

#999
AND COUNTING

MAKE DCC connecting cables p.62

**New HO Athearn
diesel tested** p.64

March 2017
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Model Railroader®

Realism tips that work!

**Keep scenes simple,
use the right colors,
textures & more** p.28

**Scratchbuild
a rail-served
lumber yard**

p.52

PLUS

**Model a flatcar load
of raw aluminum** p.35

4 x 8 New England HO layout p.58

Build an urban river channel p.41

Author Lance
Mindheim
explains his
philosophy
behind scenes
like this one.
See page 28.

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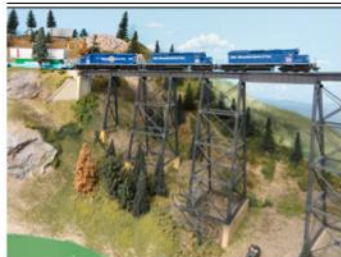
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On the cover: A CSX Geep switches on Lance Mindheim's HO scale layout. Realistic scenes like this are within a beginner's reach, Lance says. Lance Mindheim photo

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Share your layout videos



More scenes along the Ridgley Division

Turn to page 44 to read all about the HO scale Ridgley Division, an 18 x 20-foot model railroad inspired by the Baltimore & Ohio RR through West Virginia. Visitors to www.ModelRailroader.com can also watch this video posted by the layout owner and author Dale Ridgeway.

Register for free at ModelRailroader.com, and you can watch hundreds of other layout videos. You can also upload your videos to share with your fellow model railroaders. Click on the Videos tab at the MR home page.

New diesel demo



Athearn Genesis HO scale EMD GP39-2

What's better than a roadname- and roadnumber-specific, superdetailed diesel locomotive model? One that sounds as good as it looks. Subscribers can check out this exclusive video of the new Athearn Genesis Electro-Motive Division GP39-2. The model features a SoundTraxx Tsunami decoder and sounds just like the real thing, as it works along our Milwaukee, Racine & Troy main line. Find the video under Online Extras at the MR home page.

MR Video Plus



Modeling coal loads

Looking for the best step-by-step model railroading videos on the web? Look no further than our subscription video service, Model Railroader Video Plus. This month MRVP producer David Popp writes our Step-by-Step column and shows how to make realistic coal loads for open hoppers. MRVP subscribers can also watch a video of David demonstrating the techniques. Find a link to the video under Online Extras. For more info about MRVP, be sure to visit ModelRailroaderVideoPlus.com.

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Model Railroading 101

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Raise your hand if you have one of these on your layout:

- A) Pickle factory.
- B) Bandstand in a city park.
- C) Haunted house.
- D) Candy factory.
- E) Gingerbread Victorian home.

If your hand is up, I'm giving you fair warning that you might take issue with this month's cover story.

On page 28, author Lance Mindheim puts it succinctly: while it's human nature to be drawn to interesting and distinctive structures and scenes, if realism is your goal, your model railroad scenes should look ordinary.

Lance advocates nondescript factories and warehouses, weedy lots, well-spaced structures, and the use of a lot of flat white paint.

He's right, and he follows his own advice, just take a look at this month's cover photograph. Even if your modeling leans toward pickle factories and bandshells, you'll find worthwhile advice in Lance's story.

(Full disclosure: I still own a Campbell Scale Models haunted house kit that I built decades ago.)

Elsewhere in this month's issue are associate editor Steven Otte's story about building a lumber yard on our Beer Line project railroad, plus how-to stories

about modeling a water channel that cuts through a town, building a clever rolling cart that is both a staging yard and a fiddle yard, and modeling aluminum billet loads for center-beam flatcars.

There also are two layout visits this month, one a diesel-era HO scale layout modeling the Baltimore & Ohio RR in the Appalachian Mountains, and the other a 4x8 railroad modeling New England that was inspired by a track plan published in *Model Railroader* way back in December 1966.

Our DCC columnist Larry Puckett shows you how to make cables to connect Digital Command Control components, senior editor Dana Kawala reviews the new HO scale Athearn GP39-2 diesel, and N scale columnist Jim Kelly writes about finally cutting holes in his backdrop to gain access to a long stretch of hidden track.

I promise that this will be the last time I call attention to the yellow and red number on the top left corner of the cover. This is the 999th issue of *Model Railroader* magazine. Next month will be our 1,000th issue.

Among April's special features are a visit to the *Model Railroader* staff's Milwaukee, Racine & Troy RR layout, something we haven't done since the 1980s.

Also in April, we'll be publishing your comments about all-time favorite issues, and our Tracksides Photos department will feature our best covers ever – minus all the words that you sometimes tell us “ruin” the photos.

So be sure to keep your subscription current or pick up a copy of the April issue at your local store or hobby shop.

NEIL BESOUGLOFF

Contributing to *Model Railroader*

We welcome contributions from readers, including articles, photographs, and drawings. For more information on submitting material, call us at 262-796-8776 and ask for an MR staff member or e-mail us at mrmag.com. *Model Railroader* assumes no responsibility for the safe return of unsolicited material. We assume unsolicited material is intended for publication by Kalmbach Publishing Co. unless otherwise noted. We assume letters, questions, news releases, and club news items are contributed gratis.

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HO scale Electro-Motive Division SD45T-2 diesel locomotive. This six-axle road unit is offered in new road numbers and paint schemes. The SD45T-2 is decorated for Genesee & Wyoming (Kyle RR and Missouri & Northern Arkansas in one road number); Bessemer & Lake Erie; Duluth, Missabe & Iron Range (two numbers);

Southern Pacific (Roman and speed lettering); and Union Pacific. The Ready-to-Roll diesel, offered in three numbers per scheme unless noted, is priced at \$134.98. The model has prototype-specific details, HT-C trucks, and separately applied wire grab irons. Athearn Trains, 800-338-4639, www.athearn.com

HO scale locomotives



■ **Atchison, Topeka & Santa Fe 2-8-2 Mikado steam locomotive.** Digital decoder with speed-synchronized sound effects, four powered axles, and traction tires. Smoke generator (sold separately) can be added to model. \$469.99. Trix line. Märklin Inc., 573-693-1660, www.marklin.com

HO scale freight cars



■ **Assorted freight car kits.** Penn Central Pullman-Standard 4,750-cubic-foot-capacity three-bay covered hopper, \$19.98. Burlington Northern American Car & Foundry 4,600-cubic-foot-capacity three-bay Center Flow covered hopper, \$18.98. Gulf, Mobile & Ohio 40-foot Pullman-Standard PS-1 boxcar, \$17.98.

Great Northern Association of American Railroads 40-foot boxcar (two paint schemes) and 40-foot double-door boxcar (single car, \$17.98; three-pack, \$49.98). Soo Line 50-foot plug-door welded-side boxcar, \$17.98. Southern Ry. 40-foot double-door boxcar, \$17.98. Injection-molded plastic kits with plastic wheelsets and Accumate couplers. Accurail, 630-365-6400, www accurail.com



■ **Northern Pacific 1700-series wood cupola caboose.** Laser-cut wood kit with tab-and-slot construction, peel-and-stick parts, white-metal smokejack, and cast-resin platform steps and brake gear. Trucks and couplers not included. \$52.95. American Model Builders, 314-646-8588, www.laserkit.com

■ **48-foot Husky-Stack well car.** Arizona & California RR Co., Burlington Northern, BNSF Ry. (Burlington Northern patchout), Coe Rail Inc., Northwestern Oklahoma, Trailer Train, and TTX (black rectangle and modern logos). Three road numbers per scheme. Injection-molded plastic body, separately applied brake wheel, and McHenry scale couplers. \$27.98. August 2017. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com



■ **FMC 50-foot double-door boxcar.** Iowa Traction RR (McCloud River patchout), Western Pacific, Procor/Canadian Pacific, Seattle & North Coast, Union Pacific (Southern Pacific reporting marks), and White City Terminal RR.

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Cody Grivno

Three road numbers per scheme. Injection-molded plastic body with wire grab irons and RP-25 contour metal wheelsets. \$27.98. Ready-to-Roll. Athearn Trains, 800-338-4639, www.athearn.com

■ **Pacific Car & Foundry 50-foot insulated boxcar.** Burlington Northern, Conrail, Denver & Rio Grande Western, Illinois Central (Missouri Pacific patchout), Missouri Pacific (with Texas & Pacific reporting marks), and St. Louis-San Francisco (Frisco). Three road numbers per scheme. Detailed cushion underframe, separately applied door closure rods, etched-metal crossover platforms, and 70-ton roller-bearing trucks with rotating bearing caps. \$37.98. Genesis series. Athearn Trains, 800-338-4639, www.athearn.com

■ **Pullman-Standard PS-2 two-bay covered hopper.** New paint schemes: Chicago & North Western (green with Chicago Great Western reporting marks), Lancaster & Chester (gray and blue), Maine Central (gray), U.S. Borax & Chemical Corp. (gray and black, two road numbers), and Western Pacific (brown, two numbers). New numbers: Pennsylvania RR (gray) and Southern Ry. (gray with green lettering). Three numbers per scheme unless noted; also available undecorated. Injection-molded plastic model with 50-ton solid-bearing or 70-ton roller-bearing trucks as appropriate and Accumate couplers. \$25.95 (undecorated, \$20.95). Trainman series. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



■ **Norfolk Southern class G-86R TopGon.** With yellow reflective stripes, test roller bearings stencil, MW scrap tie loading stencil, and 1993 263K GRL scheme in three road numbers each; Roanoke Car Shop 25,000th Rebody Car in one number. Three numbers per scheme unless noted; three- and six-packs with yellow reflective stripes and 1993 263K GRL scheme also available. Injection-molded plastic body, wire grab



HO scale Pullman-Standard 40-foot PS-1 boxcar. This Walther's Mainline model is offered in new paint schemes. The boxcar is decorated for Soo Line; Akron, Canton & Youngstown; CP Rail; Milwaukee Road; and Southern Ry. in two road numbers per scheme. The model (\$24.98) has 33" turned-metal wheelsets and Proto-Max couplers. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

irons, and 100-ton trucks with metal wheelsets. Single car, \$39.95; three-pack, \$119.85; and six-pack, \$239.70. Master Line. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



■ **Pennsylvania RR class N8 caboose.** Conrail, Penn Central, and Pennsylvania RR (12 versions, with and without train-phone antenna as appropriate). Injection-molded plastic model with separate grab irons, metal wheels, and window glazing. Without antenna, \$27.95 (with, \$35.95). May. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com



■ **Old time log flatcar set.** Two-car resin kit with load yokes but no load. Grab irons and related detail parts not included. \$24.99. Concept Models, www.con-sys.com

■ **Pullman-Standard 5,277-cubic-foot-capacity waffle-side boxcar.** Southern Ry. (1971 as-delivered scheme in 12 road numbers, 1976 as-delivered scheme in six numbers, and 1984 Europa

repaint scheme in three numbers). Barber 70-ton S-2 trucks, etched-metal crossover platforms, and factory-installed and painted wire grab irons. \$44.95. Platinum series. ExactRail, 866-945-1701, www.exactrail.com



■ **Chesapeake & Ohio class H5-27 "baby triple" hopper.** Cast-resin kit with one-piece body, cast brake parts, cast-resin detail parts, Tichy Train Group grab irons, and decals. Trucks and couplers not included. \$44.99. Funaro & Camerlengo, 570-224-4989, www.fandckits.com



■ **Pullman-Standard 4,740-cubic-foot-capacity three-bay covered hopper.** New road numbers: Great Northern (August 1967 Big Sky Blue) and Illinois Central (1969 original gray). New paint schemes: Agland, Eaton, Colo.

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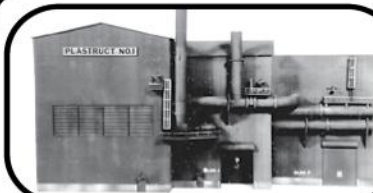
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(original 1969 scheme, two road numbers); Chicago Central (Illinois Central patchout, one number); Landmark, Columbus, Ohio (original 1968 scheme, four numbers); Maher Grain Inc., Courtland, Kan. (original 1967 scheme, two numbers); Northern Pacific (1969 original green); Rogers Grain, Cynthiana, Ind. (original 1967 scheme, two numbers); TLDX (1997+ gray lease scheme in one number, 1970+ yellow lease scheme in three numbers); and Western Maryland (1967 original gray). Six numbers per scheme unless noted; also available as undecorated kits in two variations. Etched-metal running boards and crossover platforms, 36" metal wheels, and Kadee scale couplers. \$44.95. Tangent Scale Models, 828-279-6106, www.tangentscalemodels.com

freestanding underbody brake detail, and metal wheels. Standard-deck car, \$35.95; bulkhead car, \$38.95; three-packs (\$107.85 and \$116.85); and 12-packs (\$431.40 and \$467.40). Wheels of Time, www.wheelsotime.com

HO scale structures



■ **Gunderson Southern Pacific class F-70-43 62-foot, 70-ton bulkhead and standard-deck flatcars.** Southern Pacific (bulkhead and standard-deck cars in original paint, 12 road numbers per scheme) and Golden West Service (SP maintenance-of-way reporting marks, three numbers). Standard-deck car also available painted brown but unlettered. Separately applied uncoupling levers and grab irons,

■ **United Farmers Co-op.** Laser-cut wood kit with tab-and-slot construction; peel-and-stick windows, doors, and trim; dock-height floor; laser-cut tarpaper, battens, and roofing materials; and white metal and resin detail castings. Measures 7" x 4 1/2" x 4". \$66.95. American Model Builders, 314-646-8588, www.laserkit.com

■ **Fire-damaged enginehouse.** Factory-painted and assembled structure. Features red light-emitting diodes to simulate burning embers, weathered locomotive, fallen trusses, beams, burnt barrels, two figures, four trees, and Jack the German shepherd. Requires 4.5-volt power source (sold separately). Measures

► In Memoriam

Jerry Williams 1937-2016

Jerome (Jerry) M. Williams, founder of Williams Reproductions, died Nov. 1, 2016.

Jerry and Fred Mill founded Classic Models Corp. in 1969, producing new standard-gauge model trains. Several years later he parted with Mills to form Williams Reproductions Limited, which made reproductions of popular tinplate Ives and Lionel models.

In the mid-1970s Williams turned to the O gauge market, producing kits and later assembled models. Some of the company's offerings were replicas of the Lionel Madison passenger cars, Fairbanks-Morse TrainMaster, and the GG1.

During the 1980s, Williams produced scale 3-rail versions of historically significant steam locomotives. The company later focused on expanding its O gauge line with semi-scale offerings.

In 2007, Williams Reproductions Limited was sold to Bachmann Industries and is now known as Williams by Bachmann. Jerry was inducted into the Hobby Manufacturers Association Hall of Fame in 2016.

5½" x 9" x 3¾". \$59.99 plus shipping (free shipping to your local Menards store). Menards, www.menards.com



■ **The Company House.** Laser-cut wood kit with Tichy Train Group doors and windows, cast resin steps, and laser-cut porch railings. Footprint is 2⅜" x 4". Left- and right-hand versions available. \$25 plus shipping. Nick and

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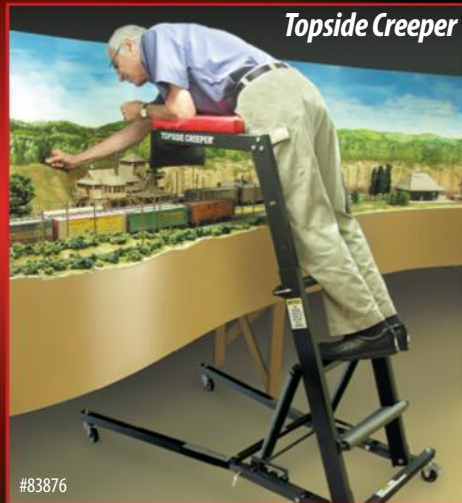
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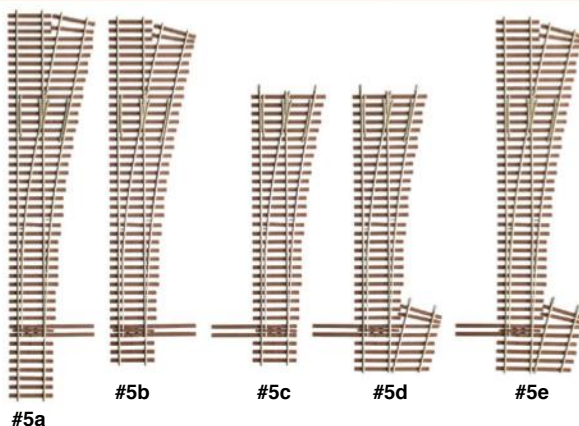
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Model Railroader March 2017

NEWS&PRODUCTS

Nora Designs, 302-229-6010,
www.nickandnoradesigns.com

HO scale details and accessories



■ Stationary steam engine load.

Kit includes resin castings and laser-cut wood parts. For HO scale 50-foot flatcar or two HOn3 30-foot flatcars. Can also be used for S and O scales. \$12.95. American Model Builders, 314-646-8588, www.laserkit.com

■ 45-foot intermodal container chassis.

CMA-CGM, Flexi-Van (brown), Genstar, Hanjin, Trac Leasing, and Trans Pacific. Rolling vinyl tires and printed mud flaps. Two-pack, \$29.98. August 2017. Athearn Trains, 800-338-4639, www.athearn.com

■ **Assorted detail parts.** Straight side passenger car steps (four-pack, \$10.95), Aldon rerailer (two-pack, \$4.50), cloth cab-window shade (stowed and open versions; two-pack, \$6.95 each), drip rails for Reading Co. locomotives (two-pack, \$2.95), DW rerailers (two-pack, \$4.50), F unit pilot uncoupling lever (two-pack, \$2.95), F unit roof-mount radiator with sideways piping (\$6.95), five-line m.u. cables (two-pack, \$6.95), and Nathan K3LAR2 air horn (\$4.50). Cal Scale line. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com

■ **Lumber loads.** Interlocking injection-molded plastic pieces to build stacked lumber. Includes 14 pieces of 8-foot stacks, 14 pieces of 12-foot stacks, 12 pieces of 14-foot stacks, 12 pieces of 16-foot stacks, 2 pieces of two-bar vertical sticker, and three pieces of three-bar vertical sticker. Banding not included. One load, \$22.99; two loads, \$43.99. Wheels of Time, www.wheelsotime.com

N scale locomotives



■ Electro-Motive Division

SD9043MAC diesel locomotive.

San Luis & Rio Grande (Iowa Pacific

Holdings scheme). One road number. \$190. Kobo Custom. Kato USA Inc., 847-781-9500, www.katousa.com

N scale freight cars

■ 36-foot old-time stockcar.

Atchison, Topeka & Santa Fe; Kansas City, Mexico & Orient; Great Northern; Northern Pacific; Pennsylvania RR; and Soo Line. Three road numbers per scheme. Separately applied running boards, screw-mounted trucks, and truck-mounted couplers. \$21.98. September 2017. AthearnN. Athearn Trains, 800-338-4639, www.athearn.com

■ American Car & Foundry 50'-6"

boxcar. New paint scheme: Susquehanna (reporting marks only). New road numbers: Burlington Northern (1991 scheme), Canadian National (wet noodle herald), CSX, Railbox (large logo), and St. Mary's RR (white). Two road numbers per scheme; also available undecorated. Non-terminating corrugated ends, diagonal panel roof, and 10-foot Youngstown doors. \$17.95 (undecorated, \$13.95). Second quarter 2017. Trainman series. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com



■ **Two-bay war emergency composite hoppers.** Chicago, Burlington & Quincy; Alton RR (single car and two-pack); Ann Arbor (single car and two-pack); Chesapeake & Ohio; Gulf, Mobile & Ohio (single car and two-pack); Illinois Terminal (single car and two-pack); Lehigh Valley; Louisville & Nashville; Pennsylvania RR; and Virginian Ry. Die-cast metal slope sheet, hopper bay, and center sill assembly; plastic sides, ends, and doors; and metal wheels. Single car, \$24.95; two-pack, \$49.90; and three-pack, \$74.85. Bluford Shops, 618-822-6833, www.bluford-shops.com

■ Magor Car Co. 40-foot insulated

boxcar. Bangor & Aroostook (State of Maine scheme); Canadian Pacific (block herald, yellow with Multimark, and script lettering in two numbers each, plus Mandarin Orange Express); and New York, New Haven & Hartford (block herald and State of Maine scheme). One number per scheme unless noted. With and without running boards and heaters as appropriate, Trainworx American Steel



N scale Assorted freight cars. The latest offerings from Micro-Trains include a Kansas City Southern 89-foot tri-level auto rack (125th anniversary scheme, one road number), \$44.95; a St. Louis Southwestern (Cotton Belt) 40-foot plug-door boxcar, \$30.90; and a CSX 50-foot

Airslide covered hopper, \$27.95. The models are available in two numbers per scheme unless noted and feature plastic wheelsets and Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, www.micro-trainsline.com

Foundries A-3 Ride-Control trucks, and Fox Valley metal wheelsets. \$36.25. Eastern Seaboard Models, www.esmc.com

N scale passenger cars

■ **Southern Pacific Lines Morning Daylight 10-car set.** Baggage-chair car, chair car, tavern car, parlor car, parlor observation car, two-unit articulated chair car, and three-unit articulated coffee shop/kitchen/diner. Prototype-specific details and shock-absorber-equipped trucks. \$260. Kato USA Inc., 847-781-9574, www.katousa.com

■ **Southern Pacific Lines Morning Daylight two-unit articulated chair car.** Prototype-specific details and shock-absorber-equipped trucks, \$55. Kato USA Inc., 847-781-9574, www.katousa.com

N scale structures



■ **Elkton Creek Smelter.** Updated laser-cut kit. Footprint is 13 1/4" x 8".

\$145.95. The N Scale Architect, 607-746-8416, www.thenarch.com

N scale details and accessories



■ **Auto tunnel portals.** Random stone (overall dimensions 2 1/2" x 1 1/2") and concrete (2 3/8" x 1 1/2"). Portal opening is 1 1/2" x 1 1/8" on both. Cast-resin. \$8.95 each. Pre-Size Model Specialties, 970-527-4586, www.pre-size.com



■ **1980s GMC 9500-series Brigadier short dump truck.** White-metal kit with vacuum-formed windshield and decals. \$16.95. Showcase Miniatures, 334-750-3276, www.showcaseminatures.net

O scale details and accessories

■ **California Zephyr passenger car trucks.** Black and silver. With wheel wipers and metal springs. Suitable for non-California Zephyr cars. Two-pack, \$44.95. Atlas O, 908-687-9590, www.atlaso.com

■ **Assorted detail parts.** Boiler check valves with pipe (two-pack, \$6.50), early side-mount whistle (\$4.50), governor on lagged pipe (\$4.25), and Nathan KS-1 15" single-chime air horn (two-pack, \$5.60). Cal Scale line. Bowser Manufacturing Co. Inc., 570-368-2379, www.bowser-trains.com

S scale details and accessories



■ **Blasted rock tunnel portal.** Overall dimensions: 7 3/4" x 6 1/2", opening measures 3 1/2" x 4 1/2". Also suitable for O scale narrow gauge. Cast resin. Pre-Size Model Specialties, 970-527-4586, www.pre-size.com

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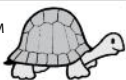
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NEWS&PRODUCTS

Z scale locomotives



■ Electro-Motive Diesel SD70ACe and SD70M-2 diesel locomotives.

SD70ACe: Union Pacific (Southern Pacific heritage scheme, one road number).

SD70M-2: Florida East Coast (blue-and-yellow scheme, two numbers). Can motor with dual flywheels, traction tires, directional light-emitting-diode headlights, optional pilot and plow, and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

■ General Electric P42 diesel locomotive.

Amtrak (phase 5 scheme). Four road numbers. Traction tires and directional light-emitting-diode headlights. Designed for Digitrax and TCS drop-in Digital Command Control decoders. American Z Line, 614-764-1703, www.americanzline.com



■ Electro-Motive Division F7A-B-A diesel locomotive set.

Denver & Rio Grande Western. A units have 5-pole motor powering both trucks; B unit is not powered. Three units are drawbar connected. Number boxes on A units are illuminated. Front coupler on A units can be replaced with pilots included with the model. \$379.99. Märklin Inc., www.marklin.com

Z scale freight cars



■ 17,600-gallon corn syrup tank car.

New paint scheme: Casco. Two single cars and four-pack. Metal wheelsets and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

■ National Steel Car 42-foot coil car.

New paint scheme: Norfolk Southern (CSX patchout). Two single cars and four-pack. Metal wheelsets and AutoLatch couplers. American Z Line, 614-764-1703, www.americanzline.com

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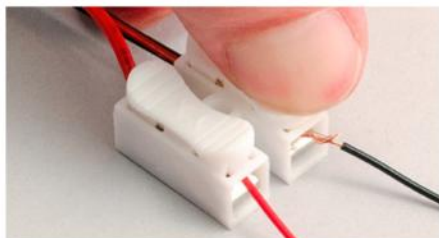
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Electronics/controls

■ **Signal animator.** Drives light-emitting-diode signals wired either common anode or cathode and implements speed restriction indications from switch machine inputs. Can be driven by an external signaling system or operated using its internal ABS mode that implements logic directly from any occupancy detectors for a basic signaling system. Kit, \$14.50; ready-to-use, \$21.94 (prices may vary depending on exchange rate). Shipping \$12 to United States, \$7 to Canada, and \$24 to other countries. Circuits4Tracks, 905-787-1203, circuits4tracks.daxack.ca



■ **KwiKonnnect.** Connects electrical wire. Ideal for low-voltage applications.



N scale Norfolk Southern class G-86R TopGon. Atlas has added this former BLMA car to its Master Line. The NS TopGon is available with yellow stripes, test roller bearings stencil, MW scrap tie loading stencil, and in the 1993 263K GRL scheme in three road numbers each; the Roanoke Car Shop 25,000th Rebody Car is offered in one number. Three- and six-packs with yellow reflective stripes and the 1993 263K GRL scheme are also available. A single car is priced at \$25.95; three-packs list for \$77.85; and six-packs retail for \$155.70. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

Handles up to 10 amps and 12- to 34-gauge wire. Available in two-, three-, and 12-port units. Can be secured with screws and double-sided tape. Eight-pack, \$8.98. Model Rectifier Corp., 732-225-2100, www.modelrectifier.com

■ **Prodigy Wi-Fi module.** Plug-in module exclusively for Prodigy systems. Allows users to run trains with an iOS or Android smart phone or tablet. Features include creating, modifying, and storing locomotive rosters; controlling turnouts;

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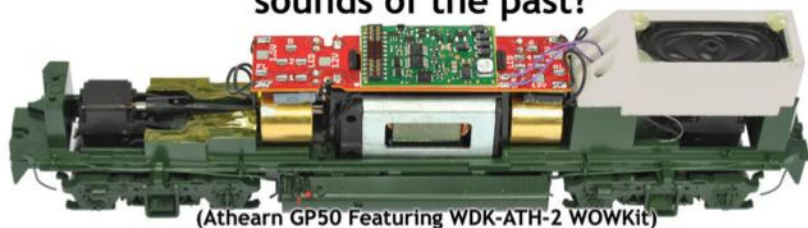
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NEWS&PRODUCTS

Club offerings



■ Farmland Industries Pullman-Standard 4,750-cubic-foot-capacity covered hopper.

InterMountain N scale model custom-decorated for the 2017 National Model Railroad Association National Convention. Four road numbers. \$24.95 plus \$6.95 shipping. Orders may be placed online at www.nmra2017orlando.org. Click on the "Company Store" link.

and creating universal consists. Connects directly to Prodigy cab jack with no wiring necessary. Requires the free app WiThrottle or Engine Driver. Up to eight phone throttles can connect to each Prodigy Wi-Fi module. \$99.98. Model Rectifier Corp., 732-225-2100, www.modelrectifier.com

Decals

■ **Assorted decals.** Boxcar chalk markings and Southern Pacific Santa Fe hood and cab diesels (HO and N scales only). N scale, \$6.75; HO scale, \$8.25; and O scale, \$8.50. Microscale Industries, 714-593-1422, www.microscale.com

Correction

■ **Website correction.** On page 11 of the January 2017 issue, we listed the wrong website for Lonestar Models, manufacturer of the Wilson Trailer 43-foot Pacesetter grain trailer. The URL is www.lonestarmodelsinc.com. **MR**

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An Atchison, Topeka & Santa Fe 2-10-2 locomotive waits at the sand house in San Bernardino Yard, Calif., on Sept. 11, 1947. Though they varied in size and design, all sand houses operated in pretty much the same way. William W. Turkington photo

How did sand houses operate?

