

ADD REALISM **WITH SIMPLE DETAILS** p.62



ScaleTrains.com
HO ES44AC p.56

June 2021 • Trains.com

MODEL RAILROADING IS FUN!

Model Railroader®

Freelance with flair!

Two showpiece layouts combine modeling and imagination

p. 36, 42

Secrets of staging

p.50

Trackside detail:
Model a modern switch heater

p.32

PLUS

Guide to resistance soldering p.54

New life for an old covered hopper p.24

Add a wooden deck to a flatcar p.28

Visit the Ashland & Iron Mountain, an On30 layout inspired by a Michigan mining road. See page 36.



TRAIN INFORMATION

Item	Description	Status	Quarter
	H O F 4 0 P H	IN PRODUCTION	Q 3
	H O E 8 L O C O	IN TOOLING	T B A
	H O R T L T U R B O .	IN TOOLING	T B A
	H O B - 1 0 0 - 4 0	IN PRODUCTION	T B A
	N H O R I Z O N C A R S	IN PRODUCTION	Q 3
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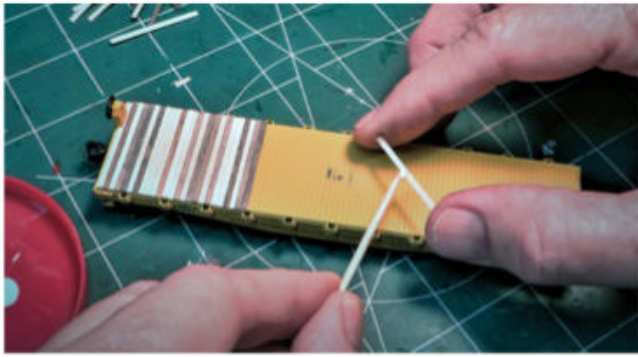
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On the cover:

A narrow gauge steam locomotive pulls an ore train on Mark Ballschmeider's On30 mining layout. Dave Rickaby photo

Next issue

In July, visit a layout that made the move from Illinois to Georgia. Also, build foundations for your structures, build a salt industry for a modern port, and more!

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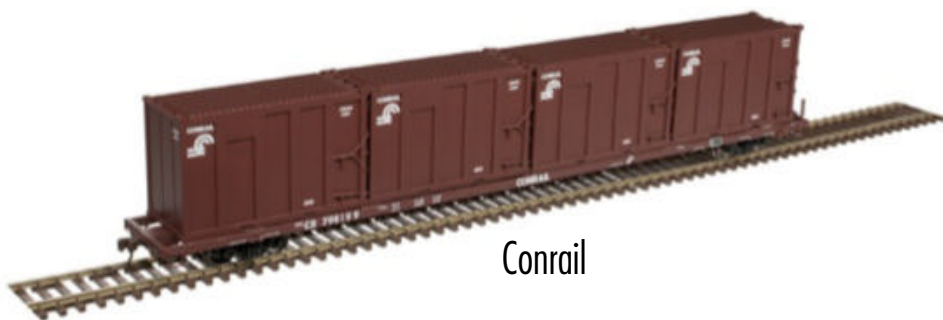
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In the past decade there has been a significant increase in moving municipal solid waste (MSW) on railroads. Flat cars with open decks and 100 ton trucks carrying trash containers are commonly used for this purpose. Atlas' recent release of our Trainman Trash Flats & Containers are offered in sets containing both the trash flat car and a set of four removable containers (also available for separate sale), making it a snap to get started in simulating this industry on your layout. They are available in six road name combinations that are so colorful you'll want to collect them all.



Conrail



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Southern Pacific



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GIMX/Solid Waste Transfer



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Expert tips

In this [easy-to-follow](#) how-to article, Cody Grivno, group technical editor, walks you through weathering techniques used when working with powdered pastels, demonstrating on an N-scale boxcar how to add rust, dust, and other realistic details that elevate your model.



Product review

[Check out](#) *Model Railroader's* first-ever Rapid Review, of Rapido Trains' new Montreal Locomotive Works M420 locomotive. Read all about the model's special features and see how it fares on the tracks of the staff's Milwaukee, Racine & Troy layout.

