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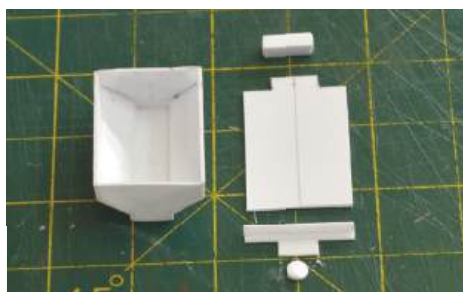
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On the cover: Dive into our N scale T-Trak project railroad, Colorado Plains, starting on page 40.
Cody Grivno photo



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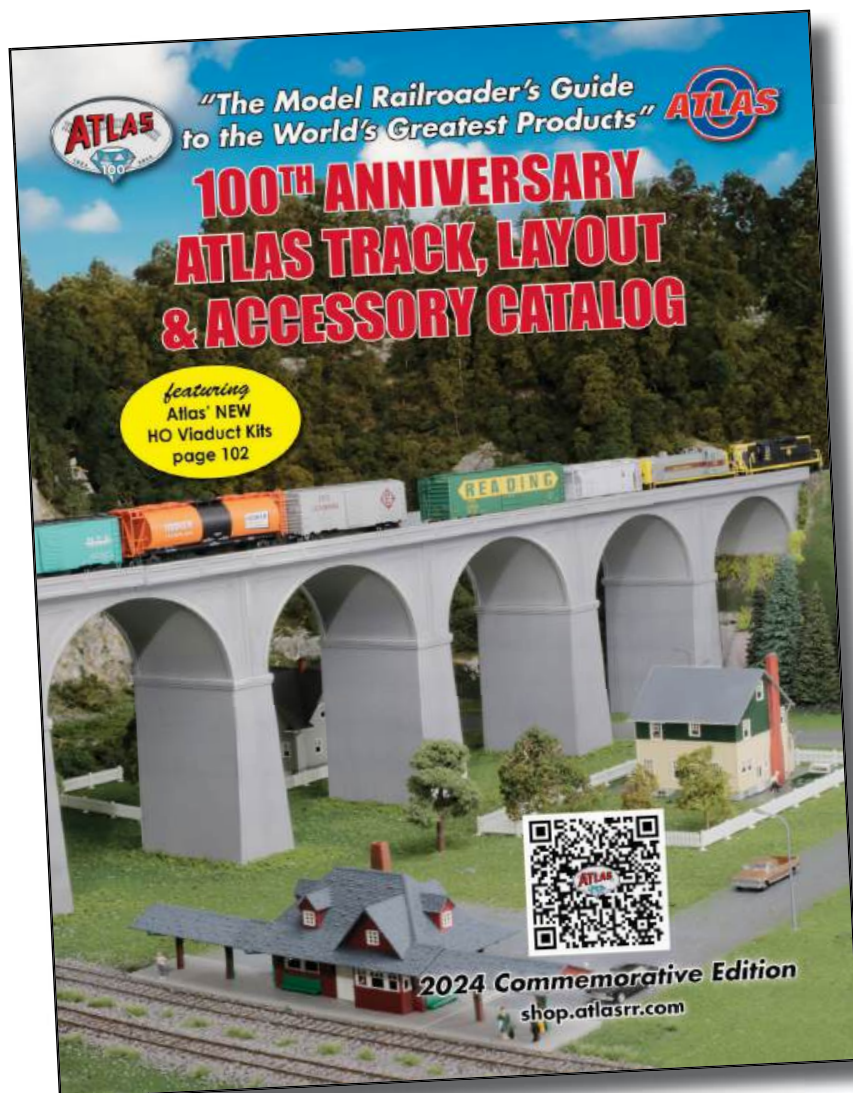
In February, visit an S scale narrow gauge layout, learn to use photo laminates for structures, build a T-Trak module box, model N scale tank cars, and more!

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TRAINS.COM INSIDER **EXCLUSIVE**

Founder Jason Shron reflects on 20 years of Rapido Trains Inc.

In a late summer 2024 *Model Railroader* Editor Eric White and Senior Editor Cody Grivno visited with Jason Shron, founder and CEO of Rapido Trains Inc. The dream job of making model trains is one nearly every hobbyist envisions, but few have ever brought to fruition. In the span of 20 years, Jason is one of the few who have forged this dream into successful reality. In this exclusive interview, hear firsthand what it takes to start and sustain an operation that provides model railroaders with a variety of products. Scan the QR code with your smartphone's camera to watch the video.



The Milwaukee, Racine & Troy: A retrospective gallery

The Milwaukee, Racine & Troy, *Model Railroader's* well-known 28 x 54-foot HO scale staff layout, was torn down in July 2024. During its 35-year run, the model railroad was visited by hobby enthusiasts from around the world. In addition, the "Myrt" was the subject of many magazine articles and the setting for product review videos. In this article, Associate Editor Bryson Sleppy and Assistant Digital Editor Mitch Horner set out to create an MR&T retrospective gallery to write, at least in some small way, a brief history of the layout. If the old adage "a picture is worth a thousand words" is true, then perhaps the images in this gallery can at least tell a story of the model railroad in its final days.



Reassembling a model railroad after moving

Everyone has to move at some point in their life. But for model railroaders, there's often an extra task, reassembling a layout. If you're contemplating moving, Eric White shares a few things to keep in mind when it comes time to put everything back together. Even if you don't plan on moving, there are things you can do to ensure that if the time comes you'll be ready.

Model Railroaders of the 1970s: Pioneers of Change

The 1970s were a time of change. Model railroading was no exception. Modelers tested new techniques and technologies, while the niches of different scales and styles grew into mainstays. During that pivotal decade, a handful of model railroaders stood out as pioneers of the hobby and industry. Their contributions have helped shape the hobby we know and love today.

Learn about some of the biggest model railroad influencers of the 1970s, including MR's own Gordon Odegard, builder of the N scale Clinchfield layout. Their stories and more can be found on Trains.com.



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Welcome to the hobby!

We know lots of people get exposed to model trains at this time of year for the first time. It's high season, what with open houses at clubs around the country and an increase in the number of train shows. As I write this, we're looking forward to the big event of the Upper Midwest, Trainfest in downtown Milwaukee, Wis.

At the end of January, the Railroad Hobby Show fills the Eastern States Exposition Center in East Springfield, Mass. Known as either the Springfield show or the Amherst show, this event, produced by the Amherst Railway Society, offers something for just about everyone in North America with an interest in railroads. This is definitely peak train time!

It's also a time folks get their first train sets. My introduction to scale trains was a Tyco HO scale set.

I happily ran those trains for as long as they lasted. Within a couple of years, I had my first "real" engine, an Athearn "blue box" SD45 in Santa Fe blue. It was joined by an FP45 in the Warbonnet paint scheme (bonus, the FP45 had flywheels!).

If this season of trains has inspired you to buy yourself some trains, or you received them as a gift, we'd like to think the next most important item to add to your new hobby is your first issue of *Model Railroader*.

There's plenty to be found for new modelers in these pages. For as long as I've been here, we've featured a project railroad in the January issue. These projects are intended to be accessible to all modelers, but also to provide some inspiration to help folks either set goals, or try new techniques. But there's more than one story to inspire you

in every issue of *Model Railroader* magazine.

Step by Step is a monthly column that features easy-to-follow projects or new techniques to try. Other how-to stories might be a bit more complicated, but we hope they'll at least inspire you to do some modeling, maybe trying a tip explained in the article. Remember, just because you don't need to build a particular project featured in a story, there's still probably something you can learn from it. For more inspiration, you'll find two stories we call layout visits, which we hope will inspire you in your new-found hobby.

We just finished celebrating our 90th year, and in 2025, the National Model Railroad Association will celebrate its 90th anniversary.

Probably the third hobby investment you should make is a membership to this



organization, which has been ensuring models from multiple manufacturers will all work together. You'll find as we review new models and equipment, we refer to NMRA standards as a way of measuring the quality of the products. With these three things, you should have a good foundation for a hobby of lifelong enjoyment. Welcome!

Model Railroader

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HO scale



Electro-Motive Division SD40T-2 diesel locomotives. These six-axle tunnel motor diesel locomotives are available from ScaleTrains decorated for Union Pacific, Denver & Rio Grande Western, and Southern Pacific in multiple road numbers. The all-new models, part of the Rivet Counter line, have road-number-specific features, including light packages, re-rail

frogs, pilot layout, doors, cab vent, dynamic brakes, and more. The models feature all-wheel drive and electrical pickup, see-through dynamic brake fan housings with visible fan blades, and see-through tunnel motor grills. Direct-current models are priced at **\$149.99**. Versions with DCC and sound are **\$254.99**. ScaleTrains, 844-987-2467, scaletrains.com

HO scale locomotives

• **2-8-0 Consolidation steam locomotive.** Denver & Rio Grande Western C-48, Southern Pacific C-11/12, St. Louis Southwestern K Class, and Western Pacific C-43. Three road numbers per version. All-brass construction. Solid brass chassis. Sprung drivers. Operating turret hatches and tender water hatches. Light-emitting diode lighting. Factory installed SoundTraxx Tsunami2 sound decoder. 22" minimum radius. Extra rubber-tired drivers available upon request. \$1,999.99. Sunset Models 3rd Rail, 925-820-7701, 3rdrail.com; and Third & Townsend Models, 510-342-4389, thirdandtowntsendmodels.com



• **Baldwin Locomotive Works DT-6-6-2000 center cab diesel locomotive.**

Baldwin Locomotive Works demonstrator; Atchison, Topeka & Santa Fe; Duluth, South Shore & Atlantic; Elgin, Joliet & Eastern; Minneapolis, Northfield & Southern; Soo Line; St. Louis Southwestern; and Trona Ry. One to three road numbers per scheme. Road-number-specific detailing. Light-emitting-diode lighting. \$1,780. Division Point Inc., 612-396-5583, divisionpoint.com



• **Electro-Motive Division GP35 diesel locomotive.**

Wheeling & Lake Erie; Canadian National; Conrail; Erie Lackawanna; Norfolk & Western; Pennsylvania RR; Reading Co.; and Southern Pacific. Multiple road numbers per scheme. Road-specific details, including uncoupling levers, m.u. receptacle arrangement, pilots, horn type and placement, truck sideframes, and bell placement. High short hood as appropriate. Individually controllable lighting features. Direct-current, \$249.99; with Paragon4 sound decoder, \$374.99. Broadway Limited Imports, 386-673-8900, broadway-limited.com

HO scale



Gunderson 6,276 50-foot hi-cube boxcar. This modern freight car from Aurora Miniatures is decorated for TTX (On Track for a Cure and as-delivered schemes), Arkansas & Oklahoma, and four other railroads. The HO scale model (**\$9.99**) has an injection-molded plastic body and features separately applied ladders, handrails, uncoupling levers, and air hoses; underbody details, including an air reservoir, brake cylinder, and low-mounted brake rods; 100-ton trucks with bolster and center plate detail, brake beams, and rotating bearing caps; and AuroraJanney scale couplers. Aurora Miniatures North America Inc., na.auroraminatures.com



• **Electro-Motive Division NW2 diesel locomotive.**

Nickel Plate Road; Atchison, Topeka & Santa Fe; Indiana Harbor Belt; New York Central; Southern Ry.; and Union Pacific. Four road numbers per scheme; also available undecorated. All-new tooling. Phase I, II, III, and IV hoods and details as appropriate. Road-specific details. Cab interior with seats and crew figures. AAR-A sideframes and brake cylinders. Die-cast metal underframe. Factory-installed speaker in all models. Direct-current model, \$219.98; with DCC and sound, \$319.98. Walther's Proto. Wm. K. Walther's Inc., 414-527-0770, walther's.com



Hurricane Helene relief efforts

Model railroad manufacturer ScaleTrains and railroad live streaming website Virtual Railfan have announced their support for Hurricane Helene relief efforts. Their offices, located at 4901 Old Tasso Rd., Cleveland, Tenn., have served as a drop-off location for food, hygiene, and supply contributions. ScaleTrains and Virtual Railfan have also pledged financial support for hurricane relief efforts.

The Category 4 hurricane, which brought an estimated 40 trillion gallons of rainfall to the Southeast since it made landfall on Sept. 27, has left widespread destruction in its wake, including in Tennessee. A joint statement from Shane Wilson, president of ScaleTrains, and Bruce Underwood, lead pastor at Community Fellowship church in Benton, Tenn., can be seen in a video on the ScaleTrains YouTube channel.

ScaleTrains and Virtual Railfan have partnered with Operation Blessing and Community Fellowship Church to source critically needed items for those in the affected region. Additionally, ScaleTrains and Virtual Railfan have announced they will match up to \$10,000 in funds received by Community Fellowship Church. Check out the story on Trains.com for a link to make a donation to the fund. — *Mitch Horner, assistant digital editor*



• **General Electric P32AC-DM diesel locomotive.** Connecticut DOT and Metro-North. One to three road numbers per scheme. New tooling. Road-specific details. Krupp-MaK High Speed Bolsterless Trucks with third rail shoe detail. Nose and rear head-end power plugs. Light-emitting-diode lighting including headlights, ditch lights, marker lights, and step lights. Factory-applied wire grab irons. Semi-scale metal couplers. MoPower capacitor system. Direct-current model, \$239.95; with DCC and sound, \$349.95. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale rolling stock

• **Denver & Rio Grande Western steel riveted caboose.** Denver & Rio Grande Western. Multiple paint schemes and

road numbers. All-new model. Detailed underbody including separate air and brake piping. Etched metal road numbers included in polybag. Track-powered interior and exterior lighting. All-wheel electrical pickup. See-through, etched metal steps and walkways. Full end detail including uncoupling levers. Separate, factory-installed grab irons. Metal couplers. \$129.95. Rapido Trains, 905-474-3314, rapidotrains.com



• **Trinity 40-foot 14,000-gallon molten sulfur tank car.** General American, First Union, Flint Hill Resources, Sulcom Inc., and Trinity Industries Leasing. Multiple road numbers per scheme. Factory-installed grab irons. Underbody details including steam inlet

In Memoriam

Perry Becker, 1934-2024

Perry Becker, 90, died of cancer on Sept. 18, 2024.



If you've attended a railroad hobby show or flea market in the Midwest in the past few decades, you couldn't help but see the signs and tables for Perry's Hobbies. Based in tiny Morgan, Minn., southwest of the Twin Cities, owner Perry Becker established the business in 1966.

Perry's Hobbies grew into a retailer of model railroading equipment, books, and media and was well known for its large stock. Becker was joined in the business by his brother, Jim, and nephew, Paul, who were all regulars at the train shows where Perry displayed his wares. They also conducted a thriving mail-order business. Today, Perry's Hobbies has an online store (perryshobbies.com) with models, books, and more.

He met his wife, Arliss, in the eighth grade and called her his "best friend" for 69 years. They married June 5, 1955. He is survived by his wife; daughters Nancy Becker, Laurie (Ken) Dittbenner, and Sarah (Daryl) Seifert; and several grandchildren and great grandchildren. — *Steve Glischinski*

and outlet piping, brake pipe, and rods. See-through etched-metal walkways and end platforms. Metal axles and 33" wheelsets. Proto-Max metal couplers. \$59.98. WalthersProto. Wm. K. Walthers Inc., 414-527-0770, walthers.com

Continued on page 16

InterMountain HO scale GP16



An HO scale GP16 diesel locomotive

is the latest offering from InterMountain Railway Co. The four-axle model, based on prototypes rebuilt by Seaboard Coast Line (SCL), features an injection-molded plastic body; a die-cast metal chassis; and a variety of separate, factory-applied detail parts.

GP16 was the designation SCL gave to its rebuilt Electro-Motive Division (EMD) GP7, GP9, and GP18 diesel locomotives. Between 1979 and 1982, 156 road units were rebuilt at the railroad's Uceta Shops in Tampa, Fla.

The sample we received is decorated as United States Army No. 4630. The prototype was built by EMD in Nov. 1956 as Seaboard Air Line GP9 No. 1976. In September 1979 the locomotive was rebuilt as a GP16, becoming SCL 4615. The engine later went to successors Seaboard System and CSX.

CSX retired the then-1715 on Feb. 19, 1993. The unit went to Conrail where it was rebuilt at the railroad's Juniata Locomotive Shop for the United States Army. The locomotive was reclassified a GP9M and renumbered 4630.

The GP16 features a multi-piece plastic shell consisting of the body, cab, and sill/step well unit. The front and rear pilots feature modernized pilot plates, wire m.u. hose loops, m.u. and trainline hoses, and wire uncoupling levers.

A partial cab interior is visible through the cab windows. Details include three seats, a control stand, and

a control panel and instrument board. All of the parts are painted light tan.

The model we received is decorated in the United States Army's red-and-black diesel scheme. Both sides of the nose feature the insignia of the 3rd Infantry Division based at Fort Stewart, Ga.

I found prototype drawings of the SCL 4600-series GP16 online. The model's dimension match or are within scale inches of published data.

There were some detail discrepancies between the model and prototype. The model has late Pyle twin sealed-beam headlights; the prototype has early Pyle lights. The locomotive has rotary beacons, not strobe lights. In addition, the first stanchion in front of the cab should be longer and attached to the sill.

In fairness, making a model based on a rebuild is tricky. The full-size GP16 diesels were rebuilt using GP7, GP9, and GP18 donors, so there were already variations in body details from the start.

Our review model has an ESU LokSound V5 sound decoder. I first tested the four-axle road unit at the workbench with an NCE Power Cab. At speed step 1, the model crawled along at 1 scale mph. At step 28, the locomotive was moving at 78 scale mph. The prototype units had a top speed of 65 mph.

Then I took the unit over to our Winston-Salem Southbound Tar Branch to do some industrial switching. The GP16 navigated the No. 4 and 5 turnouts, 30-degree crossing, and 20" radius

curves without issue. The model has a drawbar pull of 2.9 ounces. This is equivalent to 41 free-rolling freight cars on straight and level track.

I'm glad InterMountain took a chance on the SCL GP16 in HO scale. Though only 156 units were built, examples can still be found in freight service on regional and shortline railroads and in switching duty at a variety of industries.
— *Cody Grivno, senior editor*

Facts & features

Price: With ESU LokPilot non-sound decoder, \$249.95; with ESU LokSound V5 sound decoder, \$319.95

Manufacturer

InterMountain Railway Co.

P.O. Box 839

Longmont, CO 80502-0839

intermountain-railway.com

Era: 1979 to present (varies depending on paint scheme)

Road names: United States Army; Aberdeen, Carolina & Western; RJ Corman RR Co.; CSX; Indiana Rail Road; Louisville & Indiana; Pioneer Railcorp; Santa Fe Southern; and Seaboard Coast Line. One to four road numbers per scheme.

Features

- Metal couplers, both at correct height (trip pin on front coupler too low)
- Metal wheels on plastic axles, in gauge
- Minimum radius, 18"
- Weight: 14.8 ounces

Atlas N scale Norfolk Southern SD60E



The Norfolk Southern SD60E diesel locomotive is making its debut in the Atlas Model Railroad Co. N scale product lineup. Features on the Master Line model include a Scale Speed motor, operating front and rear ditch lights, and body-mounted Accumate couplers.

Norfolk Southern rebuilt 136 Electro-Motive Division SD60 diesels of various lineages at its Juniata Locomotive Shop in Altoona, Pa., between 2010 and 2017. The units are numbered 6900 through 7002 and 7004 through 7035. The engine scheduled to be the 7003 was numbered 911 in honor of first responders.

The sample we received is decorated as Norfolk Southern 6927. The prototype was built by EMD in September 1986 as Chicago & North Western SD60 8042. The unit was renumbered Union Pacific 5994 in June 1997. It was returned by UP to the lessor in January 2002 and later wound up in the Helm Financial fleet, becoming HLCX 5994.

Norfolk Southern acquired the 5994 in 2011, renumbering the six-axle road unit 6527. The locomotive was rebuilt as SD60E 6927 in November 2013. The diesel is still in service.

The SD60E is constructed similar to other N scale diesels produced by Atlas. It has a one-piece plastic body with a separate cab and sill/walkway. The front pilot has a factory-applied snow plow. Other pilot details are molded.

The Crescent cab is a separate part with wire grab irons, freestanding sand filler hatches, and a PTC antenna array on top. The headlight and side cab windows are picked in aluminum.

The engineer's side of the cab features an access door for the electronic air brake equipment. The louvered panel adjacent to it is the air intake for the air conditioner. The brakeman's side access door for the air conditioner is louvered.

Many of the long hood details are molded, including the rooftop fans, hinged-style roof access doors, and fan grab iron. The inertial air filter screens for the split-cooling system and Nathan K5LAR24 horn are factory applied.

The Atlas model is neatly painted black with opaque white lettering. Graphic placement largely matches prototype images. One minor error was the SD60E designation on the brakeman's side of the cab. It should be moved near the back edge of the cab.

The guard by the traction motor blower duct has a slightly different design than that on the full-size unit.

The fuel tank on the model has a round profile, but should have an angled taper about halfway down the side. Spare knuckle holders were omitted from the rear pilot.