I'm scratchbuilding an Atchison, Topeka & Santa Fe sand house like those in Winslow, Ariz., and San Bernardino, Calif., during the transition era. I have quite a few pictures in addition to some architectural plans. However, I have no idea how they work. I want to add detail, but I need to know how they operated.

Ray Mlecko, Phoenix

A Though they varied in size and design, all railroad sand houses had the same basic three parts: an open bin for receiving sand; an enclosed drying house; and an elevated bin for storing dry sand.

Most commercially available sand house models, like those made by Walthers, Campbell, B.T.S., and JV Models, depict a fairly small structure with an open bin and a small cylindrical tank for dry sand. Sand for these facilities would be delivered in a gondola parked alongside the bin, then shoveled in by hand. Being a busy engine terminal, though, San Bernardino needed much more sand than could be supplied by these means. The structure in the photo above received sand in drop-bottom gondolas or hoppers that were shoved up a ramp to dump directly into the bin.

From there, an auger would convey the wet sand into the drying house, where it would be dried by heat from a furnace or electric dryer. The dry sand was then conveyed or blown into the elevated bin. Gravity would take care of dispensing it into a steam engine's sand dome.

Q Many of the structure building articles you print have lists of supplies, but no mention of the adhesives used. The authors may write simply "I glued part A to B" without mentioning the kind of glue. Can you tell me the preferred types of glues to be used on various structure building materials? Thanks.

Steve Hansen

A Many kinds of adhesives have applications in our hobby. You don't have to buy and use all of these to successfully assemble a model railroad, though. Some kinds of glue can stand in for others in a pinch. But like Wolverine in the comics, each is the best there is at what it does.

- Plastic solvent cements work by melting plastic parts together, and work only on specific kinds of plastic (most

commonly, styrene). It comes in two types: thin and thick. Thin is most often used on model kits. It comes in a bottle often equipped with a brush in the cap. Thick plastic cement, which usually comes in squeeze tubes, can be useful when laminating large sheets of styrene together, such as applying a textured sheet over a building core.

- Cyanoacrylate adhesive, abbreviated CA and better known as "super glue," also comes in thin and thick varieties. Thin cures faster; thick fills gaps better. It's most often used to assemble metal kits (brass or white metal) or join parts of unlike material (such as brass to wood or acetate to styrene). Thick CA is a good option for wood-to-wood joints, but the thinner variety can cause pieces to warp.

- Yellow wood glue (aliphatic resin), as its name implies, is well suited for wood kits. It's thick, dries waterproof, and forms a strong bond.

- Matte medium, often sold in diluted form as scenery cement, looks like thin white glue, and many modelers use diluted white glue in its place. It's most often applied with a pipette to affix ground cover or ballast to a layout.

- Two-part epoxy can be useful in forming a strong joint between unlike materials, or assembling a cast-resin kit.

- Contact cements come in a wide variety of forms: spray-on, brush-on, or tube. The spray-on or brush-on types can be used for applying a printed scene to a backdrop or gluing paper shingles on a structure's roof. The thicker tube cements, like Walthers Goo, are useful for gluing scenic details like figures or vehicles to the layout.

- Construction adhesives, like Liquid Nails for Projects, Loctite Power Grab, or DAP Dynaflex, come in squeeze tubes like toothpaste or in round tubes for use in caulking guns. Modelers use them for gluing foam board to benchwork, roadbed to subroadbed, track to roadbed, and rock castings to a scenic base.

Then there are many specialty glues for specific applications, like Testor's Clear Parts Cement, Canopy Glue, Hob-E-Tac, Aleene's Tacky Glue, rubber cement, and... I could go on and on. Each has its uses.

Q My question is on clearance between tracks. I'm building an HO scale layout and plan an 8-foot hidden loop for reversing and staging. Starting at the widest radius, I want to



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ASKMR



Early N scale wheelsets, like those in the top row, have oversized flanges that run poorly on modern code 55 track. Today's wheels, like the sets on the bottom, have lower profile flanges. Bill Zuback photo

work down to a 30" loop. So, how close together should the tracks be?

Mike Brewer, Binghamton, N.Y.

A It depends on how you intend to use the staging yard. If you plan to build trains on the layout and run them into staging to wait until you bring them out, you can use the standard spacing for curves in HO scale: $2\frac{1}{4}$ " between track centers. However, if you plan to "fiddle" cars in this staging yard – that is, move cars on and off the staging tracks by hand – you'll need clearance for your fingers on either side. Add at least $\frac{1}{2}$ " to that spacing, more if you're going to be doing your fiddling from a cramped "mole" position inside the loop.

Q What is the maximum climbing grade per foot?

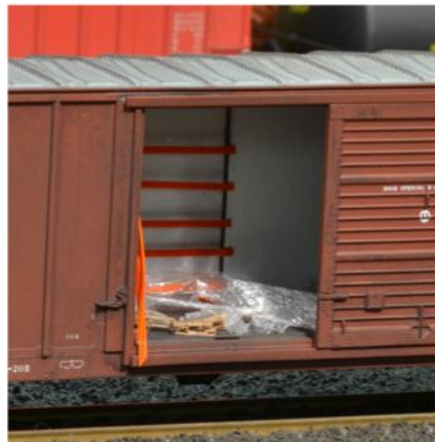
James Foisey, Nashville, Tenn.

A For most model railroads, a 2 percent grade (1" of rise in 50" of length) is a safe ruling grade. For short grades on small layouts, 4 percent (1" of rise over 25") is a practical maximum, as the wheels of locomotives pulling heavy trains will start to slip at much more than that. Geared steam locomotives like Shays or Heislors, hauling no more than a few short cars at a time, can practically handle as much as 8 percent (1" of rise in just over 1 foot) if they're equipped with traction tires. But keep in mind that prototype railroads did their best to minimize grades, even if their engines could handle them. Too many steep grades can make your model railroad look toylike.

Q What issue of your magazine had the article on how to paint and detail the inside of boxcars? It was in the last few months. I get all of your magazines, so I know I have the issue, but I just can't find the article.

Milt Andrews, Northwood, Ohio

A You probably couldn't find it because it was a bit more than just a few months ago. The story you're thinking of, by frequent *Model Railroader* contributor M.R. Snell, was in our September 2015 issue. It was titled "How to model boxcar lading debris." That article demonstrated how to make an empty boxcar look used. If you don't have that one in your collection, you can read it online in our All-Access Archive, www.modelrailroader.com/AllAccess.



Frequent contributor M.R. Snell showed how to detail the interiors of empty boxcars in our September 2015 issue. M.R. Snell photo

Q My last N scale layout used all Atlas code 80 track. I've now moved into a larger house with more room and am building a new layout using code 55 track. I have about 125 engines and 900 cars, many of which won't run on the new track. Most of the engines that get stuck on turnouts are the steam locomotives. What's the best way to solve this problem? What is the best track for the cars?

Jim Vandress, Wellington, Colo.

A The first step is to eliminate the most obvious potential cause, and check the gauge on your wheels. Your new track and turnouts may be designed to tighter tolerances that won't accommodate slightly out-of-gauge wheels like your older, more forgiving ones did.

If gauge is not the problem, it's most likely the flanges on the wheels. Before the National Model Railroad Association's S-4.2 standard governing wheel dimensions was widely adopted, many models were sold with wheels colloquially known as "pizza cutters" for their oversized flanges. Some examples of those wheels are shown in the top row of the photo above. These flanges helped keep less well engineered models on the rails, especially in smaller scales. And back then, rails were tall enough to handle them. However, especially in smaller scales, those rails looked oversized.

As modelers began to clamor for more realistic looking track, smaller rail (code 55 in N scale and 70 in HO) was developed. Cars and locomotives with wheels that fit S-4.2 worked just fine on the new rail, but older ones with "pizza cutters" would often derail when their flanges bumped into frogs, spike heads, and guardrails.


It's a simple matter to replace the wheelsets on your older rolling stock with new, low-profile wheels (though with a fleet as large as yours, it will get expensive). It's not such a simple matter with locomotives, though. While you might be able to get your hands on replacement wheelsets, power trucks, or chassis, the cost of that approach may be prohibitive. If you aren't too far into layout construction, the easiest approach might be to go back to code 80 track.

Send questions and tips to associate editor Steven Otte at AskMR@MRmag.com.

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Easier access to an N scale sneak track



Jim gained easy access to his sneak track by cutting a series of holes that could be hidden behind new backdrop panels. A flush-cutting oscillating saw allowed him to make the cuts after the layout was built. Jim Kelly photo

Like model railroaders in other scales, most of us N-scalers are natural-born cheaters when it comes to layout planning. We set our design parameters, but then we start compromising them. Hey, it won't hurt if we make this one curve a little tighter, or this aisle just a few inches narrower. Enough of this kind of cheating and we'll build a railroad that's bound to disappoint.

One very important design principle, as far as I'm concerned, is *no long stretches of hidden and hard-to-access track*. This rule is particularly important in N scale because our trains are so small. We can run them in spaces only 2 inches high and an inch wide, but there's a big problem in doing so. Our hands are too big to cope with such tiny spaces.

The hidden-track trap. In 1985, the year I model, there were two major railroad yards in Bakersfield, Calif.: one for the Santa Fe and one for the Southern Pacific. Each had a roundhouse and a full complement of other buildings. Now, modeling yards takes lots of everything: track, turnouts, space, and oodles of time.

One yard would be quite enough, thank you, let alone one roundhouse and turntable. I chose the Santa Fe's because I had always been a Santa Fe fan and

loved warbonnet paint schemes (Who doesn't?).

The Southern Pacific would get from staging to the modeled portion of the layout by sneaking behind the backdrop of the Santa Fe yard, as you can see in the photo. This was all fine and dandy as long as the trains stayed on the track, which 99.4 percent of the time they did.

If they didn't, or if I needed to clean track, I was in trouble. I had to crawl under the layout, reach up blindly through benchwork and wiring, and carefully start plucking out derailed cars, hoping not to knock any onto the floor.

This wasn't all that onerous if I was running trains alone. I could just say "shucks," run Santa Fe trains instead, and put off the plunge for as long as I wanted, which was sometimes weeks.

All that changed, though, when I started hosting operating sessions. Then both railroads had to keep running, and I couldn't take 15 minutes to be under the layout cleaning up a mess on the sneak track.

Coming to a head. Last August, after licking my wounds for more than two years, I attempted a second operating session. (I described the first, a catastrophe, in my January 2014 N Scale Insight column.)


Sure enough, Murphy's Law (anything that can go wrong, will) reared up within the first five minutes. The first eastbound SP train out of staging entered the sneak track and only half of it came out at the other end. From under the layout I could see 17 pairs of pant legs waiting rather impatiently for something good to happen.

A plug-in backdrop. It was time for a solution, and actually I'd had one in mind for years. I would cut a series of access slots in the backdrop, then disguise them with removable plugs. I'd planned to do this clear back when I was building the benchwork and framing for the tempered hardboard backdrop, but decided to forgo it because I was in a hurry. This wasn't the only part of my early planning that I skimped on only to regret it later. There's a lesson here, "Do it right the first time."

Many times I'd thought about retrofitting this feature, but I was hung up on a problem. If you look at the photo you can see what I mean. The tops and sides of these openings could be cut easily with a saber saw, but the bottom cut was a different matter. It had to be flush with the plywood yard surface, and I had to be careful not to hit and damage the track behind the backdrop.

The right tool for the job. Anyway, motivated by the aforementioned uncoupling behind the backdrop, I went to a big-box home-improvement store where I found a wide range of oscillating tools, just what I needed. The one I bought cost \$16.99. I'm a firm believer in the old adage, "you get what you pay for," especially in tools, but if it could cut those seven holes, I'd be happy. The tool did the job wonderfully and is still going strong.

I used the blanks I'd cut out as patterns to make the plugs from 1/2" plywood. The new backdrop sections were cut from .040" styrene and painted with my basic tan ground paint. Someday I'll add buildings and trees cut from paper backdrops and laminated to good stiff cardboard to glue to these plastic pieces.

For now I'm declaring victory. Problems behind the backdrop are easy to get to and I can keep the trains running on time. 

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Looking for ways to add something different to your operating sessions? Try modeling partial loads to simulate cars that need to remain where they are while being unloaded, such as this coal hopper on the HO scale Winston-Salem Southbound, a project layout built by the Model Railroader Video Plus staff. Bill Zuback photos

Model partial loads to enrich operations

We have a team track on Model Railroader Video Plus' HO scale Winston-Salem Southbound layout, and it's used by a couple of off-line customers that regularly receive open hoppers of materials. Crystal Ice & Coal Co. unloads hoppers of coal and Vulcan Materials receives carloads of specialty rock and sand. Both businesses move the product in trucks to off-layout sites.

The normal routine on most layouts is that a carload of coal or sand would be delivered to the team track in one session, and then picked up as an empty on the next. But on a small layout, your operating crews end up delivering the same carload of coal to the same siding every other session, which can be unsatisfying.

One way to make your operating sessions more interesting is to add a load/unload phase into your routing – particularly those that end up at small industries. On prototype railroads, not every

car is handled on every switch job. Although customers are charged for a freight car's use by the day, it still takes time to empty or load a car – sometimes as much as a week or more. Including that real-life practice into your session will break up the routine of always picking up or dropping off the same cars.

I've included this feature on the team track on the WSS layout, but with a twist – loads to identify partially unloaded hopper cars. On the first part of a hopper's cycle, the car is delivered with a full load. Before the next session, I swap the full load for a partial load. I also add a few props, such as a portable conveyor and a couple of trucks, making it clear to the WSS switch crew that the hopper can't be moved until the job is complete.

On the next session, I pull the partial load, remove the conveyor and the trucks, and cycle the car card to indicate the hopper is now ready for pickup.

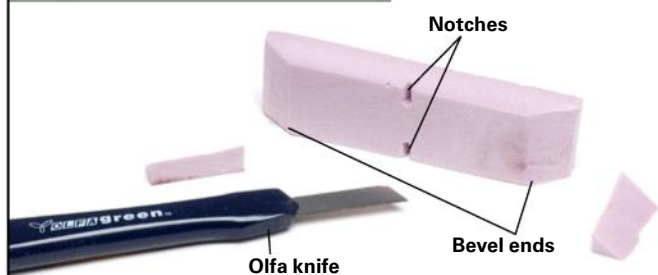
While the conveyor and other details are readily available, partial loads are not. Fortunately, as shown in the following photos, you can make them easily from a block of foam insulation, paint, glue, and some model coal or gravel.

In just an evening or two, you can add some variety to routing open hoppers and gondolas on your layout with partial loads too. For more about how we planned and built this layout, buy the new *Model Railroad Planning 2017*, on sale now. **MR**



Subscribers to Model Railroader Video Plus can watch videos of this layout's construction. Click on the link at www.ModelRailroader.com.

Step 1 Making the foam base



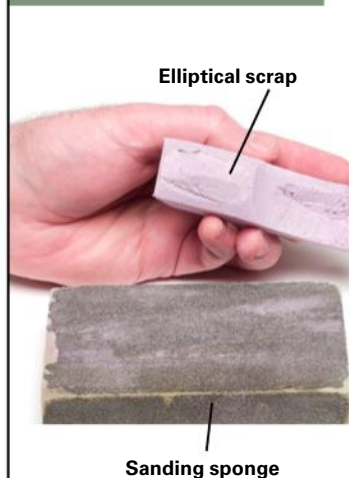
The load is built from a block of 1/2" extruded-foam insulation board. After cutting the foam to fit an Accurail United States Railroad Administration twin-bay hopper, I cut bevels into the ends so that the block would sit low in the car. I notched the block to fit around the car's interior bracing sheets. I used a wallpaper knife made by Olfa. The thin, sharp blade makes it ideal for this work.

Step 2 Forming the unloaded part



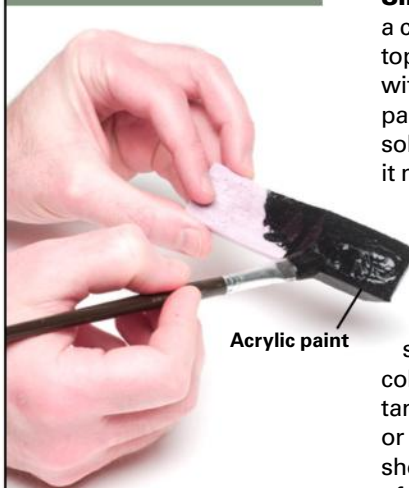
Once the hopper is parked at the team track, it would be unloaded one bay at a time. To simulate this, I cut away about half of one end of the foam block. When the material runs out the bottom of the car, it creates a well, much like an hourglass. To create this effect, I sliced out an elliptical area in the foam, being careful not to cut through the bottom of the load.

Step 3 Shaping the load



With the well completed, I built the pile for the unloaded side of the car. I used yellow wood glue to attach the cutout from the well to the top of the foam block to form the pile. When the glue dried, I used a medium-grit sanding sponge and a fine sanding stick to round the sharp edges. The surface doesn't need to be perfectly smooth. Leaving it rough provides some tooth to hold the coal or gravel.

Step 4 Painting the load



Since I was building a coal load, I painted the top and sides of the load with flat black acrylic paint. Don't use solvent-based paint, as it may cause the foam to dissolve. The paint masks any open spaces left by the covering material (applied in the next step), so the paint color choice is important. For a load of sand or gravel, the paint color should match the color of the material used.

Step 5 Adding the coal



Once the paint was dry to the touch, I coated the top of the load with full-strength white glue. I then spooned HO scale crushed coal onto the wet glue. I was careful to clear away any coal that tried to stick to the sides of the foam, as the material would keep the load from seating in the car properly. Once the load was coated with coal, I set it aside to dry.

Step 6 Unloading details



After a car is delivered, I add a conveyor, some figures, and a truck. The conveyor is a Walthers plastic kit, no. 933-3520. The truck is a Classic Metal Works 1941-46 Chevrolet dump truck. The figures, from Preiser sets, are held in place with a dot of Hob-e-Tac or similar glue. Once the car has been unloaded, I remove the props. The car is ready to be picked up by the next crew.

Attention to scene composition, color, and materials make this scene on Lance Mindheim's HO scale CSX layout look realistic. His techniques are achievable for beginners and veteran model railroaders alike.



REALISM TIPS for beginners

The four keys to unlocking a realistic layout are simpler than you think

By **Lance Mindheim** • Photos by the author

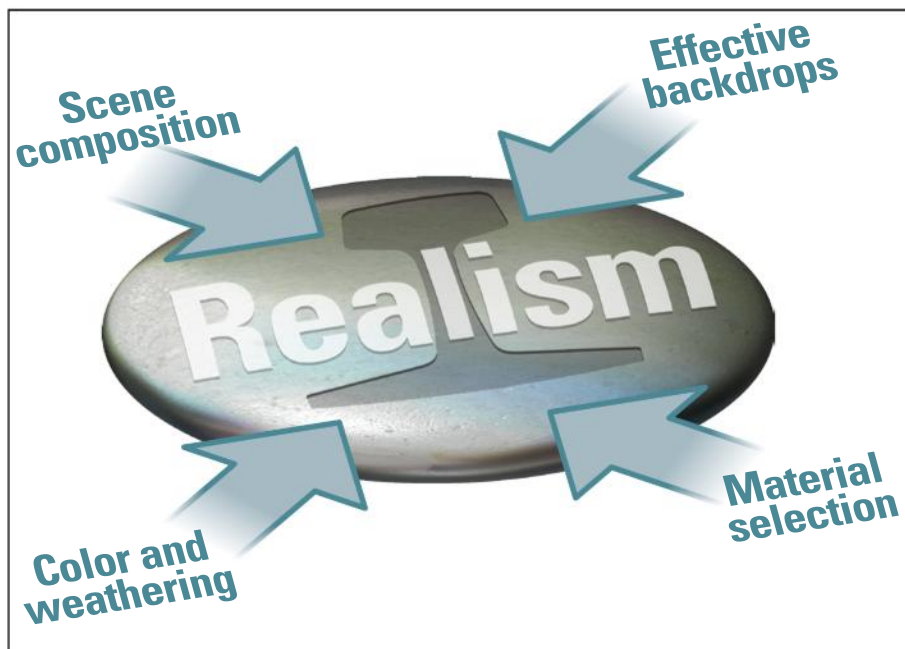


Fig. 1 Four cornerstones of realism. Effectively composing a scene, using appropriate materials, a basic color and weathering palette, and effective backdrops are the key to a realistic layout, regardless the scale.

A: Prototype scene



B: Compressed scene



C: Cropped scene



Fig. 2 Crop, don't compress. Illustration A shows a hypothetical scene someone may want to model. Trying to squeeze all of the elements into a limited layout space doesn't work very well, as shown in B. More visually pleasing results are achieved by modeling a smaller portion of the scene and leaving more space between structures and other elements, C.

We all have to start somewhere in model railroading, and every one of us was a beginner at some point. The term “beginner” isn't one size fits all, however. Many are knowledgeable about railroading but may be beginners from the standpoint that they haven't had the opportunity to do any modeling. This group tends to want a model of a railroad and, to that extent, some degree of realism in their modeling efforts is important to them. As I encounter these “advanced beginners” (for lack of a better term), they tell me that they feel caught in a catch-22 between wanting realistic results but thinking that they're years away from the

ability to do so. Often this disconnect keeps them from jumping into the hobby.

When the subject of building realistic model railroads comes up, people generally think in terms of prototypical accuracy, superdetailing, and a prerequisite of decades of modeling experience. While this may be partially true, their contribution is minor compared to other much more important factors. Fortunately, these other factors are all things the entry-level modeler can easily learn and

employ. Realism simply means believable. It's creating a layout that looks like what we expect to see. The four cornerstones of the realism foundation are: effectively composing a scene, applying appropriate colors, using the appropriate materials, and effectively handling backdrops. See **fig. 1**.

Scene composition

Scene composition refers to which elements we choose to put in our scenes,

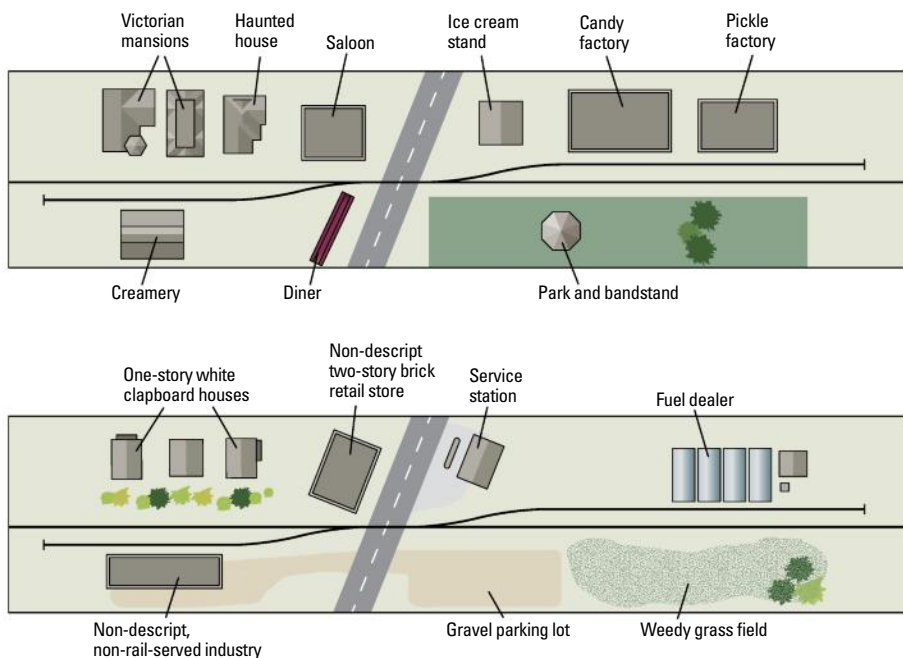


Fig. 3 Realism over whimsy. If every structure in a scene is cute and unique (top), they compete with each other visually and the boundaries of believability are stretched. Collections of more mundane, everyday structures grouped together result in convincing, realistic scenes (bottom).



Fig. 4 A muted palette. Faded white, gray, and brick red are the dominant structure colors on this scene along the Los Angeles Junction RR. Note the almost complete absence of vibrant primary colors.



Fig. 5 No airbrush, no problem. The colors most commonly found along a railroad right-of-way are available in spray cans.

their relative size and positions, and the space between them. It's one of the largest factors in determining how realistic a model railroad looks.

With so many compelling models on the market today, the hobby can feel like an all-you-can-eat buffet, and it's easy to want a little of everything. As we add more and more structures and must-have scenery features to our want lists, we begin to run out of space. To compensate, we bunch things closer and closer together to fit them in.

It's also human nature to acquire structures (and/or scenery ideas) for the sole reason that they look interesting as opposed to whether they're tied to any single theme. The combination of too many elements for our space and the elements not really being tied to a central subject can make something about our scenes seem a little off.

Without forethought, it's easy to drift more toward something that looks vaguely like an amusement park as opposed to a miniature copy of an actual railroad scene. There are two culprits.

First, the structures and elements are packed too closely together. Second, the structures (either individually or in groups) don't match what we're used to seeing in real life.

If realism is important to you, much better results will be achieved if you can limit yourself to a few scenes and try to incorporate plenty of open space between your structures. See **fig. 2** on the previous page.

It's also important to focus on ordinary structures rather than the extraordinary, or cute, ones. For example, rather than modeling a candy factory, pickle factory, and Victorian mansion, model a



Fig. 6 Four shades of gray. Rather than using black or white, use various shades of gray. Rust-Oleum Dark Gray automobile primer, Painter's Touch 2X Flat Gray primer, Light Gray automobile primer, and Model Master Light Gray are four colors Lance uses.

fuel dealer, a non-rail-served industry, and a few one-story clapboard homes, as shown in **fig. 3**, opposite.

Using color correctly

With the exception of scene composition, there's no other topic that affects how realistic your models look than color. You might be able to get away with imperfect details or a construction glitch here and there, but if your color is off, it's very noticeable. The good news is that if you master the color basics, you can attain dramatic results, even if your assembly skills aren't quite ready for prime time.

In the railroad environment, certain colors are much more prevalent than others. The more we can match the percentage that various hues actually appear in the real world, the more convincing our results. While there are exceptions to everything, as well as regional and corporate variations, the following tips will get you well on your way to creating a plausible color balance.

Although not apparent unless you are looking for it, the most frequently used color on structures is white, as shown in **fig. 4**. As you go back to the steam-to-diesel transition era this is particularly true. Although not every structure is white, set a goal of painting slightly more than half of your buildings this color.

After earmarking a sizable percentage of your structural elements to be painted white, the balance should be brick, grays (which includes concrete, corrugated siding, steel, and faded wood), or a washed out beige that's almost white. These common colors are often available in spray can form, as seen in **fig. 5**.

However, remember that nothing is truly black and white. Instead, black fades to charcoal and white shifts to pale gray. Instead of using black or white paint, use various shades of gray, such as those shown in **fig. 6**.

Many buildings and details used on model railroads have oversized features. These are easily disguised by painting them black, dark brown, or dark gray. See **fig. 7**. White or light gray only calls attention to oversized details.

Just as we are subconsciously aware of what colors we should see beside a railroad, we are equally aware of when something is amiss. Overuse of primary, vibrant, and overly bright colors is visually jarring and detracts from realism.

Add realism with weathering

When we scale our modeling structure subjects down into miniature form, there's a noticeable lack of shadows and



Fig. 7 Hiding oversized parts. Due to limitations in injection-molding technology, parts are often cast oversized. By painting these parts a dark color, you can downplay the problem.



Fig. 8 India ink wash. Applying a diluted wash of India ink and alcohol is one of the simplest and most effective weathering techniques a modeler can employ.

contrast and there is an overall glossiness that tends to make them look like models. There's no more effective (or simple) technique in terms of dealing with this problem than applying an India ink wash.

I use three different India ink washes for weathering. I mix $\frac{1}{2}$ teaspoon of ink per pint of 70 percent isopropyl alcohol for whites, 1 teaspoon of ink per pint of alcohol for general use, and $2\frac{1}{2}$ teaspoons per pint of alcohol for brick.

To apply the wash, dip a flat-tipped brush into the wash and gently wipe down the structure face using vertical strokes, as shown in **fig. 8**. The brush should be damp. If you make a mistake, wipe it off with straight alcohol.

When applied over a surface sealed with Testor's Dullcote, the alcohol will create a frosty appearance. Don't panic. Just apply another layer of Dullcote to reverse the effect.