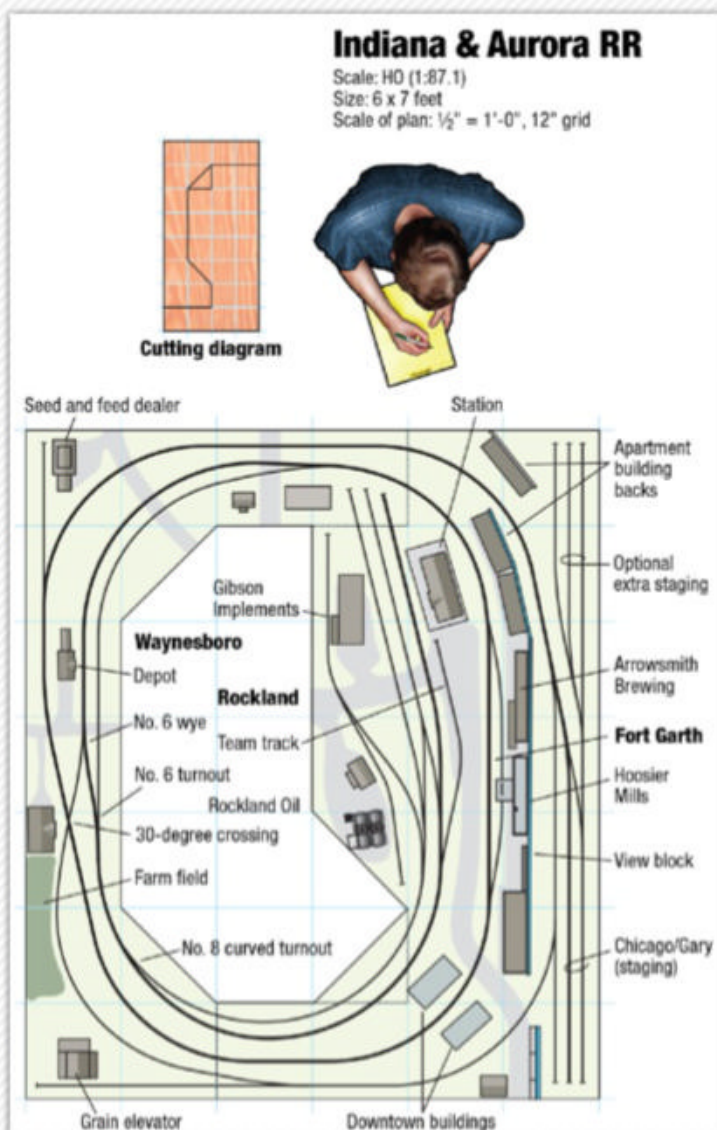


Evaluating track plans

Join host [Gerry Leone](#) in the third installment of the *Back on Track* series, as he tries to select the perfect track design for his custom-built layout space, all of which he created using computer-aided design software. To follow along with Gerry on his mission to build a new HO scale layout from square one, become a Trains.com member for unlimited access to all the *Model Railroader* video series.



A beginner's HO scale layout



[Originally published](#) in the August 2008 issue of *Model Railroader*, the Indiana & Aurora RR track plan is the perfect layout for any new modeler. Cut from a single sheet of plywood, this efficient design is available for download at Trains.com in our exclusive Track Plan Database. *Model Railroader* subscribers can view all of the hundreds of track plans in the Track Plan Database as a benefit of their subscriptions. Visitors can view eight free articles each month.



THE SHAY



The Shay locomotive was the most widely used geared steam locomotive. The locomotives were built to the patents of Ephraim Shay, who has been credited with the popularization of the concept of a geared steam locomotive. Although the design of Ephraim Shay's early locomotives differed from later ones, there is a clear line of development that joins all Shays. In 1884, they delivered the first 3-cylinder (Class B) Shay.

Class B, Lima-built 50-ton 2-truck Shay

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HO scale

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Even better than the real thing

This month we visit a pair of layouts that prove reality may be overrated, at least when it comes to modeling prototype railroading.

Mark Ballschmeider's Ashland & Iron Mountain RR, our cover story, is a steam-era mining road set in the copper country of Michigan's Upper Peninsula. His 24½ x 39-foot On30 scale layout draws its

inspiration from an actual narrow-gauge railroad, the Quincy & Torch Lake, one of several copper haulers that once served the mines surrounding Hancock, Michigan.