Our test sample has an ESU LokSound V5 sound decoder. For workbench testing, I used an NCE Power Cab. At step 1, the model ran

at 1 scale mph. At step 28, the SD60E was barreling down the test track at 117 scale mph. The speed range can be fine tuned using configuration variables.

Atlas has done a good job re-creating the SD60E in N scale. The six-axle unit would look good on the point of a main-line freight, but it could just as easily be running long-hood forward in local service. If you're a fan of modern diesel power, you'll definitely want to check out this Master Line model. — *Cody Grivno, senior editor*

Facts & features

Price: Direct-current model with factory-installed speaker, \$149.95; with dual-mode ESU sound decoder, \$259.95

Manufacturer

Atlas Model Railroad Co.
378 Florence Ave.
Hillside, NJ 07205
shop.atlasrr.com

Era: 2010 to present

Road names: Norfolk Southern (Thoroughbred scheme in two road numbers; GORail, Honoring Our Veterans, and Honoring First Responders in one number each). Also available undecorated.

Features

- Body-mounted Accumate couplers; front at correct height, rear .015" too high
- Metal wheel stubs mounted on plastic drive axle gears, in gauge
- Weight: 3.5 ounces



Trains.com members can see the GP16 and SD60E in action with this QR code.

Walthers HO Greenville wood-chip hopper



The Greenville 73-foot wood-chip hopper has returned to the Wm. K. Walthers Inc. HO scale freight car product range. The model, part of the Mainline series, is based on a 1970s prototype designed for transporting wood chips between sawmills and paper mills.

Greenville Steel Car Co., located in its namesake town in Pennsylvania, produced the 7,000-cubic-foot capacity wood-chip hopper from the early 1970s to the early 1980s. Among the railroads to roster the six-bay hopper were Apalachicola Northern, Georgia RR, Missouri Pacific, and Kansas City Southern.

The sample we received is decorated in the Family Lines System paint scheme as Louisville & Nashville No. 31900, part of the 31900 through 31999 series. The 100 full-size cars were built by Ortner Freight Car Co. in 1981 under job number OC-331. The L&N cars were part of a joint order with Seaboard Coast Line, which purchased 200 cars (SCL 196275 through 196474). In elevation drawings supplied by the Louisville & Nashville Historical Society, it notes Greenville die-pressed side sheets and corner caps were used on the L&N and SCL cars.

When L&N and Seaboard Coast Line merged to form the Seaboard System in 1982, the L&N cars were renumbered SBD 434100 through 434199. The cars kept the same numbers on CSX.

We last reviewed the Walthers Greenville wood-chip hopper in the August 2003 issue. Back then, the model had plastic wheelsets mounted on brass axles, modeler-installed wire grab irons for the end sills, and Bachmann E-Z Mate plastic couplers. Today, the hopper has metal wheelsets mounted on plastic

axles and Proto-Max metal couplers. There are drill-starter points on the end sills, but grab irons aren't included.

The model has an injection-molded plastic body with raised panels on the sides and crisp rivet detail. The panel detail is not embossed on the car's interior, nor is there interior rivet detail.

Inside, the car has crisply defined cross ridge and longitudinal hood floor sheet detail. Additional interior items include crossties, gussets, and a partition. These are used on the full-size cars to stabilize the high sides.

Most of the hopper's weight comes from a metal casting that includes the body bolsters, center sill, and draft-gear boxes. The casting also has triangle-shaped pieces that fill the valleys between the hoppers. Plastic was used for the hopper doors, latches, and screw-mounted draft-gear box covers.

Our sample features smooth and evenly applied black paint, though the interior should be light gray. The yellow lettering is opaque throughout, which isn't always easy to accomplish over a dark base color. The lettering placement closely follows prototype photos of cars from this series. However, the SCL and L&N heralds, as well as the lettering, are a bit oversized.

Drawings of the Greenville 7,000-cubic-foot capacity wood-chip hopper were published in the April 1999 issue of *Railroad Model Craftsman* magazine. The exterior dimensions match published data. The interior length and width are both a scale 5" too narrow, which is typical on open hopper and

gondola models due to limitations in the injection-molding process.

Because of its height and distinct die-pressed side panels, the Greenville 7,000-cubic-foot capacity wood-chip hopper was a signature car of its era. After a lengthy hiatus, it's good to see the model back in the Walthers product lineup. — *Cody Grivno, senior editor*

Facts & features

Price: \$39.98 (undecorated, \$34.98)

Manufacturer

Wm. K. Walthers Inc.
5601 W. Florist Ave.
Milwaukee, WI 53218
walthers.com

Era: early 1970s to present

Road names: Louisville & Nashville (Family Lines System), Apalachicola Northern, Atlanta & St. Andrews Bay, CSX, Norfolk Southern, Seaboard System, and Southern Ry. (black and brown schemes). Four to six road numbers per scheme; also available undecorated.

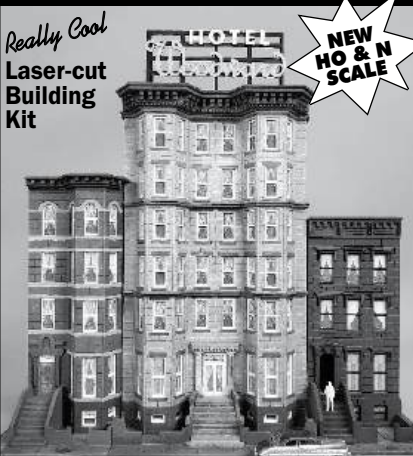
Features

- 36" turned-metal wheels on plastic axles, correctly gauged
- Minimum radius, 18"; recommended radius, 22" or larger
- Proto-Max metal couplers, at correct height
- Weight: 6.2 ounces, .4 ounce too heavy per National Model Railroad Association Recommended Practice 20.1

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News & Reviews

Continued from page 11



• **Trinity 4750 covered hopper.** CSX, BNSF Ry., Burlington Northern, DGHX, General American, INTX, and Union Pacific. Multiple road numbers per scheme. Also available undecorated. Road-specific details. Wire grab irons and uncoupling levers. Separate air hoses. \$58.95. Tangent Scale Models, 828-412-3886, tangentscalemodels.com

HO scale passenger equipment



• **Pullman-Standard 14-4 Point-series lightweight sleeper.** Penn Central; New York, New Haven & Hartford; and Long Island Rail Road. Multiple road numbers per scheme. Stainless steel finish. Partial skirting or no skirting as appropriate. Full interior details with extra optional parts. Track-powered lighting. Separate, factory-installed grab irons. 41-BNO-11 trucks with blackened metal wheels. Macdonald-Cartier metal magnetic couplers. 22" minimum radius. \$139.95. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale structures



• **Coffee shop.** Molded in three colors. Measures 4 7/16" x 3 9/16" x 2 17/32". \$24.98. Walther's Cornerstone. Wm. K. Walther's Inc., 414-527-0770, walther.com

N scale locomotives



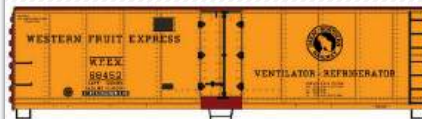
• **Kato SD80MAC diesel locomotive.** Conrail ("Quality" scheme) and Norfolk

Club offerings



• **50-foot steel boxcar.** Accurail HO scale injection-molded plastic kit produced for the Kankakee Model Railroad Club. Decorated for A. O. Smith Corp. and Illinois Central. Two road numbers available. Single car, \$30. Assembled with Kadee couplers, \$35. Add \$6 postage. Kankakee Model Railroad Club, 197 S. East Ave., Kankakee, IL 60901

• **General Electric U25B Phase IV diesel locomotive.** Rapido Trains HO scale model to be conditionally produced for the Great Northern Railway Historical Society. Decorated in GN's simplified scheme (two road numbers). Features cab roof warning flasher, five-step step well, and snow plow pilot. Direct-current model, \$239.95; with DCC and sound, \$349.95. Great Northern Railway Historical Society, gnrhs.org



• **Pacific Car & Foundry 40-foot steel refrigerator cars.** Accurail HO scale injection-molded plastic kits produced for the Great Northern Railway Historical Society. Three paint schemes available. Kit includes Accumate knuckle couplers with trip pins, plastic trucks and wheelsets, renumbering decals, and steel weight. 1949 as-built scheme, \$39.95; 1956 and 1960 schemes, \$31.95. Great Northern Railway Historical Society, gnrhs.org

Southern (Thoroughbred scheme). Two road numbers per name. Directional light-emitting-diode headlights and printed numberboards. Kato magnetic knuckle couplers. Five-pole Kato motor with dual brass flywheels. DCC-friendly mechanism for drop-in decoder. Direct-current model, \$155; with DCC, \$255; with DCC and sound, \$355. Kato USA, 847-781-9500, katousa.com **MR**

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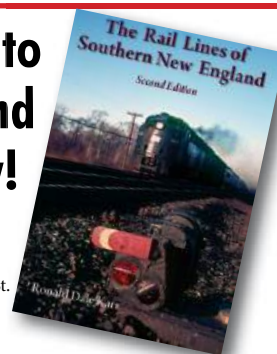


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BNSF Ry. 808207, a General American 4,180-cubic-foot capacity Airslide covered hopper, is an example of a car assigned to buffer service. The stencil on the wide body panel reads BUFFER SVC ONLY DO NOT LOAD. Cody Grivno photo

Identifying buffer cars

Q Although I'm an N scale modeler, I read the review of the Milwaukee, Racine & Troy HO scale buffer car on Trains.com. Reading the description brought up a question. Do railroads designate cars to dedicated buffer service? If so, how are these cars identified as used in buffer service only?

Perry A. Pollino

A Thanks for reading the review, Perry. Before answering your question, let's first talk briefly about what buffer cars are. They're freight cars placed between the locomotive and cars carrying hazardous cargo to protect the train crew in the event of a derailment. The buffer car not only puts extra space between the crew and the rest of the train, but it also keeps flammable materials away from a potential ignition source. Some unit crude oil and ethanol trains also have a second buffer car at the end.

A variety of car types can be used in buffer service, including boxcars, covered hoppers, gondolas, open hoppers, and tank cars. The one exception is flatcars. Buffer cars are loaded with non-hazardous material that won't shift in transit (sand and rocks are a couple of examples).

With that practical information covered, let's get to your questions. Yes, railroads designate cars for buffer service. I spotted Southern Ry. Pullman-Standard 4,750-cubic-foot capacity three-bay covered hopper No. 88713 with BUFFER applied below the road number in a red stencil font.

BNSF Ry. has a large fleet of buffer cars. In 2011 it started reassigning several of its General American 4,180-cubic-foot capacity Airslide covered hoppers to buffer service. The former Atchison, Topeka & Santa Fe and Burlington Northern cars were renumbered into the 808000 through 808299 series, such as the car shown above.

As the need for buffer cars grew, BNSF introduced the 808300 through 808731 and 808900 through 808966 series. In addition to Airslide covered hoppers, the railroad began using covered hoppers traditionally associated with grain service as buffers, including 4,700- and 4,750-cubic-foot capacity three-bay cars built by FMC and Pullman-Standard, respectively.

Along with renumbering the cars, BNSF applied BUFFER SERVICE (or SVC) ONLY DO NOT LOAD stencils to the car sides. I've seen some cars further lettered HATCH COVERS AND OUTLET GATES WELDED SHUT.

BNSF buffer cars have been offered commercially by several manufacturers, including Athearn Trains, Atlas Model Railroad Co., Fox Valley Models, ScaleTrains, Tangent Scale Models, and Micro-Trains Line Co. Buffer service decals are available from CMR Products in multiple scales. Circus City Decals offers decals for HO scale cars.

Q I'll soon begin work on a 1½ x 6-foot N scale switching layout (with a 1 or 2 foot staging track) that's set in south-eastern Washington. The model railroad will be based on the Burlington Northern and feature a grain elevator and team track. I would like to know if you have any suggestions for benchwork, structures, and operations.

Damien Bouchey

A The first thing that came to mind regarding benchwork was the staging yard Trains.com Director David Popp constructed for our HO scale Wisconsin & Southern project layout, featured in the January 2008 *Model Railroader*. He built a 1 x 16-foot staging yard using 1 x 3s and traditional box frame construction. You can easily adapt his methods to your layout's footprint.

Since you're modeling the BN, that means your layout will be set between 1970 and 1995. As a fellow BN modeler, here are a few resources that will help you in the planning process.

Start by getting a *Burlington Northern Annual* from the era you plan on modeling. The books, first written by F. Hol Wagner and later Robert C. Del Grosso, provide a snapshot of the railroad at a specific time. Many annuals also listed diesel assignments, which will give you a better idea of the units that were used in southeastern Washington.

Once you determine the era and location you want to model, try to find a BN Shippers Perpetual Industrial Numbering System book for that section of the railroad. These railroad-published books list the various industries in each town and have a basic — but not to scale — track schematic for each town.

Don't forget to check out the Friends of the Burlington Northern (fobnr.org) as well. The organization's website has lots of valuable information.

Q I'm building a retaining wall using Woodland Scenics' cut stone castings and want to attach them to extruded-foam insulation board. What is the best glue to use?

Alan Cox

A The Woodland Scenics cut stone retaining walls are Hydrocal castings, so you're going to want an adhesive that

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Jan 18-19 Puyallup, WA - Washington State Fair
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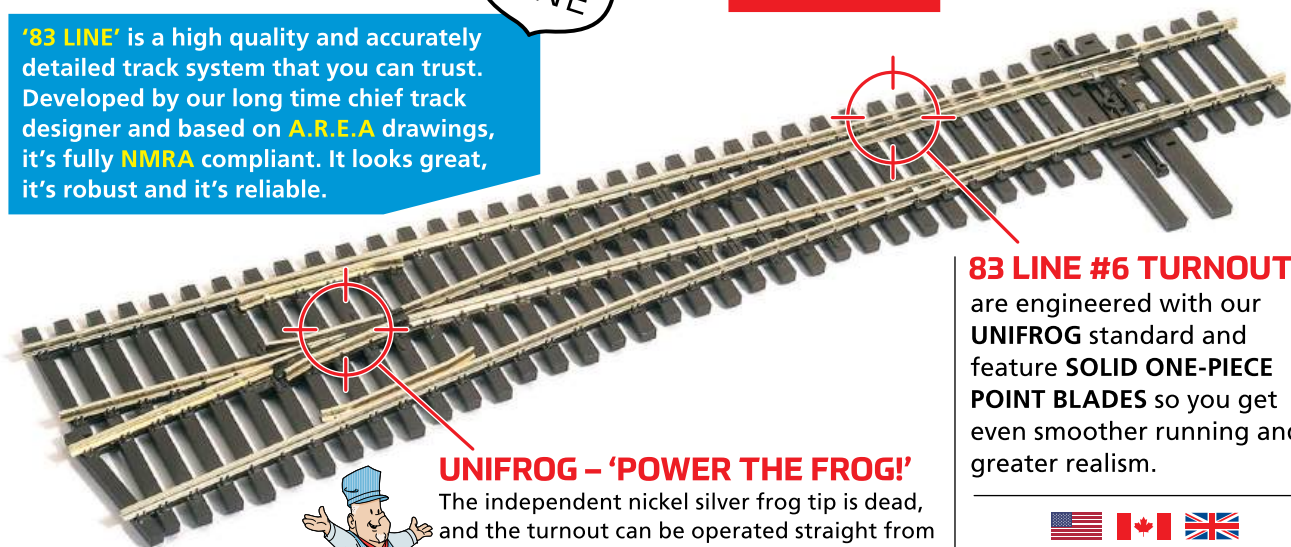


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Milwaukee, Racine & Troy N scale bay-window caboose No. 66, produced by Bluford Shops, features the letter "P" on both sides. This indicates it's a pool caboose that can be used throughout the MR&T system. Cody Grivno photo

will work with dissimilar materials. However, since you're going to attach them to extruded-foam insulation board, you'll need an adhesive that's foam safe. I'd recommend Loctite PL 300, a latex water-based adhesive designed for attaching foam board to other materials.

If you can't find PL 300, try DAP Alex Plus (an acrylic latex caulk) and DAP Dynaflex 230 (an acrylic latex sealant). Avoid solvent-based caulks and sealants. Though they're OK to use on the Hydrocal, they may cause the foam to dissolve.

If you plan on weathering the cut stone retaining walls with Woodland Scenics Earth Colors liquid pigments or other stains, do that first. The adhesives may seal the Hydrocal, preventing it from taking pigments and stains.

Q I recently ordered one of the Milwaukee, Racine & Troy N scale bay-window cabooses from Shop. Trains.com. What does the "P" on top of the bay window stand for?

R. Anderson

A The "P" indicates it's a pool caboose, one not assigned to an individual conductor or specific crew. Former Senior Editor Jim Hediger explained how pool cars worked in his article "Modeling realistic caboose operations" in the July 2007 MR: "Efforts to improve train speeds and reduce operating costs in the mid-1950s led to changes in union agreements to allow some cabooses to be used in pools. Within a decade, systemwide pool agreements required new or up-graded standardized cabooses that had full electrical and water systems, oil heat, polycarbonate window glazing, radios, refrigerators, retention toilets, high-backed seats, and roller bearings."

"Pool cabooses operated across company's and division lines, so crew changes were reduced to the time it took one crew to step off and the next one to climb aboard. A company van or taxicab took the off-duty crew to a motel where they'd get better rest and have access to a restaurant for meals."

"With pool cars, the caboose tracks were moved to handy, but more secure,

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25126 GN U25B #54014 DCC/Snd	\$230.99
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43079 N&W 55-Ton Hopper	\$23.99
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Bachmann HO

50615 PRR 0-6-0 w/ Slope Back Ten Smoke	\$84.99
51506 B&O 2-6-2 Prairie Smoke	\$99.99
53801 B&O 0-6-0 #354 DCC/Snd	\$229.98
53802 NYC 0-6-0 #232 DCC/Snd	\$229.98
53803 PRR 0-6-0 #8168 DCC/Snd	\$229.98
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68304 AMT ACL-42 PH VII #309 DCC/WOW Snd	\$269.99
68305 AMT ACL-42 PH VII #311 DCC/WOW Snd	\$269.99
69101 Amtrak GP7 DCC Ready MOW Scheme	\$119.99
84407 PRR K4 #612 Post War WOWSound/DCC	\$319.99

Bachmann N

53253 N&W 4-8-4 J Class #611 DCC/Snd Value	\$270.99
53451 SRR 4-8-2 Light Mtn #1489 DCC/Snd	\$229.99
5395X 1/2/3/4 PRR K4 4-6-2 DCC/Snd	\$282.97
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66358 BNSF EMD GP40 #3013 DCC/Snd Value	\$164.99
66359 CSX EMD GP40 #6007 DCC/Snd Value	\$164.99
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locations within the main yard. This also reduced theft and vandalism.”

Burlington Northern and Union Pacific are a couple of prototype railroads that used the letter “P” to indicate pool cabooses. Rock Island spelled out POOL on its cabooses, usually applying it below the road number.

When BN cabooses were moved from pool to local service, the “P” stencils on the carbody and cupola were painted over, often in a slightly different shade of green. Replicating this on a model can give your layout a sense of history.

Q What is recommended for attaching buildings and other structures to the substructure of a model railroad?

Byron Christmas

A There’s no one-size-fits all way to attach a building to a model railroad. The key thing is to mask the joint where the structure meets the layout surface so you don’t have what is referred to as a “floating” building — one with a noticeable gap below the foundation.



Cody Grivno used full-strength white glue to attach Syzdek Manufacturing, a cast-Hydrocal kit from Downtown Deco, to the HO scale Freemont Mills project layout. The image also illustrates how he used scenery items to mask the joint between the foundation and the layout surface. Connor Bruesewitz/Saturn Lounge photo

One of the most common ways to attach buildings to a model railroad is with full-strength white glue. If there are any gaps between the foundation and layout surface, mask them with ground foam, static grass tufts, 55-gallon drums, pallets, and figures as shown in the image above.

Though white glue isn’t necessarily known for its strength when compared to other adhesives, it’s water soluble, and that’s what’s important. If you have to tear down your model railroad because of a relocation or you decided to change a scene, you can wet the area with water or isopropyl alcohol to re-activate the glue. This will allow you to remove the building with little or no damage.

If you’re looking for a glue-free option, consider setting building foundations into shallow trenches. Obviously, this technique won’t work in every situation. We did this with a few buildings on our HO scale Milwaukee Road Beer Line, featured in the January 2009 MR. When we moved the sectional layout from the Kalmbach Media offices to our new headquarters in Brookfield, Wis., we were able to lift the buildings out and wrap them for transport. Once we were settled at our new home, we unpacked the buildings and set them into place.

Additional ideas can be found in Gregg Condon’s article “Foundations for structures” in the July 2021 MR. **MR**

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Steve Miazga used a Classic Metal Works International R190 refrigerated box truck as the starting point for his fertilizer spreader truck. He built the new body from styrene and brass parts. Photos by the author

How to model an industry-specific vehicle

I recently completed Blair Line's fertilizer plant for my N scale Missabe Junction Ry. layout. The laser-cut wood kit is based on prototype buildings found in many rural communities.