Fig. 9 Realistic rail. Lance's track of choice is Micro Engineering flextrack. He spray paints the track with Rust-Oleum Camouflage Earth Brown.

Material selection

We can make our quest for realism easier by selecting products and materials best suited for the job. In the past decade there has been a large influx of products that are not only much easier to use, but look much better than their predecessors. Track, ballast, and grass mats are three materials that are front and center in almost any scene. Old purchasing habits die hard, so let's take a look at current products in these areas.

Trains run on tracks and, if you're looking at a model railroad scene, chances are you'll be looking at track. There are many reliable, excellent brands on the market. Some brands of slightly less expensive track have oversize spikes. This isn't something that would catch the eye of most, but can be distracting for a realism-oriented modeler. The Micro Engineering line of track components, shown in **fig. 9**, has closer-to-scale looking features.



Fig. 11 Modern grass. Heki, Silflor, and Woodland Scenics are three manufacturers that produce fiber grass mats. The blade-like fibers better approximate real grass.



Fig. 10 Rock on, naturally. Scale ballast is made from a variety of products, including ground cork and walnuts. However, Lance has found natural rock, such as Scenic Express Natural Stone Aggregate, is easier to work with and better looking.

Because of the fine details some assume Micro Engineering track is harder to work with. I haven't found this to be the case. The track is something that a beginner could work with.

Color also plays a crucial role in track appearance. Many beginners don't have an airbrush. Fortunately, the needed colors are available in spray cans. Simply paint the rail and ties with Rust-Oleum Camouflage Earth Brown paint. Fog it on with several light coats, wiping the wet paint off the rail heads immediately after applying it.

Once the paint is dry, add the ballast. There are many materials used to make model railroad ballast, ranging from cork and wood-based materials to natural stone. The natural stone based products look better and tend to be easier to work with. See **fig. 10**. Making the decision to go natural will make a dramatic improvement in your scenes.

Applying ballast effectively isn't hard, but it takes practice. A common pitfall is applying too much. Rather than trying to get coverage with an all-at-once approach, it's easier to control your results if you apply the ballast in several light layers. The top layer should be just below the ties, not over them.

Neatness in ballast application is also important. Take care to keep errant granules off the ties, out of the web of the rail, and away from the working parts of turnouts.

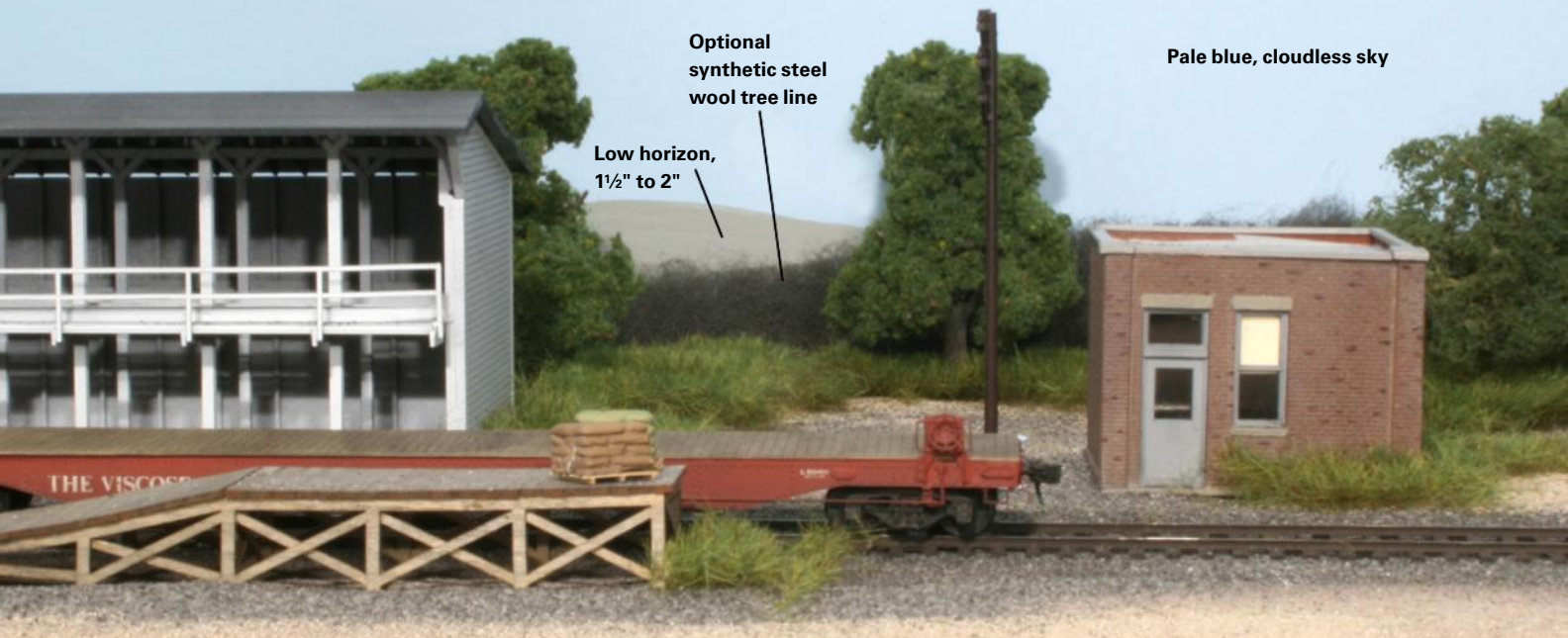


Fig. 12 No more backdrop blues. When it comes to backdrops, simpler is usually better. A cloudless pale blue sky and a gray tree or hill line an inch or two tall is more than enough to create the illusion of distance.

Back in the old days, our material selection for modeling grass was limited to ground foam or perhaps even dyed sawdust. Other than being green, these materials weren't very convincing.

In recent years scenery manufacturers have come out with much more realistic products that more accurately match the blade-like shape of actual grass. Of these products, one of the simplest and most forgiving to work with are fiber grass mats. Heki, Silflor, and Woodland Scenics are a few that offer them. See **fig. 11**, opposite. Placing the mats is as simple as opening the box, stretching the mat out, and gluing it in place.

Backdrop basics

Because backdrops cover so much surface area, and are perpendicular to our eyes, how you handle them will make a major difference in terms of how visually effective (or not) your entire layout appears to the viewer. Backdrops deserve more than a little attention. Fortunately, you don't need to be Rembrandt to handle them effectively. In fact, the opposite is true. As shown in **fig. 12**, the simpler and more toned down, the better.

Unlike a painting in a museum, a model railroad backdrop isn't meant to be the center of attention. Its purpose is to create a sense of distance and atmosphere. If we ask more of them, at best we create a distraction that draws attention away from the central focus, our railroad. At worst we end up with a prominent eyesore.

The good news is that backdrops are a case of less is more and do no harm. In

Structures and scene composition



Convincing structure selection requires a heavy dose of the ordinary. Pictured left to right: Rix Maxwell Avenue home, Blair Line loading ramp, Walthers Interstate Fuel, and Walthers Walton & Sons Lumber. Note the preponderance of white, brick and gray in the color spectrum.

If you took a poll among model railroaders asking what aspect of the hobby they enjoy the most, it's a good bet that assembling structures would be at the top of the list. If realism is important to you, though, the structures you choose will make the difference between something that looks like what you'd expect to see trackside as opposed to a toy train set.

Select structures you would typically find in your era and region, as opposed to the dramatic and unusual. Over time, as you study historic photos and maps, you'll see a trend in the types of structures that typically appear over and over. For the steam-to-diesel era, that would be lumberyards, team tracks, and fuel distributors. For the modern era it would be food distributors, plastics manufacturers, and scrap metal industries. — *L.M.*

most cases, a simple pale blue surface with a low 2" gray horizon is more effective than an attempt at creating a masterpiece. If you need a structure skyline on the backdrop, again keep it to no more than a few inches tall (most commercial backdrops have very tall skylines) and try to find shots that feature the structures at a 90-degree viewing angle as opposed to an angled view showing two sides.

Another potential pitfall is where water meets the backdrop. If a waterway

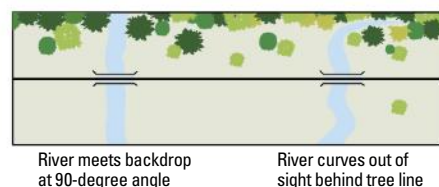


Fig. 13 Where the river ends. If a river runs from the layout to the backdrop at a right angle, it can be difficult to make the transition look realistic. Instead, try curving the river.

Modeling faded white

The most common color found trackside is white. Not brilliant white, but a faded, slightly gray version. Creating this look is simple using ordinary spray cans and a layered approach. – L.M.



First, paint the entire structure with Rust-Oleum Light Gray automobile primer. Another option is the plastic-safe Rust-Oleum Painter's Touch 2X Flat Gray primer.



Next, fog on flat white. Keep the spray can 12" to 15" away and use light, horizontal wand-like passes. Apply lightly so just a hint of the underlying gray shows through.



Finally, using a flat-tipped brush, apply an India ink wash using vertical strokes. Use a weak wash of ½ teaspoon of ink and one pint of 70 percent isopropyl alcohol.

runs straight from the layout to the backdrop in a perpendicular manner, it can be difficult to make the transition look realistic. To avoid this problem, curve the water out of sight behind a bridge or a tree line. See **fig. 13** on the previous page.

Get started

Even if you're just getting started in model railroading, with careful scene

composition, the right color palette, realistic weathering, proper material selection, and effective backdrops, you can have a realistic looking model railroad. **Figure 14** shows part of a scene that illustrates many of the topics covered in this article.

So get off the sidelines, grab some realistic track, natural ballast, fiber grass mats, run-of-the-mill structures, spray paint, and pale blue paint and start work

on your model railroad. The road to realism is easier than you think. **MR**

Lance Mindheim is a frequent contributor to Model Railroader and its annuals and special issues. He owns The Shelf Layouts Co. Inc. (www.shelflayouts.com), a custom layout building firm. Lance lives in Silver Spring, Md., and has one grown son, Zachary, who often accompanies him to model railroading events.

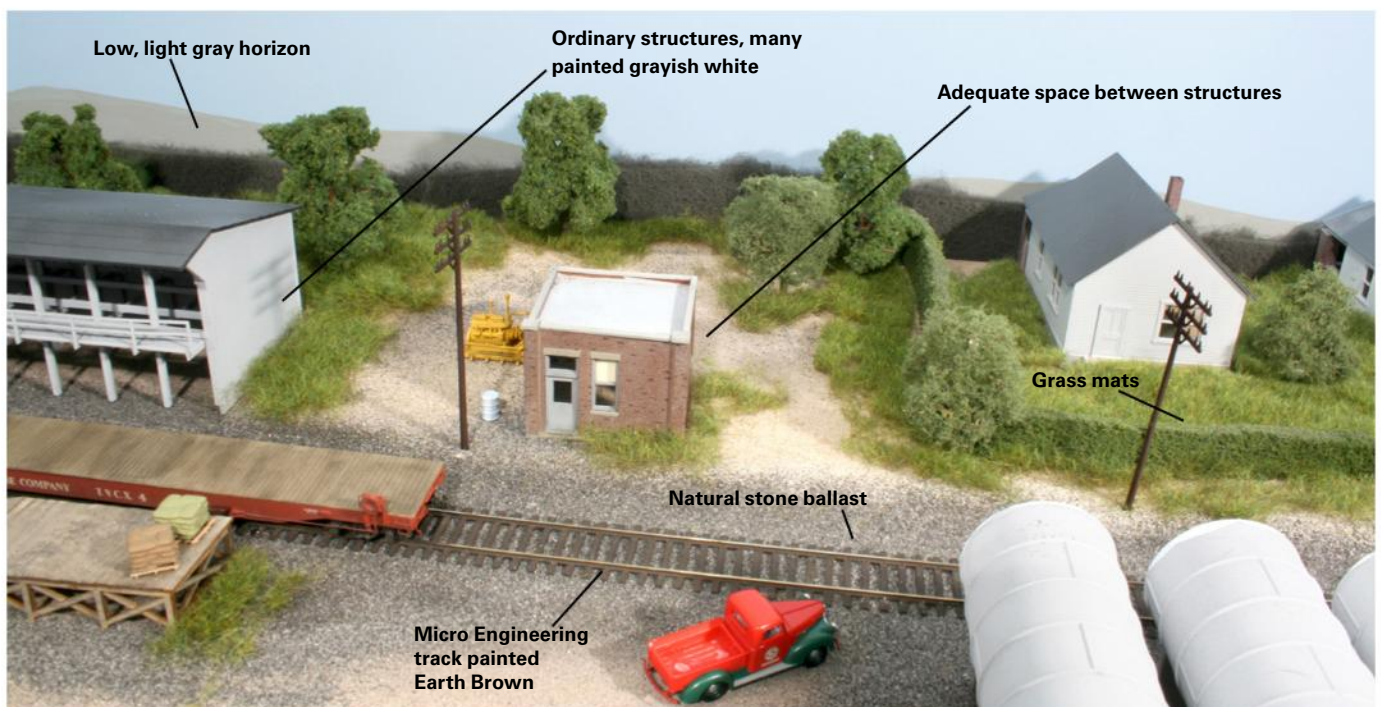


Fig. 14 An effective scene. This scene features the techniques Lance described in the article. A scene like this can easily be accomplished by someone starting out in model railroading.



Model an aluminum billet load

A center-beam bulkhead flatcar loaded with aluminum billet is in the yard on M.R. Snell's HO scale layout. He modeled the load using styrene and stripwood.

Jigs and assembly-line production make this HO scale load easy to complete

By **M.R. Snell** • Photos by the author

Center-beam bulkhead flatcars, gondolas, and hoppers are important pieces of rolling stock for many model railroads. Since these cars are open, there's no disguising whether they're loaded or empty. However, making your own load isn't very difficult.

During one of my recent railfanning trips, I saw some center-beam bulkhead flatcars loaded with aluminum extrusion billets. Essentially a raw material in the form of 10- to 15-foot long logs, the 8- to 12-inch diameter billets can easily be placed in layers four deep across the flatcar's narrow deck, with the center partition providing stability as the load rises in height.

What is aluminum billet used for? A variety of things, including windows, trim, heat sinks, and shower enclosures, to name a few items.

Center-beam bulkhead flatcars are typically seen at lumber yards and building supply centers. But with an aluminum billet load, these cars will now look right at home at industries that produce extruded aluminum parts.

M.R. Snell has written more than 20 articles for Model Railroader. His story "Model realistic stacked steel plates" was published in the March 2016 issue. His HO scale Conrail layout was featured in Great Model Railroads 2006.

►► Materials list

Evergreen styrene
214 1/8" rod

Floquil
27119 Old Silver (Discontinued. Model Master no. 2714 German Silver Metallic is a close match.)

Great Planes
GPMGPMQ1460 1/16" black striping tape

Northeastern Scale Models
4411 HO scale 4 x 4

Plastruct
PPC-2 Plastic Weld liquid cement

Miscellaneous
Assorted styrene strip and sheet
White glue

STEP 1 Planning the load



Every successful project begins with planning, and this one started with prototype photos. I used the images to determine the size of the billets. I knew the flatcar deck was 48" wide. Then I divided 48 by 4, the number of billets in each row. I surmised that each billet was approximately 12" in diameter.

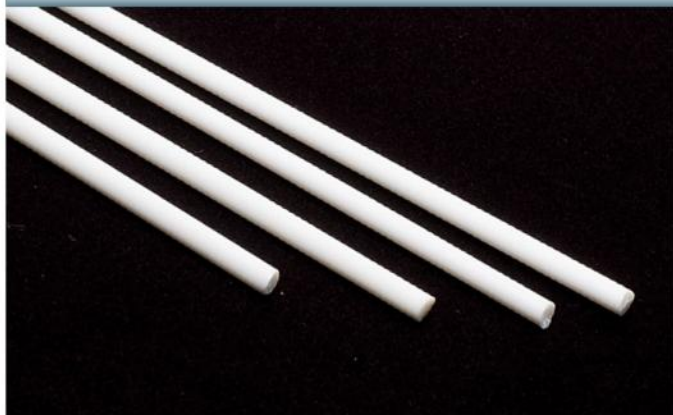
Next, I needed to determine the length of the billets. For this, I used the vertical beams on the flatcar as an aid. It



appeared each group of billets was just short of spanning four open panels on the car's center structure. I calculated the length, 13'-6", using the model I'd be adding the load to, a Walthers center-beam bulkhead flatcar.

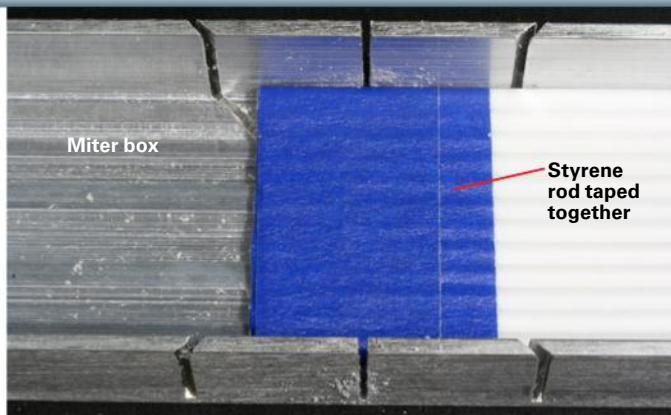
With the dimensions estimated, I made a cardboard mock-up that would allow me to see how the load would look before constructing the final product. Once I was satisfied with the mock-up, I began work on the load.

STEP 2 Cutting and gluing



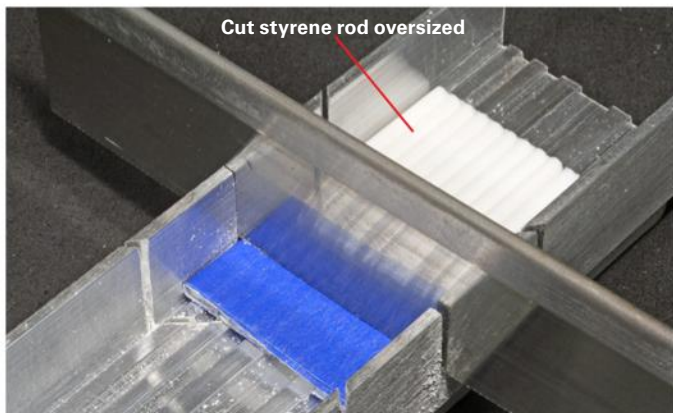
Next, I chose the material to model the billets. After checking the offerings of several styrene manufacturers, I selected Evergreen no. 214, $\frac{1}{8}$ " diameter solid styrene rod. The styrene's diameter (.125") equaled $10\frac{7}{8}$ " in HO scale.

To re-create the prototype load, I needed to cut 136 billets. While this may seem like a lot, I used a few tricks to



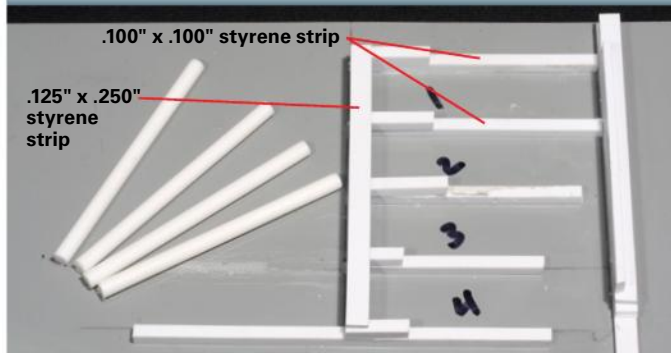
make the task easier. First, I cut the styrene in large groups. I started by trimming one end of the rod to make it "square" and remove imperfections from the manufacturing process.

I placed 12 rods side by side and butted the styrene against a straightedge. Then I taped the rods together, making them a unit that would sit level inside a miter box.



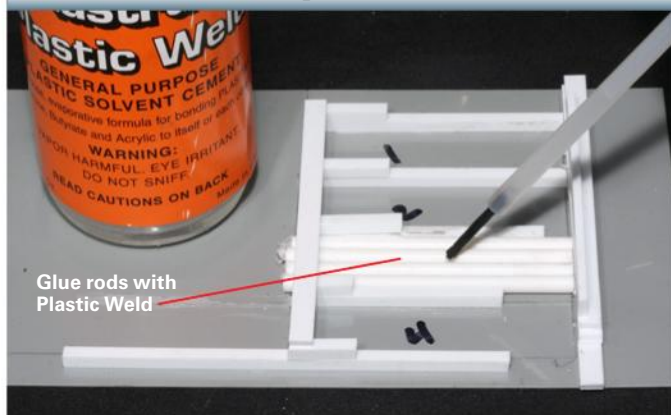
Next, I rough cut the first batch to 15 scale feet with a fine-tooth razor saw, leaving some excess to trim off. I then cleaned up the leading edge of the next batch, and repeated this process until all the styrene rod had been cut in groups with one clean end and one rough end.

STEP 3 Mass production



To make uniform groups of billets, I built a styrene jig. The jig has four pockets, framed with .100" x .100" styrene strip. Once I'd finished the pockets, I attached a piece of .125" x .250" styrene strip across the top to serve as a cutting guide.

STEP 3 Mass production (cont'd)



Using the jig, I set the styrene rod side-by-side in groups of four. I bonded the styrene using Plastruct Plastic Weld.

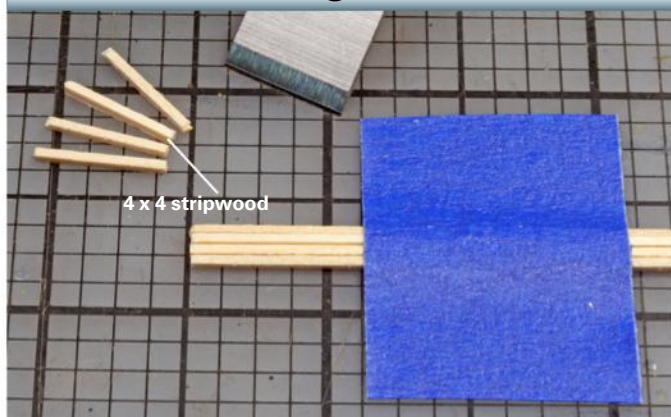
To remove the rough ends and cut the styrene rod the correct length, I placed the flat side of a no. 17 blade along the styrene guide and pressed down. Once all the billets



had been trimmed, it only required a little file work to smooth the edges.

With the billets trimmed, I sprayed the four-piece clusters with Floquil Old Silver to simulate the dull coloring on the prototype billets.

STEP 4 Building the loads



Billets, pipes, and similar loads generally have wood runners underneath each layer to make the load more stable and facilitate handling by forklifts. I used HO scale 4 x 4 stripwood for this detail. I taped several lengths of stripwood together and cut it in 1" lengths with a chisel blade on a cutting mat with a grid.



Next, I attached the wood runners to the painted styrene rod with full-strength white glue. The runners need to be in a straight line vertically throughout the load.

Keeping this alignment proved near impossible, so once again I employed a styrene jig. This time, each runner was aligned with marks on the styrene strip.



With the runners added, I started stacking the loads vertically. First, I placed one layer of billets on the flatcar deck. Then I applied white glue where the runners from the next layer would rest. I placed the second layer of billets atop the first and continued this process until all layers were added.



I used striping tape to simulate steel banding. I cut two pieces of tape and removed the protective backing from each section. Then, beginning on the underside, I wrapped the tape around the groups of stacked billets until it came in contact with itself on the underside, completing the load. **MR**



Rick De Candido didn't let apartment living keep him from model railroading and hosting operating sessions. Portable staging yards keep the action going when the crew is visiting, then push out of the way when operating sessions are over.

BUILDING A PORTABLE STAGING FIDDLE YARD

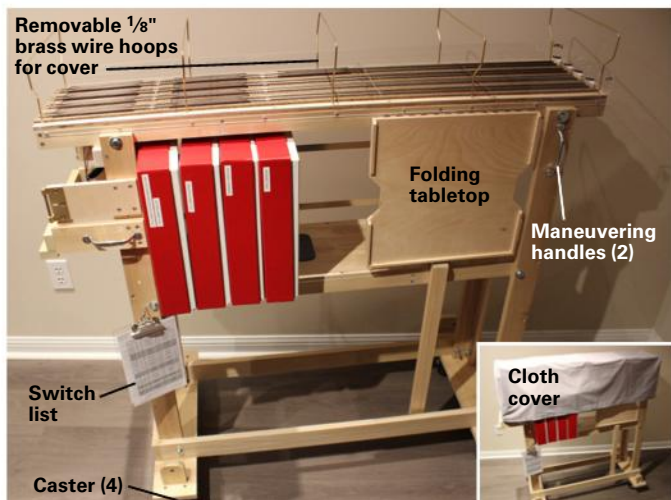
An option for space-starved model railroaders

Rick De Candido • Photos by the author

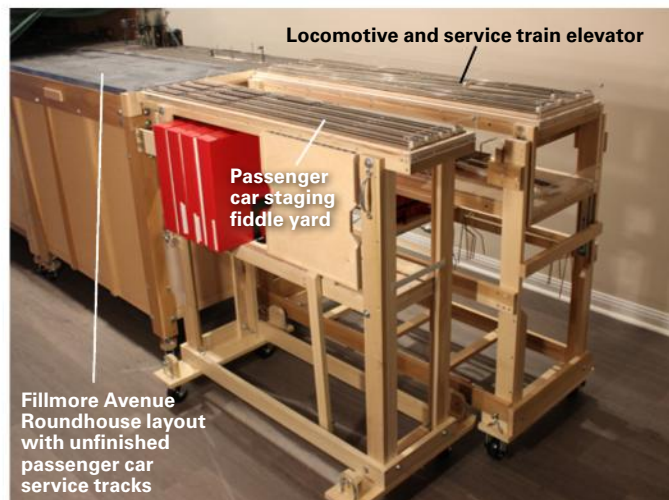
My layout is two in one: a steam-era engine terminal and a passenger/express car switching operation. When my Fillmore Avenue Roundhouse appeared in *Model Railroad Planning 2015*, I assumed I would make another portable staging elevator for the passenger car switching side of my layout. After all, I'd built one for the locomotive and service train staging and I'm very happy with it. It was a good solution considering the limited space I have for staging in my condominium apartment.

However, it became apparent a portable staging fiddle yard would be better. It would be simpler to build and operate. Also, after I looked at how many passenger car spots I have on the layout, there was no need for excessive staging. The fiddle yard allows for setting up passenger and express car consists (it represents the passenger platforms at New York Central's Central Terminal in Buffalo, N.Y.). For my switching operators, it's a "help-yourself" affair. **MR**

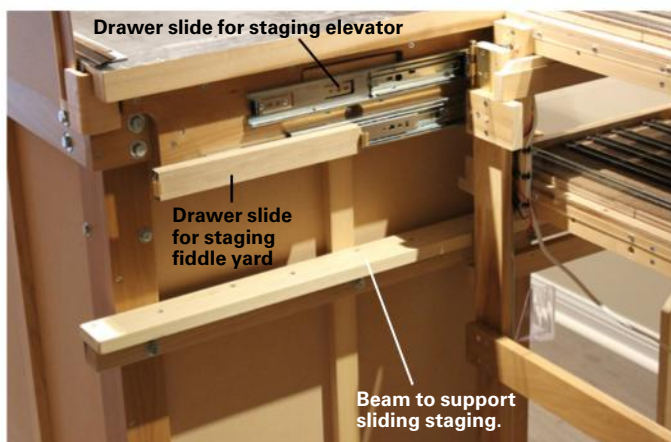
You can read more about Rick's modeling on his blog at www.fillmoreavenue-roundhouse.wordpress.com.



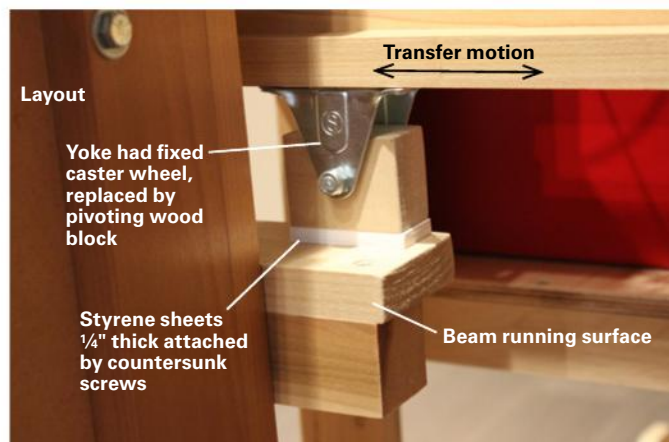
Here's an overall view of this relatively compact staging fiddle yard. It's made from dimensional poplar and has two coats of polyurethane for a finished appearance. Frame, legs, lower shelf, and top yard shelf assemblies are bolted together. A fitted cloth cover keeps the dust off.