Had Mark built a prototypical representation of the Q&TL, he would have ended up with a model of a six-mile line that did little more than move ore one way, then haul

coal back to the mine's boiler house using the same cars.

Very cool, but also very dull after a few dozen cycles.

Mark's freelanced approach provides much more scope to his layout while still maintaining the feeling of narrow-gauge steam in a fascinating region.

The freedom of freelancing also sparks John Feraca's HO scale 28 x 40-foot Stone Canyon RR, which is influenced by western railroad giants Union Pacific and Santa Fe during the transition from late steam to early diesel locomotives. That gives him plenty to work with!

Mark and John prove that starting from the prototype and then giving your imagination free rein can open the door to a satisfying model railroad – one that can be even better than the real thing!

Want to see more of John's exceptional layout? We've



posted two photo galleries of additional images, one featuring John's realistically weathered motive power and the other showcasing his structures, on the *Model Railroader* section of Trains.com.

To stay up-to-date on the latest additions to our website, turn to Assistant Digital Editor Sammi DiVito's "On Trains.com" column on page 6.



Steam, diesel, and two major western railroads are a winning combination on John Feraca's HO scale layout. John Feraca photo

Model Railroader

Model railroading is fun!

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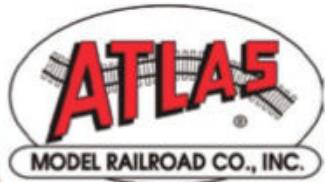
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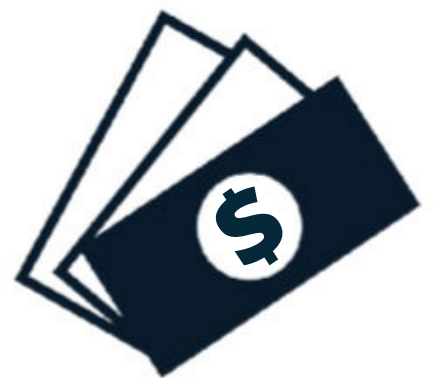
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USA Model Railroad Era System

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Shouldn't America have it's own Era System?

Please join us at hattonsmodelmoney.com/US-Eras and give us your thoughts and opinions. We'd love your assistance in developing one!

Our proposed method of grouping products based on prototypes across nearly 200 years of railroads in the United States!



Era	Date	Name	Steam	EMD	Alco	GE	Passenger
1	1827-1880	Old Time	American 4-4-0s				Open vestibule wood cars <60ft
2	1880-1915	Turn of the Century	Atlantics, Moguls, Consolidations, Camelbacks				Closed vestibule wood cars 80ft
3	1915-1928	Golden Age	USRA to Superpower and Modern Steam				Steel Clerestory/Early streamliners
4	1929-1934	Superpower	4-6-4s, 2-8-4s, 4-8-4s, 2-10-4s and 2-6-6-4s		Small switchers HH series		
5	1935-1945	Modern	Streamlined steam	NW Series/Streamline Trainsets/Early E Series	S Series DL Series		
6	1946-1960	Steam/Diesel Transition	Steam Decline	E/F/SW Series Early GP/SD Series	FA/PA/S Series Early RS Series	U Series launched	Rise of the post-war streamliner
7	1960-1972	1st Gen	End of steam	SW1000/1500, GP20 to SD45	RS27-36/Century Series	U Series	Decline of the post-war streamliner
8	1972-1985	2nd Gen		GP/MP15, GP/SD50, GP/SD60, Dash 2 Series		Dash 7	Amtrak Heritage/Amfleet
9	1985-1995	3rd Gen		GP50/60 SD50/60		Dash 8	Amtrak Superliners/Amfleet II
10	1995-2015	4th Gen		SD70 Early AC traction		Dash 9, Early AC	Amtrak Viewliner/Superliner 2
11	2015 to Present	Current		SD70 ACe		AC Series, GEVO	Avelia Liberty (Amtrak Acela II)

Thank you to Mr H. Fuller and others for helping to progress the eras we proposed in our previous advertisement. Visit www.HattonsModelMoney.com/US-Eras to take part!