Full-size plants receive granular fertilizer in covered hoppers. After traveling through augers and conveyors, the fertilizer is then loaded into trucks like the one shown above for application in farm fields.

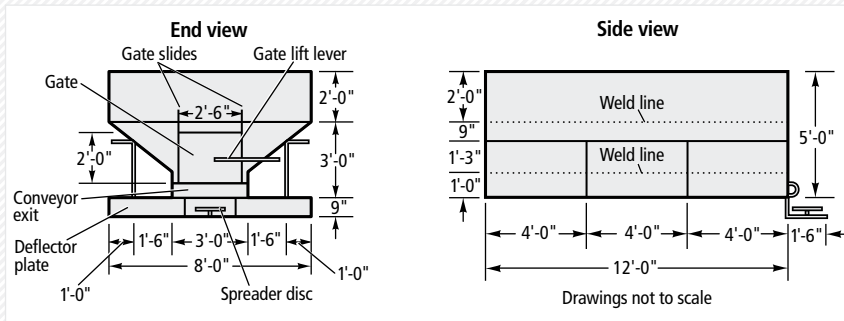
I had the fertilizer plant and covered hoppers, but an extensive online search for 1:160 fertilizer spreader trucks came up empty. Instead of waiting for someone to produce one, I made my own.

I wanted a tandem-axle truck that would fit the earlier end of my layout's 1960 to 1990 era. This led me to purchase a Classic Metal Works International R190 refrigerated box truck. The box was easy to remove with a sharp hobby knife.

With the truck prepared, it was time to work on the fertilizer spreader box. Follow along as I share my techniques for designing and building this distinct vehicle for farm country. [MR](#)

Steve Miazga lives in Pewaukee, Wis., with his wife, Jenny. His article "How to make trees from natural materials" appeared in the September 2023 issue.

STEP 1 DESIGNING THE BODY



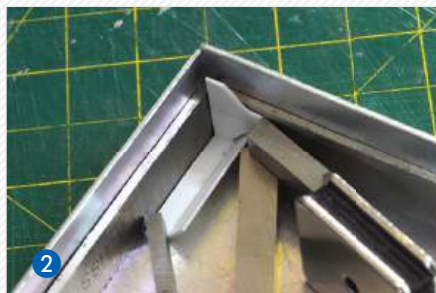
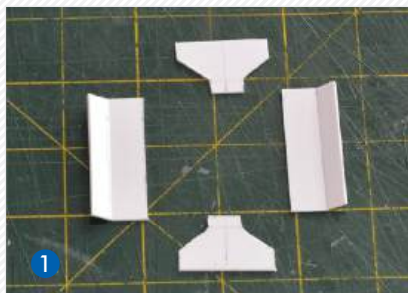
Over the years I've modified several Classic Metal Works' trucks for other industries on my N scale layout. I researched what I'd have to build from scratch for the truck-mounted fertilizer spreader. I focused my research on truck dealers that specialized in farm equipment.

I found that most truck-mounted fertilizer spreader bodies are a basic hopper with angled sides and one or two spreader discs on the back for distributing the fertilizer. A large number of bodies are constructed, in part or entirely, of stainless steel to minimize corrosion. Some are painted, others are bare metal.

Inside, the fertilizer spreader bodies have a conveyor that moves the material to the rear for spreading or offloading. My model has bows for a rollover tarp attached to the top of the side walls. Ladders and walkways provide access to the top of the body for securing the tarp.

I sized the length of the spreader body to match the refrigerator box that I'd removed so the underframe would match without modification. I used CadRail to draw the basic dimensions of the body before I began construction. The dimensions are a good starting point for modeling the truck in scales other than N.

STEP 2 SCRATCHBUILT FROM STYRENE



I built most of the fertilizer spreader body using .020" plain styrene. I cut the larger parts from plain sheet; the walkways, bracing, and bottom of the body are assorted sizes of strip.

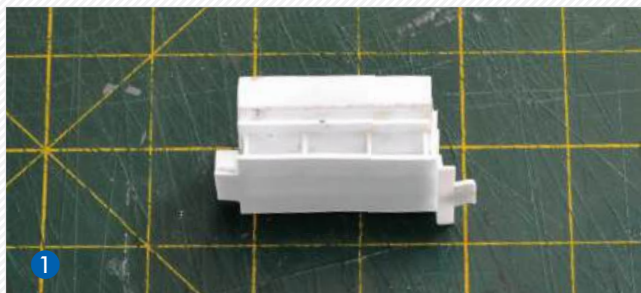
First, I cut the side and end walls for the body. Then I scored and bent the sides at the weld lines ①.

Next, I set the walls in a Micro-Mark magnetic gluing jig. I used machinist blanks with the magnets to hold the parts in place while the solvent cement cured ②.

With the side and end walls assembled, I started work on the other parts, also fashioned from styrene. I used .080" channel for the deflector plate, .020" x .100" strip for the spinner base plate, and .125" rod for the disc.

I built the housing for the conveyor drive motor behind the truck cab from .100" x .100" strip. I sanded the strip to better represent a stamped metal housing with rounded edges. The assembled fertilizer spreader body and related details can be seen in ③.

STEP 3 FINISHING TOUCHES



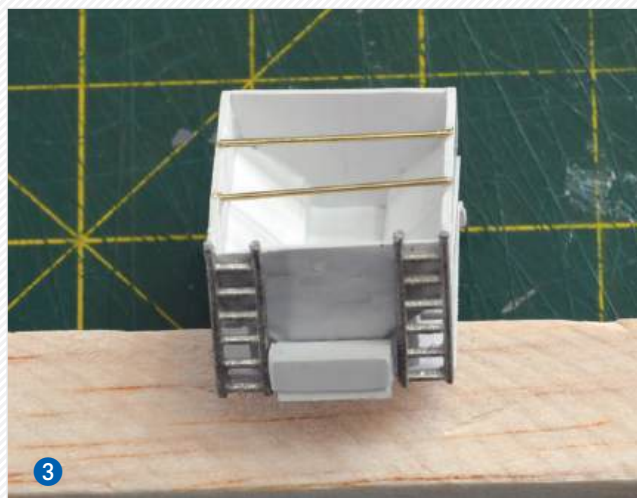
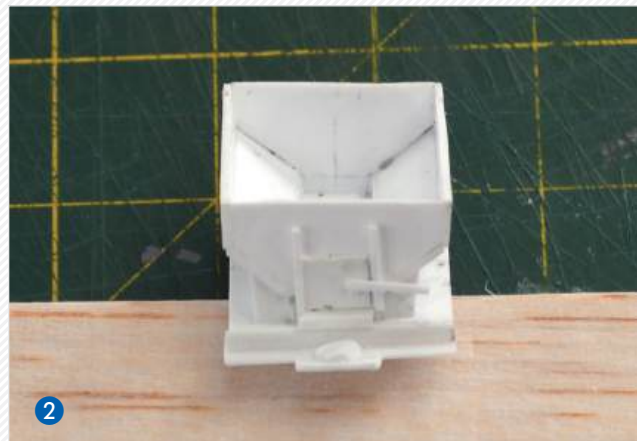
With the fertilizer spreader body assembled, I detailed the exterior. I used .020" styrene strip to add the bracing and walkways to both sides ①.

Next, I added a lift gate to the back of the body. I cut the gate from .010" styrene. The gate slides and gate lift lever are .020" x .020" strip ②. I added a strip of .040" quarter round below the gate to represent the tail of the conveyor belt that carries the fertilizer to the spreader disc.

The tarp support rods are .5mm brass rod attached with cyanoacrylate adhesive (CA). The ladders on the front of the body are from my scrap box ③.

Once I'd finished detailing the body, I airbrushed it with Vallejo Gray Surface Primer (73.601). After that had dried, I painted the body with the same company's silver (71.063). I lightly weathered the truck with PanPastel products sealed with Testor's Dullcote. I used 400-grit drywall sandpaper for the conveyor belt, attaching it to the body with Aleene's Tacky Glue.

Finally, I used CA to secure the fertilizer spreader body to the truck chassis. The completed truck was then placed next to the loading conveyor at the fertilizer plant, completing the scene.



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How to WEATHER A TANK CAR

Get realistic results with these easy-to-follow techniques

By **Thomas Klimoski** • Photos by the author

Tank cars are one of the most common car types on the rails today, second only to covered hoppers between 2009 and 2020. With more than an estimated 439,000 tank cars in service in 2020, there's a good chance you'll need a few for your layout. Fortunately, there are a variety of tank car models on the market today. With the weathering techniques outlined here, you can make those shiny plastic models look more like their full-size counterparts.

Admittedly, weathering tank cars is a bit more challenging than other rolling stock because of the delicate details and unique features. A light touch is required to avoid damaging the car during the weathering process.

Tank car weathering is further complicated because most are painted black, a difficult color to weather realistically. Freshly outshopped cars have a shiny finish, but it weathers to a faded grayish-black color. Over time, rust may appear on the top of the tank surface and spread down the sides of the car.

Tank cars are common on full-size railroads, so it's likely you'll need a few on your layout. Thomas Klimoski shares the techniques he used to weather this Athearn HO scale car.

Thankfully, there are plenty of prototype photos of tank cars online and in books that can serve as guides when weathering models. For this article, I weathered an Athearn HO scale 20,000-gallon acid tank car. I couldn't find a prototype photo of the car from the year I'm modeling, so I used other tank car images as references. I wanted my model to be faded and weather-worn with some rust showing through the paint.

For the weathering techniques shown here, you'll need an airbrush (I used a double-action brush, but other types will work), acrylic paint, a few colors of rattle can spray paint, weathering powders, and some detail parts. These methods can easily be adapted to other modeling scales. **MR**

Thomas Klimoski is a frequent MR contributor. His HO scale Georgia Northeastern layout was featured in Great Model Railroads 2020. Scan the QR code at right to learn more about Thomas' book Building the Right-Sized Layout.



STEP 1 A CLEAN START

I OPERATED THE ATHEARN TANK CAR on my layout for a few years straight from the box. As you can see in ①, the car lacked weathering, air hoses, uncoupling levers, and yellow Federal Railroad Administration (FRA) 224 reflective striping on the sides.

In preparation for weathering, I used a soft paintbrush to remove dust that had collected on the car over the years. I then used a soft, clean rag and 70% isopropyl alcohol to

wipe down the car ②. This step removes skin oils and other impurities that might affect paint adhesion. From this step forward, I only handled the Athearn model while wearing nitrile gloves.

With the tank car cleaned, I removed the trucks and couplers. Then I placed the car in a homemade paint jig inspired by one built by *Model Railroader* Contributing Editor Pelle Søeborg in preparation for weathering.



Materials list

Cal Scale

190-276 air hoses and brackets

Detail Associates

FC6215 uncoupling levers

Dupli-Color

CP199 Adhesion Promoter

InterMountain Railway Co.

40054 36" semi-scale wheelsets

Kadee Quality Products Co.

158 scale head whisker couplers

Monroe Models weathering powder

3103 Medium Earth

3107 Dark Earth

Rust-Oleum

1918830 Camouflage Flat Earth Brown

249086 Painter's Touch 2X Flat Red Primer

Smokebox Graphics

R187 FRA 224 stripes — yellow

Tamiya

81030 X-20A thinner

81302 XF-2 Flat White

81309 XF-9 Hull Red

81368 XF-68 NATO Brown

STEP 2 AIRBRUSH WEATHERING

I USED TAMIYA ACRYLIC PAINTS to weather the tank car ①. Though some modelers prefer isopropyl alcohol to thin Tamiya acrylics, I used the company's X-20A thinner to get more predictable results. This weathering technique uses a lot more thinner than paint, so have plenty on hand.

To give the black car a faded appearance, I used XF-2 Flat White. I poured 5 ml of thinner into the paint cup on my airbrush, then added 8 to 10 drops of white paint. I mixed the paint into the thinner using a small brush.

Once thoroughly mixed, I tested the paint on a scrap piece of paper before applying it to the model. The paint is quite thin, so don't try to cover the model in one or two coats. Instead, build up the effect in several light layers, allowing each to dry before applying the next ②. I applied a bit more paint on the top and upper sides of the car as those areas are the most exposed to the sun.

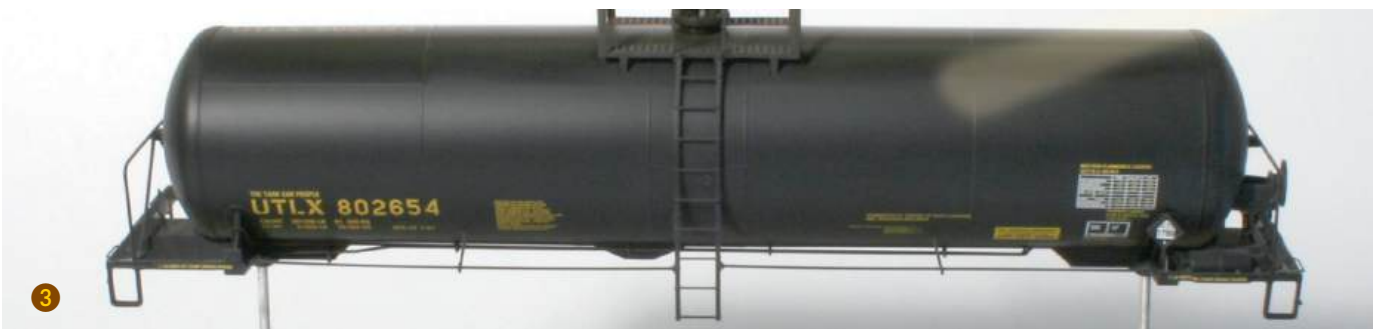
After cleaning my airbrush, I poured more thinner into the paint cup. Then I added XF-68 NATO Brown by dipping a small paintbrush into the jar and swishing it around inside the thinner-filled paint cup. Though not precise, it worked well for this application.

I sprayed the entire car with thinned NATO Brown to simulate dirt and road grime ③. I also airbrushed the crossover

platforms on the ends of the car as well as the brake rigging on the bottom.

The final color I used was XF-9 Hull Red. I cleaned my airbrush and mixed the paint in the same manner as before. Once I was pleased with how the thinned color looked on paper, I committed it to the model.

I sprayed the thinned Hull Red on top of the car, moving the airbrush over the long axis of the model, allowing the paint to feather out slightly down the sides ④. I set the car aside to dry overnight and moved on to the next steps.



STEP 3 WHEELS AND TRUCKS

THE WHEELS AND TRUCKS on a tank car require more attention than those on other freight cars because they're highly visible. I replaced the factory-applied wheelsets with InterMountain 36" semi-scale wheels. As the name suggests, these have a narrower wheel tread.

To give the blackened-metal wheelsets a more realistic appearance, I placed them in a laser-cut acrylic painting jig from American Model Builders. The jig holds the wheels and masks the treads.

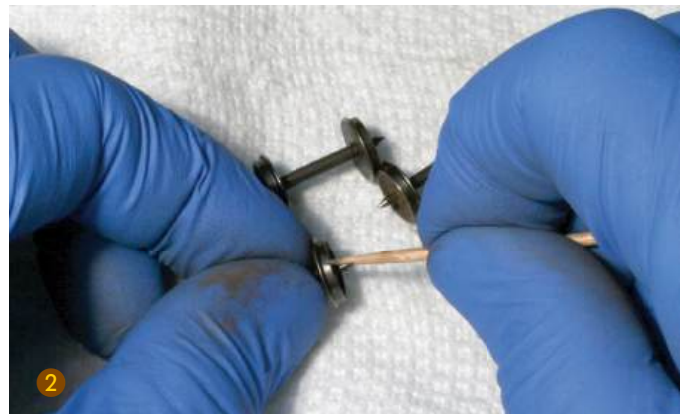
I spray-painted the wheelsets with Rust-Oleum Camouflage Flat Earth Brown **1**. Do this in a well-ventilated area and wear a respirator, nitrile gloves, and eye protection.

Once the paint had dried (24 hours, or until there's no discernible odor), I used a toothpick to scrape paint off the tips of the axles and overspray from the wheel treads **2**. This helps keep the model free-rolling.

I then applied Monroe Models Medium Earth weathering powder to the wheel faces **3**. The self-adhering powder adds a rusty texture to the faces. Keep the powder off the axle tips and wheel treads.

Next, I turned my attention to the trucks. Most model train manufacturers cast their trucks in slippery engineering plastic, which doesn't take paint well. To remedy that issue, I masked the wheel sockets and sprayed the trucks with Dupli-Color Automotive Primer Adhesion Promoter **4**.

After the adhesion promoter dried, I spray-painted the trucks with Rust-Oleum Flat Earth Brown **5**. The next day, I used a paintbrush to apply Monroe Models Dark Earth weathering powder to the sideframes **6**. The powder gives the trucks a dark, rusty appearance and helps the details stand out. I used the same company's Medium Earth powder to add highlights to the springs and bearing caps.



STEP 4 COUPLER UPGRADE

WHILE I WAS WORKING on the tank car, I replaced the factory couplers with Kadee No. 158s. The scale head metal whisker couplers are the standard for my rolling stock fleet.

Contemporary full-size tank cars used to transport hazardous materials are fitted with double-shelf couplers designed to remain engaged during switching operations and derailments. Though HO scale versions are available, they're difficult to uncouple with a bamboo skewer as I do during operating sessions.

To paint couplers in groups of eight, I made a homemade jig using a paint stir stick and spring-loaded clothes pins. With the couplers in the jig, I applied a light base coat of Rust-Oleum Camouflage Flat Earth Brown ①. Apply the

paint sparingly, otherwise the couplers won't work properly. I followed that up with a light mist of Rust-Oleum Painter's Touch 2X Flat Red Primer. As the paint was drying, I wiggled the coupler trip pins to keep the knuckles from sticking.

After the paint had dried, I burnished the coupler knuckle faces with a standard No. 2 pencil ②. This serves two purposes. First, the graphite in the pencil acts as a lubricant and makes it easier for the couplers to engage. Second, it removes paint from the face of the knuckle, simulating the wear found on prototype couplers.

Since I don't use uncoupling magnets on my layout, I also removed the trip pins on my couplers. This step is optional depending on how you operate your model railroad.



STEP 5 SAFETY STRIPES

SINCE MY HO SCALE GEORGIA NORTHEASTERN model railroad is set after 2005, I needed to add Federal Railroad Administration (FRA) 224 striping to both sides of the tank car to follow prototype practice. On full-size freight cars and locomotives, the stripes (yellow or white) improve the visibility of trains at night.

Though FRA 224 stripes are available as waterslide decals from various manufacturers, I used reflective stripes from

Smokeybox Graphics. The manufacturer's set R187 includes factory-cut, self-adhesive stripes in common sizes for most cars. I used prototype photos as a guide when adding the stripes to the model.

It's important to install the stripes before using any weathering powders on the car to ensure maximum adhesion. After the stripes were in place, I used a toothpick to burnish them to the car.



STEP 6 FOCUSED WEATHERING

THOUGH THE DOUBLE-ACTION AIRBRUSH WORKED well for simulating faded paint and road grime, I switched gears and used weathering powders and a paintbrush to re-create specific effects.

To keep the powders out of the foam work cradle, I lined it with a paper towel before setting the model in place as shown in the two photos below. Then I used a paintbrush to apply vertical streaks of Monroe Models Medium Earth

powder under the platform board support brackets ①. I applied the powder heaviest near the brackets and feathered it out as I worked down the car side.

Then I turned my attention to the ends and bottom of the car. I applied weathering powder where dirt and grime would be kicked up by the wheels ②. After I applied the weathering powder with a small brush, I used a clean, large soft brush to feather the powder out.



STEP 7 FINISHING TOUCHES

WITH THE WEATHERING COMPLETE, I wrapped up the tank car project by adding Detail Associates uncoupling levers and Cal Scale air hoses and brackets ①.

Prior to installation, I spray-painted the uncoupling levers flat black. While the paint was drying, I used cyanoacrylate adhesive (CA) to attach an eyebolt to the bottom of the crossover platform on both ends. I placed it near the outside edge and as close as possible to the stirrup step.

Once the CA had cured, I threaded the uncoupling lever through the eyebolt and attached the coupler end to the bottom of the draft-gear box cover with canopy glue.

Next, I installed the air hoses. First, I used a sewing pin to place a tiny dab of silver paint on the glad hand connection on the black plastic castings. I then attached the hose to the side of the draft-gear box with canopy glue ②. The air hose should be on the side of the draft-gear box opposite the uncoupling lever.

Since the cars on my layout aren't handled that much — and to avoid reducing the effect of the weathering powders — I decided not to spray the tank car with a clear, flat finish such as Testor's Dullcote. I reinstalled the trucks, checked the couplers against a height gauge, and placed the car back into service on my model railroad.

Full-size tank cars don't stay clean and shiny for long, so don't put off weathering your models. The methods outlined here aren't difficult to learn, and you'll be pleased with the results.