This is the general arrangement for staging at Fillmore Avenue Roundhouse. Both the locomotive and service train staging elevator and passenger car staging fiddle yard have lateral motion, much like a transfer table. Rolling stock is stored in the red Reboxx boxes.



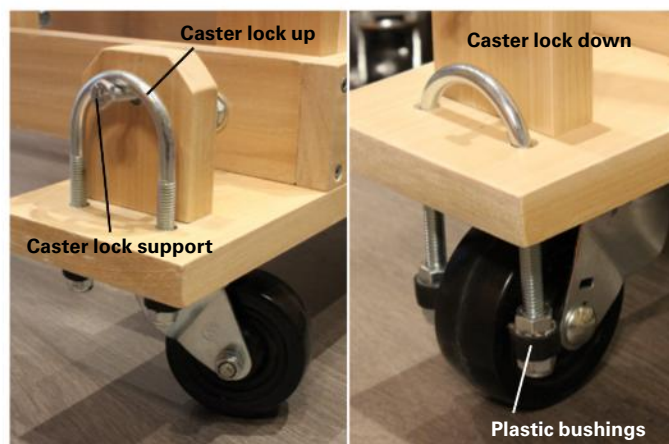
Ball-bearing drawer slides mounted to the layout end allow for the lateral traversing motion. The staging modules are raised about $\frac{1}{4}$ " off the floor and slide on the horizontal beam. This maintains the rail height within tolerance no matter which staging tracks are aligned to layout tracks.



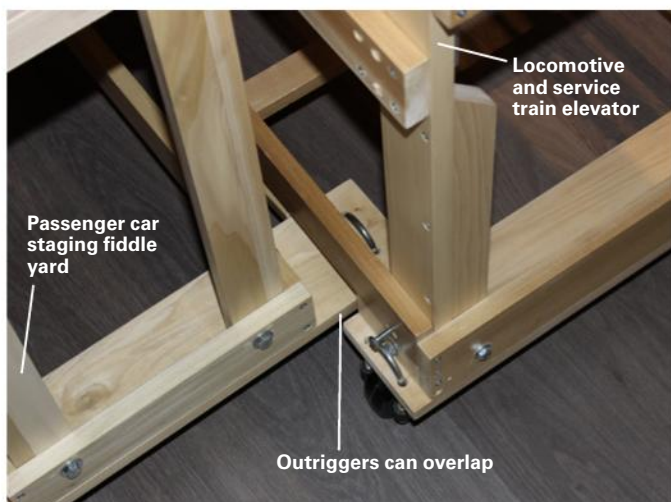
I planned to have a roller run on the beam, but I found that it wasn't perfectly round and was affecting the rail heights as the staging was traversed. I replaced it with the arrangement shown. The styrene runs smoothly on the beam; hand soap applied to the running face improves the motion.



Door hinges have been used creatively in model railroading for decades. This arrangement isn't innovative, but it works well. It allows for quick coupling of the module and is very forgiving in the vertical direction due to the clearance made by removing the middle loop of the hinge.



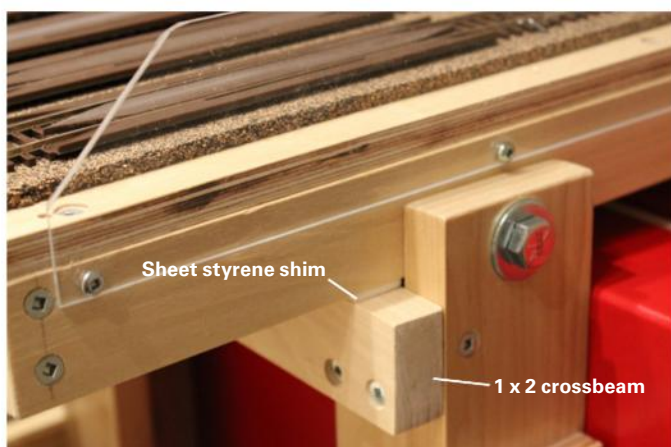
The casters are handy for moving the module around the apartment, but are a liability when lateral motion is desired, so I made a caster lock. It's made from a "U" bolt held in the up position with another hex bolt. Removing the bolt allows the lock to drop and prevents the wheel from swiveling.



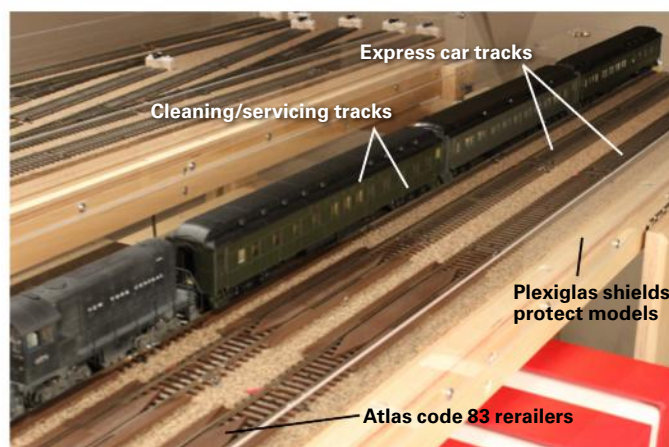
Both staging modules can get quite close together. Fortunately when I designed the staging elevator, I had the foresight to leave some room for the fiddle yard outriggers.



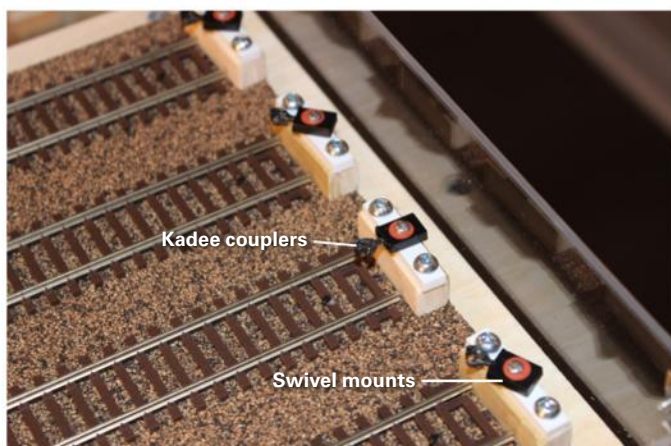
Unfortunately, there wasn't enough room for the caster lock bracket to pass under the locomotive elevator, so I hinged the lock bracket to fold out of the way.



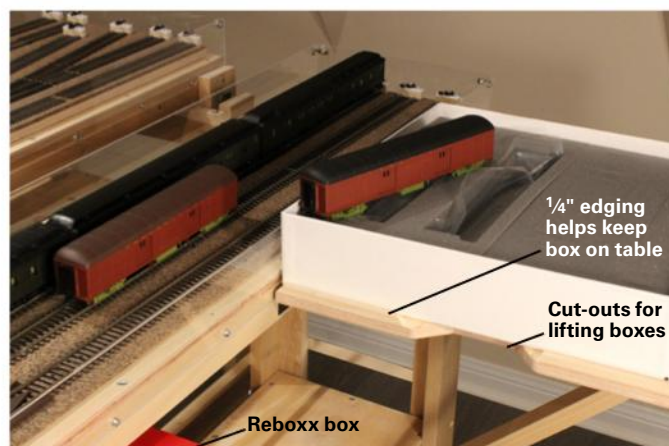
This is how I made the fine adjustment to match the rail height on the layout. The 1 x 2 allows some shimming of the upper yard level, using styrene strips. Tightening the bolts holds this position.



The tracks are 45" long, so a typical consist to be pulled onto the layout would be three heavyweights and an Alco switcher. The front two tracks are for my express car switching operation and the rear two are for the passenger car cleaning/servicing operation.



If some cars are needed for the next operating session, they can be left in place. Kadee couplers in draft-gear boxes are mounted at each track so the cars can be secured while the module is being moved. They swivel to the side to avoid unwanted coupling while operations are under way.



Changing out consists is easy! Rolling stock is stored in Reboxx boxes (four cars each in six boxes for a total of 24). To make changing the cars easier, a folding table is provided to set the box on. To ensure the table doesn't collapse, a latch holds the leg in place.



The Squam River runs under the tracks and between two buildings on Thomas Oxnard's HO scale Boston & Maine layout. He added the channel after he'd installed and ballasted the tracks.

How to model a river channel

This waterway cuts between two structures and under the tracks

By Thomas Oxnard • Photos by the author

At the north end of my freelanced HO scale Boston & Maine RR layout is Ashland, N.H. The community, located along the Squam River, was home to several mills, including the Ashland Woolen Mill and the Squam Lakes Woolen Mill. When the mills were built in the 1840s, the Squam River was made into a channel and a dam was constructed to provide power for these and other mills in the area.

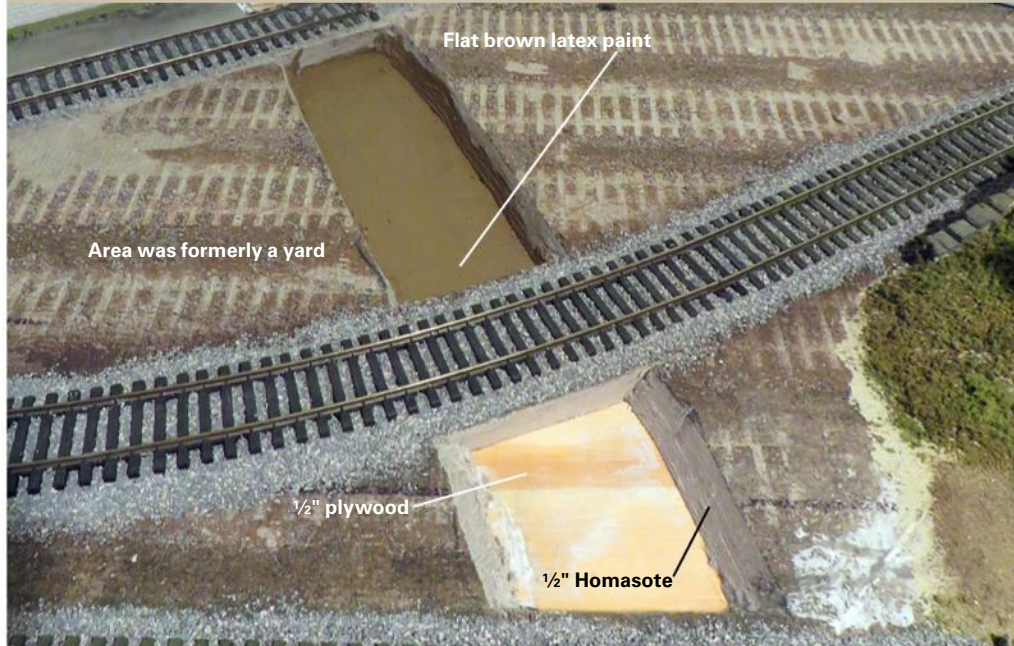
I'm adding the two woolen mills to my version of Ashland. The scene replaces an old yard that I tore out (hence the shadows

of the former track locations on the Homasote surface). As I was working on the structures, I realized I could easily re-create the Squam River channel between the buildings without disrupting tracks I'd relaid and ballasted.

The channel adds historic interest to the mill scene. You could easily adapt these techniques to model a stream running through town or any other narrow water feature.

Thomas Oxnard's article "Building a brick switch tower" appeared in the May 2015 issue of Model Railroader.

STEP 1 CUTTING THE CHANNEL



My layout features 1/2" Homasote on top of 1/2" plywood. First, I marked the path of the channel. Then I used a sharp box cutter, held at a 45-degree angle, to cut the Homasote.

The channel is 2 1/2" wide at the front of the layout and narrows to 2" at the backdrop.

With the cuts made, I removed the Homasote from the channel. However, I left the Homasote under the tracks to support the roadbed and rails.

I applied a skim coat of spackle to the riverbed to hide the wood grain. Then I painted the riverbed with flat brown latex paint.

STEP 2 ADDING SCENERY



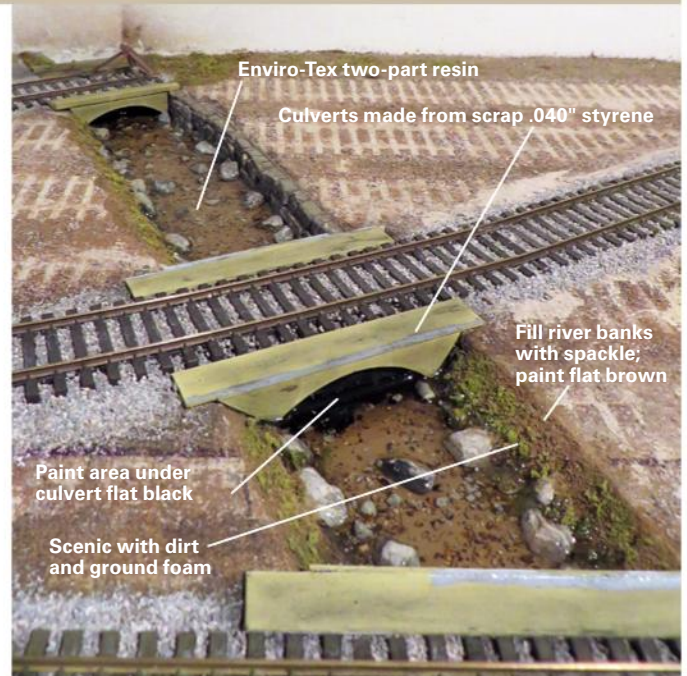
With the riverbed painted, the next step was to add scenery. Following the prototype, I installed a stone wall below one of the mill buildings.

After some searching, I came across the Colonial Stone Wall (Scenic Express no. FL4180), which was a close match to the one in Ashland. The 1/2"-thick wall is made of rigid foam and is sold in a 5" x 12 1/2" sheet.

The foam is easy to cut, and it takes paint well.

Next, I sprinkled sand and coarse gravel into the riverbed. I followed that with small, pea gravel-sized stones I'd gathered in my driveway and painted with a gray wash.

I secured the sand and gravel with diluted white glue. I used full-strength white glue to hold the small stones in place.



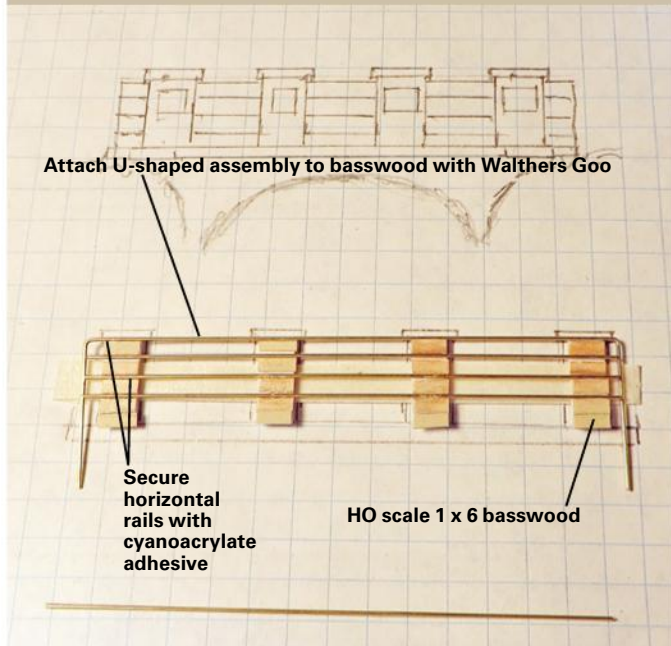
I filled the remaining riverbank with spackle and painted it flat brown. I covered the painted spackle with dirt and ground foam.

Then I turned my attention to the three concrete culverts where the tracks cross the channel. I built the culverts using scraps of .040" styrene sheet. Before installing the culverts with Walther's Goo, I painted the Homasote under the tracks

flat black to hide the fact the river doesn't actually "flow" beneath the tracks. After installation, I painted the styrene Model Master Aged Concrete and weathered it with powdered pastels.

With the scenery and culverts in place, I poured an 1/8" layer of Enviro-Tex in the channel. The two-part resin can be tinted with organic solvent-based paints, but I left mine clear.

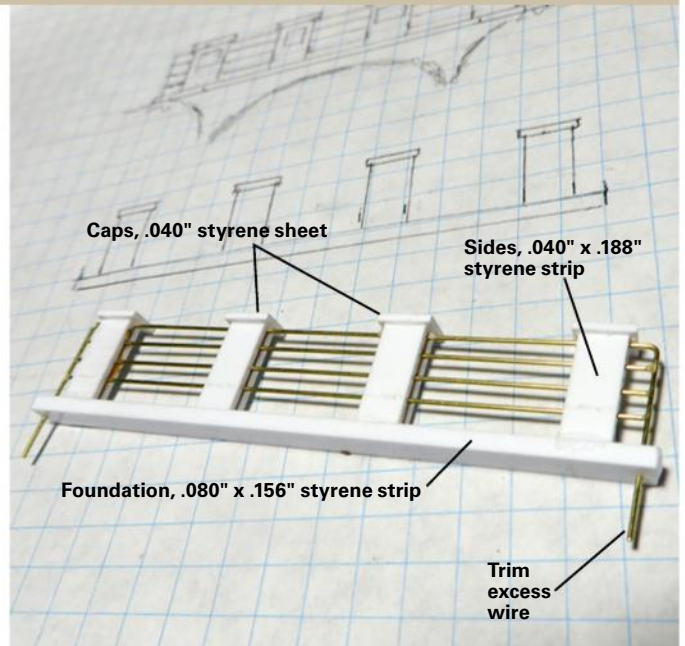
STEP 3 CULVERT RAILINGS



I made scale drawings of the culverts and built the railing assemblies directly on the drawings. I used .022" brass wire for the rails. To ensure even spacing between the rails, I attached pieces of HO scale 1 x 6

basswood on the drawings with Walthers Goo, as shown in the photo above.

Then I secured the three horizontal rails to the U-shaped top and end rail piece with cyanoacrylate adhesive (CA).

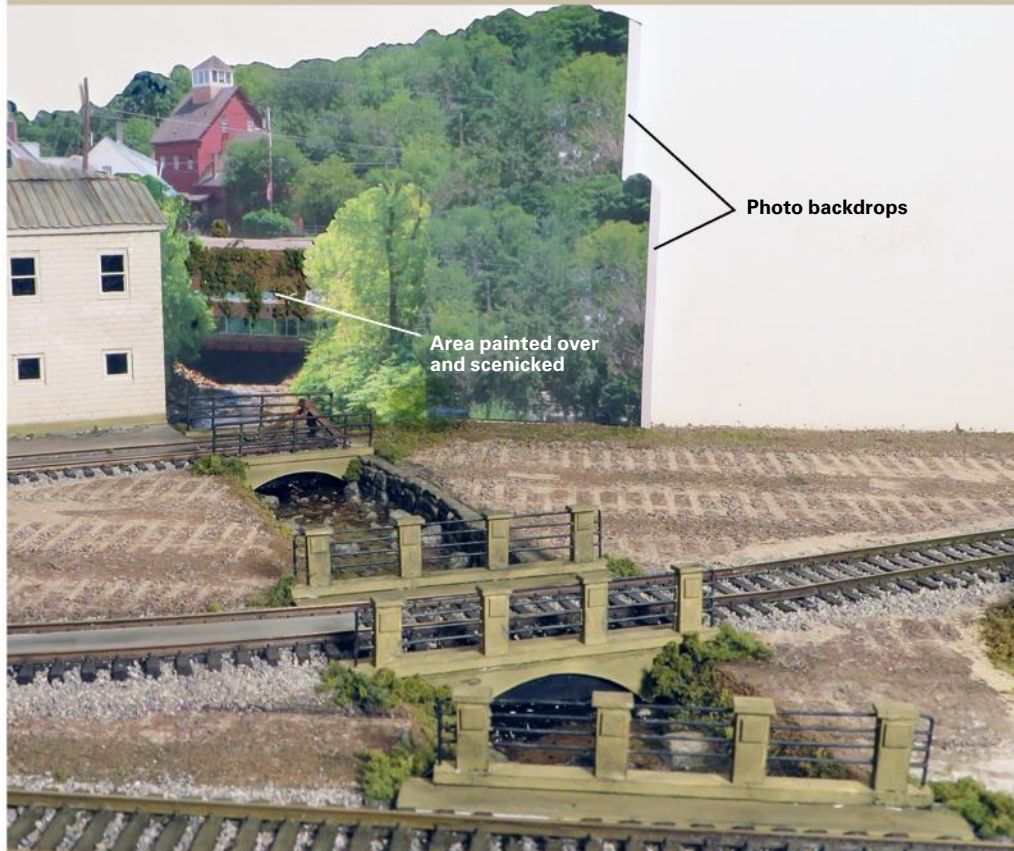


The styrene I used to build the post sides, caps, ornamental squares, and foundation is listed above. I drilled holes in the foundation, trimmed off the excess wire, and secured the railing to the styrene with CA.

I attached the railing assemblies to the tops of the culverts with liquid plastic cement.

I painted the rails Grimy Black and weathered the assembly using the techniques covered in step 2.


STEP 4 PHOTO BACKDROPS



To make the scene look deeper, I added a photo backdrop. I used photo-editing software to scale pictures that I took in Ashland of the channel and an adjacent mill.

I printed the images on 65-pound cardstock and secured the overlaid images to the backdrop with double-sided tape.

I covered a few anachronistic objects in the image with paint and added dirt and ground foam to those areas, as shown in the photo at left. Other problem areas were covered by overlapping other photos.

With the channel and backdrop complete, I added the buildings and surrounding scenery, as seen on page 33. Replacing the yard with this mill scene has added a great deal of visual interest to my layout. 

Appalachian scenes along the B&O

A diesel era setting and an operations focus highlight the HO scale Ridgley Division

By Dale Ridgeway • Photos by the author



1. With a string of empty coal hoppers in tow, Baltimore & Ohio no. 722 passes through Clarksville on the HO scale Ridgley Division. The layout's Appalachian setting is inspired by the B&O through West Virginia in the 1960s.

For me, choosing a railroad to model was easy. I grew up in a small town across the Potomac River from Brunswick, Md. Brunswick was a major hub for the Baltimore & Ohio RR between Baltimore and Cumberland, Md. In addition, my father and grandfather both

worked for the B&O, and I worked briefly for the B&O's successor, the Chessie System. I may no longer work for the railroad, but the B&O lives on in my basement as the 18 x 20-foot HO scale Ridgley Division.

I'd built several layouts before this one. When my family moved from West Virginia to Maryland's Eastern Shore,

my then-current model railroad couldn't make the trip with us. As we built our new Maryland home, I planned for a basement even though they're a rarity on the Eastern Shore. With that new basement came great expectations of an even better layout.

Work begins

Layout construction began in 2007. I divided the basement space into three rooms: a home office, a recreation room





that would also serve as a crew lounge during operating sessions, and the layout room. I finished the first two rooms before starting the layout room. This included sealing the concrete-block walls, then installing stud walls finished with insulation and drywall. I also added drop ceilings with 2 x 2 ceiling tiles and fluorescent lights in the ceiling grids.

I finished the layout room in the same way except that I coved the room corners and added drywall lighting valances over

the layout footprint. Two walls butted together at right angles can cast unrealistic shadows on the layout scene. Coving or adding a radius to the corners of the room or layout backdrop can eliminate that problem.

Before starting the benchwork I painted the backdrop. First I covered the drywall with a coat of flat white latex paint from the planned track height of 52" above the floor to the bottom of the lighting valances. My wife and I, along

2. Clarksville Yard is the center of the action on the Ridgley Division. At the enginehouse, an SW1200 spots a boxcar full of locomotive parts.

with an artist friend, Lois, then finished the sky backdrop in about 4 hours. My wife started by applying a coat of light blue latex paint. I followed her with two darker shades of blue that I blended together to look like the real sky. Finally Lois added the finishing touches, including cloud formations and a few birds.



3. This view of the train room shows Clarksville Yard on the left and Macauley on the right. The illuminated lower level staging yard is visible under Clarksville.

Benchwork and track

Working in my garage, I built the open-grid benchwork in sections from no. 1 pine 1 x 4s on 12" centers. I drilled pilot holes in the 1 x 4s and fastened the grids together with 1 $\frac{5}{8}$ " coarse thread drywall screws. I prefer this construction method to using adhesive because if any changes are needed, I simply remove the screws.

In the layout room, I built a floor-to-ceiling dividing wall for the peninsula so operators wouldn't be visible to each other during operating sessions. This wall, as well as the stud walls along the layout room perimeter, allowed me to cantilever the benchwork sections. I fastened each benchwork section to the studs with 2" coarse thread drywall screws and 45-degree cross braces placed every 4 feet. Only four support legs were needed on the entire layout. There are two support legs under Lake Leyden and two more under the coal mine.

For the subroadbed I used $\frac{1}{2}$ " birch plywood. The extra expense was well worth it, as the birch had no knotholes



4. Baltimore & Ohio no. 6955, an Electro-Motive Division GP30, leads a freight along the High Line toward Clarksville. Railfanning trips to B&O's Magnolia cutoff in West Virginia inspired the scene.

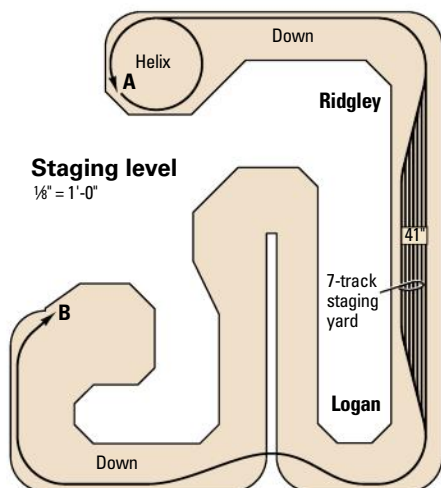
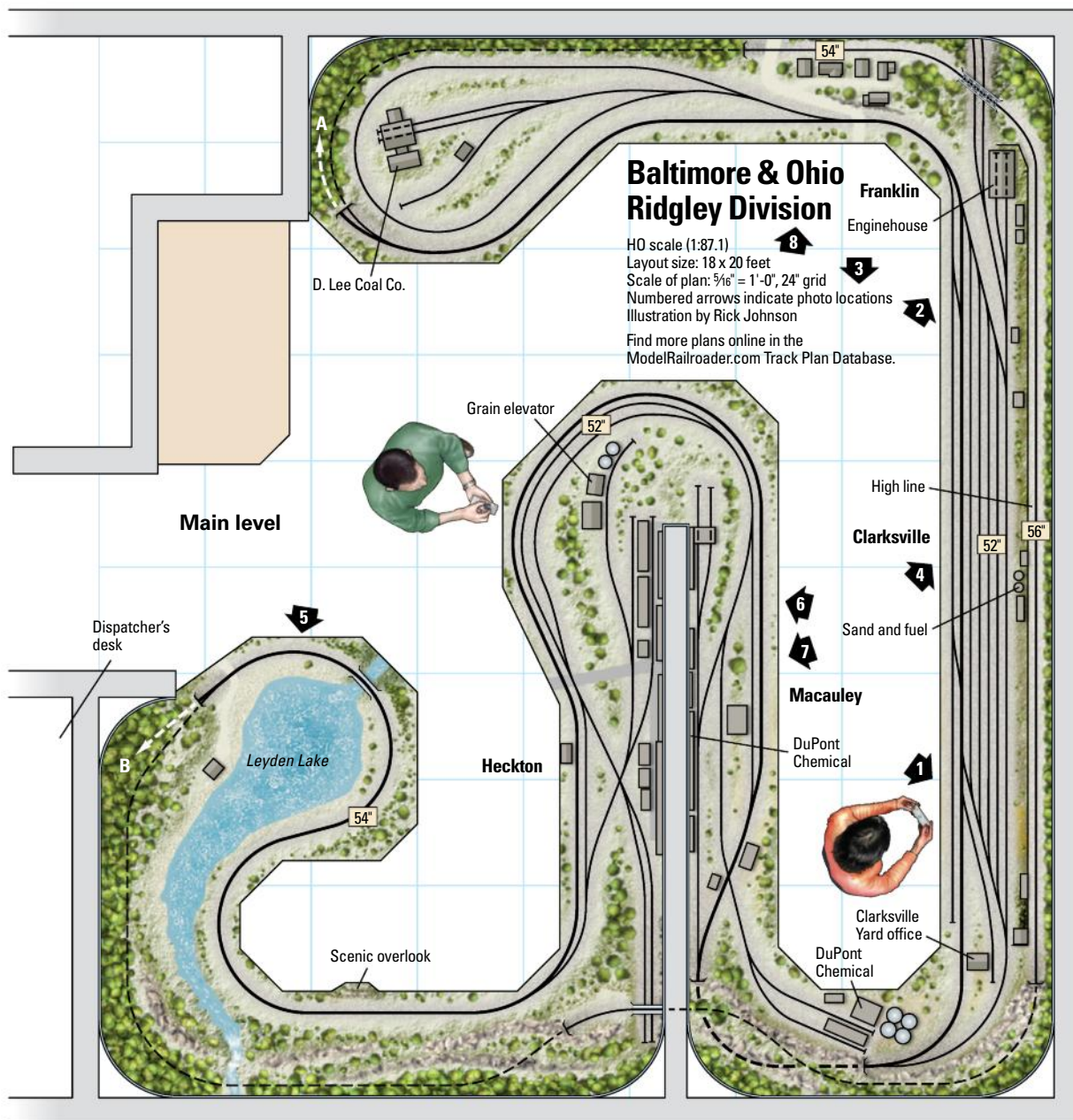
and is less prone to warp. I attached the birch subroadbed to 1 x 4 risers screwed to the open grids.

