next, I installed clear styrene glazing behind all of the windows. After the clear parts cement set, I filed all of the glazing down flush with the edges of the window frames. Then I cemented all of the windows and doors into place, being careful to inset them the right distance.

To help conceal the depot's empty interior, I painted the inside walls with black acrylic paint. Next, I installed the finished operator's bay using white glue to attach it to the main casting. Then I shaped window and door sills from bits of plaster, finished them with a coat of Ceramcoat Drizzle Gray (concrete) paint, and glued them in place.

Roof construction

I used .020" thick sheet basswood braced with 1/8" square stripwood as an underlay for the roof. Then I glued a scale 6" wide fascia board around the roof's perimeter and painted this trim and the soffit area white.

The chimney is another plaster casting that I carved, scribed, painted, and glued to the roof. I also glued metal foil flashing into the roof valleys.

I made my own shingles from .015" thick pine cabinet facing wood veneer. I cut this material into 2" long by 3/16" wide strips and cut slots into the edges with a razor saw to yield random width shingles. I stained them with water-based stain to provide an appropriate new or weathered appearance. Then I glued these shingle strips to the roof, interspersing some unstained shingles to simulate fresh replacements. I finished the roof with a narrow metal ridge cap.

Final details

I glued the station signs and other details in place and installed Miniatronics no. 72-105-05 lamps and shades. See **figs. 4**, **5**, and **6**.

My station platforms are scratchbuilt from stained stripwood.

Overall, I learned a great deal and thoroughly enjoyed this scratchbuilding project using Hydrocal castings. In fact, I've already started on my next building using this medium. The natural appearance of the cast plaster makes it an excellent choice to simulate brick, concrete, and stone structures. MR

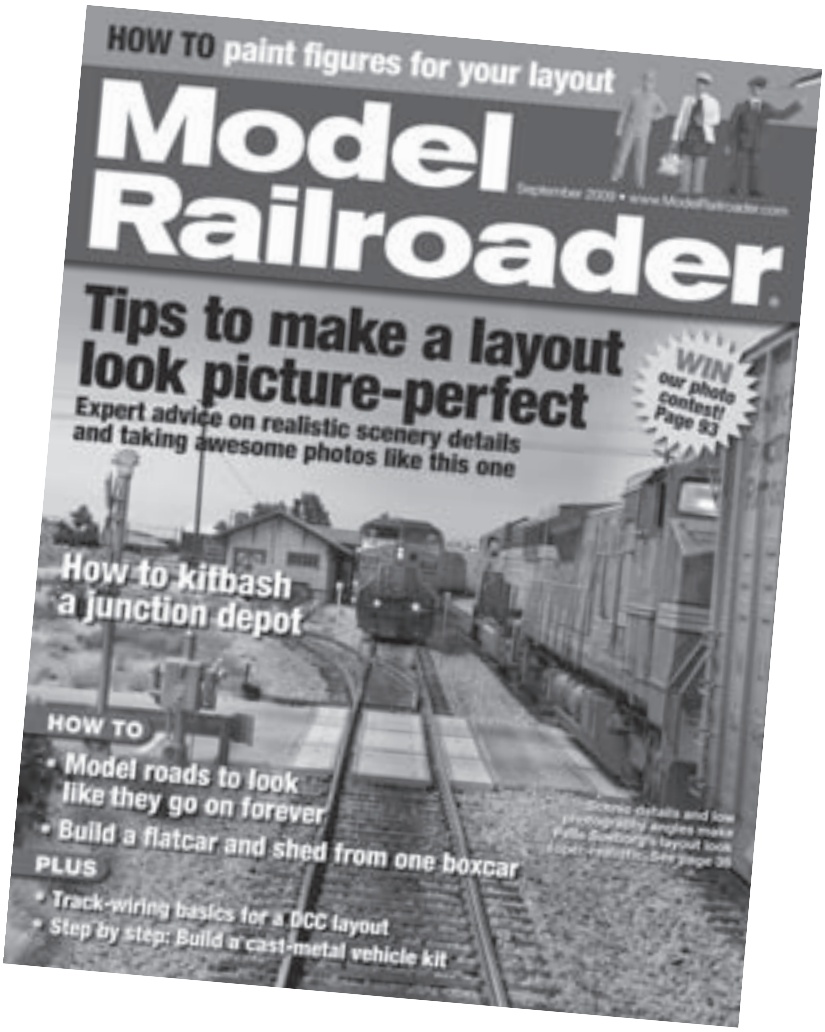
Lorne Munro is a retired engineering technologist with 39 years of federal service at the National Research Council of Canada. This is his first published article. Lorne enjoys scratchbuilding vintage railroad structures he photographs while on vacation trips with his wife, Gail.

Start building your dream layout!

Every issue of *Model Railroader* includes intriguing articles that take you on a tour of the world's finest layouts and introduce you to the hobby's experts.

You'll discover:

- A wealth of prototype data
- Detailed how-to instructions
- Product reviews
- Tips & techniques
- And so much more!



Plus, subscribers have exclusive online access to hundreds of track plans and product reviews, videos, bonus articles, and more!

Order online at

www.ModelRailroader.com/promo

Enter promotional code: IK87M

Or call 1-800-533-6644

Monday – Friday, 8:30 a.m. – 4:30 p.m. Central Time
Outside the U.S. and Canada, call 262-796-8776, ext. 661

Model Railroader

CIR-ADH-09X1595RH