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A SALUTE to the BUCKEYE STATE

This HO scale layout celebrates railroading in northeast Ohio from the 1950s to the present

By Lou Sassi • Photos by the author

For 68 years, the Youngstown Model Railroad Association (YMRA) has been a part of its namesake Ohio community. During that time, the group has had five layouts in three locations. Today, the club enjoys running trains on an O scale layout as well as a 24 x 47-foot HO scale model railroad, the latter the subject of this article.

The HO layout is set in northeast Ohio and features steam and diesel locomotives, freight and passenger traffic, and detailed scenes based on Youngstown and the surrounding area. As the YMRA pushes towards its seventh decade, there are no signs the club is slowing down.

Club history

The YMRA traces its roots to an advertisement in the March 1957 issue of *Railroad Model Craftsman* magazine.

The ad encouraged those in the Youngstown area looking to start a model train club to get in touch with Robert Folsom. One month later, on April 1, 1957, eight gentlemen with a common interest in HO scale model railroading met at George Sankey's home on Tippecanoe Road in Youngstown. Two of those eight are still members of the club today. The others have moved away or passed on.

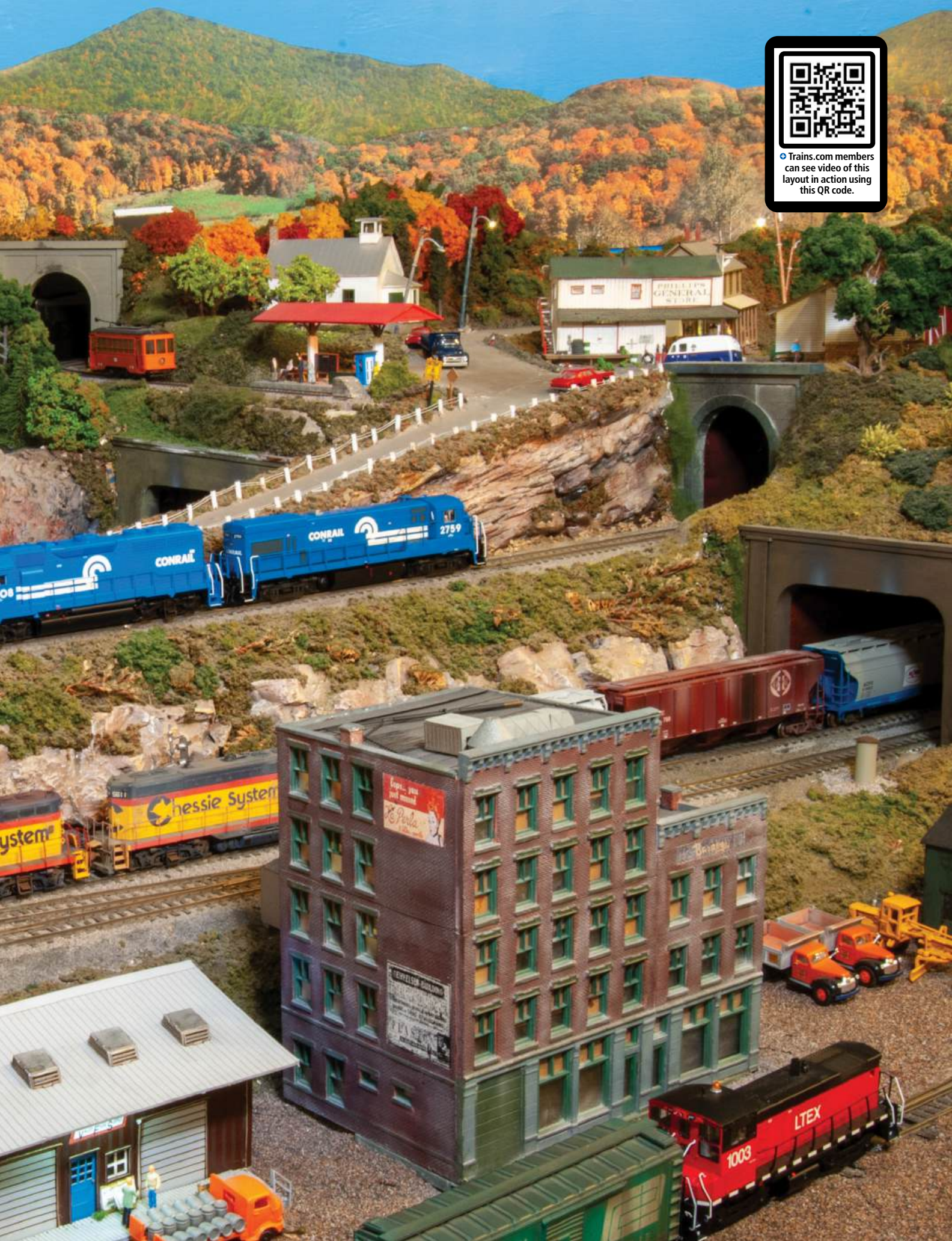
After the initial meeting, the club was off and running. In a club-written history, it notes, "During our first year, while searching for a location to construct a layout, the members built a 5 x 10-foot portable layout for the Railroad Community Committee of the Mahoning and Shenango Valley. They operated it for them at the Canfield Fair and an industrial show at Idora Park. This committee was comprised of representatives of the local railroads at the time." The carriers included the

1 The Youngstown Model Railroad Association has been active in its namesake Ohio community for 68 years. In this scene on the club's 24 x 47-foot HO scale layout we see trains from Conrail and Chessie System rolling through the northeast part of the Buckeye State.





Trains.com members
can see video of this
layout in action using
this QR code.





② This overall view shows the Paskey Industrial Park section of the model railroad. Here, Youngstown Model Railroad Association club members Bill Ward (front) and Dean DeMain run trains using two of the 13 direct-current cabs.



Steam- and diesel-powered passenger trains call on the Pittsburgh & Lake Erie/New York Central station in Youngstown, Ohio. The full-size building was the first home of the Youngstown Model Railroad Association.

A nod to the past

There are many structures on the layout, but the Pittsburgh & Lake Erie/New York Central station in Youngstown has special significance. The prototype structure not only served passengers over the years, but the station's lunch room was home to the Youngstown Model Railroad Association's first layout.

The original station was built in 1926. Despite being a prominent building in Youngstown, there was little photographic record of the station. Jack Yarbrough, a member of the P&LE Historical Society, was determined to build a model of the station in HO scale. He called on the assistance of YMRA charter members Jack DeMain and Jack Fithian, both lifelong Youngstown residents, to help with research.

After completing the model, Jack donated it to the club. To accommodate the building, the club had to realign its mainline tracks and remove part of the city scene. If you look closely, you can see a miniature layout through the windows of the third floor lunch room. — *Dean DeMain*

Baltimore & Ohio, Erie, New York Central, Pennsylvania RR, and Youngstown & Southern.

The railroad connections proved beneficial to the club. In December 1957, the YMRA moved into the New York Central station in Youngstown. Not long after moving in, the club started work on its layout. Four years later, in early December 1961, the group hosted its first open house.

External situations forced the club to regroup in June 1964. "As the Mahoning Valley's economic decline escalated we were forced to leave our first home," the club's history continued. "For the next two-and-a-half years, we held meetings at members' homes until obtaining the old gymnasium on the fourth floor of the Eagles building at the corner of 5th Avenue and Rayen in Youngstown. January of 1967 found us eagerly contemplating a king-size layout in the gym as compared to the cramped quarters in the old NYC station."

When the Eagles had to move, the club again had to search for a place to meet. Fortunately, a club member came to the rescue. "Thanks to the help of Butch Phillips (1940-1998), the club acquired its present location in the old structure that was formerly the Four Mile Run Christian Church and we moved in April 1978," the club's history noted. At its new home, the YMRA expanded to include an O scale layout in the former church sanctuary. The group's HO model railroad is located in the lower level.

In the 2000s, the club was able to secure a long-term future. "In 2009, a



③ The amusement park scene, complete with a variety of rides, is popular with club members and visitors. In the foreground, Maryland & Pennsylvania 4-6-0 No. 28 waits for a clear signal before proceeding with a short excursion train.

new chapter was opened in our history as we began the process to purchase our building from our landlords of the past 40 years," the group's history continued. "The sale was completed in the spring of 2021. We are now proud owners of our home!"

Building the HO layout

The HO scale model railroad, started in 1978, depicts a Midwest steel hauling railroad in the north-eastern Ohio area. The era can vary between 1950 and the present depending on the equipment being operated. The track plan is freelance.

Before construction began on the layout, all the walls of the room were painted, and tempered hardboard backdrops were installed. The backdrops were then painted blue with either hand-painted scenes or commercial photos from Train Junkies applied. Incandescent lamps were used for the majority of the layout lighting.

The model railroad is built on L-girder benchwork. The layout height ranges from 43" to 60". The maximum grade is 2%.

In various locations, screen, cardboard lattice, or foam board were used to support hardshell scenery. The scenery base was then painted with flat, earth-toned latex paints. The

The layout at a glance

Name: Youngstown Model Railroad Association

Scale: HO (1:87.1)

Size: 24 x 47 feet

Prototype: freelance

Locale: northeast Ohio

Era: 1950 to present

Mainline run: 200 feet (double-track outer main), 125 feet (single-track inner main)

Minimum radius: 30" (main), 22" (industrial areas)

Minimum turnout: No. 8 (main), No. 6 (yards), No. 4 (industrial park/steel mill)

Maximum grade: 2%

Benchwork: L-girder

Height: 43" to 60"

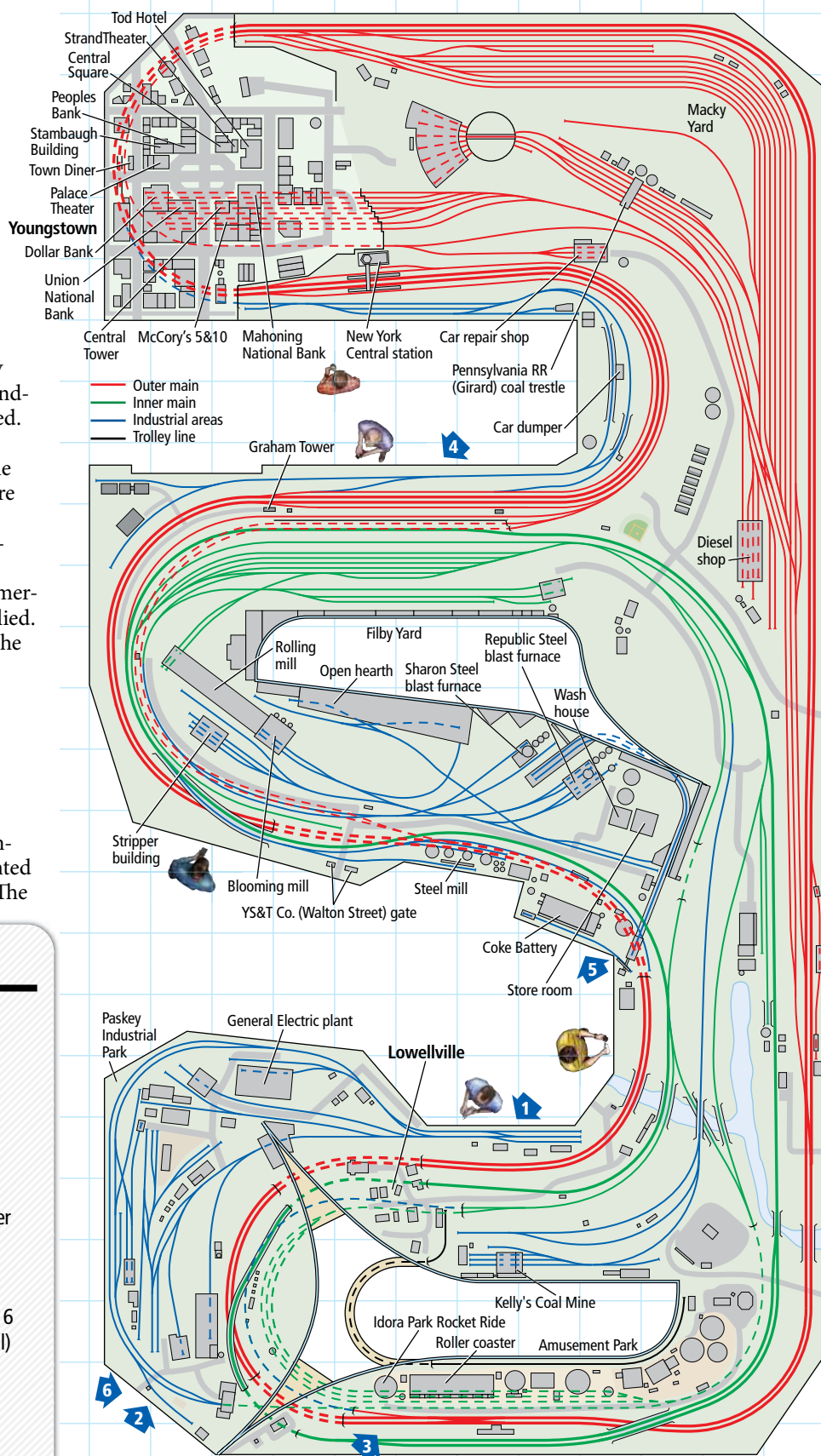
Roadbed: Homasote on 3/4" plywood

Track: Atlas code 100 flextrack

Scenery: hardshell, some foam board

Backdrop: painted tempered hardboard

Control: direct-current cab control



Youngstown Model Railroad Association

HO scale (1:87.1)

Layout size: 24 x 47 feet, Scale of plan: 3/16" = 1'-0", 24" grid

Numbered arrows indicate photo locations, Illustration by Kellie Jaeger

➤ Find more plans online in the Trains.com Track Plan Database.



Downtown Youngstown is one of the signature sections of the club's layout. Buildings surrounding Central Square are modeled after full-size structures.

That big city look

The idea for modeling downtown

Youngstown came about when we wanted to hide a set of holding tracks. Our goal was to create a scene that would be of interest to both members and visitors.

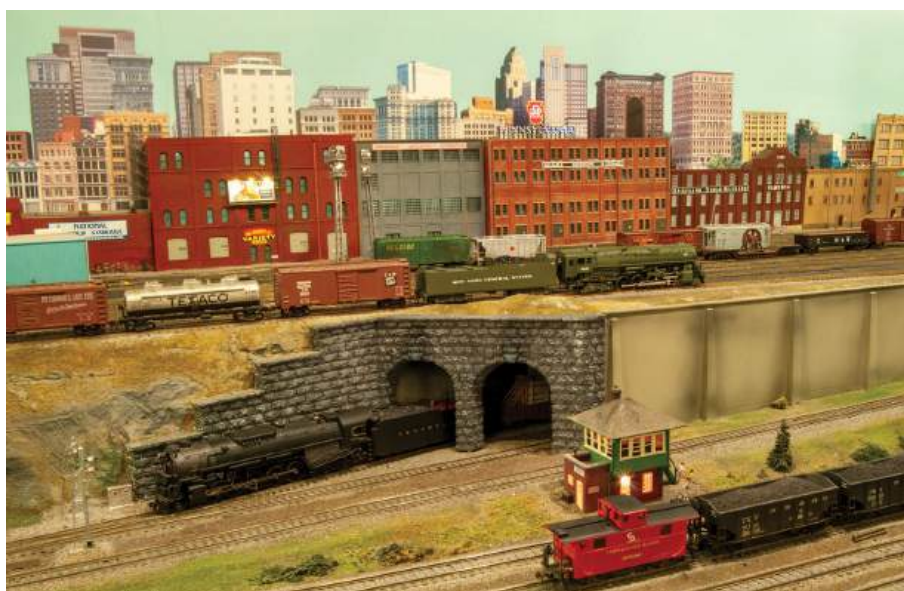
We modeled downtown Youngstown as it appeared in the late 1950s and early '60s, before the closing of the steel mills caused it to decline. The buildings surrounding Central Square are based on prototype structures.

We researched long-lost structures at the Mahoning Valley Historical Society, records of companies that had or still occupied the buildings, aerial photos from the city engineer office, and property records at the public library.

Extensive kitbashing and scratch-building was required to model the buildings that were once downtown. The Central Tower building features a Plexiglas base with overlays for the Art Deco facade.

One of the more interesting discoveries was the Town Diner. We found the structure in a scrapyard. Club members measured the building and took many photographs.

The city scene has been a hit with visitors. People point out to their children or grandchildren where they used to work, shop, and eat. — *Bruce Silvernail*



4 The Youngstown Model Railroad Association's layout is set between 1950 and the present, meaning both steam and diesel can be found in operation. Here, Pittsburgh & Lake Erie and Pennsylvania RR locomotives roll past Filby Yard while a Chesapeake & Ohio caboose carries the markers on a loaded coal train.



5 The Youngstown area has strong ties to the steel industry, so it's no surprise the layout features a sprawling mill. The scene is busy with switchers delivering coke hoppers, hot metal cars, and ingot cars with molds to various locations at the mill.

vegetation and trees on the model railroad are various offerings from Scenic Express and Woodland Scenics. The rivers and lakes were poured with Liquitex.

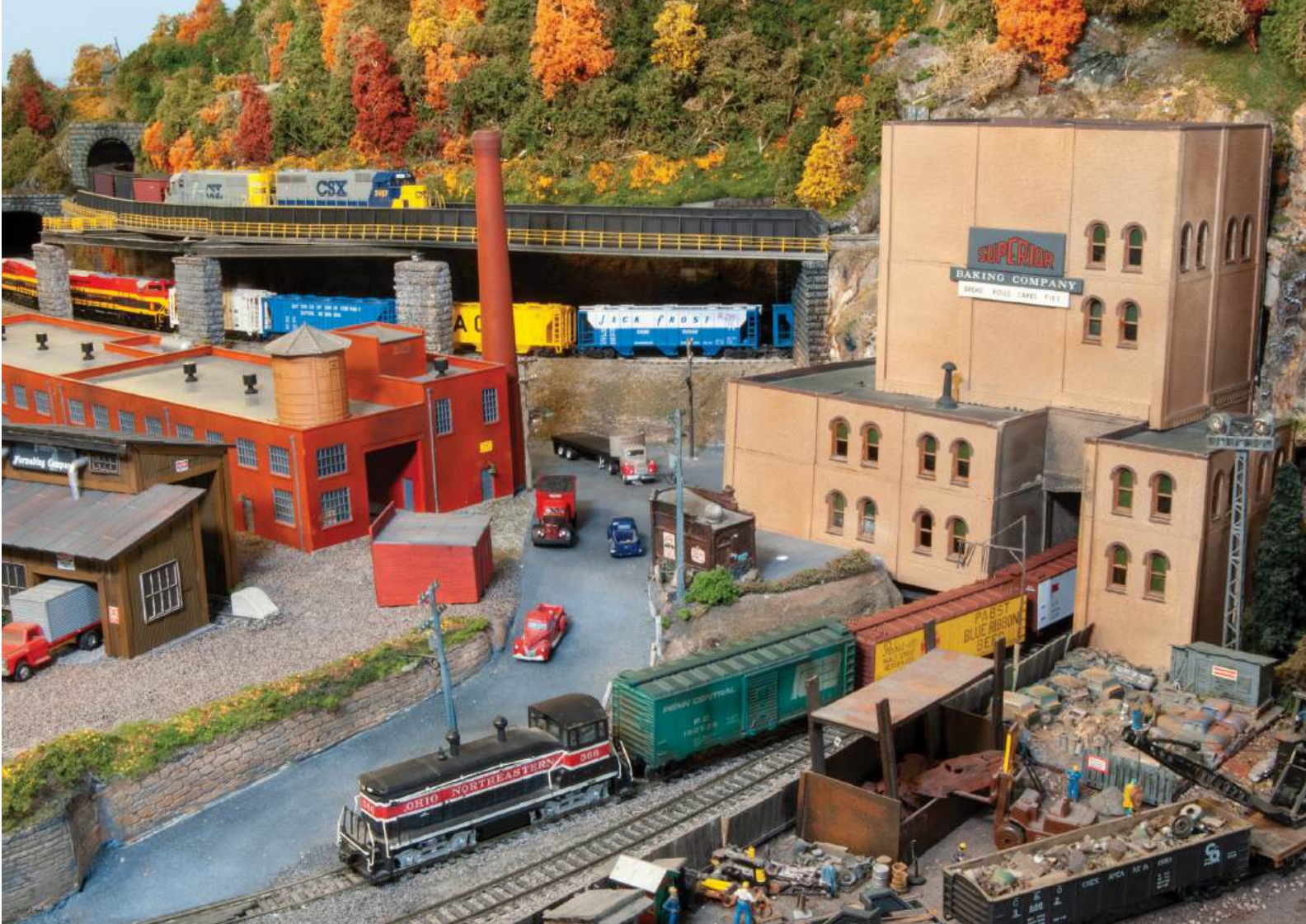
A treat for the senses

The structures are a mix of kit-built, kitbashed, and scratchbuilt. The Youngstown Station is a replica of the former New York Central/Pittsburgh & Lake Erie building in Youngstown [See "A nod to the past" on page 36. — *Ed.*] Most of the structures, including the station, have interior and exterior lighting.