Next I attached cork roadbed to the subroadbed with white glue. To keep the cork in place, I used a commercial stapler, then pulled the staples out after the glue set.

Before installing the track, I invited members of the Delmarva Model

Railroad Club to come over and give their opinions on the proposed track-work. I gave each member a clipboard with paper and pencil to note any suggestions during the inspection. I received a lot of valuable input, and this was one of the best things I could've done.

After implementing some of the club members' suggestions, I laid Atlas and Walthers code 83 flextrack and turnouts.



▶▶ The layout at a glance

Name: Baltimore & Ohio Ridgley Division
Scale: HO (1:87.1)
Size: 18 x 20 feet
Prototype: inspired by the B&O, Pennsylvania RR, Norfolk & Western
Locale: central West Virginia
Era: 1964 to 1967
Style: multilevel, walk in
Mainline run: 175 feet
Minimum radius: 24" (main), 18" (balloon track at D. Lee Coal Co.)

Minimum turnout: no. 6
Maximum grade: 2.75 percent
Benchwork: 1 x 4 open grid on 12" centers
Height: 52" to 56" (41" staging level)
Roadbed: cork
Track: code 83 flextrack
Scenery: plaster gauze over extruded-foam insulation board
Backdrop: painted 1/2" drywall
Control: NCE DCC and CTI Electronics Train Brain module



5. Smooth as glass, Leyden Lake captures the reflection of a passing Western Maryland freight led by an EMD BL2 diesel. Once past the lake, the train will enter a tunnel and head down to Logan on the staging level.

I soldered the track feeders to the bottom of the rails. This ensured that the wires wouldn't be visible on the finished layout. Once the track was laid, I installed the fascia made from birch plywood with wood trim molding along the bottom.

Scenery and structures

My scenery techniques come from the many books and videos I've studied on the subject, combined with my own experience from building past layouts. For all the mountainous landforms, I used extruded-foam insulation board because it's lightweight and easy to work with. I stacked the foam and used hot-wire tools to cut it to shape. It's important to work in a well-ventilated area when cutting the foam board.

I'm fortunate that my good friend Ed Tudor loves scenicking model railroads. Ed continued to work on my layout's scenery after I'd moved on to building structures. He covered the foam scenery base with plaster casting gauze and a coat of drywall mud that had been



6. A B&O GP38-2 switches cars at the Dupont Chemical complex in Macauley. The structures on the layout run the gamut from kit-built to scratchbuilt.

thinned to the consistency of cream. After the plaster and mud dried, the scenery base received a coat of flat, clay-colored latex paint followed by real sifted dirt. He then added various colors and textures of Woodland Scenics foam ground cover.

Many of the rock faces are Hydrocal and plaster castings. Others are carved from the scenery base. Once they were dry, we painted the rocks in various grays and drybrushed highlights using burnt umber and white. The final step was to apply an India-ink-and-alcohol

wash over the surface, which brought out the cracks and texture of the rocks.

My layout's Appalachian setting required a lot of trees on the mountain-sides. The pre-made trees that are commercially available would've been cost-prohibitive. Luckily, I'd learned years ago how to cover mountains using the dried blooms of a sedum plant. Sedum grows in abundance where I live in Maryland. I find the overall look of a sedum forest canopy to be more convincing than that made from poly fiber "puffball" trees. [See "Realistic background trees from sedum" on the next page. – *Ed.*]

In the town scenes, Ed and I made the asphalt roads using a mix of thinned drywall mud and plaster. The drywall mud helps keep the plaster from cracking when it dries. We used a 2" wide putty knife to apply the mixture. After 30 minutes, we cut the sides of the road to shape. Then we let the roads dry before painting them with various grays, followed by an India ink wash.

I used a different technique for modeling concrete. I found that Koma Board provided the quickest and easiest way to model realistic concrete loading docks, abutments, and other structures. [See "Quick concrete from Koma Board" at right. – *Ed.*]

The buildings on the layout are a variety of kit-built, kitbashed, and scratch-built models. Most of my structures are built from styrene. After spraying a styrene structure with primer, I paint it with acrylics and weather it with powdered chalks.

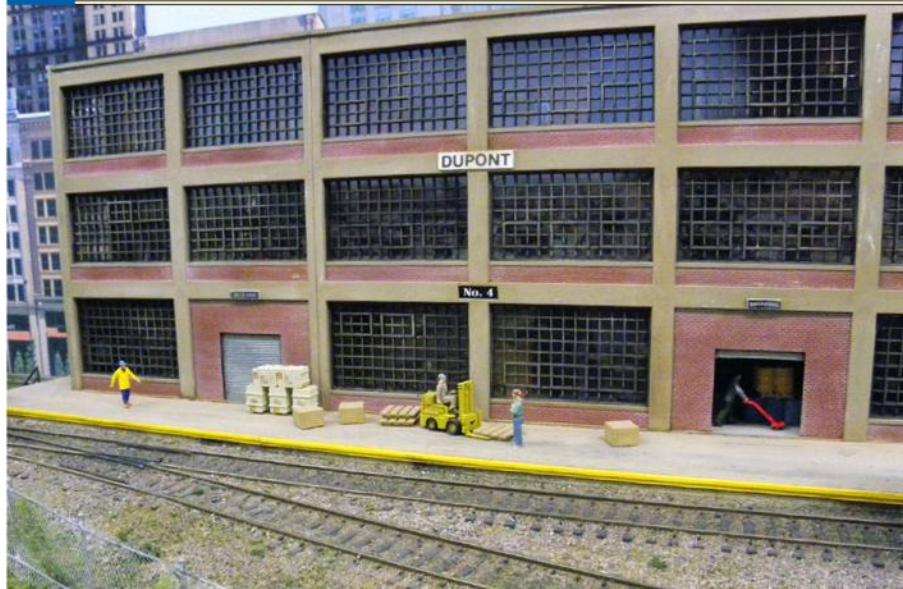
Control and operation

My previous layout used direct-current block control with walkaround throttles. After a lot of research, I decided that the Ridgely Division would use Digital Command Control. Having operated layouts using different brands of DCC systems, I chose an NCE system with tethered throttles for my railroad.

I wired the Ridgely Division as two power districts: one for the main layout, the other for the lower level staging yard. Micro-Mark Switch Tender switch machines connected to fascia-mounted buttons control all the mainline and staging turnouts. A computer connected to a CTI Train Brain circuit board controls the Atlas 3-light target signals along the main line and the light-emitting diode (LED) turnout indicator lights on the fascia.

My diesel locomotive fleet is appropriate for my layout's 1960s era. The

Quick concrete from Koma Board



7. This large loading dock captures the texture and look of real concrete. However, it's actually a piece of exterior trim material called Koma Board.

For some of the industrial scenes on my layout I need to model large concrete loading docks. Luckily my experience as a home improvement contractor led me to Koma Board. This cellular PVC material is available in many sizes and thicknesses and is often used for the exterior trim on houses. When painted, Koma Board makes a convincing HO scale model of a concrete structure.

For a loading dock I used $\frac{3}{8}$ " thick Koma Board. After cutting the material to size with a table saw, I sanded the edges and used my hobby knife and a straightedge to scribe joint lines on the top. Then I painted the dock with gray paints, followed by a wash of concrete-colored paint. Once that dried, I applied a wash of India ink and isopropyl alcohol.

I built and installed the loading dock in two evenings. The Koma Board worked so well that I used it to model other concrete structures, including bridge abutments, building foundations, and the concrete reinforcements for the retaining walls along the High Line. – *D.R.*

Ridgely Division's locomotive roster includes models from Atlas, Bachmann, Walthers, and MTH, as well as some older Stewart locomotives. All of my locomotives are DCC-equipped, and half the fleet has on-board sound. To enhance the overall ambiance, I have a CD player under the layout that plays Greenfrog Production CDs of railroad sounds through strategically placed speakers.

Since completing the layout in 2015, I hold monthly operating sessions on the

Ridgely Division. I usually have four to five operators per session. A minimum of four operators is required to run the layout smoothly. Jobs include dispatcher, Clarksville yardmaster, and two road crews. If there are more operators, I assign a second member to each road crew. There is no fast clock, and we usually run 9 to 12 trains during a three-hour session.

We run the layout point-to-point, with trains leaving Ridgely staging yard heading east and terminating in Logan at the other end of the staging yard. Traffic during a session includes two passenger trains (one eastbound and one westbound), four coal trains, and several through and local freights. We use the high line to give road crews a sense of distance when a local leaves Clarksville and heads to another town.

Now on ModelRailroader.com

Dale posted a video of his Ridgely Division on the User Videos page at www.ModelRailroader.com. You'll find a link to the video under Online Extras at the MR home page.

To route traffic we use train-order cards produced by the late Frank Waring and the Micro-Mark waybill system. There are fascia-mounted waybill boxes around the layout for all the industries as well as shelves to make it easier for crews to sort paperwork. I've also installed a defect detector from Boulder Creek Engineering to help enhance the realism during an operating session.

No regrets

Many modelers have regrets after their layouts are complete and feel there are things that should have been done differently. Thankfully, I took steps to avoid this and can honestly state I have no regrets. In fact, I'm looking forward to expanding the layout into my office.

The B&O Ridgely Division has given me endless hours of enjoyment. I've also had the chance to share the layout with many visitors, some of whom have come from as far away as Perth, Australia. I have a layout open house every year in the fall, and it's been rewarding to hear the positive comments.

My layout wouldn't be the same without the help of several people. I'd like to thank the members of the Delmarva Model Railroad Club, Jason Walter, Fran Giacomia, and especially Ed Tudor for his excellent scenery work. This hobby of model railroading is great to share with friends and is something I will enjoy for the rest of my life. **MR**



▶▶ Meet Dale Ridgeway

A member of the National

Model Railroad Association, Mid-Eastern Division, Dale Ridgeway owns a home improvement company that specializes in building custom layout rooms. He lives in Bishopville, Md., with his wife, Beth, and son, Nick. Along with model railroading, his hobbies include railfanning, railroad speeder excursions, and golf.

Realistic background trees from sedum

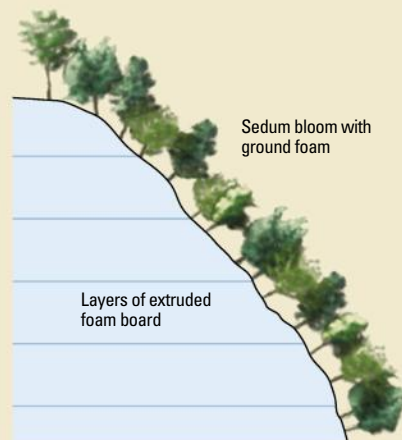
Modeling Appalachian scenery

requires a lot of trees. I've used "puffball" trees made of poly fiber clumps on past layouts, but they've never looked convincing to me. After learning how to model foreground trees from dried sedum plant blooms, I modified the technique to work for background trees.

First I cut the largest blooms off the plant, leaving a 3- to 4-inch stem on the bloom. Then I mist each bloom with spray adhesive and sprinkle on Woodland Scenics Fine-Leaf Foliage in various green shades.

After the blooms dry, it's time to install them into the extruded-foam insulation board scenery base. The trick is to keep the sedum tree stems roughly perpendicular to the mountain's surface. Starting at the top of the mountain, I use a metal skewer to poke a hole in the foam. Then I place a drop of glue in the hole and insert the stem of a sedum tree at a 90-degree angle. As I keep adding trees down the mountainside, I tilt the stems to a 45-degree angle. Continuing down past the halfway point, I tilt the stems at farther angles. At the bottom of the mountain the sedum tree stems should be almost horizontal, as shown in the diagram. The angled trunks won't be visible through the forest canopy.

After covering any bare spots with scraps of sedum and foliage, my mountain forest is done. I think this technique is just as easy as applying puffball trees, and the final result looks more realistic. — D.R.



The author uses dried sedum blooms instead of polyfiber puffballs for the background trees on his layout. The sedum is easy to install into the extruded-foam scenery base.



8. The town of Franklin is up and moving on a warm summer day. The carefully composed scene highlights Dale's scratchbuilding and Ed's scenery efforts.

From first train set to railroad empire...



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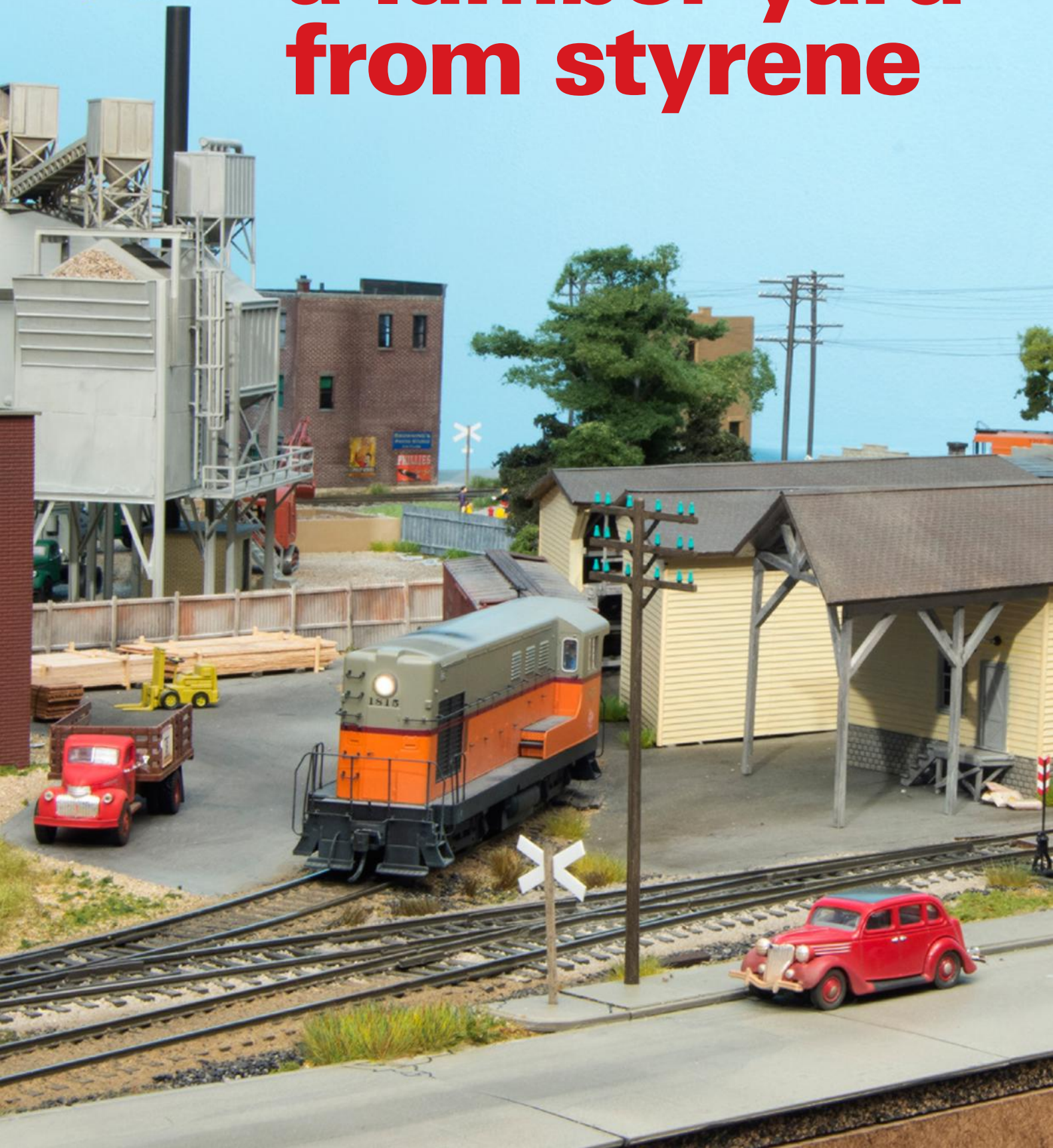


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Scratchbuild a lumber yard from styrene



A jig speeds construction of lumber racks; stripwood loads make the industry realistic

By **Steven Otte** • Photos by the author except as noted



A Milwaukee Road local backs in to pull an empty boxcar from Steinman Lumber on the HO scale Beer Line extension. Bill Zuback photo

Steinman Lumber Co., which once stood at the corner of Nash and Holton streets in northwest Milwaukee, was replaced years ago by a post office and a fire station. Nothing of the industry remains. This meant I didn't have too much to go on when deciding how to model the business for our HO scale Beer Line extension project layout.

One reference I was able to locate, though, was aerial photographs. Being a fairly large city, Milwaukee's growth and development has been documented from the air fairly well over the years. So it wasn't hard to find vintage aerial photos on the Milwaukee County Land Information Office website.

One look got me excited about the lumberyard project. When the aerial photos were shot in late spring of 1951, Steinman Lumber was an extensive collection of buildings and exposed stacks of lumber clustered around a pair of railroad spurs. Clearly I'd have lots of options, but what intrigued me most were the buildings whose angled ends butted up to the tracks. Since the Beer Line layout's limited size meant I could only build some of those structures, I chose to capitalize on the architectural interest of those trapezoidal buildings.

The main office building of the complex was likely the rectangular one surrounded by a large paved area on the southwest corner, facing Keefe Avenue (see the photo on the next page). On our project, the southwest corner of my lot would face the back of another lot, so I wouldn't be able to include that building in its prototype location. Instead, I combined the office for my Steinman Lumber Co. with a warehouse to make up the longest of my three buildings.

I didn't mind that I wasn't able to find much reference material on Steinman

▶▶ Beer Line series

Jan. 2017: The Beer Line addition

Feb. 2017: Benchwork and tracklaying for the Beer Line addition

March 2017: Scratchbuilding Steinman Lumber Co.

April 2017: Mix kitbashing and scratchbuilding to create a large rail-served factory

May 2017: Building the North Avenue Viaduct

June 2017: Using different techniques to build a cement plant complex



This 1951 aerial photo of Milwaukee's Riverwest neighborhood shows the structures and outdoor lumber stacks of the Steinman Lumber complex, and next door, the Ben-Hur Freezer Co. Courtesy of Milwaukee County Land Information Office

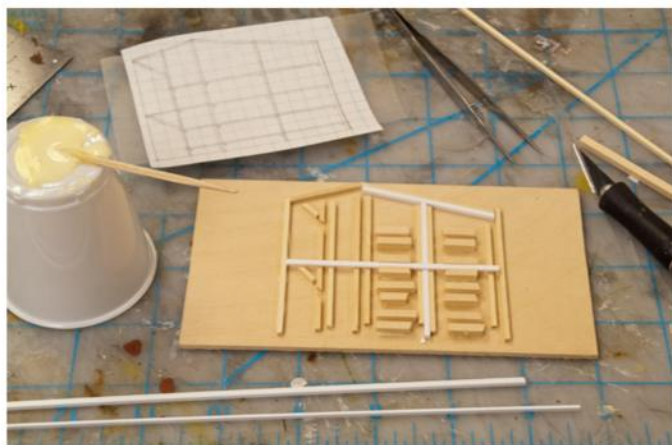
Now on ModelRailroader.com

For a list of materials used in this scratchbuilding project, look in the Online Extras section of our website, www.ModelRailroader.com.

Lumber, as it freed me from having to slavishly follow a prototype. Freelancing means never having to say you're sorry.

Though I've done a lot of scratchbuilding in wood lately, I chose to build the lumberyard from styrene clapboard siding. One reason was that I knew I'd have a lot of gluing to do, and liquid styrene cement dries a lot faster than wood glue. Follow along to see what other choices I made in modeling Steinman Lumber. You'll find techniques here that you can use modeling a lumber yard or almost any other trackside structure on your model railroad.

STEP 1: LUMBER RACKS



After drawing out the lumber rack truss plan on graph paper, Steve transferred it to a sheet of basswood with a hobby knife. Using strip styrene to determine proper spacing, he glued stripwood to the base to make the jig.



To construct both lumber racks, Steve needed eight identical trusses. The jig made constructing them from styrene strip easy. He used .040" x .080" and .080" square strip styrene to build the panels.

Many modelers like running open cars like flatcars or gondolas because the exposed loads provide a lot of visual interest. In a way, the open wood racks of a lumber yard are the stationary equivalent. Steinman Lumber gave me the opportunity to model a fascinating scene with a lot of interesting visual detail. So while I could have modeled enclosed lumber racks, I built my lumber racks open on one side so the lumber could be seen.

Building the open trusses and supports would require a lot of repetitive cutting and gluing, and consistency was important. All my structural elements had to be

symmetrical if the connecting beams were to come out straight and level. Therefore, I built a jig.

When I'm working with styrene, I make my jigs out of wood, and vice-versa. That helps me avoid accidentally gluing what I'm building to the jig.

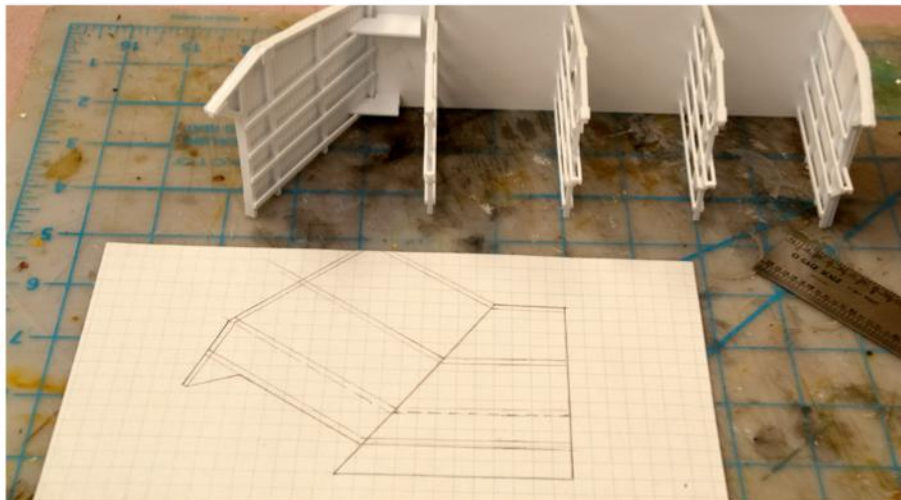
Lumber comes in standard lengths. In Canada and the United States, most lumber is sized in two-foot increments between 6 and 24 feet long. I measured the space I had to build in and figured it could accommodate three buildings 3 inches wide with adequate space between. If I allocated 1/2" to the roof overhang and a second-level walkway, that meant my wood racks

could handle lumber up to 16 scale feet long – a plausible length, I thought.

I drew up a truss plan on graph paper, taped it to a piece of basswood, and transferred the plan to the basswood with a hobby knife. Next I laid strip styrene in the sizes I planned to use – .080" square for the posts and rafters, .040" x .080" for the crossbars – along the lines and glued down stripwood to make the jig.

The jig made it easy to build the eight identical trusses I would need for the two lumber racks. Well, they were mostly identical; I left off the horizontal braces on the sides that would go against the two end walls.

STEP 1: LUMBER RACKS (CONT'D)



A little geometry determined the size and shape of the angled end. By projecting the height of the studs at 90 degrees from the angled end wall, Steve was able to come up with a template.

To match the angle of the spur that would be laid into Steinman's lot, my building ends would have to be angled at a 3:2 ratio – 2" of extra length on one side of the 3" wide building. The shorter lumber rack would be 7" on the solid back and 9" on the open side. Because the longer rack's open side would face the other way, it had to be 10" on the open side and 12" on the solid back. I cut the back walls from styrene clapboard siding and glued the trusses to them, spaced at 2" intervals.

To figure out the shape of the angled end walls, I drew the building's

footprint on graph paper. I then projected the post lines at 90 degrees to the angled wall and marked off the height of the posts along those lines. Connecting those points gave me the shape of the angled wall. I cut one wall as drawn and one flipped, because the other building was reversed.

Since there would be no floor in these buildings and the roof would have to come after installation of the crossmembers, I applied .125" x .250" styrene bracing along the inside of the back walls to maintain rigidity. Sheet styrene corner braces kept the end



Dozens of cross-members, substantial interior bracing, and a scribed styrene walkway gave the structure rigidity. The roof would be added last.

walls at their proper angles. I enclosed part of the longer lumber rack with siding, turning it into a sawing room, and cut an opening in the back wall of the adjacent rack bay so people wouldn't have to cross the railroad tracks to get from building to building.

I then started threading .020" x .060" strip styrene crossmembers through the openings in the trusses and gluing them in place. These would support the lumber loads, as well as provide a horizontal structure for the buildings. Once those were in place, I cut a scribed styrene walkway for the second level, fabricated a railing from scale 2 x 4s, and glued Central Valley ladders to either end.

After spray-painting the inside and outside of the structures with gray primer, I roofed them with .020" sheet styrene, then laminated Plastruct embossed styrene shingle material.

STEP 2: MAIN BUILDING

Building the main structure, with its solid walls, was much easier and more straightforward than the lumber racks. Though I could have given it an angled end wall like the other two buildings, I built a rectangular two-story office/storefront and an attached one-story rectangular warehouse. I maintained the angled-end look with an overhanging back roof to protect loads waiting for pickup.

I used Tichy Train Group doors and Grandt Line window castings. I added a second-story personnel door, creating access with a scratchbuilt platform and Central Valley staircase. I elevated the warehouse portion of the building 1/2" on a recessed styrene foundation, over which I laminated The N Scale Architect concrete-block embossed styrene.



Steve constructed the main building from Evergreen styrene siding, Tichy Train Group doors, and Grandt Line windows. Plenty of bracing keeps the building square and solid.

I roofed both sections as I had the lumber racks, with .020" styrene and Plastruct shingles. I then spray-painted the building with primer.

I then realized that I didn't have a chimney to put on the office building. However, in a Walther's Modulares kit



After constructing the building, Steve realized it was lacking a key feature: a chimney. He made one out of leftover corner pilasters from a Walther's Modulares kit and Evergreen styrene.

I used on the first Beer Line build in 2008, I found a few unused brick corner moldings. Sanding their sides to 45-degree angles made them fit together into a square chimney. I capped it with a couple layers of .030" styrene and four flues of 1/8" tubing.

STEP 3: DETAILS



An old kit for flatcar loads provided lots of material for lumber piles to stock the shelves of Steinman Lumber.

I hand-painted all three buildings Model Master Depot Buff. I intended to leave the doors and windows the gray primer color, but my brush work wasn't the neatest, so I had to touch them up with Reefer Gray. The roof shingles I painted Roof Brown, dry-brushed with Earth, and weathered with a black wash made from 1 tablespoon Engine Black paint in a pint of 70 percent isopropyl alcohol.

I created the decals with Adobe Photoshop Elements image editing software, and printed them out on clear decal film using our office's color laser printer. Though I protected them with a spray of Testor's Dullcote, my decal film was pretty old, so I still had some problems with the film crumbling upon application.

At the same time, I printed some smaller Steinman Lumber decals to



Steve put the stacks of larger wood sheets on the lower shelves and made stacks of dimensional lumber for the upper shelves. He made the decals on his computer and printed them on the office laser printer.

adorn the company's trucks. I bought a pair of Classic Metal Works stakebed trucks, removed their markings with fine-grit sanding sticks, and applied my decals. I put a lumber load in one.

To make the open lumber racks realistic, I filled them with real wood. In the MR workshop, I found an old kit for lumber loads for bulkhead flatcars. It contained hundreds of thin chips of different kinds of wood. I sorted the pieces by color and size, cut them to length, and glued them together.