Many, such as the steel mill, industrial park, drive-in movie theater, and coal hopper unloader, incorporate animation. The animation has proven popular with club members and visitors alike.

In addition, the layout features a working amusement park and operating traffic lights. The massive mill shows the steel making process from pouring the molten steel to rolled coils.

The entire model railroad can be operated in night mode utilizing blue lights. Traffic sounds, church bells, and carnival music further bring the layout to life.



6 The Paskey Industrial Park is home to mainline action and local switching. As freight trains with CSX and Kansas City Southern power roll by in the background, an Ohio Northeastern switcher works cars at Superior Baking Co.

Running trains

The layout features Atlas code 100 flextrack and a mix of Peco and Shinohara turnouts. Turnout sizes include No. 8 (main), No. 6 (yards), and No. 4 (industrial park and steel mill). The roadbed is cut from Homasote sheets glued to ¾" plywood.

Trains are run using direct-current cab control. The layout can support up to nine operators — three on the two main lines, two each in the main yard and steel mill, and one each at the coal mine and industrial park.


A typical operating session consists of four to five mainline trains, one or two on the inner main, up to three in the main yard, two in the steel mill, and one each in the industrial park and coal mine. Members of the operating crew communicate with each other using two-way radio headsets. Operating NJ International and kitbashed signals are controlled by turnout position.

Club members are encouraged to bring their own locomotives and freight cars to run on the layout. A supply of club owned equipment from multiple eras is kept on premises so consists can be made period correct.

Into the future

Though the YMRA has been around for 68 years, the group is looking toward the future. The club added a 625 square foot addition to its building as a meeting room and display area for its HO modular railroad that's under construction.

One of the strengths of the YMRA is being able to draw on the varied skills of its members. The club wants to meet members where they are in the hobby. A newcomer can run trains on the layout just as easily as a longtime member with more advanced equipment.

The YMRA is open to new members. For more information, visit the club's website at ymra.org. 



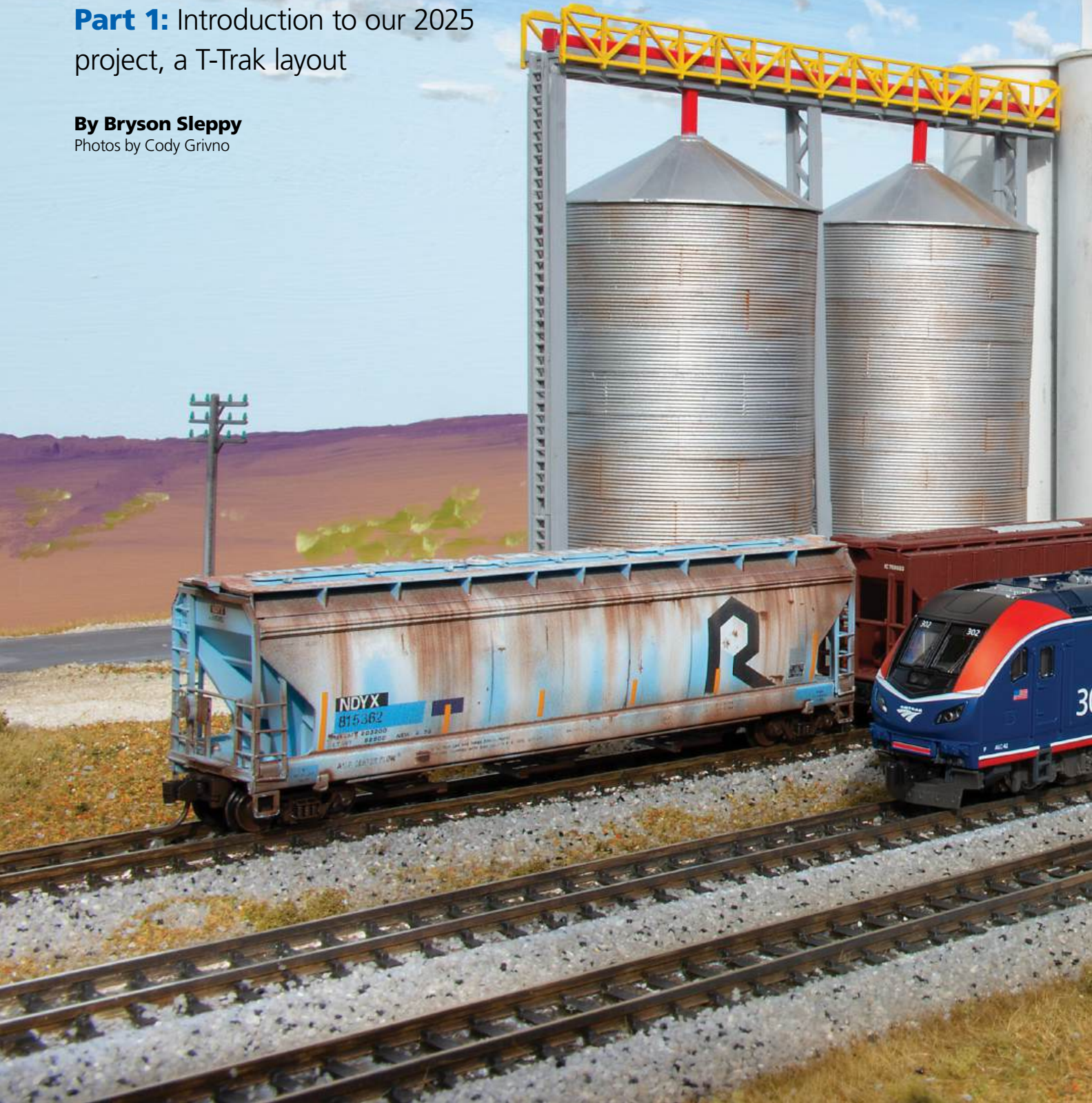
Meet the club

Members of the Youngstown Model Railroad Association include Rick Austin, Darrell Balakoff, Matthew Chuey, Ron Crawford, Russell Cummins, Dean DeMain, Jack DeMain, Todd DeMain, Gary Durbin, Gavin Friess, Doug Kazear, Don Lakin, Robert Lewis, Nicholas Majetich, Peter Majetich, Steve Majetich, Dave McNeil, Tim Reed, Liborio Ricottilli, Michael Schaak, Bill Schnierle, Bruce Silvernail, Joseph Tarantine, William Ward, Ray Wawrowski, Chuck Willett, Ed Williams, and Randy Ziobert.

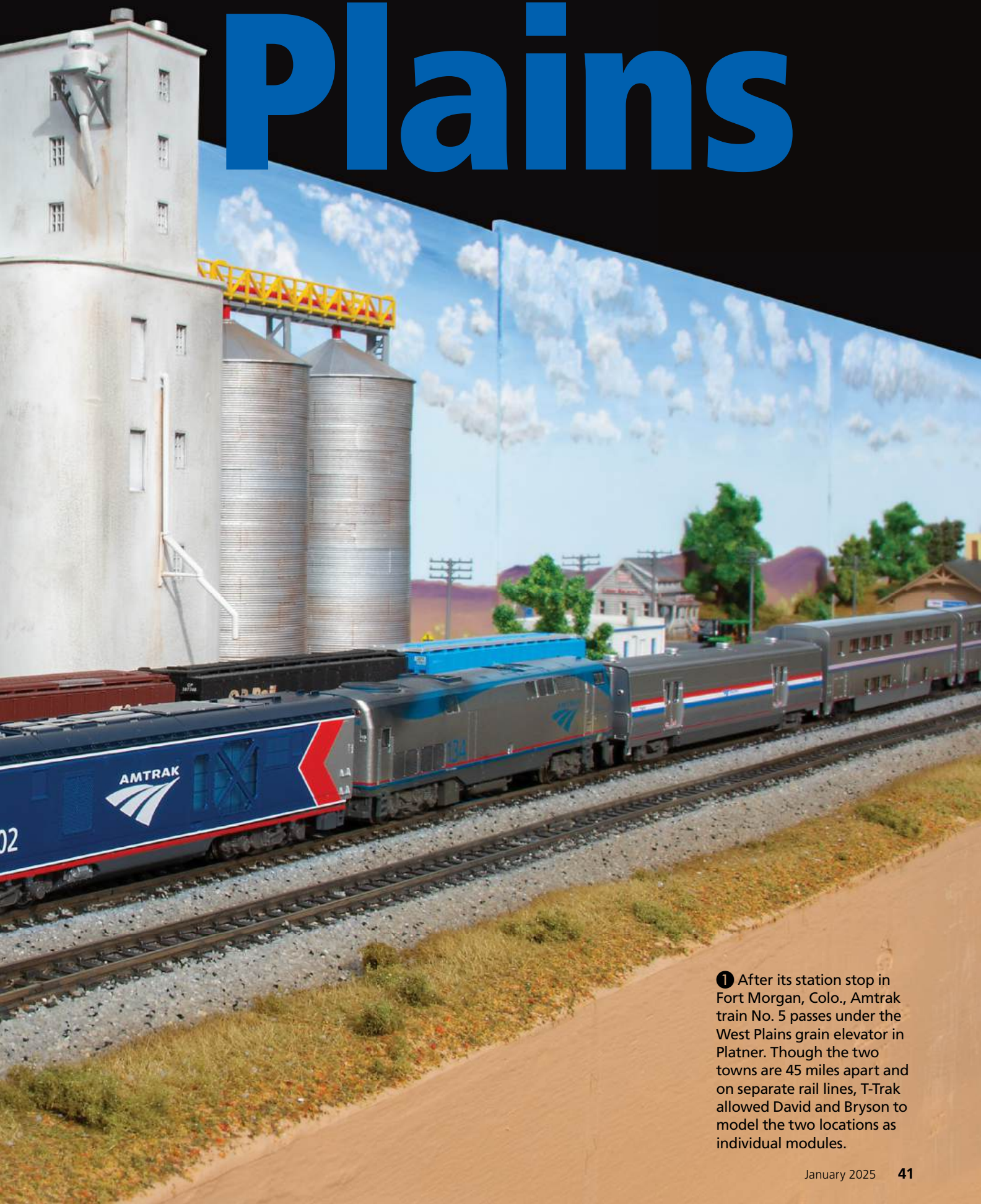
Welcome to Colorado

Part 1: Introduction to our 2025 project, a T-Trak layout

By Bryson Sleppy
Photos by Cody Grivno



Plains



① After its station stop in Fort Morgan, Colo., Amtrak train No. 5 passes under the West Plains grain elevator in Platner. Though the two towns are 45 miles apart and on separate rail lines, T-Trak allowed David and Bryson to model the two locations as individual modules.



② BNSF GP35U no. 2540 spots a boxcar at Smith & Sons Co. warehouse. This is one of the first modules that David built and you can read about the process in his book *Your Guide to N Scale Railroading* available at shop.trains.com.

Picture this: it's a random Thursday afternoon and you happen to be in the MR Workshop. David Popp starts to open some boxes filled with laser-cut wood that he received in the mail; what do you do? Well, if you're me, you ask David what he has in there.

Little did I know that I was volunteering myself to build the next MR project layout. 2024's project layout, Freemont Mills, introduced modular standards to the world of MR project layouts in HO scale. This year we thought it would be fun to dive into N scale modular layout building and build a

continuous loop in roughly the same footprint as Freemont Mills.

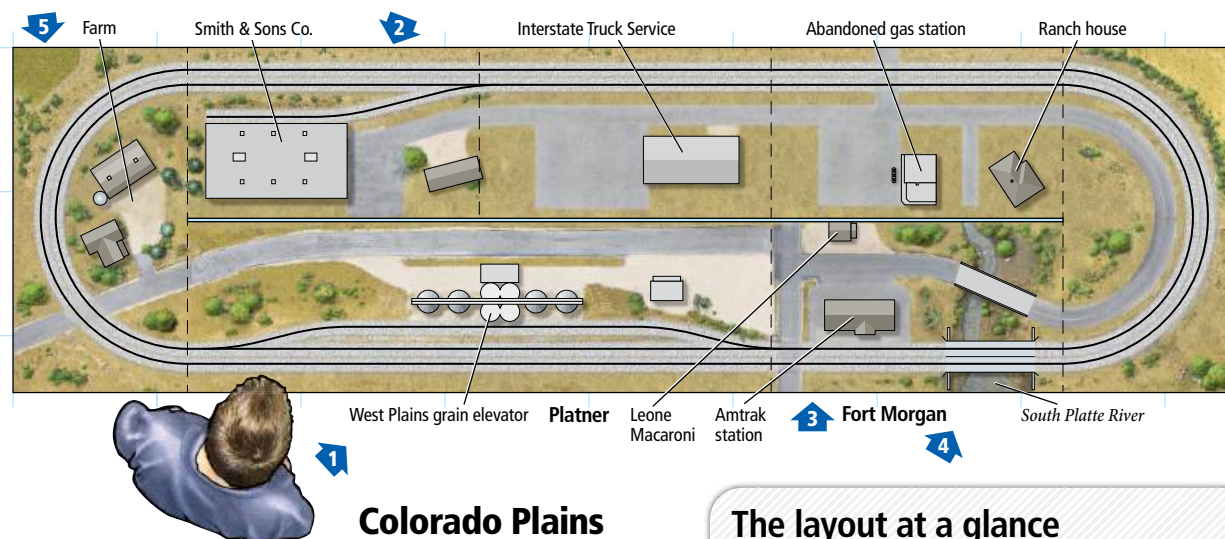
If you've been to a train show in a banquet hall or larger, you most likely have seen a T-Trak layout. It's a popular modular standard for N scale that grew from the roots of Ntrak. Introduced to the United States in fall 2001,

the T-Trak standard calls for modules that are only 12" wide.

Like Freemont Mills, a Free-Mo modular layout, these modules are designed to be connected to other modules in order to make a larger layout. The standards are guidelines that modelers must follow so that these



With the roads laid out as we planned, it's possible to connect eight straight modules (split into two doubles and a quadruple) in a row and keep scenery continuity. Being able to rearrange a layout or expand it is the beauty of T-Trak.



Colorado Plains

N scale (1:160)
Dimensions: 8'-6" x 2'-4 3/4"
Scale of plan: 3/4" = 1'-0", 12" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger
+ Find more plans online in the
Trains.com Track Plan Database.

modules connect together without any issues. These standards include measurements like track height, placement, and curvature.

David was writing a chapter devoted to modular railroading in his N scale book (*Your Guide to N Scale Railroading* from shop.trains.com) when he ordered some T-Trak kits from RS Laser Kits. Originally, he was going to build a couple of straight sections and a curve for his book project, but once I asked to join we ended up building a whole mini layout.

T-Trak standards

When T-Trak was introduced, the standards were designed so that modules could be placed on tables that

are not specific model railroading tables. As opposed to standards like Free-Mo where the height of the railhead is measured from the floor, T-Trak specifies that the height of the module must be 2 3/4" high. To adjust for uneven tables or rail height, each module uses bolts and threaded T-nuts at all four corners for leveling. Single straight modules must be 12 1/8" wide but the depth can range from 5" to 14 3/8". Outside corner modules are a square that measures 14 3/8" x 14 3/8". These can then be permanently or semi-permanently attached to each other to make double, triple, or

The layout at a glance

Name: Colorado Plains
Scale: N (1:160)
Size: 2'-4 3/4" x 8'-6"
Prototype: BNSF
Locale: Eastern Colorado
Era: Modern
Style: T-Trak modular
Mainline run: 18 2/3 feet
Minimum radius: 11"
Minimum turnout: no. 4

Maximum grade: none
Benchwork: Modular laser-cut kits
Height: 2 3/4"
Roadbed: none
Track: Kato Unitrack
Scenery: Sculptamold
Backdrop: Painted medium-density fibreboard
Control: NCE DCC

quad straight modules or end caps (made from two outside corners). Kato Unitrack was selected as the track of choice for the modular standard as the 11" (282mm) and 12 3/8" (315mm) radii work well in the square corner module measurements. And unless modules are permanently or semi-permanently attached to each other, the joint between Unitrack pieces is what connects modules together.

Full T-Trak standard measurements can be found at ntrak.org, and modelers can build their own modules if preferred. However companies like Kato (manufactured by Woodland Scenics), Klawndyke's, and RS Laser Kits produce module kits that build to T-Trak standards.

T-Trak standards also state that each main line must be wired with opposite polarity. Standards like this are



③ After an “all aboard” from conductor Brad, Amtrak *California Zephyr* No. 6 heads east into Nebraska. David used the Clarksville Depot kit from Walthers Cornerstone as the station and painted it following the prototype paint scheme.

especially important when operating within a club or show environment so you conform to the rest of the group. Since our immediate plans were to just operate together in the office, we discussed wiring both main lines the same way but decided against it. In order to get the best of both worlds you could solder a power-reversing double-pole double-throw switch to the feeder that is opposite the wiring standard — just be sure to label the switch to avoid short circuits if it is set the wrong way. For the same reason we didn’t install any crossovers between mains.

Planning our T-Trak layout

This isn’t the first time that the MR staff has worked with T-Trak. In 2016 we did the Staff T-Trak Challenge, which ran as a series on MR Video Plus (now Trains.com) and in the June 2016 issue of MR. David built a dozen module

kits following ntrak.org plans and gave them to staff members and other modelers to build whatever their hearts desired. Many of those modules appeared at Trainfest and some NMRA conventions, however they were a potpourri of vastly different scenes that didn’t match. We didn’t want that this time around, so we decided to make all of our modules flow together through scenic elements like roads, rivers, and hills. We wanted it to look like a normal model railroad layout when we’re finished, just in a modular form. But what would we model?

When we first started planning the layout, David and I had both been through Colorado on Amtrak’s *California Zephyr*. David purchased a set of Kato Amtrak Superliner cars and an ALC-42 Charger diesel locomotive to commemorate his trip, and



he wanted a layout to run it on. We determined that while the ride through eastern Colorado was fairly bumpy, the scenery would fit perfectly on a T-Trak layout.

To be able to put the layout on virtually any rectangular folding table, we kept our layout to an oval. Originally the design featured two sets of four straight single modules bracketed by two corner modules at each end. With the straight sections being 12 $\frac{1}{8}$ " long and corners being 14 $\frac{1}{8}$ ", we were able to make a 28" x 76" railroad. Because he was writing about modular railroading, David ordered multiple varieties of T-Trak kits from RS Laser Kits and Klawndyke’s. These included modules with flat wood tops, modules that are designed to use foam inserts with plywood track boards, and double modules.

What to model?

With the baseline understanding that we wanted to model the Colorado plains and that all of our modules would flow together like a layout, it was now time to figure out what scenes we would



④ Eastbound No. 6 passes a BNSF freight train over the South Platte River. David used a single bridge module from RS Laser Kits to model the scene.

model. We both agreed that there should be an Amtrak station, and the perfect location for that would be Fort Morgan, just east of Denver. While I was originally going to build the station using a Walthers kit, David ended up taking over that module when I decided that my grain elevator scene needed to be four modules.

Four modules? Well I knew that I wanted to model a grain elevator and started to design an elevator scene that would only fit in a double module space. But the more I thought about it and discussed with coworkers, it was decided that I should turn it into a four-module long siding so it could prototypically hold and load four cars instead of two.

What’s next

January: Welcome to Colorado Plains
February: Benchwork, track, and wiring
March: Structures, scenery, and details



When designing his modules, David had the idea that he would focus his efforts on modeling Colorado farmland. One of his end cap modules would feature a farmhouse and barn while the other end cap was to be roadside fields with some cows along the tracks watching the trains.

By the time it was all said and done, we had added enough modules to make a layout that was 102" long while keeping the same width. As always when it comes to building layouts, some things don't entirely go according to plan, however I believe we successfully achieved our vision with how the layout would turn out.

What's next?

Next month we'll showcase the benchwork that we built from various kits, and how we added track and wired the modules to comply with T-Trak standards. In



5 BNSF no. 1103 rounds the corner on David's farm end cap. Even with a width of just over 2 feet, the Kato curves are broad enough to accept long pieces of rolling stock.

March we will focus on the structures, scenery, and details that we added to our modules. We knew from the beginning that there wouldn't be much in the way of operations, but with a siding for the elevator and spur to David's

warehouse, we can still do some switching. As of this writing we plan on bringing the layout with us to Trainfest in Milwaukee in November (2024) and may even start to build more modules at the show. Yes, this is a modular

layout, and David and I have already been in cahoots about adding more modules to the layout while keeping cohesive scenery. So be sure to keep an eye on Trains.com and the next two issues of MR for more T-Trak fun. **MR**

Take me to

A detailed model of a steam locomotive crossing a truss bridge over a river. The locomotive is black with a red smokestack and is pulling a black freight car with "BONA VISTA" written on it. The bridge is a black metal truss structure. In the background, there is a grey building with a red sign that says "Bona Vista" and a windmill. The river is a murky yellowish-brown color.

Cut a scene into existing benchwork

by **Gerry Leone** • Photos by the author

So, I wanted a river. Plain and simple, I wanted a river that was wide enough to look like a river, with a big ol' railroad bridge crossing it. Was that too much to ask?

The fifth iteration of my Bona Vista railroad is a double-deck layout with no scenery on the upper deck yet, and the scenery on the lower deck mostly finished. So if I was going to add a river, it

would have to be on the upper deck. And it would have to be now.

When I originally built the upper deck I'd actually cut two "rivers" into the sub-roadbed plywood that would fit between the 16-inch-on-center Rubbermaid shelf brackets that hold it up. But as I lived with these rivers for a while, I realized that by the time I added sloped banks those rivers would turn out to be drainage ditches. Not what I had in mind.

The bridge would determine the width of the river. I chose to use Walther's Cornerstone Double-Track Railroad Truss Bridge (933-4510) because it was only 15" long. I felt a longer bridge would overpower the scene and, more important, would mean I'd have to rearrange a lot of existing track.

So with saw in hand, I set out to excavate my river. Come along with me on the journey.

the river



Bona Vista Consolidation No. 23 crosses the double track bridge on the scene Gerry Leone added to his HO layout. The cuts Gerry had made in his subroadbed when he was building his benchwork weren't going to support the kind of scene he had in mind. See how he solved his problem.

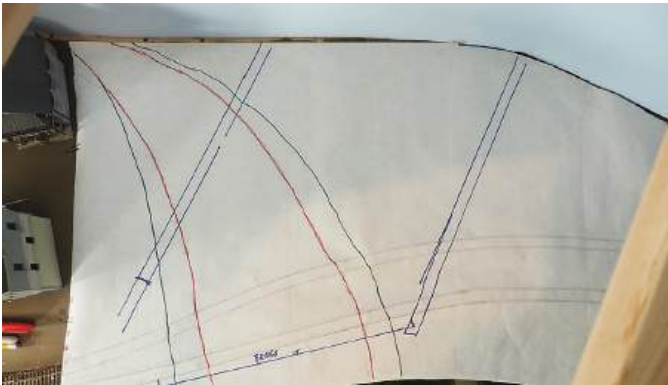
STEP 1 Making space



This was one of the original "rivers" I'd cut into the plywood subroadbed on the upper deck. The BV main line is in front, the Great Northern interchange is in back. I realized that once I added sloped banks, this "river" would become a ditch. It was far too narrow.



The original river lies in the center of the upper deck, but I decided to put the new river farther away from the lower deck city of Westcott to reduce the visual clutter and make it easier to work on. I selected the spot on the left where the reefer and boxcar are sitting. This location would mean most of the existing track could be left in place.



I marked a large sheet of paper with the locations of the shelf brackets beneath the plywood (blue), the existing trackage (pencil), the river basin (red), and the cuts needed to create the river banks (black). The location of the bridge (15") is at the bottom. To give the river some depth, I'd need to lower the left shelf bracket.



I covered the lower deck with a dropcloth and used a jigsaw to cut out the piece of plywood subroadbed. The shelf bracket can only be removed from its upright track at a 45-degree angle, so the removed plywood needed to account for that.



Removing the bracket at a 45-degree angle turned out to be harder than I expected, since 6" of it was hidden behind the hard-board backdrop. I wound up breaking the backdrop's seam in the process.

STEP 2 Building a riverbed



I cut the plywood for the riverbanks and glued and screwed them to the river bottom. This created one solid, leak-resistant unit. Pieces of the banks were cut away to accommodate the abutments.



Because the river and its banks would be the only thing keeping the plywood subroadbed on both sides in vertical alignment, it needed to be solid. But pushing this heavy assembly into place turned into a major feat.

STEP 3 Pulling the parts together



While the glue was setting on the embankments, I finished building the bridge, painting it with Micro-Mark Grimy Black and drybrushing white highlights on the rivets. I also glued in a temporary piece of Micro Engineering bridge track.



Before I started scenery or water, I added a mirror to the very back of the river, close to the backdrop. I used a front-surfaced mirror (see sidebar on page 51) angled to reflect the river bank. The result is a river that appears to continue curving through the backdrop.



With the temporary bridge track in place, I determined the height of the abutments, which I scratchbuilt from a Chooch Cut Stone Retaining Wall. I painted the stones with a makeup sponge, which gave them a tiny bit of visual texture. The joints were painted Grimy Black to look like shadows.



I used Woodland Scenics Shaper Sheets and Sculptamold to create gently sloping banks for the river. The banks become steeper as the river gets narrower near the back — a forced perspective technique. After it dried I painted everything a "dirt brown" color.

STEP 4 Let the river flow



Before I poured the plaster river bottom or resin water, I cut a new piece of fascia tall enough to hold them in. I used silicone caulk to seal the edge, and also caulked the seams between the river bottom and the Shaper Sheets and Sculptamold.



I poured a soupy mix of Hydrocal plaster over the river bottom to seal the plywood and create a textureless surface. I embedded small pebbles into the plaster before it cured, including smaller pieces where the bank would have become eroded from the river's current.



I covered the backdrop and mirror with Glad Cling Wrap, then airbrushed the entire river bottom light brown. I followed that with a wide spray of medium brown down the middle, and narrower strip of dark brown in the very center. This gives the illusion of the water being deeper in the middle of the river.



Before pouring the resin I added a mini-scene to the fascia side of the bridge. In my figure stash I found several kids in shorts or with pants rolled up, and mounted them (and their dogs) on the fascia side of the bridge, near the bank. It's a hot summer day, school's out, and it's time to cool off!



For water, I used two-part Magic Water by Unreal Details. Unfortunately, because of the passing of the company's owner, Magic Water is no longer available, but any other commercially available product would work. Magic Water takes between 12 and 24 hours to cure, so I made two $\frac{3}{16}$ " deep pours several days apart.



Next I added scenery to the banks and surrounding areas. Not wanting diluted white glue to drip down to the resin surface, I brushed full-strength white glue on to the banks. Then I used a tea strainer to sprinkle powder-fine real dirt on to the glue. Tapping the strainer distributes the dirt very evenly.

STEP 5 Make it green



Once the dirt had dried I brushed on a layer of Woodland Scenics Static-Tac adhesive and used a static grass applicator to apply a combination of light green, dark green, and gold fibers.



I wanted the vegetation to look more like scrubby weeds than lawn, so I sprayed the static grass with cheap hair-spray and sprinkled on a mix of coarse ground foam in a combination of green colors. I then topped some areas with Woodland Scenics fine Blended Turf, just to add some color variation.



I added Scenic Express and Woodland Scenics trees, dried plant roots to resemble dead trees, and fiber-fill bushes. I used a brush to dab Gloss Gel Medium behind the rocks to create gentle waves produced by the current, and added a park on the left bank. SceniKing backdrops finished off the scene.

Mirror tips



A front-silvered, or first-surface mirror has the reflective coating on the front of the mirror, whereas most mirrors have the silvering on the back. When an object is butted up against a regular mirror, there appears to be a space between the object and its reflection because of the



thickness of the glass (left). Do the same with a front-silvered mirror and the object and its reflection appear to touch (right). Front-silvered mirrors are easily scratched and can be costly. I found mine at a surplus store.

— Gerry Leone



This closeup of the mirror at the back of the river shows how effective the illusion is. To further hide the bottom of the mirror I added a quarter-round portion of a branch that looked like a log. Butted up against both the mirror and



water, it looks like a whole, fallen log. The outline in the photo above shows exactly where the mirror is. Vegetation and trees hide the edges and it becomes nearly invisible, especially to a viewer looking at it from the aisle.

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Energy-efficient lighting that costs less and might last forever

By **Jim Kelly** • Photos by Roen Kelly

We are living in the midst of a slow and silent revolution. For the past 25 years or so light-emitting diodes (LEDs) have been steadily improving and taking over every aspect of electric lighting. Tungsten-filament light bulbs are going the way of the dinosaurs, as are fluorescent fixtures, and all of this keeps happening at a quickening pace.

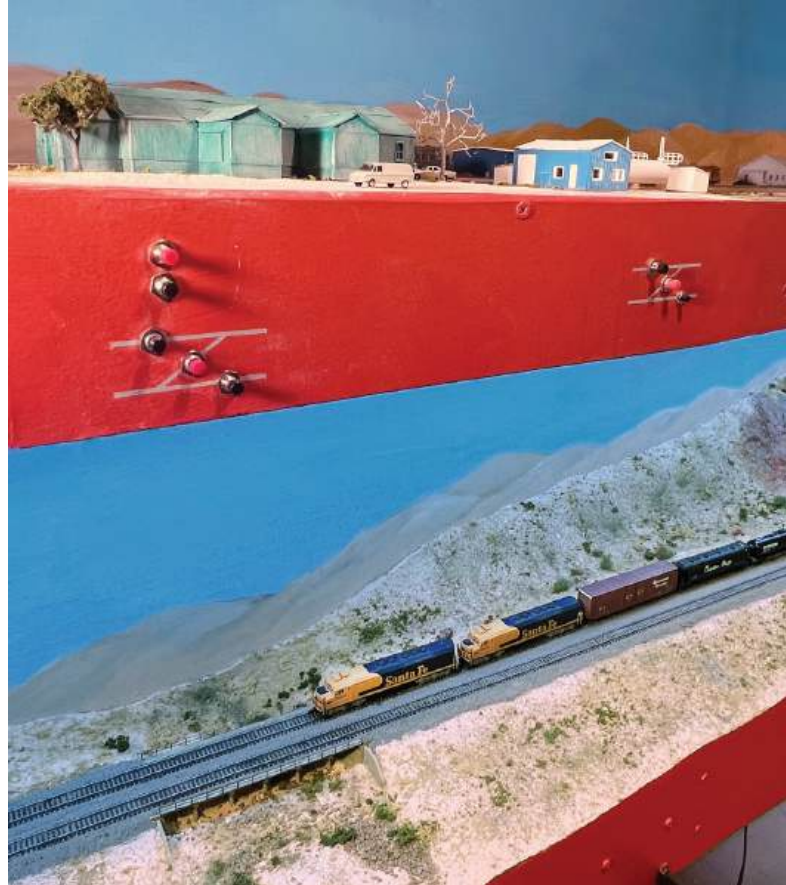
Like most things electronic, some of you will know all about LEDs; others (myself included) not so much, although I now know more than I did. I first saw these devices on light boards for N scale locomotives. Because they emit no heat and last for just about forever, they were a big improvement over the grain-of-wheat (and rice) bulbs used earlier. In hard-wiring DCC decoders into locomotives I also learned LEDs can “blow up really good” if you hook them up incorrectly.

Lighting up

When the time came to illuminate the 12-foot-long lower deck of my N scale layout I decided to become adventuresome and to do it with LED light strips. I had discovered what they were when I installed an LED light fixture in the closet that houses the helix connecting the two decks. To wire that fixture I had to disassemble it, and inside I saw my first LED strip, a thin strip of circuit board with square LEDs spaced every half-inch or so. The amount of light produced was astonishing. This, I thought, is the way to go.

Step two in this adventure was to go to the internet and learn more about these products. A vast amount of information and devices are available. Should you find it daunting, join my club. I quickly made two important discoveries: first, you can buy flexible LED strips of various lengths on reels; second, some (maybe most) of the LED strips can be controlled with a dimmer switch. Also, and I think this is quite important, the LEDs run off a 12-volt power supply, a much safer option than having 110-volt household current running inside the layout.

The components I used, which I purchased from Amazon, are shown in ❶. I'm not specifying what I used here because



Jim's N scale layout features a desert scene on a lower deck. He lighted it with a strip of LEDs. Installing the lighting before making scenery made that job much easier.

these products, made in China, change constantly, and are available with a large range of features and prices. There may be better options than those I chose. If you have a lighting store in your area I recommend going there and talking to an expert. The big box stores carry LED strips and supplies, but their lines are comparatively skimpy.

The designers of LED products really didn't have model railroad lighting in mind; these products are aimed more at home decorators. There are strips that can change colors, fade in and out, blink, dance, and do all sorts of tricks. There are also various shades of white available. I am happy with mine, which are bright white.

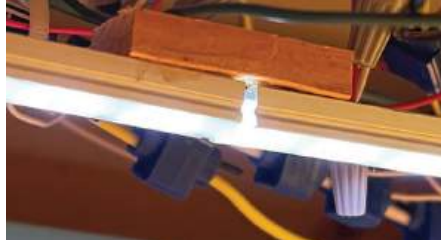
I first ordered the LED reel, the power supply, and the dimmer switch, and when I hooked them together experimentally the light was blazing, even with the dimmer switch set as low as I could go and keep the LEDs on. However, I bought the least expensive dimmer, proving you get what you pay for.



❶ The components of Jim's light strips are a 12V transformer, a dimmer switch, a 16½-foot-long bright white LED strip on a reel, six 39.4-inch-long aluminum channels, and frosted white plastic diffusers.



② From left to right, the layers of Jim's LED "sandwich" are the aluminum channel, double-sided 1/2" foam tape, the LED strip, and the diffuser.



③ Jim secured the LED "sandwich" with the metal clips that were supplied with the channels where the aluminum channel crossed the wood joists in the upper deck.



④ Jim used hot glue to mount the transformer (left) and dimmer switch inside his upper deck benchwork. Both were plugged into a power strip glued to one of the lower deck braces.

The points of light problem

Soon arose another problem I'd never heard of. Each LED caused a bright spot of reflection on top of the rails. Needless to say this was very distracting; the LEDs are encased in a plastic coating which functions also as a diffuser, but in this case that wasn't sufficient. I needed more diffusion.

Back to the internet and I discovered that you can purchase diffusers that were just what I was looking for. Even better is they came with aluminum channels that you can mount your strips in. These also are shown in ①.

At first, I had planned to just glue the strip itself here and there to the bottoms of the upper deck joists, but using these

channels would incorporate the strips into miniature light fixtures and yield a neater and better-protected installation. The finished LED strip "sandwich" is shown in ②.

These assemblies weighed almost nothing and required no support structure beyond what was already present in the upper deck. The strips take up very little space, and this is especially important in N scale layouts, where bus wires, feeders, and switch machines are close together ③.

You can buy light strips with a peel-and-stick adhesive on the back, and I wished I had. I used two rolls of Scotch 1/2-inch-wide double-sided foam tape to attach mine. The diffusers can seem difficult to mount into the track, but if you

get one end started and then roll it in by drawing your thumb along it you'll find it mounts easily. The diffusers helped a lot, but the light dots problem persisted. One final measure resolved it. I stripped the diffusers back out of the tracks and lightly sprayed the outer surface with a rattle can of Testors Dullcote. I need to emphasize the word "lightly." You do lose a considerable amount of illumination with the Dullcote.

With the project finished I am quite happy with the result. There's always something though. The desert scene now makes the town scene above it look drab. I now plan to brighten up the town of Tehachapi by installing LED shop lights above. I suspect my adventures with LEDs have only just begun. **MR**



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The big move

How Rod Stewart's Three Rivers RR empire was relocated from California to England

By Mike Cartabiano • Photos by the author or as noted



Moving this HO scale layout from Southern California to southern England wasn't an easy task, but Rod Stewart's team at Durango DCC made it happen, and during a worldwide pandemic! Andrew Burnham/*Continental Modeller* photo





Benchwork for the harbor area is coming together, with three of the pieces shown. The new benchwork was built to match the outline of the existing layout, but with a bit more space in the central aisle.



The layout room in Los Angeles is empty. "It's sad to see an empty layout room after so many fun-filled years of effort and joy," said Mike Cartabiano of Durango DCC, who coordinated the project and built the new benchwork.



Team members from Rocket Cargo, the logistics company Rod Stewart uses to transport his concert sets, take care of the delicate packing of all structures and details on his layout. "They did a great job," said Rod.

Imagine having to move New York City, Bethlehem Steel, Storm King Mountain in New Jersey, Horseshoe Curve in Pennsylvania, and the coal fields of West Virginia from Los Angeles, Calif., 5,441 miles to just outside London, England. That was a tall order from Sir Rod Stewart in May 2020.

An endeavor of this size and complexity required the team at Durango DCC, durangodcc.com, to create a plan that addressed the removal of the original layout from its third floor location,

catalog and pack hundreds of custom structure models and thousands of details, design a new layout platform that fit the new location, set up a workshop to build the layout structure, figure out the logistics to ship the new structure and details to England, then devise a plan to reassemble it all. We also needed to do all this in less than 24 months during a global pandemic.

Designed to move

It wasn't possible to move the original layout to England



The work in the United States is almost complete, with 46 layout sections stacked and ready for shipment.

as it wasn't built to be transported, so we proposed a design that would allow all the features of the original layout to be transposed to a new, robust sectional platform structure. We determined a sectional approach would allow the layout structure to be quickly built in Southern California, then broken down, shipped to England, and re-assembled on site.

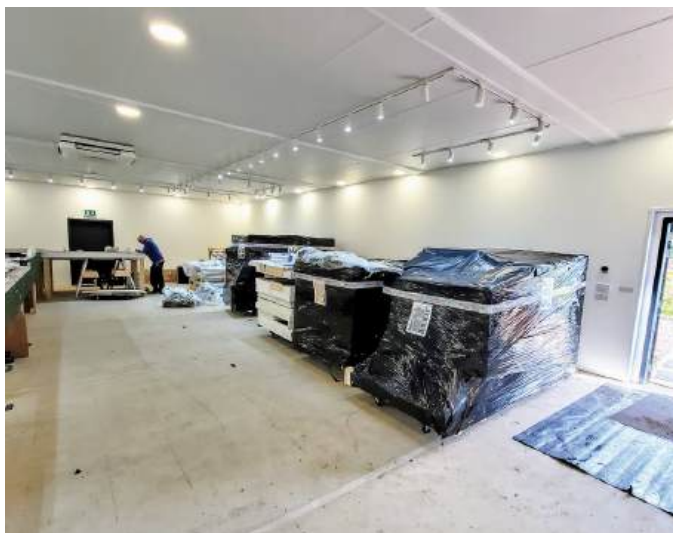
The design of the new layout was based on the dimensions of the new space and the existing track plan with about 20% more area to provide wider viewing and access aisles and more "land" for Sir

Rod to develop with his beautiful structures.

Packing and building

Before we removed anything, we created a 1 x 1-foot grid plan of the old layout to record the location of all structures, scenery, and details. Based on the grid location identification, we then had these elements securely packed for safe shipment by Rocket Cargo, the company that handles the logistics for Rod's concert sets.

In late September 2020 we finally had the old layout room cleared and everything



Mike and teammate Gerry Bill unpack the section stacks in the new layout room in England and begin to set up the layout again.



The sections are being arranged in order. The "land" for the city of Three Rivers is in the foreground and to the right.



All the sections are set up and scenery is being added.

packed. The room's contents filled a large two-bay garage.

While the design task was in progress, team member Gerry Bill set up a complete wood shop in Southern California and began constructing the modules based on the design, which required extremely sturdy construction using $\frac{3}{4}$ " finish grade plywood and 2 x 4 framing.

The track plan required more than 2,000 feet of track and 92 turnouts. We used Walthers code 83 flextrack on cork roadbed and 92 Fast Tracks turnouts built by Daryl Ireland and Derek Griffin. Tortoise by Circuitron switch machines were used for all turnouts.

We built a total of 46 sections with all tracks, bridges, wiring and electronics in place, and we assembled one

third of the sections at a time, as that was all we could fit in our shop, to make sure everything went together as planned. We then ran trains to test the section groups to ensure these worked properly.

By December 2020, six months after we started, we had completed all 46 sections and worked with Rod's estate manager to ship all the platforms, structures, scenery, and details by container ship from the Port of Los Angeles to Portsmouth, England.

Ready to ship

Gerry and I assembled seven stacks of platforms on dollies to easily roll these into five box van trucks. The dollies were then loaded into three 40-foot shipping containers, which traveled

through the Panama Canal. Once the dollies arrived in England in their containers, they were transported to the new layout space.

"It was very, very expensive, but worth it," said Sir Rod. "Rocket Cargo took them. They did a great job with only about 5 percent damage."

Safe arrival in England

After a month on the water, the modules finally arrived at Sir Rod's estate during the wettest spring in England's history. We needed to build wood gangways to roll the sections into the new space. Once everything was inside out of the rain, we began taking apart the stacks and laying the sections out in their locations for the layout.

Assembling the platform sections went quickly, and we began to set up the buildings and scenery based on the grid.

We were running trains by August 2021, and over the next few months installed hundreds of buildings, bridges, mountains and forests, harbors, lakes, rivers, and streams. We were also witness to the creativity of Sir Rod as he designed and built many new structures and beautifully detailed scenes, each to the level of an award-winning diorama.

Complete and operating

By mid-June 2022 we finished our work, and the layout was complete and running the New York Central *20th Century Limited*, the PRR *Broadway Limited*, and many other trains while still providing Rod with areas that could accommodate even more of his artistry. **MR**

Model railroads have been one of Mike Cartabiano's longtime interests. When retirement came after working in the toy, video game, and mobile phone industries, he founded Durango DCC, providing restoration of brass model trains, DCC installations, and related services.