These stacks of sheet lumber did a great job of filling the lower tiers of the wood racks, but no lumberyard sells just plywood and paneling. For the

upper two tiers, I cut hundreds of 8-foot boards from every size of scale lumber I could lay my hands on.

Once everything was dry, I inverted the buildings, pressed the wood stacks against the rack crossbars from below, and dripped cyanoacrylate adhesive (CA) onto the bottoms to secure them on the racks.

Since the aerial photo showed what appeared to be lumber stacks stored outdoors, I glued together a few more stacks of lumber, banded them with chart tape, and glued them to weathered wood supports to put in the empty paved lot across the tracks from the buildings.



Steve used AIM Products weathering powders to age the paved lot. He simulated cracks in the blacktop with a fine-point black marker.

During the project's planning phase, I used a pencil to draw guidelines and building footprints on the foam layout base. That left grooves I needed to fill. I troweled on a thin layer of spackling, which I sanded smooth and painted with gray latex paint to pave the lot. Around the track, I sprinkled on Real Dirt from Arizona Rock & Mineral.

I weathered stripwood with an alcohol wash and used it to build rough track crossings for the business' trucks.

Here in Wisconsin, winters are hard on pavement. I drew a spiderweb of cracks in the blacktop with a fine-point permanent marker, then darkened the traffic lanes with AIM Products weathering powders.



Steve scratchbuilt a wooden fence framework from strip styrene, then glued on corrugated metal fencing.

The property line between Steinman Lumber and Tews Lime & Cement was already marked with a short retaining wall, but I wanted a clearer border between the two. So I scratchbuilt a corrugated metal fence.

Using the grid on my plastic cutting mat as a guide, I lined up a row of styrene 4 x 4 posts on a piece of masking tape, 1" apart. I joined them with two horizontal 2 x 4 stringers, and once the glue was dry, spray-painted the framework with gray primer.

To make the corrugated fencing, I used a favorite technique. I pressed 8-scale-foot-wide strips of aluminum foil between two pieces of styrene corrugated siding. This embossed the ridges into the foil. I spray-painted the foil gray, glued it to the fenceposts, and aged it with Light Rust and Dark Gray weathering powders. I then glued it into holes I poked in the foam terrain with an awl. Ground foam, grass tufts, dirt, junk piles, a forklift, and a handful of figures finished the scene. **MR**



“

I never thought much about doing operations on my layout, but this video changed that! I can hardly wait to try my hand on doing an operations session on my layout which is still under construction.

— DAVID MEAD

”

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NEW ENGLAND RAILROADING IN A SMALL SPACE

A career in the military pushed back the construction of the HO 4 x 8 Central Vermont

By Douglas Kirkpatrick

Photos by the author

A track plan for a 4 x 8-foot layout published in *Model Railroader* many decades ago has been turned into a highly detailed setting for Dave Mitchell's HO scale Central Vermont. Dave has always enjoyed scratch-building and modifying commercial structures, then developing the perfect spot for them on his railroad. With limited space, it's even more of a challenge to populate a layout with many different structures and still have them support the overall theme of the railroad.

A railroad from a decades-old plan

As with many of us, Dave was introduced to model railroading as a child. An O gauge layout led to a switch to HO scale and a Mantua 0-4-0 yard goat, several freight cars and a four-wheel bobber caboose. Dave was now hooked on the hobby.

After earning his college degree and commission in the Navy, Dave's time available to devote to the hobby was limited to reading *Model Railroader*, building structure kits, and planning for his future layout. He discovered the Buckley & Onarca RR plan in the December 1966

issue, which offered both a compact railroad and operational capability. However, because of his career path, the plan wasn't realized until 2006.

New England setting

As a youngster, Dave and his family would travel from New York to North Conway, N.H., by train for summer vacations. These yearly trips influenced his desire to model New England, where there's single track, light traffic, and many types of industries along the right of way. His tipping point toward one particular railroad over another was looking through the Walthers decal catalog and noticing the colorful Central Vermont herald.

Now the challenge was to remap the Buckley & Onarca into the Central Vermont. The two new towns selected were St. Albans and White River Junction. Each town consumes a substantial amount of the available layout space.

Dave arranged the structures in White River Junction after visiting the town of Bethel, Vt., nestled between the mountains and the White River. Eventually, the long tail track in the center of the layout will lead down a rather steep grade to an addition representing New London, Conn.



Layout, track, and power

The construction of the railroad was straightforward, using a 4 x 8 sheet of $\frac{3}{4}$ " plywood sliced up cookie-cutter style to accommodate changes in elevations. The plywood is supported by L girders and 2 x 4 legs.

The original 1966 plan specified the exact types and pieces of sectional track needed. [*Model Railroader* All-Access Pass subscribers can view the article on pages 48 and 49 of the December 1966 issue. – Ed.] Dave used code 83 nickel-silver sectional track on cork roadbed. He held the track in place temporarily using small pins. Then he secured ballast with diluted white glue and removed the pins after the glue hardened.

Dave made a small control panel on drawer slides with the track diagram on it. Toggle switches on the panel are used to line the turnouts with Tortoise by Circuitron switch motors.

Dave originally powered the layout using direct current (DC) with several



1. An Electro-Motive Division GP9 leads the morning milk train past a scratchbuilt creamery on its way to White River Junction. Dave Mitchell built his 4 x 8-foot HO layout based on a plan in the December 1966 issue of *Model Railroader*.

power blocks; however, after joining the Northern Virginia Model Railroaders in Vienna, Va., he quickly converted his layout to Digital Command Control (DCC) to be compatible with the club's Digitrax DCC system.

Dave's layout is powered by a Digitrax Zephyr command control unit, which is more than adequate for handling multiple engines, including sound units. This straightforward approach to railroad construction allowed Dave time to focus on his structures and scenery.

Locomotives and rolling stock

Dave set his model railroad in the early '50s. This allowed him to run both steam engines and the early diesels he's

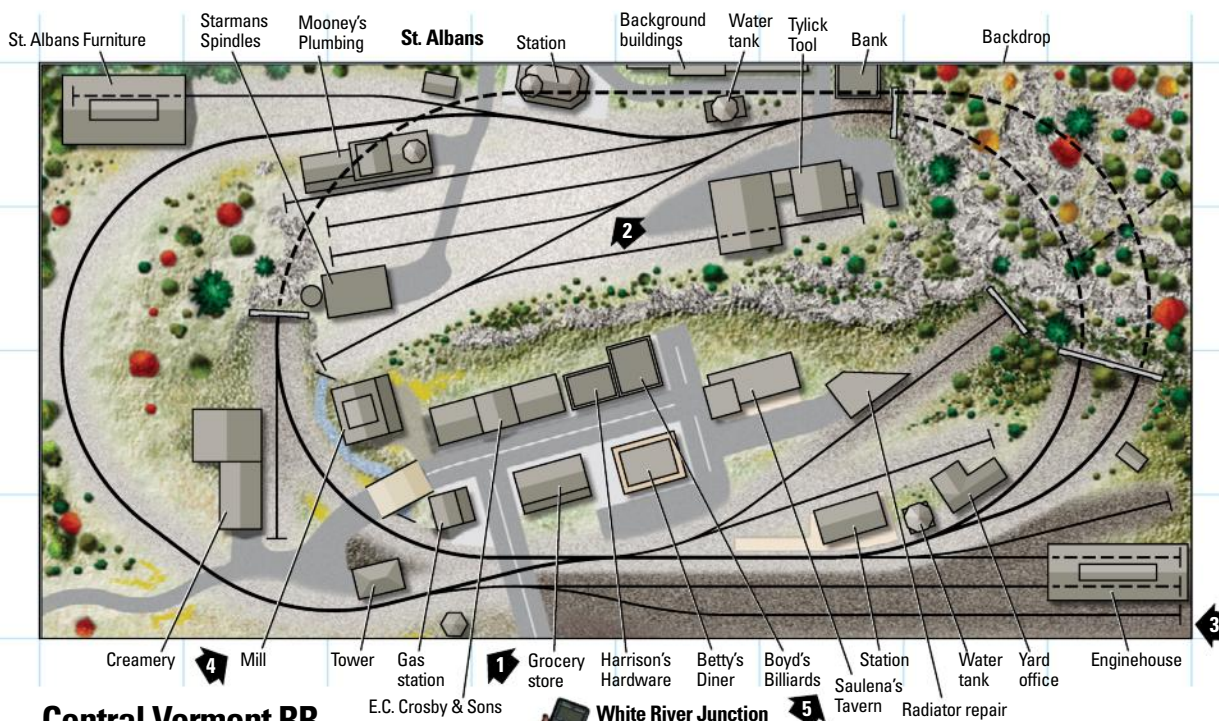


2. A Proto 1000 0-8-0 works the yard across from the St. Albans station. The station is an out-of-production Crow River Products model of the Crawford Notch Station. St. Albans occupies the back corner of the compact layout.

collected over the years. He's painted and lettered many of his diesels for the Central Vermont.

He also has a brass Pacific Fast Mail 2-10-4 Texas-type with a winter cab used by the Central Vermont. It sits in the

enginehouse on his home layout, but pulls a long string of freight cars at the club a few miles away. That string of freight cars is from Dave's private stock of Ambroid One-of-5000 series kits. These models from the '50s and '60s



Central Vermont RR

HO scale (1:87.1)
Layout size: 4 x 8 feet
Scale of plan: 3/4" = 1'-0", 12" grid
Numbered arrows indicate photo locations
Illustration by Rick Johnson
Find more plans online in the
ModelRailroader.com Track Plan Database.



► The layout at a glance

Name: Central Vermont
Scale: HO (1:87.1)
Layout size: 4 x 8 feet
Prototype: freelanced, inspired by Central Vermont
Locale: northern Vermont
Era: early 1950s
Mainline run: 18 feet
Minimum radius: 18"
Minimum turnout: no. 4
Maximum grade: 3.6 percent
Benchwork: L-girder
Height: 45"
Roadbed: cork on Homasote
Track: code 83 sectional
Scenery: plaster cloth over cardboard webbing
Backdrop: hand-painted on tempered hardboard
Control: Digitrax Zephyr DCC



3. This overview of the Central Vermont Ry. shows St. Albans at the upper right, and White River Junction is at the lower left.

produce a high quality car, but offer a significant challenge in construction. Most of Dave's freight cars are craftsman kits he weathered to complement the rest of the layout.

Realistic scenery and buildings

Building scenery is one of Dave's favorite aspects of model railroading. He used strips of cardboard to form the hills and then draped plaster-impregnated

gauze over the strips. To produce different elevations in the towns, Dave glued Styrofoam sheets to the plywood and then carved the foam to the desired shape. These surfaces were covered with a heavy coat of earth-tone acrylics followed by ground cover using Woodland Scenics turf.

All of the paved roads are made using spackling compound followed by sanding with fine sandpaper. Where water is

required, he used Realistic Water by Woodland Scenics. Recently, Dave added tempered hardboard sheets to the back and one side of the layout. He painted them sky blue and added a few clouds.

There are more than 25 structures on the layout, each detailed. Many of the structures have been modified to accommodate the track plan. As each kit was assembled, Dave would carefully pack it away in anticipation of having a layout. It took several decades to amass all of the structures on the layout. Many of the



4. The Boston & Maine local pulls into White River Junction to exchange cars with the Central Vermont. The train is headed up by a Proto 1000 RS-2.



5. One of the largest engines on the Central Vermont, 2-10-4 no. 705, slowly emerges from the enginehouse at White River Junction. It's too large for this layout, so Dave takes it to his local club where it pulls a train made up of Ambroid One-of-5000 wooden car kits.

buildings bring back memories as to where he was stationed at the time of their construction.

Finishing touches

What makes Dave's layout outstanding is all the many details he included on his Central Vermont. The signs on the various buildings support the feel of a

typical small New England town. He has more than 50 automobiles and trucks and hundreds of figures to bring each scene alive. He particularly likes vehicles produced by Jordan Highway Miniatures and Sylvan Scale Models. Dave is careful to select each figure, making sure it's appropriate to the specific task he's depicting. Dave's Central Vermont dem-



▶▶ Meet Dave Mitchell

Dave Mitchell lives with his wife, Peggy, in Vienna, Va. After retiring from the FBI, he rekindled his affinity for all things railroad. He's a member of the National Model Railroad Association and the National Railway Historical Society. His adult sons Chris (HO Richmond, Fredericksburg & Potomac) and Matt (O scale New York City subways) are both avid model railroaders. Dave's other interests include traveling and swimming.

onstrates how quality modeling can be enjoyed in a compact space. [MR](#)

Douglas Kirkpatrick lives in Falls Church, Va., and is a member of the Northern Virginia Model Railroaders club. His story on the club's layout appeared in the February 2016 Model Railroader.

DCCCORNER

Working with DCC cables



DCC systems rely on cables to carry signals between command stations, boosters, throttles, and various other components. Being able to repair and make your own cables will simplify installation and maintenance of your system. This month, Larry shows you how. Larry Puckett photos

It doesn't matter how big or how small your model railroad, sooner or later you're going to need to make, repair, or replace some cables or connectors on your Digital Command Control (DCC) system. Although you can purchase ready-made cables in various lengths and configurations, making your own cables and adding connectors is a quick and easy operation that will give you a lot more flexibility when it comes to installing and maintaining your DCC system. Let's take a look at the materials and equipment you'll need.

First, most DCC systems use either flat 6- or 8-conductor cable similar to that found on hard-wired telephones. It's more economical to purchase cable in rolls and cut it to the desired length than to buy ready-made cables. That way there's little waste and you don't have to deal with stashing the excess cable under your layout. All Electronics (www.allelectronics.com) sells flat cable in 4-, 6-, and 8-conductor rolls (nos. 4CF, 6CF, 8CF).

In addition to cable you'll need a supply of 6- or 8-pin plastic connectors (**fig. 1**) also available from All Electronics and other electronics retailers. Be aware that some DCC systems use RJ11 (CMP-4), also known as RJ14 connectors, with only four wires connected for

some components, so check your system before purchasing smaller 4-pin telephone handset connectors. The 6-pin, 6-conductor connectors (CMP-6) are referred to as RJ12 while the 8 pin 8 conductor connectors (CMP-8) are RJ45.

The final piece of equipment you'll need is a crimper. All Electronics sells one that will do 4- and 6-pin connectors (MPCPT-6), and a separate one for 8-pin connectors (MPCPT-8). I have one (**fig. 1**) that I bought at RadioShack a number of years ago which will do 4-, 6-,

and 8-pin connectors, and it's still listed on its website (RadioShack no. 2790405).

Since most throttles come with either a 4-, 6-, or 8-pin connector, let's start by replacing one, assuming the clip broke off, which they often do. Before cutting the old connector off, make sure to note the orientation of the wires in the plug.

Next, using a pair of wire cutters, remove the old connector by cutting through the flat cable as close to the connector as possible (**fig. 2a**). The crimper has double opposing blades designed to remove just the outer jacket of the cable. Don't confuse it with the blade on the back side designed for trimming cable.

I've found it's preferable to only insert the cable end about halfway, leaving more of the outer jacket to be gripped during the crimping process. Insert the end of the cable beneath the blade, clamp down on it (**fig. 2b**), and pull away (**fig. 2c**), removing the outer jacket in one clean motion.

Now let's install the connector. Insert the exposed wires into the connector in the proper orientation (**fig. 3a**), plug the connector into the crimper (**fig. 3b**) and mash down several times. That should force the pins in the plastic connector into the wires and simultaneously press the plastic connector against the vinyl jacket, gripping it (**fig. 3c**). It's a fast and easy process to replace the connector on throttles and will save you the

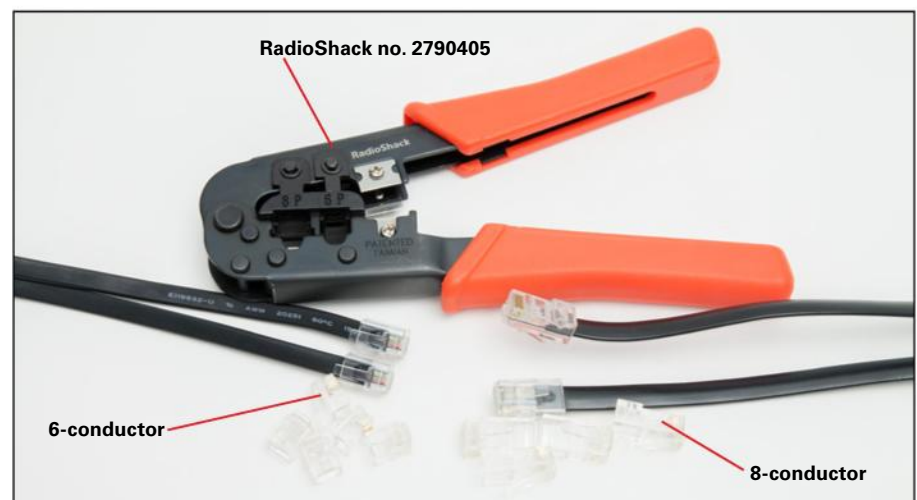


Fig. 1 You want six or eight? Plastic connectors with six (RJ12) or eight (RJ45) pins are used with flat multi-conductor cable to make DCC system cables. Crimpers like this one from RadioShack make building cables quick and easy.

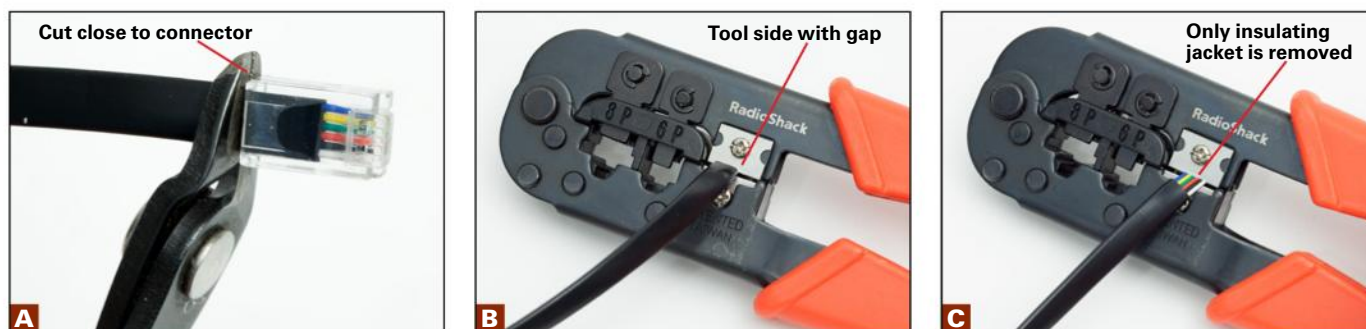


Fig. 2 Cut and strip. To replace a damaged connector, first (a) cut through the cable as close to the connector as possible, (b) place the cable under the blade in the crimper and close down on it, then (c) pull it out, removing the outer jacket.

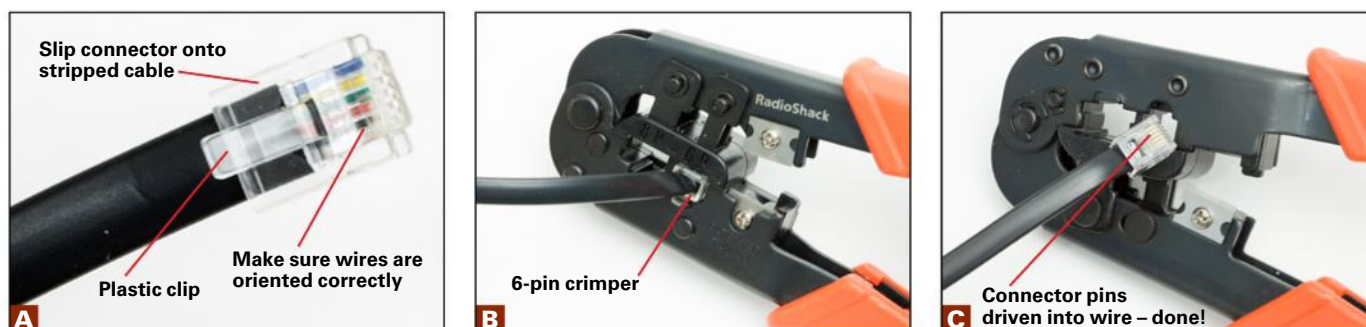


Fig. 3 Insert and crimp. To add a connector to a cable, (a) insert the wires into the connector, (b) insert the connector into the crimper, and (c) clamp down on it, pressing the pins into the wires to create a tight grip on the cable.

time and trouble of shipping a throttle back to the manufacturer for repair.

Now let's talk about cables. Most flat cable comes with a ridge molded into one side (fig. 4) making it easy to know which side is which. This prevents reversing your wires, and yes, it does matter. There are two ways to make a cable when adding connectors to each end.

With the "Telco" telephone company configuration, the plastic connectors are oriented with the small plastic clip on the same side of the cable. This is the configuration used with telephones.

The other configuration, referred to as a "data" cable, has the small clips on opposite sides of the cable. Most DCC system cables use this configuration.

With this configuration, the same color wires will always be attached to the same pins at each end when looking down on the top of the plastic connector. Since the blue and white wires are typically located in the outer positions, the old rule of thumb is to keep white on the right (figs. 3a, 4).

Once you've determined which cable type your DCC system uses, measure the length needed for the installation and add a little extra to allow for changes.

As with the throttle cable, strip the outer jacket from the two ends, insert the

exposed wires in the connector making sure to get the orientation correct, insert the connector in the crimper, and squeeze down on the crimper several times to get a solid connection.

If you need to add a device at some point in a cable run, simply cut the cable, install connectors on the cut ends, and plug in the device. It's really that easy.

In addition to these flat modular cables, the NCE system now uses 8-conductor ethernet CAT5 cables for the throttle network. Actually, CAT5 has generally been replaced by CAT5e/6 in recent years, and the higher the number the faster the data speed. Ethernet cables use heavier gauge wire, twisted pairs, and a heavier insulation jacket, all to reduce electromagnetic interference and increase transmission speeds.

Working with Cat5/5e/6 ethernet cable follows essentially the same process as flat cable, except the cable is round and you'll need to strip the outer jacket by hand. Wire colors aren't important as long as you're consistent so the same wires end up attached to the same pins on each end.

Another concern is some varieties of ethernet use solid wire, whereas others use stranded. The stranded wire works fine with the standard RJ45 connectors,

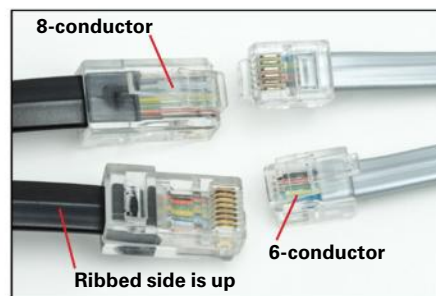



Fig. 4 Right side up. Most flat cable comes with a ridge molded into one side to keep track of proper wire orientation even on cables dozens of feet long. For data cables like these, follow the rule of thumb, keeping the white wire on the right on both ends.

whereas solid wire requires special connectors. A good source for these is on the Digi-Key website (www.digikey.com) under "modular connectors – plugs."

I've been making my own DCC cables for over 20 years without a single mishap, and I still have all my fingers. As long as you're careful to orient the wires correctly and are consistent, there really is little that can go wrong. For more on wiring and DCC, take a look at my Kalmbach book *Wiring Your Model Railroad* and drop by my website at www.dccguy.com. 



Athearn HO scale GP39-2 diesel features accurate details and realistic sound

A General Motors Electro-Motive Division GP39-2 joins the Athearn Genesis series, and it doesn't disappoint. The Genesis series is known for meticulously detailed, roadname- and roadnumber-specific HO scale models. The factory-equipped SoundTraxx Tsunami decoder in our review sample added super sounds to the superdetailed locomotive.

The prototype. Electro-Motive built 239 GP39-2 diesel locomotives for North American customers from 1974 to 1984. Part of EMD's upgraded Dash 2 series, the GP39-2 also featured a turbocharged 2,300 hp 645 diesel engine.

At 106 units, the Atchison, Topeka & Santa Fe Ry.'s GP39-2 fleet was the largest. Other Class 1 railroad customers included Burlington Northern, Delaware & Hudson, and Reading Co.

After the Reading was absorbed into Conrail in 1976, the United States government transferred ownership of all 20 Reading GP39-2s to the D&H. Numbered 7401 to 7420, these ex-Reading Geeps complemented D&H's existing GP39-2 fleet (nos. 7601 to 7620). Most of the 7401 series wore a patched-out Reading livery into the 1980s.

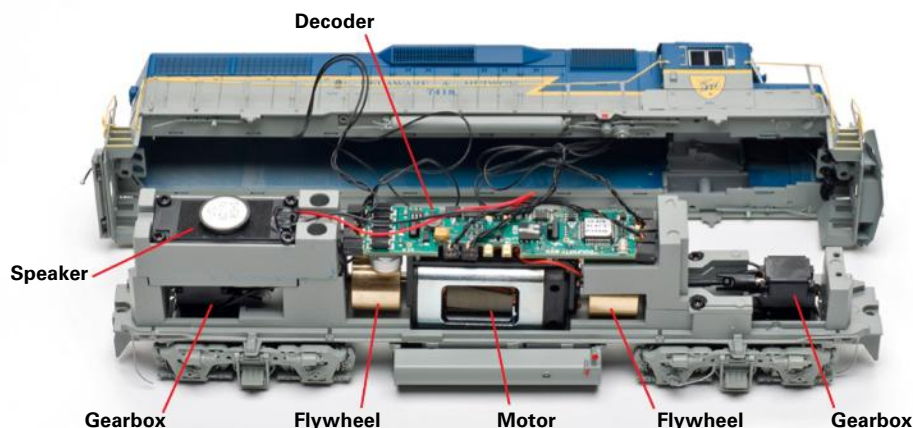
After Guilford Transportation purchased the D&H in 1984, the Geeps

received that company's orange-and-dark-gray scheme. Then Guilford declared the D&H bankrupt in 1988. Back under employee ownership, no. 7418 finally got repainted in the classic D&H lightning-stripe scheme. The railroad was then sold to CP Rail in 1991, and CP sold the GP39-2s to CSX. According to prototype photos, no. 7418 remained in D&H lightning stripes while working CSX rails into the 1990s.

Accurate details. Like other diesels, the GP39-2 received external upgrades during its production run. Railfans use these spotting features to differentiate the locomotives into "phases."

The dimensions of the HO locomotive match a prototype drawing of a GP39-2 printed in the December 1988 issue of *Mainline Modeler*. Correct for its D&H (ex-RDG) prototype, our review sample is detailed for a phase I GP39-2. The short hood length is 81" (vs. 88" on a phase II GP39-2) and all the long hood details are correctly positioned to represent the engine location on early production units. On a phase II GP39-2, the diesel engine was located 3 feet rearward, which shifted details such as the blower duct farther back and moved the radiator fans closer together.

Athearn also did a great job superdetailing the model to be roadnumber- and



The motor and gearboxes are mounted on a die-cast metal chassis. The SoundTraxx decoder and a well-enclosed speaker add realistic sound effects.

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era-specific. The model features many separately applied detail parts, including the Nathan K5LA23 air horn, Sinclair “ice skate” antenna, rectangular cab vent, and cab mirrors and wind deflectors. The model correctly lacks sunshades and has a 2,900 gallon fuel tank.

Other separate detail parts include formed wire grab irons and lift rings. The handrails and stanchions are made of flexible plastic. The parts are scale thickness but the stanchions have a tendency to bow inward and easily pop loose from the holes along the side sills. A pinpoint drop of cyanoacrylate adhesive would help secure the stanchions.

Although many locomotives in EMD’s Dash 2 product line rode on Blomberg type M trucks, our review sample correctly models its prototype with earlier Blomberg type B trucks. These trucks are easily identifiable by the leaf spring in the center of the sideframe instead of the rubber pads found in the later type M trucks.

The model’s paint scheme features sharp color separation. The emblem placement and font correctly represents no. 7418 after its 1989 repaint into D&H lightning stripes.

Performance. Removing the couplers allowed me to lift off the body shell. The can motor and flywheels are mounted in the center of the die-cast metal frame. All-wheel drive is provided by universal shafts and truck-mounted gearboxes.

Like other Athearn locomotives, lighting is provided by incandescent bulbs. The bulbs look realistic, but may require replacement sooner than comparable light-emitting diodes (LEDs). The SoundTraxx Tsunami decoder is mounted above the motor. A downward-facing speaker is mounted above the rear truck.