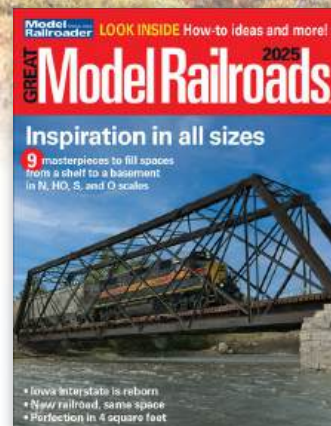
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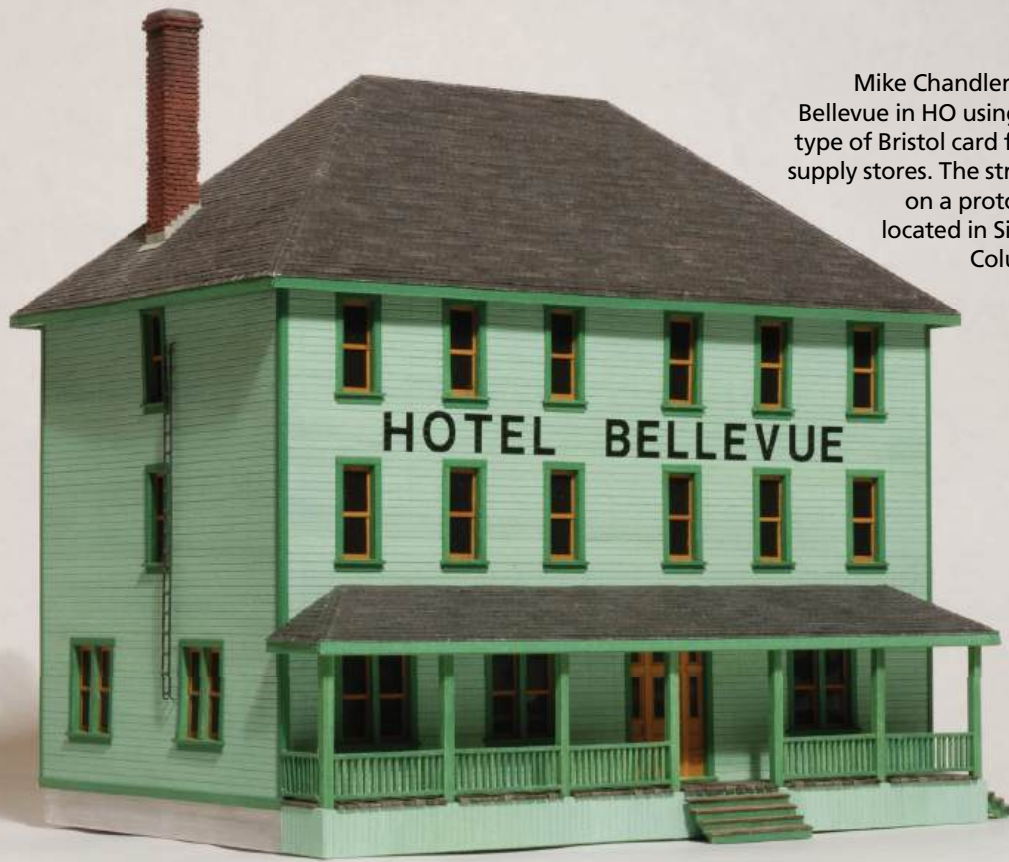


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Mike Chandler built the Hotel Bellevue in HO using Strathmore, a type of Bristol card found in artists' supply stores. The structure is based on a prototype originally located in Sicamous, British Columbia, Canada.



BUILD AN HO SCALE HOTEL

This three-story structure was scratchbuilt using Strathmore and stripwood

By Mike Chandler

Photo by the author

I HAD NO INTENTION OF BUILDING a hotel for my HO scale layout. That changed when Gordie Mitchell and Brian Pate made a presentation on the Hotel Bellevue. Gordie had done extensive research on the small hotel, which existed for many years in Sicamous, British Columbia, Canada. Brian had scratchbuilt a model of it in HO scale. They felt the structure's size made it well suited for a model railroad. With Gordie's excellent field notes and drawings to guide me, how could I not build it?

PROTOTYPE HISTORY

The Bellevue was originally built as a 22-room hotel in 1898. Sicamous was located at a railroad junction and additionally served as a transfer point where passengers caught lake and riverboats. Apparently, such passenger traffic through Sicamous was often more than the hotel could accommodate in its original configuration. Consequently, the Bellevue was expanded at least twice prior to the World War I. It was further modified in the years that followed.

Many hotels have been renovated and enlarged during their existence, but few can claim to have been moved to another town. The Bellevue's history should have come to an end in 1965 when the highway through Sicamous was upgraded and received a new bridge that occupied the hotel's site. However, instead of being demolished, it was dismantled, each board numbered, and then reassembled (albeit at a reduced size) as a display at the Three Valley Gap Heritage Ghost

Town, located between Sicamous and Revelstoke, B.C.

FROM PLANS TO REALITY

The drawings with this article show the Bellevue in its original 22-room configuration. Though I built my hotel in HO scale, the drawings give measurements in full-size dimensions for convenience in converting to other scales.

Scratchbuilding a hotel may seem a daunting task at first. My usual construction technique is to use Strathmore, a type of Bristol card found at artists' supply stores. I used Strathmore in 1-, 2-, and 4-ply thicknesses here.

Another benefit of working with Strathmore is that it can be painted prior to gluing. Although I've described the project with Strathmore in mind, you may substitute styrene or wood if you prefer working with those materials. [MR](#)

Mike Chandler lives in New Westminster, British Columbia, Canada.

WINDOWS AND DOORS

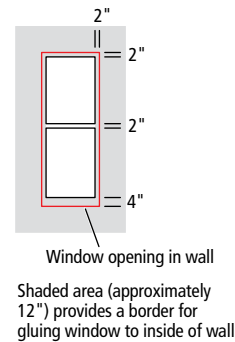
Start the project by constructing the windows and doors. I found 1-ply Strathmore card worked well for the doors and window sashes. The illustrations at right and in the next step show the method I used for windows which, with the exception of those on doors, are double hung.

Cut the windows from the card as two separate sashes and then overlap them when gluing them together. I used white glue almost exclusively throughout this project.

Most of the first floor window assemblies are two single windows mounted side-by-side as one unit. Doors with their smaller, single-hung

windows are handled in a similar fashion with the exception that the windows are one piece and not overlapped.

The large border surrounding all doors and sashes is for gluing to the inside walls. Before going any further, it's necessary to paint the window sashes and doors. I blended some orange and yellow paints to represent a varnished wood look. After painting, glaze the windows by cementing acetate or clear sheet styrene to the backs of the sashes.



Next, rub stain the doors and panels fabricated from 1-ply card (See "Finishing Strathmore" on page 65. — *Ed.*) This is accomplished using a small piece of cloth saturated with the same paint mixture applied to the window sashes. Because this process can be messy, I suggest wearing latex gloves. If you want a weathered effect, thin the paint.

At this time, the door window sashes and panels may be attached to the pre-colored doors from the back.

WORKING ON WALLS

Begin construction by laying out all four walls end-to-end on a sheet of 4-ply Strathmore using the dimensions in the drawings. Scribe the individual boards with a hobby knife. Then chase the cut with a needle held in a pin vise to spread the groove. You're not trying to cut through the card, so excessive pressure isn't required.

The four walls should be scored vertically at their ends using a metal square. Again, don't cut through; approximately halfway should be sufficient. Later they'll be bent to form a rectangular box.

For reasons known only to the Hotel Bellevue's architect back in the late 1890s, the front entrance assembly is offset slightly to the left with respect to the staircase as indicated in the front elevation plans. Lay out window and door openings referencing the drawings at the end of the story.

In order to obtain the correct final dimensions, allow for the thickness of the bottom sill and trim pieces on the other three sides. With this in mind, score the window and door openings 2" wider and 3" higher than indicated on the drawings. Don't cut through at this time.

If you wish to simulate nail holes in the boards, add them now. Prick each board lightly with a fine needle in a pin vise. A metal square is useful for keeping rows in alignment on 24" centers. Although 24" spacing isn't the standard in construction today, I've noticed some older structures, such as the Hotel

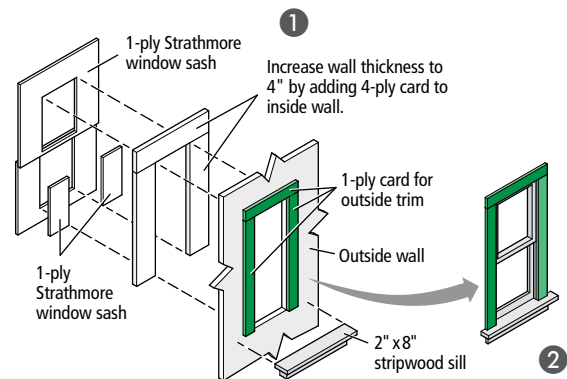
Bellevue, built with the wider spacing.

For the hotel's exterior wall color, I used light green. After coloring the walls by rub staining, cut out openings for the windows and doors, then trim away excess material from around the walls. You may now bend the walls to form a rectangle, but don't join the free ends at this time.

Prior to attaching the doors and windows, increase the wall thickness to 4" around their openings as per ①. This is accomplished by gluing 4-ply card strips around the wall's inside surface with a 1-ply overlay to accommodate the lower portion of the double-hung sashes. Although I specified a 12" width for these strips, the actual dimension isn't entirely critical.

Now glue the completed doors and windows to the inside walls with about 3" showing across the top and along each side. This will reduce to 2" after the trim is applied. Approximately 6" should be exposed across the bottom of each window sash, to be reduced to 4" after the installation of a 2"-thick sill. The doors are handled in a similar fashion, though the bottom reveal isn't as critical as it is with the windows.

Trim the doors and windows ② with pre-colored 1 x 4 strips of 1-ply card across the depth of their opening at the



top and along the sides. I used dark green paint for all of the hotel's trim.

Next, add the window and door sills, notched to fit into the opening against each door or sash with ends against the walls. The sills should be cut from 2 x 8 or larger stripwood. A wider cut will assist in trimming to achieve an accurate fit with respect to overhang of the framing boards located beneath each window.

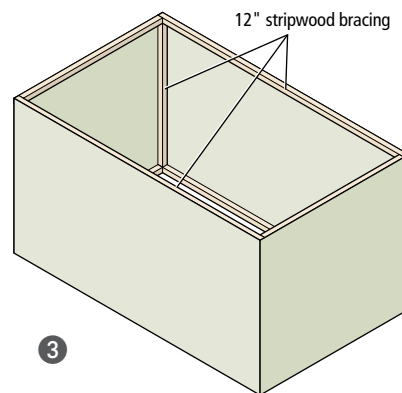
The window and door sills should extend about 1" on each side of the framing boards. Remember to follow prototype practice and place the sill at a slight downward angle to shed water. The window and door frame boards are 1 x 6 strips of 1-ply card applied as per ②. Prior to applying all trim and frame boards, touch up the raw white ends of the Strathmore with paint.

The walls, including doors, windows, and framing, should now be complete and painted on the exterior. The corner trim boards will be applied later.

The four walls may now be bent to form a rectangular structure, and the two free ends joined by gluing with a scale 12 x 12 stripwood brace ③. All bracing running along the walls at ground level must be recessed enough to clear a 4-ply card floor that will be inserted from the bottom. After setting, reinforce the interior walls with additional scale 12 x 12 stripwood along the tops and bottoms, as well as the corners ③.

For additional strength, measure the inside dimensions of the walls at the bottom, lay out and then glue a floor from 4-ply card so that it fits precisely into the building from the bottom. This will add to its overall rigidity while also keeping it true.

If you decide against adding a detailed interior to the Hotel Bellevue, paint the entire inside flat black. Then cut and install corner trim boards from pre-colored 1 x 6 inch 1-ply card.



ROOF, SHINGLES, AND CHIMNEY

Working from the half canopy plan in ①, lay out the entire roof, exclusive of the canopy, on 2-ply card. The dimensions are slightly less than indicated on the overall elevation drawings. The reason is that the illustration represents the roof without shingles, the addition of which swell the dimensions, particularly with respect to the ridge caps. As a result, refer to the half roof plan for laying out the complete roof, and later, the canopy. Brace the 2-ply Strathmore roof with more of the scale 12 x 12 stripwood used in the previous step.

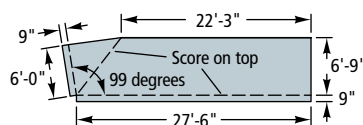
Instead of preparing a separate fascia or trim board and cementing it to the four edges of the hip roof, lay it out as one with the rest of the roof then score it on top with a sharp knife and bend it to the proper angle. Similarly score the roof assembly along the center line or ridge cap at the same time and bend to shape.

After gluing the roof to the hotel, adjust the fascia boards to vertical and stiffen them by attaching an appropriately sized piece of stripwood from the reverse side. I found it convenient to pre-color the fascia boards prior to attaching the roof assembly. The veranda's canopy is handled in a similar fashion but isn't fitted to the building until completion of the veranda (more about this later).

The chimney is fabricated from a scale 36" square length of basswood ②. Start by cutting shallow, horizontal grooves with a fine blade in a jeweler's saw. Cut into the wood on 3" spacings while keeping the mortar lines true by guiding the blade with a small metal square. Use a needle held in a pin vise to scribe the vertical mortar lines. The two uppermost rows of bricks are individual pieces that are glued into place.

Create the chimney's opening by drilling a round hole a short distance

Half canopy plan

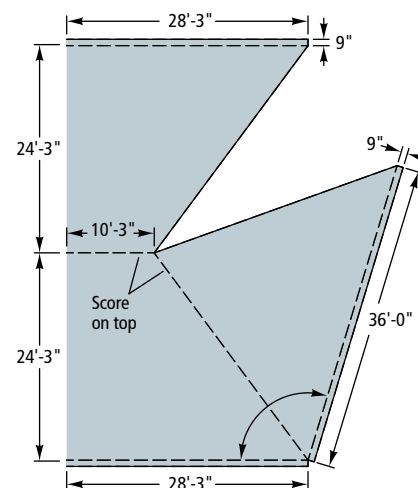


into the wood and filing it square. To make the basswood look like brick, paint the chimney mineral red and weather it with a thin wash of black. Then glue the chimney onto the roof. To simulate flashing around the base, cut out paper and paint it light gray.

The shingles on my model were made from individual strips fashioned from printer paper, as shown in ③ on the next page. Since the shingle strips overlap by 50%, you'll need a little more than twice as much paper as you have roof area.

The color of wood shingles can vary a great deal but tends to darken with age. I blended approximately two parts black with one part brown. Then, using a piece of cloth, I rub stained a sheet of paper with the mixture.

Next, mark off spaces at scale 6" intervals up both edges of each sheet. Then draw the first line across the paper 6" from the edge then skip over the next 6" mark and line the paper at an interval a scale 12" from the first line. These lines and those following must run across the streaks previously applied at a 90-degree angle. Continue with this procedure of skipping over every second 6" mark until the paper is



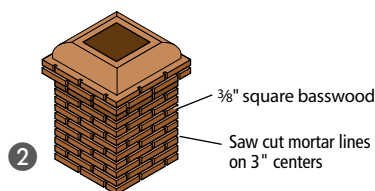
lined continuously with 12" spaces between each line.

Start preparing the individual shingle strips by slitting the paper from its edge to the first 6" line ③. Although I specified a 6" width for the shingles in the illustration, they can vary somewhat. I find they look best if kept between 6" and 9".

With the entire row slit and using the 6" marks as a guide, part off the strip so that it's 12" wide. I like to shorten two or three shingles in each row slightly by trimming them with a sharp knife.

Again referring to ③, draw guide lines at scale 6" intervals across the roof. These will assist in keeping the shingle strips in alignment during application. Although I recommended using white glue for other parts of this project, it's not well suited for applying shingles as it shrinks slightly while drying and can cause warping. Instead, use contact cement diluted with an equal amount of contact cement thinner (both can be found at office supply stores). A toothpick works well as an applicator. Continue applying shingle

Chimney

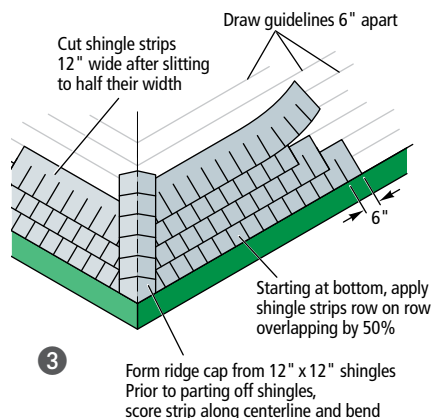


ROOF, SHINGLES, AND CHIMNEY (CONT'D)

strips row on row until reaching the top of the roof.

Next, turn your attention to the ridge cap. Unfortunately, the ridge cap can't be applied in a continuous strip. Rather, it must be glued to the roof one shingle at a time.

The cap shingles are prepared from a strip a scale 12" wide. Prior to parting the strip off its sheet, score it lightly lengthwise down the middle of its reverse side. Then cut the individual cap shingles from the strip in 12" lengths, fold along the score line, and glue them to the ridge. Overlap them by half.



Materials list

Strathmore
3 x 10
1-, 2-, and 4-ply, 3 x 12
1 sheet each 9 x 9
12 x 12

Stripwood (HO)

2 x 6
2 1/2 x 2 1/2
2 1/2 x 5
2 x 8
3 x 8

Tomar Industries
H-899 signal
ladder stock

FIRM FOUNDATION

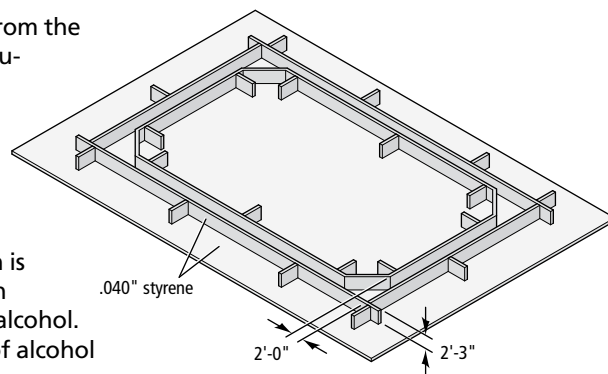
The building's concrete foundation is simulated with cast Hydrocal. Construct the form and bracing for this from .040" styrene per the illustration.

I find styrene an excellent material for casting Hydrocal as it doesn't require mold release. However, approximately four days are needed for the Hydrocal to cure properly before any attempt should be made to remove the foundation from its form.

Instead of prying the foundation from the mold, release it by breaking

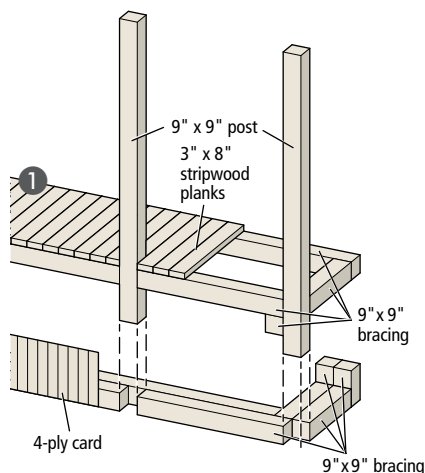
the styrene braces and strips from the mold's base. If you wish to simulate marks left by forming boards in the finished concrete foundation, scribe lines into the styrene on 8" centers prior to assembling the mold.

Weathering the foundation is easily accomplished with a thin wash of India ink in isopropyl alcohol. I used three drops per ounce of alcohol and applied it with a brush.



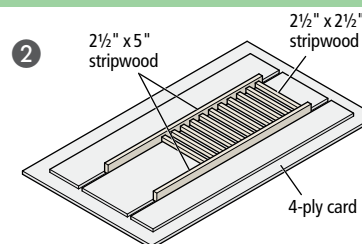
VERANDA

Construct the veranda's frame and support posts for its canopy from scale 9 x 9 stripwood ①. Cover three of the four sides below the plank floor with 4-ply Strathmore. Scribe the Strathmore on scale 6" centers and rub stain it.



The plank floor is scale 3 x 8 basswood strips. Stain the strips using 2 parts black and 1 part brown liquid shoe polish thinned with an equal amount of isopropyl alcohol.

Assemble the railing around the veranda in a jig of 4-ply Strathmore ②. The railing consists of two sizes of stripwood pre-colored with thinned dark green paint. Use full-strength contact cement to attach the veranda to the Hydrocal foundation.

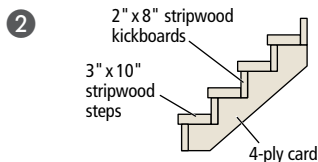
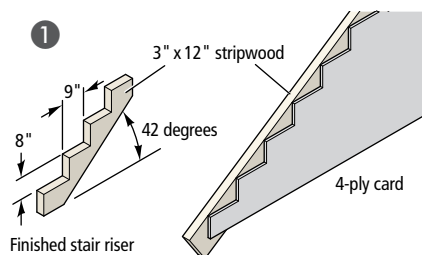


After attaching the veranda to the hotel, the canopy may be fitted above it and glued to both the veranda posts and front wall of the building.