The heavy frame and all-wheel drive provide the GP39-2 with a respectable 2.5 ounce drawbar pull, enough to pull a 35-car cut. The mechanism also kept the

locomotive rolling smoothly to prototypical top speeds during our speed tests, shown in the charts at right.

Like other dual-mode decoder equipped locomotives, the GP39-2 required a lot of track power to get going during direct-current (DC) operation. Sound and lights started at 7.5V, and the locomotive didn’t start rolling until I applied 8V to the track.

During Digital Command Control (DCC) tests the locomotive performed reliably out of the box with the default setting of 28 speed steps. After I set the decoder to 128 speed steps, I had even finer slow speed control, as the model started moving at less than 1 scale mph in speed step 1. In DCC I could further fine-tune performance by adding momentum and setting up speed tables. A printed list of all the programmable configuration variables (CVs) is included with the model. A more extensive programming guide is available as a free download at the Athearn website.

Sound and lights. For comparison I placed the GP39-2 on the rails next to a SoundTraxx-equipped GP38-2. I could hear the difference between the two 645 prime movers, as the GP39-2 had the correct turbocharger whine compared to the more throaty sound of the naturally aspirated engine in the GP38-2.

In DC operation, the headlights and ditch lights are directional and the sound is limited to automatic effects. The engine rpm revs up or down with the throttle setting. Whenever I flipped the direction switch on the DC power pack, the sound cut out momentarily, which I found distracting.

The bell rang at speeds under 10 scale mph and a grade crossing signal sounded when I quickly advanced the throttle. Other automatic sound effects can be added, but to do so requires a DCC system or DC sound controller.

With a DCC system, I had much more control over the locomotive’s sound effects. Pressing function 2 sounded an accurate Nathan K5LA air-horn blast, while function 3 sounded a short toot. All the sounds have individually programmable volume levels. For example, I could program the horn at the loudest setting to make sure it’s always audible above the rumble of the diesel engine.

Other user-triggered DCC features include the bell, coupler crash, and the dynamic brake fan. I also set up the

►► HO scale EMD GP39-2

Price: \$269.98 (DCC, sound), \$169.98 (DC, no sound)

Manufacturer

Athearn Trains
1600 Forbes Way, Ste. 120
Long Beach, CA 90810
www.athearn.com

Era: late 1980s to 1990s (as detailed and decorated for D&H)

Road names (multiple numbers):

Delaware & Hudson; Atchison, Topeka & Santa Fe; Burlington Northern; Portland & Western; Reading Co.

Features

- All-wheel drive and pickup
- DCC Quick Plug accepts 8- or 9-pin decoders (DC version)
- Dual-mode SoundTraxx decoder (DCC version only)
- Five-pole skew-wound motor with dual brass flywheels
- McHenry scale knuckle couplers at correct height
- Metal RP-25 contour wheels in gauge
- Weight: 13.8 ounces

HO scale GP39-2

Drawbar pull		2.5 ounces	
		35 HO scale freight cars	
Scale speed (DC)		Scale speed (DCC)	
Volts	Scale mph	Speed step	Scale mph
8.5 (start)	1	1	3
9	15	7	22
10	37	14	43
12	73	21	70

“train brake” feature. This lets me use a function button to set or release the brakes independent of the throttle setting for more realistic control.

By default function 0 activates the GP39-2’s directional headlights, which turn on or off automatically according to the locomotive’s direction of travel. Function 7 dims the headlights and function 6 turns on the ditch lights in the forward direction. For more realistic operation, I programmed the headlights to operate via independent function button control.

Smooth DCC operation, realistic sound, and spot-on detailing make this GP39-2 a worthy addition to an HO scale diesel roster. — Dana Kawala, senior editor

Now on ModelRailroader.com

Subscribers can check out a video of the sound-equipped GP39-2. Find the video link under Online Extras at www.ModelRailroader.com.



Rivarossi adds upgraded ESU LokSound DCC decoder in impressive HO Big Boy

One of the largest and most powerful steam locomotives ever built is now available in HO scale equipped with a top-of-the-line Digital Command Control sound decoder. Just like the prototype, Rivarossi's HO scale Union Pacific 4-8-8-4 "Big Boy" is well equipped to pull long freight drags up and over the mountain ranges.

This isn't a new model; Rivarossi has used versions of this tooling for close to 50 years now. Dana Kawala reviewed a version of this locomotive in our July 2009 issue. What's new in this release is the upgraded ESU LokSound Digital Command Control sound decoder.

A born mountain climber. The Union Pacific designed the Big Boys with builder Alco for one purpose: to conquer the 1.14 percent ruling grade of UP's line through the Wasatch Mountains east of Ogden, Utah, without need for helper locomotives. Furthermore, to obviate power changes, the new engine had to be able to pull its freight trains at high speed once past the mountains. In fact, the 4-8-8-4 design was originally supposed to be named the "Wasatch." But during construction, an Alco worker

chalked the words "Big Boy" on the smokebox of one of the first engines, and the moniker stuck.

Union Pacific bought 25 of the Big Boys – two batches of 10 in 1941 and another group of five in 1944. They were numbered from 4000 to 4024. Rivarossi's models are numbered 4014 and 4018, both from the second 1941 order. Both are among the nine Big Boys that still exist today. 4018 is on display at the Museum of the American Railroad in Frisco, Texas, and 4014 is undergoing restoration to running condition at the Union Pacific's shops in Cheyenne, Wyo.

The models have vertically mounted air-cooling pipes on either side of the pilot deck, a hallmark of early Big Boys.

The model. Like UP's earlier 4-6-6-4 Challenger, the Big Boy was articulated to help it negotiate curves and turnouts. On the prototype, the front engine pivoted under the smokebox. On the model, both engines pivot, which is necessary to handle 18" radius curves, but it creates unrealistic cab overhang. The leading and trailing trucks "float" on springs to further improve the locomotive's handling on curves. The tender's lead truck and rear axle do the same.

All 16 drivers are powered, and all have flanges; the wheels rely on side play to let them take sharp curves and turnouts. Electrical pickup is via seven of the eight drive axles, as the third wheelset is equipped with traction tires. There's no electrical pickup on the tender.

The locomotive is painted a smooth satin black, with graphite smokebox and firebox. The white lettering is opaque and matches prototype photos. The tiny lettering under the cab number is legible under magnification, as are the builder's plates on the smokebox.

The major dimensions of the locomotive matched drawings in *Model Railroader Cyclopaedia: Vol. 1, Steam Locomotives* (Kalmbach Publishing, 1960). The drive train is slightly different, though, to allow the locomotive to handle 18" radius curves. The wheelbase is stretched by about a scale foot to allow more swing room between the two sets of drivers. Also, the prototype Big Boy has 68" drivers; in order to maintain prototypical axle spacing while accommodating the model's deeper flanges, the model's drivers are 64 scale inches.

For the most part, the tender matches the dimensions in the *Cyclopaedia*, as well. The exception is the width; while the prototype is 10'-10" at its widest point, the model is 4 scale inches wider. This difference isn't apparent to the eye.

The tender is equipped with a magnetic knuckle coupler on the back. According to our gauge, it drooped about .040" low, which could easily be solved with a shim in the draft gear box. Like the prototype, the model was equipped with a swing-out coupler on the pilot. This was a dummy on our model, but since the Big Boy wasn't intended for double-heading, it's preferable to a working but oversized coupler.

Now on ModelRailroader.com

Subscribers can watch a video of the sound-equipped Big Boy in action. Find the link on the MR home page at www.ModelRailroader.com.

Testing. The locomotive performed admirably under direct current. When the voltage reached 7V, the headlight came to life, along with the whine of its dynamo. Air pumps and water injectors sounded randomly as the engine sat idle.

As I increased the voltage to 8.5V, the engine started to creep forward at 1 scale mph, neither stuttering nor hesitating. The locomotive performed smoothly through its voltage range, reaching a top speed of 59 scale mph at peak voltage.

Though you can't trigger the bell or whistle in direct-current operation, the ambient sound effects are well done. The exhaust sound features the correct four chuffs per wheel revolution and the sounds of the two engines realistically go in and out of sync while the locomotive is moving. Reversing the direction switch on the power pack triggers the clank of a Johnson bar. Rapidly slowing the locomotive elicits the squeal of brake shoes on steel wheels.

Under Digital Command Control, the user has more control of the sound effects. Function key F1 triggers the bell, F2 and F5 play long and short horn sounds respectively, and F3 plays a coupler clank. Other function keys trigger other sounds; a full list is in the manual, downloadable from www.esu.eu/en/.

The locomotive's speed range in DCC operation is similar to that under DC. Speed step 1 set the engine rolling at 1.3 scale mph, and at speed step 28, it topped out at 59 scale mph. Setting the throttle to 128 speed steps resulted in much finer speed control.

The model is designed to transit 18" curves. The drawbar has three holes to let the user choose how close to couple the engine to the tender. The closest spacing gives the most prototypical appearance, but requires the widest curves. I used the end hole, giving the widest gap, when testing the engine on the 19" curves of our Eagle Mountain project railroad. Though the large overhang of the smokebox and cab on curves caused problems with adjacent structures and scenery on our layout, the locomotive had no trouble staying on track on the curves or turnouts.

The Big Boy sure looked better on the broader curves of our Milwaukee, Racine & Troy layout, though. On that layout, the model easily pulled a 15-car train up a 3 percent grade. I was pleased to hear the chuffs fade as it topped the grade and started to drift downhill.

▶▶ HO Rivarossi UP Big Boy

Price: \$459.99 (with DCC and sound), \$389.99 (direct-current, no sound)

Manufacturer

Hornby Hobbies
3900-C2 Industry Drive E
Fife, WA 98424
www.hornby.com

Era: 1941 to 1959

Road numbers: 4014 and 4018

Features

- Blackened metal wheels, in gauge
- Can motor with dual flywheels
- Directional light-emitting-diode (LED) lighting
- Eight drive axles
- Electrical pickup on seven driver axles (traction tires on both drivers of third drive axle)
- ESU LokSound Select sound decoder (DCC version)
- Magnetic knuckle coupler on tender; swing-out dummy coupler on pilot
- Weight: 1 lb., 10.6 ounces (engine alone: 1 lb., 2.6 ounces)

HO scale Big Boy 4-8-8-4

Drawbar pull		5.6 ounces	
		78 HO scale freight cars	
Scale speed (DC)		Scale speed (DCC)	
Volts	Scale mph	Speed step	Scale mph
8.5 (start)	1	1	1.3
10	15	7	15
11	26	14	32
12	59	28	59

Our test bench force meter showed a pulling power almost as impressive as the prototype's. The weight of the engine and the traction tires combined to give a drawbar pull of 5.6 ounces, enough to pull 78 standard 40-foot free-rolling boxcars on straight and level track.

Impressive. Rivarossi's 4-8-8-4 Big Boy has been around a long time, but with its fine wire details, smooth performance, and updated sound decoder, this is definitely a modern scale locomotive. Hobbyists modeling the Union Pacific's steam era shouldn't need a reason to want one (or more) of these brawny beauties in their roundhouses. — *Steven Otte, associate editor*

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Atlas O Maxi-IV well cars pack a heavy punch

O scale modern-era modelers have some heavy metal coming at them in the form of Atlas O's three-well Gunderson Maxi-IV articulated container cars. These big cars are designed to haul 53-foot containers. Atlas O is offering compatible containers separately.

The prototype. Gunderson developed the Twin-Stack container car in the 1980s. As container sizes grew, Gunderson developed the Maxi-Stack IV to carry what by the late-1990s was the industry-standard 53-foot container. These cars have three or five wells (railroads typically designate a three- or five-unit set as one car), which allow the containers to ride low between the trucks of the articulated car. This allows stacks of two containers to be carried in a lower profile, reducing routing problems due to tight clearances.

The Maxi-IV cars can carry containers from 20 feet to 53 feet long in the well, and from 40 feet up to 57 feet long in the top position. The articulated cars reduce damage due to less slack action. A train made up of articulated cars has fewer couplers to introduce slack.

The model. The body and frame of the Atlas O model is a metal casting. Detail parts of plastic and metal include plastic end sills on the end units, etched stainless steel walkway grates, die-cast metal trucks and couplers, and separately applied handrails and steps.

The TTX yellow paint is evenly applied, but the paint on the sides of some of the etched walkways is a slightly differ-

ent shade. All of the lettering is opaque and sharp, with even the smallest stencils being readable. The markings I saw on the ends of the prototype cars in online photos are missing from the model.

The set is divided into three units, A, B, and C. The end units are A and B, with the brake wheel on the B end of the B unit. These are heavy cars. The B unit has two trucks and weighs just over 2 pounds, over the National Model Railroad Association Recommended Practice-20.1 of 1 pound, 7 ounces for an 18"-long car, or 72 scale feet. The A and C units have one truck each and weigh 1 pound, 13.8 ounces and 1 pound, 13.3 ounces respectively.

Free-rolling trucks with rotating bearing caps should help keep these cars moving. Like the prototype, the models have 33" diameter wheels on the outboard trucks and 38" diameter wheels on the intermediate trucks.

The models were within scale inches of prototype drawings on the Greenbrier website (www.gbrx.com). Atlas O recommends minimum 36" radius curves, which would bring the wheelsets on the end trucks very close to any 53-foot containers in the bottom wells.

Managing editor Hal Miller, an O scale modeler, took these models home to test them on his layout. He said they will run on 36" radius curves. However, check clearances of lineside details like whistle signs, signals, and pole lines before doing so, because the cars hang out noticeably in the inside of the curve.

Also, at three pounds per unit, period-appropriate, twin-motor locomotives

▶▶ O scale Maxi-IV well car

Price: \$299.95, 2-rail; \$289.95, 3-rail

Manufacturer

Atlas O, LLC
378 Florence Avenue,
Hillside, NJ 07205
www.atlaso.com

Era: 1999 to present

Roadnames: TTX, BNSF Ry. (Circle-Cross logo), BRAN, Florida East Coast (two road numbers each)

Features

- 2-rail minimum 36" radius
- 3-rail minimum O-54 diameter with supplied couplings (Recommended O-72)
- Containers available separately
- Die-cast metal couplers at correct height
- Low-friction trucks with rotating bearing caps on insulated metal wheelsets, in gauge
- Weight: 5 pounds, 11.2 ounces (3-unit car). 1 pound, 13.8 ounces (unit A); 2 pounds, .1 ounce (unit B); 1 pound, 13.3 ounces (unit C)

will be needed to pull a reasonable-length train of these well cars. Interesting notes: a 10-car set (30 total units) of these and two locomotives would be almost a 50-foot-long train. The cars alone would weigh 57 pounds!

These are impressive models of a popular modern prototype. O scale modelers eager to add container traffic to their layouts can thank Atlas O for fulfilling their wishes. – *Eric White, associate editor*

QUICKLOOK

Micro-Trains N scale Airslide hopper

Price: \$27.95 to \$29.75

Manufacturer

Micro-Trains Line Co.
351 Rogue River Pkwy.
Talent, OR 97540-1200
www.micro-trains.com

Era: 1970 to present

Road names: Norfolk Southern (post-1982 company), BNSF Ry. (buffer service), CSX, and General American. Two road numbers per scheme.

Comments: A General American Transportation Corp. 4,180-cubic-foot-capacity Airslide covered hopper is the latest addition to the Micro-Trains product lineup. The model has a one-piece injection-molded plastic body, etched-metal crossover platforms, separate hatch covers, and a see-through plastic running board. The plastic underbody is a one-piece casting with molded brake appliances

and discharge outlet cover plates. The Airslide piping is separately applied.

General American used three different body styles on the 4180 Airslide covered hopper, which was produced from 1965 to 1980. The Micro-Trains car is based on the final version, produced between 1970 and 1980.

The Airslide covered hopper is used to transport granular, dry, and powdered materials. Examples include sugar, flour, cement, and PVC resin.

The Micro-Trains Airslide covered hopper closely matches dimensions published in the 1980 edition of *The Car and Locomotive Cyclopedia* (Simmons-Boardman). One minor error is that the car uses 33" plastic wheelsets, but should have 36" wheels. This can be corrected with

plastic wheelsets from Micro-Trains or metal versions from Fox Valley Models.

Our sample is lettered for Norfolk Southern. The gray paint is smooth and evenly applied, and all of the lettering is legible under magnification.

I tested the car in a train on our Red Oak project layout from 2015. The car negotiated the 13" radius curves and Peco no. 6 medium turnouts while being pushed and pulled without incident.

Micro-Trains has done a great job re-creating the final version of General American's 4,180-cubic-foot capacity Airslide covered hopper. The prototype has been a workhorse for more than four decades, and on some railroads the cars are getting a new lease on life as buffer cars on crude oil trains. – *Cody Grivno, associate editor*



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Evolution Duplex | \$660 MSRP

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PRODUCT REVIEWS

QUICKLOOK

Micro-Trains True-Scale couplers

Price: Four-pack, \$3.45;
20-pack, \$15.95

Comments: Micro-Trains recently debuted its True-Scale line of N scale coupler kits in short- and long-shank versions. Each kit contains knuckles, lip shanks, draft-gear boxes and lids, 00-90 screws, and air hoses. A hobby knife with a no. 11 blade, tweezers, a micro screwdriver, a pin vise, a no. 56 bit, and a 00-90 tap are needed to install the couplers.

I installed a set of True-Scale couplers on the Micro-Trains Airslide covered hopper (reviewed on page 69). Installation took about 10 minutes. One word of caution, though. Check the position of the screw that holds the draft-gear box in place in relation to the outer axle on each truck. On the hopper, a nub on the plastic axle hit the screw, causing the car to wobble.

If the model has two screw holes for body-mounting couplers, use the outermost hole.

The True-Scale couplers are somewhat of a give and take. You get scale-sized couplers that don't have the "Slinky" effect common to spring-loaded N scale couplers. The scale couplers also reduce the distance between cars and locomotives.

However, you lose the ability to uncouple with magnets. Uncoupling cars equipped with True-Scale couplers can be a bit fiddly, requiring a sharp toothpick or pin.

Further, the True-Scale couplers aren't compatible with N and Z scale Magne-Matic couplers. Micro-Trains sells conversion cars that feature a True-Scale coupler on one end and a Magne-Matic coupler on the other.



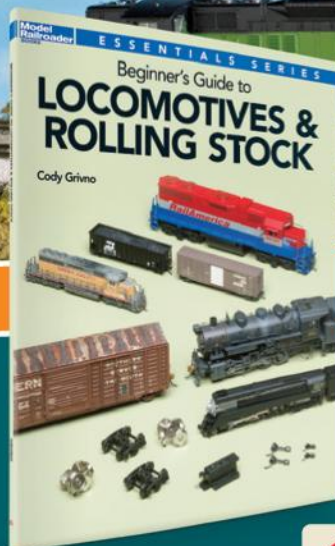
True-Scale coupler

Magne-Matic coupler

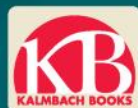
There are currently four conversion cars available, ranging in price from \$18 to \$28.

My takeaway? If you're running dedicated locomotive sets (think Electro-Motive Division A-B-A F units), passenger trains or unit trains that don't require frequent uncoupling, or are building a contest-level model, True-Scale couplers make sense. But if your model railroad is designed for operation, Magne-Matic couplers are still the go-to choice. – C.G.

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Fulfilling the role of conductor

This portrait of a proud Atchison, Topeka & Santa Fe railroader made a strong impression on me.

He sports bib overalls that look unmistakably new, starched and pressed. Its pockets carry essential tools of his trade – a pencil, a pen, and a neatly rolled piece of paper that might be a switch list. A natty tie drapes from a tight knot over a carefully fastened collar pin. Steady eyes creased with crows' feet and a firmly set jaw holding his pipe speak of long service. Above all, a fedora blazes a well-polished badge that crowns him "Conductor."

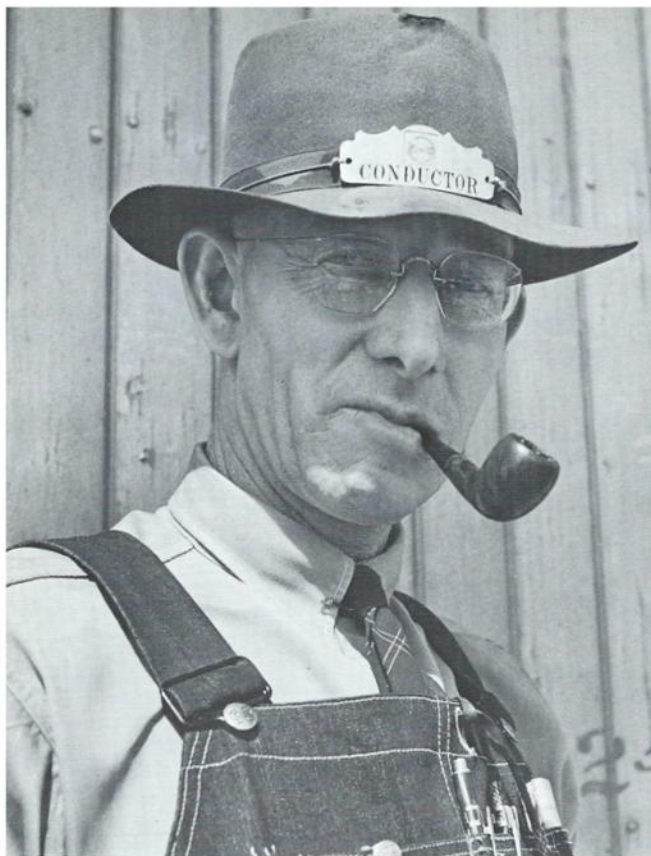
A passenger conductor is the figure familiar to most. He welcomes the public with his "all a-board" song, and he greets each rider as he moves down the aisle collecting their fares and punching their tickets. This freight conductor performed on a less conspicuous stage, but he was as accountable to shippers and consignees as his counterpart was to passengers. Consider the consequences should he fail to expedite the wood-sheathed reefer he posed with, whether it's loaded with fresh perishables on their way to market or an empty about to be.

Some bestow the honorific "Captain" on the position, for good reason. Like a ship's captain, he is responsible for the train's movements, the safety of its passengers, the security of the goods it carries, and supervision of its crew.

I enjoy working as a conductor during operating sessions, especially on a way freight. It's a thinking job that closely duplicates its prototype counterpart. There's little resemblance between an engineer's control stand and a handheld throttle, but a conductor performs almost identically. Let's examine this in more detail.

Train movements are at the conductor's direction. His high-ball starts the train, whether the traditional hand signal or its modern voice form. He then maneuvers over the line, deciding how to follow a dispatcher's instructions, act on opposing schedules, and react to unusual circumstances that any day's run may encounter. What's the running time from point to point? Does it allow clearing up on a siding in time to make a meet there? Does safety instead demand waiting and taking a delay? What is the best way to place this car and pick up that one, making the fewest moves?

Elaborating on switching, planning for efficiency pleases the crew as much as it does management. It's work for an engineer



Dignity befitting his position of responsibility describes this conductor, fixing a steady gaze on the photographer.

Donald Duke photo, courtesy Golden West Books

to start and stop. It's work for trainmen to line switches, couple and uncouple cars, and tie down brakes.


Season this work with the elements: sweating under a stifling sun or slogging through a steady rain. The comfort of a cab or a caboos has more appeal than suffering through unnecessary moves, so crews appreciate the conductor who plans the train's work carefully. Most would rather finish and mark up for the next job than get stuck waiting for other trains or pulling and pushing cars over and over, whether the work is on the railroad or the layout.

Schedules, train orders (or today's track warrants and Form Ds), and switching make the job a three-dimensional brain teaser. Other paperwork can pile on. The job spans everything from making switch lists to collecting and depositing waybills, from adhering to bulletin and special orders to maintaining hazardous materials information.

Most rulebooks, including today's, make it clear that each member of the crew reports to the conductor while on duty. This makes a running joke for conductors, especially at the expense of engineers who fight the idea like first-graders. The captain had complete authority, going as far as pulling the air (using the conductor's brake valve in the caboos) to slow a train moving at excessive speed. The "old heads" – the experienced, capable railroaders like the one pictured – also broke in green employees.

The prototype's engineer was and is a senior member of the crew who earned his position through long experience and detailed know-how. Maintaining a fast schedule or nursing heavy tonnage with a lame engine demands special skills, though an engineer I know grumbles that modern motive power computer programs make him little more than a "window licker," responsible only for keeping the windshields clean.

The chess game the conductor faces, however, makes a case that the conductor should be the more senior of the two. The layout owner who enjoys weighing equal measures of authentic operation and good fellowship in a session might put a visitor at ease by giving him a throttle and an experienced conductor.

The old head will move the train down the line to the satisfaction of the owner and the enjoyment of the entire crew. He'll deserve the same approval as our nameless Santa Fe captain, as befits the title "Conductor." 

TRACKSIDEPHOTOS



▲ Great Northern S-1 no. 2551 has coupled onto its train and is ready to depart Everett, Wash., for Skykomish, Wash., where electric locomotives will take over to cross the Cascade Mountains. Lee Marsh of Issaquah, Wash., built the HO scale layout and photographed the scene. No. 2551 is a custom painted, decoder-equipped Tenshodo brass import from the 1960s.



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Now on ModelRailroader.com

Lee Marsh's photo of his HO scale Great Northern railroad, above, is this month's computer wallpaper. Download it free from our website, www.ModelRailroader.com.

TRACKSIDE PHOTOS



▲ A Pilar Valley Ry. GP38 switches a wood-chip hopper at Mountain View Lumber Co. while a truck pulls up to load sawdust. Kenny Ravenscroft of Fremont, Wis., photographed the scene on his HO scale Pilar Valley Ry. The locomotive is an Atlas model that Kenny repainted and detailed. He also painted and decaled the Walthers sawdust truck.

► A string of freight cars that have all seen better days rolls by on a sunny afternoon. Terence Boardman of Landsborough, Queensland, Australia, weathered the assortment of HO scale cars with oil paint, acrylics, and powdered pastels. He then photographed the models outdoors on a diorama.





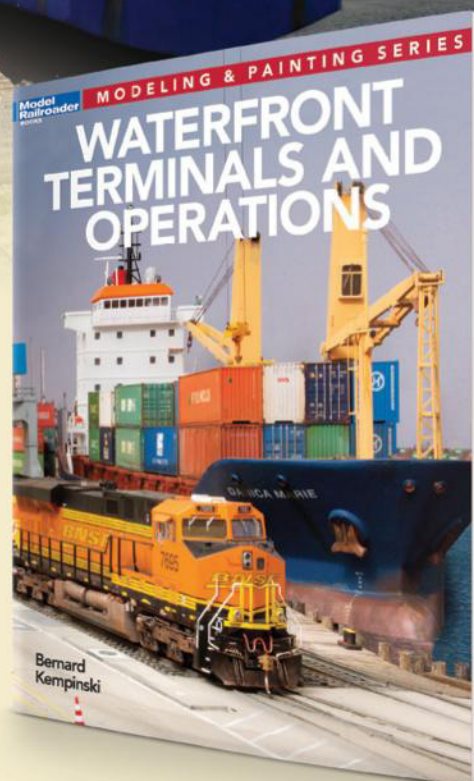
▲ Engine no. 8 is spotted at the Winter Store siding in Kingfield as Dana Aldrich kibitzes with engineer Ed West. Meanwhile, Jim Clark looks on from the stoop of his furniture restoration business. Lou Sassi of Willow Spring, N.C., photographed the scene on his On30 Sandy River & Rangeley Lakes RR. The furniture shop started out as a chicken coop scratchbuilt by Rich Cobb.

◀ New York, New Haven & Hartford engine no. 903, a General Electric class DEY-2 switcher, idles next to the Danbury, Conn., freight house while its crew is on a break. Joe Smith of Millersburg, Pa., scratchbuilt the HO scale locomotive shell from styrene and powered it with a Life-Like Proto 2000 chassis. He also shot the photo.