STEP RIGHT UP

Four sets of stairs are required for the Hotel Bellevue. To assist in cutting the stair risers, make a template from 4-ply Strathmore as illustrated in ① below. The risers are made from scale 3 x 12 stripwood stained to match the veranda's railings.



Assembly of the stairs is accomplished with a Strathmore jig ②. Though the kickboards are stained with dark green paint, the steps are stained to match the veranda's floor planks.

Though most of the hotel is scratch-built, I used Tomar Industries signal ladder stock for the fire escapes on the east and west sides. Install them by bending their ends and inserting them

into pre-drilled holes. Paint them black prior to installation.

Now your model of the Hotel Bellevue is ready to be installed on your layout and accept guests. For the convenience of travelers, such small town hotels were usually located across the street from the station, or at least within an easy walk from it.



FINISHING STRATHMORE

Water-based paints aren't suitable for Strathmore as they will cause the material to warp. For the Hotel Bellevue project, I relied on my old stock of oil-based model paints. Though solvent-based paints aren't as common in hobby shops as they used to be, most artists' supply stores continue to carry extensive lines of oil paints in tube form that can be applied with good results

by rub staining. I find rub staining to be an excellent method for coloring Strathmore as it's fast, efficient, and when applied carefully, will usually result in a lightly weathered finish.

Though artists' oil colors are available in a variety of colors, they're not labeled in with hobby-specific names, such as Trailer Train Yellow or Grimy Black. With a little experimenting, you

can get close to the colors you need. I found one color, which the manufacturer calls "Indian Red," seems to be interchangeable with Boxcar Red.

The artists' supply store in my area offers oil paints from three different manufacturers. They also stock compatible paint thinner that can be used to render the paint into a liquid form.

— Mike Chandler





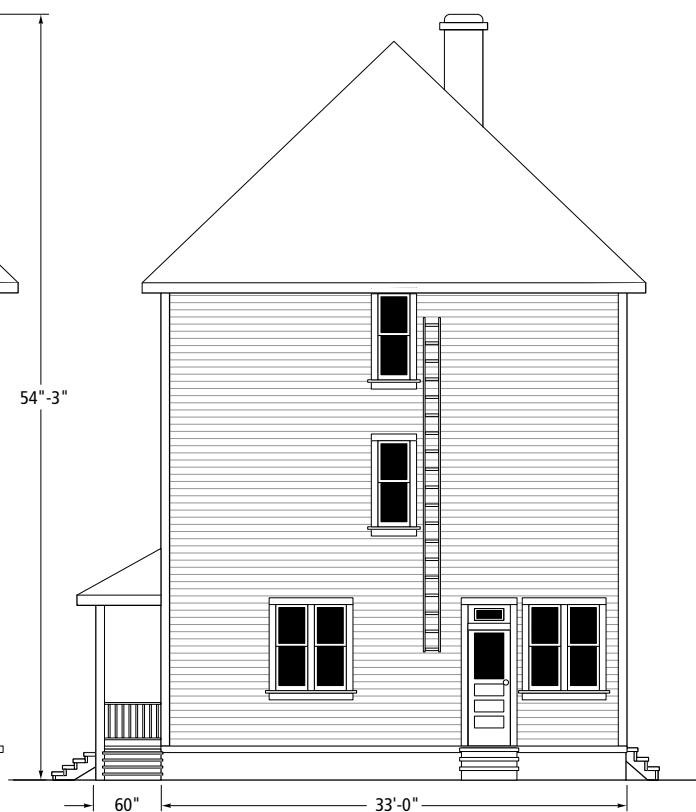
East elevation



South elevation



West elevation



North elevation

Drawn for *MODEL RAILROADER* magazine by
MIKE J. CHANDLER AND RICK JOHNSON

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Super-sized operating sessions

Cowan, Tenn., lies in southern Tennessee almost 60 miles northwest of Chattanooga on CSX's former Nashville, Chattanooga and St. Louis main. Manned helpers are still stationed there for trains needing assistance to climb Cumberland Mountain through historic Cowan Tunnel. The former NC&StL depot houses the Cowan Railroad Museum and a live-stream rail camera. Cowan was also where NC&StL's Tracy City Branch joined the main. Coal in the Sewanee area lured investors to build the line in 1856. It bridged the NC&StL main at the north portal of the tunnel and served Sewanee, Tracy City, Coalmont, and Palmer. Declining coal production saw the branch cut back to Coalmont in 1973 and its complete abandonment in 1985. It lives on, however, thanks to the 7½" gauge, 1/8 scale Eagle Point Railroad and the Chattanooga Society of Model Engineers (CSME).

The Eagle Point, begun in 2000, winds more than 11,000 feet of track through 38 acres of private property near Dunlap, Tenn. Its owners have a long-term working relationship with the CSME, which assists in building and maintaining the railroad. Society members, almost 100, enjoy regular monthly operating sessions and special events. The railroad is not open to the public, but churches, Scouts, and other organizations can arrange group visits.

In 2006, the EP began building its own Tracy City Branch. The branch mimics the prototype NC&StL track alignment and some of its grades, especially the hard pull from the junction to Sewanee. Most of its stations



A scratchbuilt Illinois Central Geep leads empties across scenic Jackson Trestle on the Eagle Point Railroad's Tracy City Branch. Sheet metal and welding are handier in 1/8 scale craftsmanship than styrene and soldering. Jeff Benton photo

use actual NC&StL place names. Property lines make compromises inevitable, just as stairs and utility rooms force on layout designs. Nevertheless, Jeff Benton, regular EP dispatcher who inspired this column and assisted me with it, said "it almost looks like someone had fitted an NC&StL track map to our mountainside."

CSME events are "meets" and "runs" but the EP was built with operation in mind. Classification yards at Eagle Point and Cumberland originate locals that serve more than 50 industries. Familiar, four-cycle waybills determine car movement; the waybill geek in me thinks this is neat. Also, the laws of physics affect the equipment in ways we don't often experience in smaller scales. Flagging demands religious devotion to protect against personal injury and equipment damage. Couplers and safety chains join cars to prevent runaways and chocks secure cars set out on sidetracks or left standing on the main. Yard crews at Eagle Point can "kick" cars during switching, but must follow additional

safety rules when doing so. Another rule deserves attention it rarely receives in smaller scales. Importantly, it prohibits movements on a track between a station platform and a train receiving or discharging passengers on an adjacent track. And conductors carry a referee's whistle with which to signal the engineer when necessary.

Daylong sessions keep crews busy with yard switching, passenger trains, through freights and locals. Frequent extras ply the rails and timetables schedule regular trains, often run in sections. It's easy to display classification signals in 1/8 scale! Block signals protect single track sections of the main line. The Tracy City Branch is dark territory, which relies on "radio dispatching," a modified form of timetable and train order operation CSME follows. The branch stretches through woods more than a

thousand yards from Cowan, too far for the operator there to deliver them, so the dispatcher transmits orders to crews by radio. As usual, crews must repeat orders before the dispatcher completes them. Crews OS by radio, except at Cowan. Clearance forms are not used; otherwise, anyone familiar with TTTO operation will easily adjust to the branch.

Jeff's informative "Dispatching the Tracy City Branch" appeared in the July 2022 issue of The Dispatcher's Office, the Operations Special Interest Group's quarterly. If an upcoming NMRA event brings you to Chattanooga, jump on any opportunity to

run on the Eagle Point. Other area attractions include the iconic Chattanooga Choo Choo and the Tennessee Valley Railroad Museum with its celebrated Mikado fan trip barnstormer, Southern 4501. Go to Cowan and see today's CSX helpers, too! **NMR**



THE LAWS OF PHYSICS AFFECT THE EQUIPMENT IN WAYS WE DON'T OFTEN EXPERIENCE IN SMALLER SCALES - JERRY

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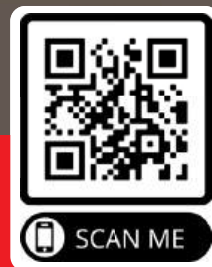
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● Trackside Photos

It's a slow day at the Purina elevator.

Fairbanks-Morse H10-44 9098 bakes in the sun as the head brakeman enjoys a brief respite in the shade of the switcher's overhanging cab roof. The scene is on Australian Tim Nicholson's HO shelf railroad that measures just over a foot wide and less than 10 feet long, as he documents in *Model Railroad Planning 2025*. Tim Nicholson photo



Conducted by Eric White



Model Railroad Planning 2025 is hitting newsstand and hobby shop shelves now. We have 11 all-new stories to inspire your next layout, or

help you move forward with your current model railroad. Whether you're planning a shelf layout, or hoping to fill your basement, you'll find expert advice on everything from ways to tackle planning to tricks to get more operation out of the space you have!



A pair of Alco RS3s rumbles across deck-girder bridge 86.37 spanning the Castleton River on Mike Evans' HO tribute to the Delaware & Hudson's Rutland Branch, where his grandfather worked as an engineer. The railroad deftly mixes prototype modeling with enough modeler's license to keep things interesting. Randy Laframboise photo



The day shift is just beginning on Tim Garland's HO Seaboard Central as the workers gather at the yard office to get track and time authority before hopping into high-rail vehicles and heading out on the main line. The layout is influenced by Tim's experience as a professional railroader.

Tim Garland photo



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Consolidation 65 leads an eastbound ore train past the small depot and eatery at Forks Creek on Doug Tagsold's 1:72 depiction of the Colorado & Southern's 3-foot-gauge lines. A sunroom addition's basement gave Doug a chance to model several new locations. Doug Tagsold photo

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Schedule of Events

CA, ANAHEIM: 2024 TTOS-SP Super Meet. December 13-14, 2024. Friday, 5-8pm; Saturday, Noon-6pm. Brookhurst Community Center, 2271 Crescent Ave. Buy-Sell-Trade Trains, Toys, and Railroad Memorabilia. Train races, super raffle, and more! FREE kids train set raffle Saturday. 2-day admission: \$5/person, \$10/family. FREE parking. Vendors: 8-ft tables, \$25, \$30 after 12/01. Visit: TTOS-SP.ORG/THESSUPERMEET/ to register. Questions: info@ttos-sp.org

FL, BROOKSVILLE: Regal Railways presents Toy Trains & Hobby Show. Hernando County Fairgrounds, 6436 Broad St., Brooksville, FL 34601. Saturday, January 25, 2025. 9:00am-2:00pm. Admission: \$6.00 adults, children under 12 free. Vendors and model train layout. Lunch available. Contact: Joe at 727-244-1341 or visit: www.regalrailways.com for more information.

FL, COCOA BEACH: Prototype Rails 2025 Meet. January 9-11, 2025. Cocoa Beach Hilton Oceanfront, 1550 N. Atlantic Avenue (Hwy A1A), Cocoa Beach, FL. Clinics, vendors, models on display, modular layouts. Registration \$55 if postmarked by 12/31/2024. \$60 thereafter. Send check (payable to "Prototype Rails") to Tom Meyer, 2321 Kumquat Dr., Edgewater FL, 32141. Info: www.prototype Rails.com

IA, MONTICELLO: 2025 Train Show. 2 Days, February 1-2, 2025. Saturday 10am-4pm and Sunday 9am-2pm. Berndes Center, Jones County Fairgrounds, 766 N. Maple St., Monticello, IA 52310. Tables \$30. Admission: \$5, children under 12 free with paid adult. Monticello RR Club, PO Box 169, Monticello IA 52310 or email Ron Ackermann at rack611@gmail.com

KS, WICHITA: Train Show and Swap Meet co-sponsored by Chisholm Trail Division, NMRA. February 1st-2nd. Cessna Activity Center, 2744 S. George Washington. Saturday 9am-5pm, Sunday 10am-4pm. Adults: \$8 for both days. 10 and under free w/paid adult. Door Prizes. Train Set Giveaway. Operating Layouts, Vendors. Clinics and Model Contest. NMRA Judging available. Info: Phil 316-259-5190 or aylward@cox.net

NJ, WAYNE: ECTP and Collectibles LLC presents The Wayne Special Holiday Train Show. P.A.L. Hall, 1 Pal Drive, Wayne, NJ 07470. Sunday, December 15, 2024, 9:00am-2:00pm. Admission: \$7.00; under 12 free with adult. John LaLima 732-845-5966. Go to www.eastcoasttrainparts.com and click on The Wayne Show.

SC, EASLEY: CRMHA MODEL TRAIN EXPO 2025. February 14-15, 2025. Friday, noon-6pm. Saturday, 9am-3pm. Impact Center at Rock Springs Church, 207 Rock Springs Road, Easley, SC 29642. Admission: \$8.00 Adult, good for both days. Children under 10 FREE w/adult. Trains of all sizes, operating layouts, model train vendors, a Kids Zone and more! Visit: www.crmha.org

TX, HOUSTON: Greater Houston Train Show presented by the San Jacinto Model Railroad Club. Saturday, February 15, 2025, 10:00am-4:00pm. Pasadena Convention Center, 7902 Fairmont Parkway, Pasadena, TX 77504. Operating Layouts, Classes on Railroads and Modeling Subjects, NMRA Contests, and Vendors from across the Southwest. Admission: \$5, under 12 FREE, \$10 Family. Concessions and free parking. Visit: <http://sanjacmodeltrains.org/>

WI, LA CROSSE: The 33rd Annual Great Tri-State Rail Sale. La Crosse Center, 2nd & Pearl Streets. Saturday, January 25, 2025. 9:00am-3:00pm. Admission \$8.00, under 12 free. 300 vendor tables. All Scales: Model, Toy & Antique Trains & Memorabilia. Information: 4000 Foundation, PO Box 3411, La Crosse, WI 54602, 608-781-9383. Visit: www.4000foundation.com

WI, NEW BERLIN: Train School will be held Saturday, January 18, 2025. 1pm-4pm at the New Berlin Public Library in the Community room. Free admission. Come, learn about model trains from experienced model railroaders wanting to share their knowledge of the hobby. Sponsored by the WISE Division of the NMRA. More information on our website: www.wisedivision.org

WI, STEVENS POINT: Central Wisconsin Model Railroaders 27th Annual Model Railroad Show. Holiday Inn Convention Center Hotel, 1001 Amber Avenue, Stevens Point, WI 54482. January 11-12, 2025. Saturday 9:00am-5:00pm. Sunday 10:00am-3:00pm. Adults \$5.00, kids 12-17 \$2.00. Many layouts, swap/sales tables, vendors. Contact Jim Miller, 715-340-0265; email: jimbro67@gmail.com

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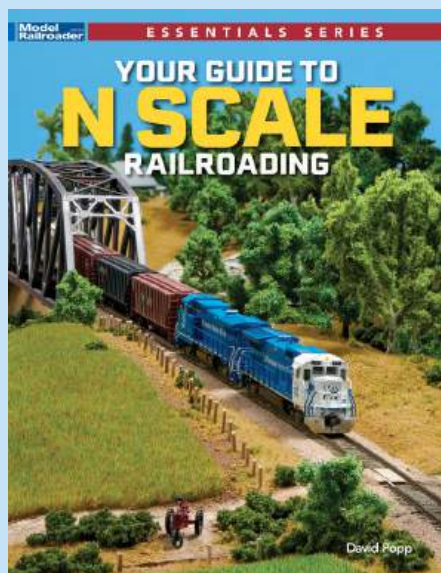


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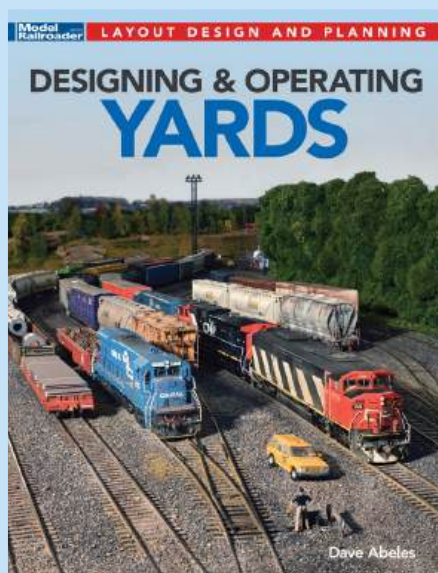
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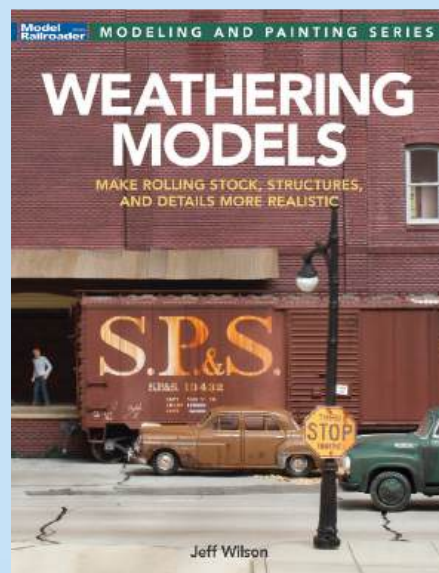
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18. I certify that the information above is true and complete.		
Nicole McGuire, Chief Operations Officer.		
Date: October 1, 2024		

Build a diorama



Allen McClelland built this small diorama to illustrate some of his scenery techniques for a clinic, but it could also make a nice display setting for a favorite model or two. Allen McClelland photo, Brad McClelland collection

Not everyone has room for their long-dreamed-of Great Plains, Sierra & Pacific. Instead of honing their skills for the day when they might have enough space for at least a branch line of that giant rail system, they do nothing. Or maybe they start amassing what many of us call an at-home hobby shop: stacks and stacks of kits and ready-to-run models that sit forlornly on shelves. When the gun finally goes off, by golly, they'll be ready.

Of course, when they do have a place to build a model railroad, they won't have time to assemble kits. Thank goodness for the high quality of today's ready-to-run cars and locomotives, and even ready-to-use structures!

A creative way to use the time between now and the day when modeling tools can be replaced with saber saws and power drills is to build

one or more dioramas like the one Allen McClelland built to illustrate a clinic on scenery techniques (see photo). It's around a foot by two feet in size, son Brad recalls, but the dimensions aren't important. What is important is that this does several very important things while you're waiting for space for the GPS&P to materialize:

First, it gets you out of your comfy chair and into the workshop. You'll soon discover what tools and scenery materials your current arsenal is lacking. Nothing slows progress and kills enthusiasm faster than not having a needed tool or lacking some key material when working on a layout. (See "Building a layout more efficiently" by Randy Laframboise in *Model Railroad Planning 2020*.)

Second, it allows you to develop your scenery skills by trying different techniques and materials. For you

veterans considering the expansion or upgrading of your current layout, here's an ideal place to quickly and inexpensively experiment with some products that debuted since you built your original layout.

Third, it provides a place to display some of your finished models. Many of us have a brass locomotive from the 1960s that looks a lot better than it runs, or we have a model that is anachronistic for our present model railroad's era, but we're too fond of to sell; here's the perfect place to display it.

Fourth, you can illuminate the scene with various types of lighting to see what seems to complement

the colors and eliminate or create shadows as desired. Based on my own experience, I'd start with lighting in the cool-white range (around 4100 kelvin). Some of you, especially those modeling the arid Southwest, may prefer warmer light in the 3200K range, while others may like the cold-white 5000K lights. But to avoid confusing the Auto White Balance setting on your digital camera or smartphone, I'd avoid mixing temperatures.

Fifth, it gives you a chance to develop or refine your photography skills, including trying your hand at "image stacking" on your computer to improve the depth-of-field (ensure the photo is sharp from the foreground to the background).

And last, you could also use building a diorama as an opportunity to try your hand at modeling in a larger or smaller scale, or even to display rolling stock from an old toy train you got as a kid.

I wouldn't be surprised if very small dioramas comprising, say, a depot or water tank, section-car shed, length of track, and a "blue box" caboose and boxcar on a

short length of track wouldn't sell well at local antique shops. Even a pair of shorter ones that together make up a set of book ends might be good sellers. With a cooperative shop owner, this could become a regular source of income. Please let us know if that pans out. Best of all, it's not work if you're having fun! **MR**



NOTHING SLOWS PROGRESS AND KILLS ENTHUSIASM FASTER THAN NOT HAVING A NEEDED TOOL OR LACKING SOME KEY MATERIAL.
— TONY

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106-089 - N Milwaukee Road "Olympian Hiawatha" Post 1955 Scheme 9-Car Set - MSRP \$320*

106-0432 - N EMD FP7A Milwaukee Road Locomotive 2-Pack Post 1955 Scheme - MSRP \$240*

176-2303 - EMD FP7A Milwaukee Road Post 1955 Scheme - MSRP \$120*

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- Directional LED Lighting on the FP7 engines
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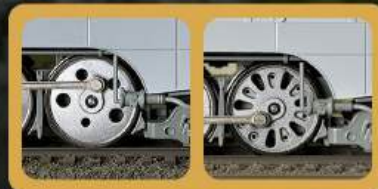
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