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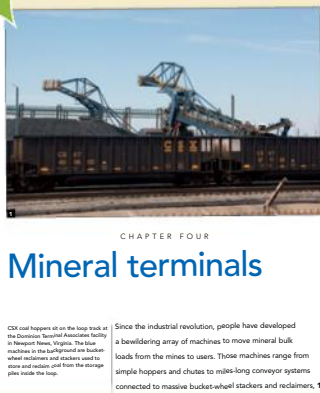
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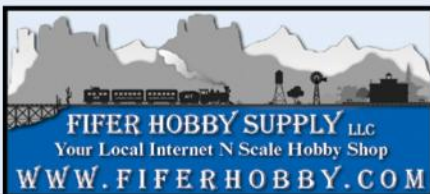
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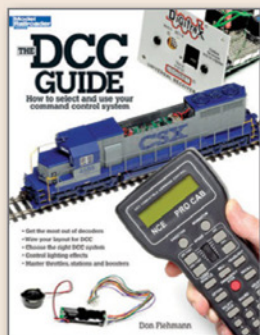
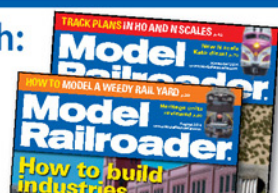
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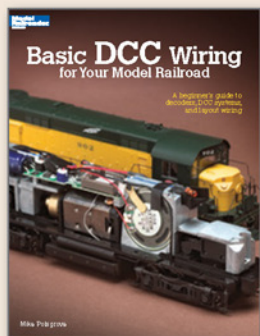
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Schedule of Events Rate: \$35 per issue (45 word maximum). Ads will contain the following information about the event: state, city, sponsoring organization and name of event, meet, auction or show, dates, location, times, admission fee, name and/or telephone number and/or email of person to contact for information. Name, daytime telephone number and street address of the person providing the information is also required but need not be included in the ad.

Unless otherwise requested, ads will be published in the issue month that the event occurs in. Additional months are available at the \$35 per issue fee. Please specify issue date(s).

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For MRA's private records, please furnish a telephone number and, when using a P.O. Box in your ad, a street address. *Model Railroader* reserves the right to refuse listing.

All Copy: Set in standard 6 point type. First several words only set in bold face. If possible, ads should be sent typewritten and categorized to ensure accuracy.

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All ads must be prepaid and pertain to the subject of model railroading.

Schedule of Events

AL, MOBILE: Model Train Show sponsored by South West Alabama Railroad Modelers (SVARM). Via Health, Fitness and Enrichment Center, 1717 Dauphin Street. March 11-12, 2017, Saturday 9:00am-5:00pm; Sunday 10:00am-4:00pm. Admission \$4.00, family \$8.00, under 10 free. Operating layouts, demonstrations and dealers. Contact Charlie Boyer, 251-454-0572, email charlieboyer6@aatt.net

AR, SPRINGDALE: Sugar Creek Model Railroad Historical Society, Fourteenth Annual Show. Holiday Inn & Convention Center, 1500 South 48th St., Zip: 72762. Saturday, February 25, 2017, 9:00am-4:00pm. Adults \$8.00, under 12 free. Keith Johnson, 479-871-2802, E-mail: train072@cox.net or NWA Train Show, PO Box 1283, Farmington, AR 72730, Website: www.railroadclubssugarcreek.org

CO, DENVER: Rocky Mountain Train Show, Denver Mart, 451 East 58th Avenue. March 4-5, 2017, Saturday 10:00am-5:00pm; Sunday 10:00am-4:00pm. Admission \$10.00, under 12 free. All Scales Show, 600 Tables, 30 Layouts, Many Manufacturers. Free Parking. Sponsored by Rocky Mountain Division-TCA. Information John Gardberg 303-364-0274 or www.RockyMountainTrainShow.com

CT, GREENWICH: Southern Connecticut Model Train Show, Greenwich Civic Center. March 12, 2017, 9:00am-3:00pm. Adults \$7.00, under 12 free. Valley HO Trak and 4 more layouts. Clinics, 150 tables, door prizes, free parking, refreshments. Ron's Books, PO Box 714, Harrison, NY 10528, 914-967-7541, ronsbooks@aol.com or www.southerncttrainshow.com

FL, DOVER: Regal Railways Presents Toy Train Collectible & Hobby Show, Hillsborough County Fairgrounds, 215 Sydney Washer Road, Zip: 33527. Saturday, March 4, 2017, 9:00am-2:00pm. Admission: \$5.00 adults. Vendors, operating layout, videos playing. Lunch items for sale. Contact Joe: 727-244-1341 or visit: www.regalrailways.com for more information.

FL, KISSIMMEE: Regal Railways Presents Toy Train Collectible & Hobby Show, 2000 Neptune Road. Saturday, March 25, 2017, 9:00am-2:00pm. Admission: \$5.00 adults. Vendors, operating layout, videos playing. Lunch items for sale. Contact Joe: 727-244-1341 or visit: www.regalrailways.com for more information.

FL, ORLANDO: NMRA 2017 Orlando National Convention. Rosen Plaza Hotel, 9700 International Drive, Zip: 32819. July 30 - August 5, 2017, 8:00am-11:00pm each day. Admission: See website, www.nmra2017orlando.org Contact: Gilbert Thomas, 8119 Woodvine Circle, Lakeland, FL 33810, 863-412-3090, E-mail: Thomas_12399@msn.com

FL, PLANT CITY: H.B. Plant Railroad Historical Society Train Show and Swap Meet. John Trinkle Building, Plant City Campus, Hillsborough Community College, 1206 North Park Rd., Zip: 33563. March 18, 2017, 9:00am-3:00pm. Adults \$7.00, under 17 free w/adult. Contact: Gilbert Thomas, 863-412-3090, E-mail: Thomas_12399@msn.com Website: www.hbplantrr.org

FL, SARASOTA/BRADENTON: RealRail Train Show. Bradenton Area Convention Center, 1 Haben Blvd, Palmetto. February 25-26, 2017, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Admission \$8.00, children 13 and under free with paid adult. Door prizes. Free parking. Information: 917-817-7479 or www.realrail.org

ID, LEWISTON: 6th Annual Lewis-Clark Railroad and Collectibles Swap Meet. NPC Fair Grounds, 1229 Burrell Ave. Sunday, March 26, 2017, 9:30am-4:00pm. Adults \$5.00, children under 12 free w/adult. Several vendors. Operating model RR's available. Operation Lifesaver Train Simulator. Refreshments/food. Contact Dan Wise, 208-816-0845, wrails@cablone.net

IL, LENA: The Depot Stove Gang 29th Annual Model Railroad Show & Swap Meet. Le-Winn Elementary, Junior/Senior High School, 401 Fremont Street. March 4-5, 2017, Saturday & Sunday 10:00am-4:00pm. Free admission, donations are welcome, free parking also handicapped parking available. Contact: MaryLou Bunker 815-369-2684

IL, LOMBARD: Chicago O Scale Meet (2-Rail), Westin Lombard Yorktown Center, 70 Yorktown Center. March 17-19, 2017. Friday dealer set-up, show open to public Saturday 9:00am-5:00pm, Sunday 9:00am-2:00pm. Buy/sell/trade, clinics, discussions, tours, contest. Largest dedicated O Scale show. \$20.00 entire weekend. Info: Melissa 630-745-7600 or www.marchmeet.net

IL, SPRINGFIELD: Springfield Railroad Society Annual Train Fair. Orr Building on the State Fairgrounds. Sunday, March 19, 2017, 10:00am-4:00pm. Early Bird shopping starts at 9:00am. Free parking. Largest show in downstate Illinois! For info call Ray at 217-544-4295 or visit www.springfieldtrainfair.com

IN, EVANSVILLE: Evansville All Gauge Model Train and Railroadiana Show. St. Paul's UCC, 2227 West Michigan Street, Zip: 47712. Saturday, March 4, 2017. Gates open 10:00am-3:00pm CST. Admission \$3.00, under 12 free. Vendors, major parts dealer, operating trains, test track, food available. Contact John 812-426-2989

IN, INDIANAPOLIS: The Indianapolis Model Railroad Show and Open House. Manual High School Gymnasium, Saturday, March 4, 2017, 10:00am-3:00pm. Admission \$5.00, children 12 & under free. Boy Scouts in uniform free. Free parking. Naptown & White River Model Railroad Club. Contact: Steve Handly, 317-786-8627, E-mail: naptownmrr@gmail.com

IN, MARTINSVILLE: Central Indiana Division NMRA Spring Train Show. 2182 Burton Lane, Martinsville Plaza, Zip: 46151-3012. Saturday, April 1, 2017, 10:00am-3:00pm. \$3.00 adult, \$5.00 family. 8ft tables \$16.00. Layouts Z to live steam, 30+ dealers, 500+ attendees 2016. Clinics, judging, door prizes, Trevor Jones, trevjn@sbcglobal.net 317-625-7626

IN, MICHIGAN CITY: Duneland Model RR Club Train Show and Swap Meet. IBEW Building, 301 East 8th St. Sunday, February 26, 2017, 9:30am-2:00pm (Chicago time). Adults \$3.00, youths 6-13 \$1.00, 5 and under free. Contact: Dave Novak at trains86@frontier.com or 219-778-1186.

IN, NAPPANEE: Elkhart Model Railroad Club Annual Train Show & Sale. Dutch Village Market, 700 N. Tomahawk Trail, (CR 101) Saturday, March 18, 2017, 10:00am-3:00pm (E.S.T.). Admission \$4.00. Operating layouts, vendor tables. Information: Randy Robbins, 574-584-4550 or e-mail emrrc@yahoo.com

MA, AUBURN: Worcester Model Railroaders Show & Open House at the Elks, 754 Southbridge St. Sunday, March 19, 2017, 10:00am-3:30pm. Admission: \$5.00, children under 12 free. Dealers and operating layouts. Contact: Ralph Kimball, Jr., 508-868-5189, ralphkimball@charter.net or www.wmrr.org

MA, WELLESLEY: Hub Division NER/NMRA Spring TRAINING Clinics/Train Show. Saturday, April 22, 2017, 10:00am-4:00pm. Wellesley Community Center, 219 Washington Street (intersection of Rte. 16 and Rte. 9). Admission \$5.00, children under 12-FREE. Featured clinician Stephen Priest, MMR. More information and clinic details visit website: www.hubdiv.org

MD, ANNAPOLIS: WB&A Chapter Toy Train Show. Annapolis Elks Lodge, 2 Pythian Drive, Edgewater, MD. SUNDAY, February 26, 2017, 10:00am-3:00pm. Admission \$5.00, under 12/scouts in uniform free. All scales, 50+ tables, operating layout, Train Doctor, free appraisals. Food available. Free parking. Contact Skip Lee, ocbp55@comcast.net Phone: 443-618-6866

MI, MUSKEGON: Muskegon Railroad Historical Society Spring Model Train and Hobby Show onboard USS LST 393 Veteran's Museum Ship, 560 Mart Street, Zip: 49440. Sunday, April 23, 2017, 10:00am-3:00pm. Admission \$5.00; under 5 free. Operating layouts, free parking, tour authentic WW2 ship. www.facebook.com/muskegonrail/ Vendors contact Mike Wood 231-670-0751.

MI, WYOMING: Grand River Valley Railroad Club Train Show. Home School Building, 5625 Burlingame Ave., Zip: 49509. April 8, 2017, 10:00am-3:00pm. Admission \$5.00, 12 and under free. Dealer tables \$16.00. Operating layouts, all gauges. Free parking. Door prizes. Lunch available. Contact Ken Skopp, 616-667-9680, kwsopp@gmail.com <http://grandrivervalleyrrc.org>

MO, MARCELINE: Model Train Show, Walsworth Community Center, 124 East Ritchie, Saturday, May 6, 2017, 9:00am-4:00pm. Admission: FREE. Operating layouts, vendors, concession, BNSF equipment display. Vendor space available. Contact: Dennis, 660-734-2195 E-mail: d-dvandyke@hotmail.com Website: www.walsworthcommunitycenter.com

NC, ASHEVILLE: Asheville Train Show. Western North Carolina Agricultural Center. March 3-4, 2017, Friday 12:00pm-7:00pm and Saturday 9:00am-5:00pm. Admission \$6.00, under 10 free. All scales, all gauges, collectibles, artifacts. Operating layouts, Thomas The Tank Engine, hundreds of vendor tables. More: www.Asheville-Trainshow.com

NC, GREENSBORO: 9th Annual 'Greatest Little Train Show'. AMTRAK Depot, West Concourse, 300 E. Washington St. Saturday, March 18, 2017, 10:00am-3:00pm. \$5.00 adults, under 12 free. Onsite CMR layouts open. Downtown city meter/parking free on weekends. Contact Walt Sabin, 336-312-4198. Carolinamodelrr@aol.com or CMR, PO Box 13642, Greensboro, NC 27415.

NC, WILMINGTON: 2nd Annual Coastal Carolina Trainfest. Coastline Conference Center, 501 Nutt St., Zip: 28401. April 1-2, 2017, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$10.00, 16 and under free w/adult. 15 layouts, clinics, displays, vendors, children's activities, door prizes and raffles. Visit: www.coastalcarolinatrainfest.org

NH, DOVER: The Great Northern New England Train Show. Dover Lodge of Elks #184, 282 Durham Road, Zip: 03820. Saturday, April 8, 2017, 10:00am-3:00pm. Admission: \$5.00 per family. Exhibitor tables \$25.00 (includes entrance fee). All scales, operating layout, food. Contact Ed Martin, efmenter@aol.com or 603-362-4300

NY, KINGSTON: Kingston Model Train and Railroad Hobby Show. Murphy Midtown Center, 467 Broadway. Sunday, March 19, 2017, 10:00am-4:00pm. Adults \$6.00, kids under 12 \$1.00. 11,000 sq. ft. Operating layouts, dealer, vendor tables, Thomas The Tank engine and LEGO trains. Information: www.kingstontrainshow.com or e-mail kingstonmts@aol.com

OH, COLUMBUS: The 9th Ohio N Scale Weekend, "For N-Scalers by N-Scalers" Franklin County Fairgrounds, Hilliard, Ohio. Presented by Central Ohio N-Trak. May 20-21, 2017, Saturday, 10:00am-5:00pm and Sunday 9:00am-3:00pm. Set-up Friday May 19th, 1:00pm-8:00pm. Event registration \$10.00. Event info www.centralohiontrak.org or e-mail ohionscaleweekend@yahoo.com

OH, HAMILTON/CINCINNATI: Ross H.S.-Larry Keller Memorial Train Show Fundraiser, 3371 Hamilton Cleves Road. Saturday, March 4, 2017. Public welcome 9:00am-2:00pm. Adults \$5.00, under 12 free. Tables \$20.00, additional tables \$15.00, 88 available. Operating Layouts, Door Prizes. Music Performances. GREAT EVENT WORTH THE DRIVE. Kent Acree, 513-235-3086

OH, KIRTLAND: Railfest 2017. Lakeland Community College (AFC), 7700 Clocktower Dr., Zipcode: 44094. NMRA MCR Div. 5. March 18-19, 2017, Saturday and Sunday 10:00am-4:00pm. All Gauge Train Show with over 400 tables. 440-357-8890, www.Railfest.org

OH, MASSILLON: CJ Trains Spring Massillon Train and Toy Show. Knights of Columbus Hall, 988 Cherry Road NW, 44647. Sunday, March 26, 2017, 10:00am-3:00pm. \$5.00 admission, 12 and under free. \$25.00/dealer table, 150 - 8' dealer tables. Jon Ulbright, 941 Buchholz Drive, Wooster, OH 44691, 330-262-7488, cathijon@sssn.net or www.cjtrains.com

OH, MONTPELIER: Montpelier Trackage Modelers RR Club Train Show/Swap Meet. Quality Inn Convention Center, 13508 State Rt. 15, Exit 13 Ohio Turnpike. Sunday, April 2, 2017, 10:00am-3:00pm. Adults \$5.00, under 12 free. Layouts, Test Track, Tables \$15.00. Jim McPike, jimcpike@gmail.com 419-298-2441

OH, TOLEDO: Greater Toledo Train & Toy Show. Owens Community College (SHAC), 30335 Oregon Rd., Perrysburg, OH 43551. Sunday, March 12, 2017, 11:00am-3:00pm. Early Birds: 9:00am-3:00pm. Adults \$6.00/Early Birds \$10.00, 12/under FREE w/adult. Contact: Randy Ramsey, 1566 South Ave., Toledo, OH 43609, 419-215-4181, Website: toymasters.org E-mail: trainmasters@bex.net

PA, KITTANNING: Train Show, Kittanning Township Volunteer Firehall, Rt. 422 East of Kittanning. Sunday, February 19, 2017, 10:00am-4:00pm. Adults \$4.00, children 12 & under FREE. David Campbell, 734 Freeport Rd., Butler, PA 16002, (724) 352-1113

SC, CHARLESTON: Charleston Area Model Railroad Club Train Show. Danny Jones Armory Park, 5000 Lackawanna Blvd., North Charleston, SC. March 18-19, 2017, Saturday 9:00am-5:00pm and Sunday 10:00am-4:00pm. Adults \$5.00, kids 12 and under free. For table information contact the club at trainshow@chamrc.com or www.chamrc.com

SC, COLUMBIA: Columbia Model Train Show. National Guard Armory, 1225 Bluff Road. Saturday, March 25, 2017, 9:00am-3:00pm. Admission \$5.00, under 10 FREE. Over 100 vendor tables, Thomas the Train & Friends, Railroad collectibles. Contact Todd at 843-307-8674, southcarolinatradeshow@gmail.com or www.SouthCarolinaTradeShows.com

SD, SIOUX FALLS: Dakota Southeastern Division NMRA 3rd annual Greater Sioux Falls Swap Meet and Train Show. Multi-Cultural Center, 515 N. Main Avenue, Zip: 57104. Saturday, March 25-26, 2017, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Admission: \$5.00, children 12 and under free w/adult. Layouts on display. Information: www.dakotasoutheastern.org or 605-310-0124

UT, OGDEN: 28th Annual Hostlers Model Railroad Festival. Historic Union Station, 25th St. & Wall Ave., March 3-5, 2017, Friday 3:30pm-8:30pm; Saturday 9:00am-6:00pm; Sunday 9:30am-3:30pm. Admission \$6.00, 12/under free. Layouts all scales, many vendors, LEGO layout, scouting program. Biggest train show in the West. Information: 801-394-4952, www.hostlers.info

VT, ST. ALBANS: Vermont Rails Show. Collins Perley Sports & Fitness Center, Interstate 89, Exit 19. Saturday, March 11, 2017, 10:00am-4:00pm. Adults \$5.00, children 6-12 \$1.00, children under 6 free. Sponsor: NWV Model Railroad Association. Contact Ron Piro, 802-598-0905, www.nwvrailroad.org

WA, CHEHALIS: Lewis County Model Railroad Club, Train Show & Swap Meet. Southwest Washington Fair Grounds, Blue Pavilion, 2555 N. National Ave., Zip: 98532. April 1-2, 2017, Saturday 10:00am-4:00pm and Sunday 10:00am-3:00pm. Admission \$5.00, 10 and under free. Free parking. Contact: Ted, 360-985-7788 or tedstrains@Lewiscounty.com

WA, MONROE: UNW/4-H 26th Annual Model Train Show and Marketplace. Evergreen State Fairgrounds. February 25-26, 2017, Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. Adults \$8.00; Juniors/Seniors \$6.00; kids under 9 FREE w/paid adult. Featuring 25 layouts, over 275 vendor tables, clinics, presentations, family fun for all ages. www.unwclub.org/unwshow.html

WA, SPOKANE: River City Modelers Spring Train Show. Spokane Fairgrounds, 404 N. Havana, Bldg. A, B & C. Sunday, March 5, 2017, 9:30am-3:30pm. \$6.00 for adults, 12/under free. 200+ tables of railroad related items for sale, operating layouts, Free-MO, Operation Lifesaver, more. Free parking. Contact: Shirley Sample, 509-991-2317, E-mail: shirley@busnws.com

WI, LA CROSSE: La Crosse & Three Rivers Railroad Club's 36th Annual Model Railroad Show. La Crosse Center, 2nd and Pearl St. March 18-19, 2017. Saturday 9:00am-5:00pm, Sunday 10:00am-4:00pm. Adults \$7.00, \$6.50 with non-perishable food item, children 11 and under free w/adult. John Uehling 608-784-1904 or Ed Lundberg 608-790-3864

WI, MADISON: Mad City Model Railroad Show and Sale. Alliant Energy Center, Exhibition Hall, February 18-19, 2017, 9:00am-5:00pm, 90,000 sq.ft. of layouts (all scales), toy trains, clinics, exhibits, vendors (300+ tables). Adults \$11.00, Seniors (65+) \$10.00, Children (5-11) \$5.00, under 5-free. 2-day ticket \$15.00. nmra-scwd.org

CANADA: ONTARIO, ESSEX: Model Train Show. Essex Public School, 72 Brien Ave. E., Presented by Historic Essex Railway Station. February 25-26, 2017, Daily 9:30am-3:30pm. Adults \$5.00. Display, Memorabilia, Interactive Train Model and More! Contact Historic Essex Railway Station at 519-776-9800 or heritageessex@bellnet.ca

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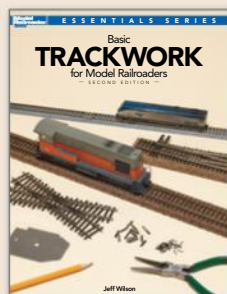
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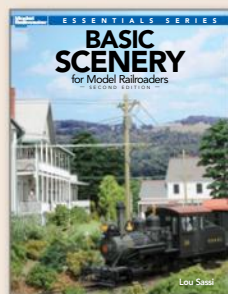
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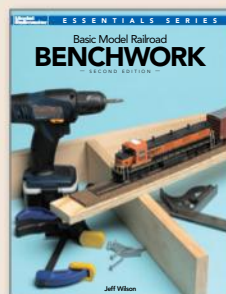
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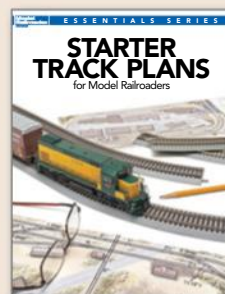
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Have a Plan B for your modeling era



In the 1960s, Tony had a good camera and access to Nickel Plate action. In March 1966, RS-36 no. 866, the second one Alco built, leads a Wabash F7, far right. Tony Koester photo

No matter whether you're on a prototype modeling or freelancing bent, it helps to narrow down the era that your railroad depicts. A tightly defined era makes it easier to communicate to visitors and crew members what they're experiencing, and it tends to limit what you buy. The more broad-shouldered the era, the deeper the money pit, and the harder it is to convey a specific message to observers.

To that end, I've advocated making a chart with years along the horizontal axis and important features along the vertical. Among the benchmarks you may want to consider are those that are railroad-specific, such as when a certain type of locomotive was acquired or retired; and more general, such as when boxcar running boards and cabooses went out of style.

I've also recommended having a Plan B when it

comes to the era being modeled. One never knows when circumstances may change – a relocation due to a new job, for example. Maybe it's just time for a change of scenery in the railroad room, or perhaps you've noticed that N and HO scales keep getting smaller every year as your eyes age.

So now what? Taking up stamp collecting or combat-grade croquet are possibilities, but they probably won't be seen as substitutes for modeling. Perhaps a simple era change will suffice.

Given that I was going to model the Nickel Plate Road's St. Louis Division, I model 1954 for very well-defined reasons. That was the last year of steam (USRA light Mikados and Berkshires) during the fall grain rush. Passenger trains 9 and 10 still ran from Cleveland to St. Louis behind Alco PA-1s. Another of my

all-time favorite diesels, Alco RS-3s, had been delivered in April of that year.

In 1954, I was a kid who appreciated full-size railroading, yet wasn't as knowledgeable about what I was seeing as in retrospect I would have preferred. The camera I had access to leaked light and shot grainy photos.

Were I to change eras, I'd check the timeline chart and find that steam was gone by summer 1955. The two passenger trains that I model came off in 1959. The late 1950s offered big losses and few if any gains; I could scratch that interval off the Top Ten charts.

Cross into the early 1960s and things immediately improve. GP18s arrived with a bold new paint scheme, although they looked a lot like GP9s. The NKP entered the Big Time in 1962 when it bought the very first Alco RS-36s and also 10 EMD

GP30s. Bay-window cabooses finally made it to the St. Louis line that same year. In 1964, the NKP acquired one Alco Century 420 and one EMD GP35 as wreck replacements. And the St. Louis line was still a busy timetable-and-train-order operation.

The good news screeched to a halt, my timeline shows, on Oct. 16, 1964, when the NKP merged into the burgeoning Norfolk & Western. But there was a silver lining of sorts. By then I had a car, a good 35mm camera, and NKP friends who told me how the railroad earned its keep. With Glenn Pizer, I founded the Nickel Plate Road Historical & Technical Society in 1966; it's going strong today.

The merger also presented modeling opportunities. The NKP never bought "covered wagon" freight units like EMD Fs and Alco FAs, but the Wabash – another N&W merger victim – had both. They also had GE U25Bs. Wouldn't it be fun to have a consist comprising an NKP GP35, a Wabash F7 and U25B, and an NKP RS-36 singing and chugging their way over the Third Subdivision in my basement? The timeline assures me this is all legitimate.

Does Plan B require that I retire steam? No way. But it could sit on the sidelines for a year or two, then come back strong after a thorough shopping while the second-generation diesels take a breather.

Exciting? Sure. Feasible? Maybe; it requires investments in time and money. Neither is in overabundant supply. But I've already taken steps down that road. If nothing else, it will be fun to see how this story ends. **MR**

Siemens

ACS-64



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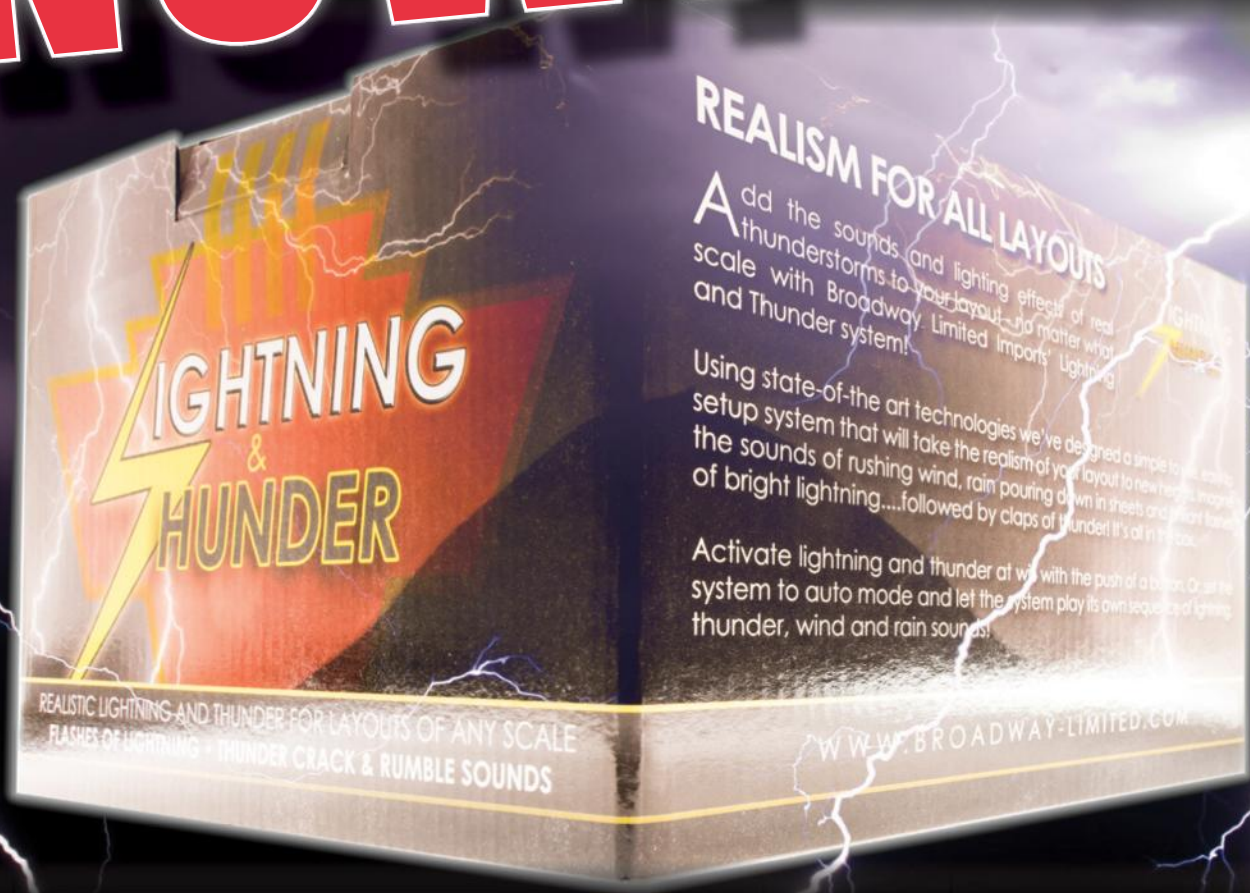
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