We welcome assistance in developing this resource - please contact our proprietor Richard Davies on richard@hattons.co.uk if you are interested in participating with this project.

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Packaging
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☒ Like new box
☐ Very good box
☐ Good box
☐ Fair box
☐ Poor box
☐ In unbranded box/different box
☐ Unboxed

Numbering
☒ As per factory
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HO scale



Electro-Motive Division SD75M diesel locomotive. Athearn offers this Genesis series model decorated for BNSF Ry. (Heritage III and red-and-silver warbonnet schemes, three road numbers each); Atchison, Topeka & Santa Fe (red-and-silver warbonnet, four numbers); Norfolk Southern (Thoroughbred scheme, three numbers); and Progress Rail

(Atchison, Topeka & Santa Fe warbonnet and BNSF Ry. Heritage II patchouts, two numbers each). Direct-current HO scale models with a 21-pin NEM connector sell for **\$229.98**. Versions with a dual-mode SoundTraxx Tsunami2 sound decoder are priced at **\$319.98**. Athearn Trains, 800-338-4639, athearn.com

Atlas buys select MTH O scale tooling

Atlas Model Railroad Co. has purchased a selection of tooling from MTH Electric Trains' Premier O scale locomotive and rolling stock lines, as well the company's RailKing accessory line.

According to a release from Atlas, the company acquired molds for more than 20 freight cars and 15 diesel locomotives; heavyweight, lightweight, and Amfleet passenger cars; as well as figures, lights, and other accessories from the RailKing line.

In addition, Atlas also acquired a license for the MTH ProtoSound 3 sound and control electronics boards. Part of the license will give Atlas the option to sell Digital Control System (DCS) components, as well.

Jarrett Haedrich, chief operating officer of Atlas Model Railroad Co., said, "We will be working closely with the existing supplier to ensure that the models are produced and delivered in a timely fashion."

The Atlas deal is the latest in the wrap-up for MTH. In February, ScaleTrains.com announced the purchase of MTH's HO scale and S gauge tooling and designs.

MTH president Mike Wolf will be retiring and closing his company in May. The company's electronics department will live on as a separate entity, continuing to manufacture and provide support for DCS hardware and the Wi-Fi app. – *Hal Miller, editor, Classic Toy Trains*

HO scale locomotives



• United States Railroad Administration 0-6-0 steam locomotive.

With sloped-back tender: Union Pacific; Atchison, Topeka & Santa Fe; Baltimore & Ohio; Canadian Pacific; Pennsylvania RR; Soo Line; and Wabash. With short-haul tender: Boston & Maine; Nashville, Chattanooga & St. Louis; New York

Central System; Smoky Mountain Express; and Western Pacific. With Vanderbilt tender: Great Northern, Southern Pacific, and Union Pacific. Operating smoke unit and headlight, die-cast metal chassis, metal wheels and side rods, and E-Z Mate Mark II couplers. \$155. Bachmann Trains, 215-533-1600, bachmanntrains.com

HO scale freight cars

• **Assorted freight cars.** Canadian National 40-foot combination-door boxcar (brown with "wet noodle" herald),

\$19.98. Chicago & Great Western 36-foot double-sheathed boxcar (brown with "Corn Belt Route" slogan), \$19.98. Chicago & North Western American Car & Foundry two-bay Center Flow covered hopper (yellow), \$20.98. Grand Trunk, Pacific Great Eastern, and Quebec Central 36-foot Fowler boxcars (brown): single, \$19.98; three-pack, \$58.98. Gulf, Mobile & Ohio 40-foot steel refrigerator car (yellow and brown with NRC reporting marks), \$20.98. St. Louis-San Francisco 40-foot plug-door boxcar (orange with "Ship it on the Frisco" slogan), \$19.98. Injection-molded

plastic kits with plastic wheelsets, Accumate couplers, and steel weight(s). Accurail, 630-365-1173, accurail.com



• **36-foot old-time boxcar.** Nickel Plate Road; Atchison, Topeka & Santa Fe; Chesapeake & Ohio; Missouri-Kansas-Texas; New York, Ontario & Western; and St. Louis Southwestern (Cotton Belt). Three road numbers per scheme. Archbar 50-ton trucks with 33" machined metal wheels; separate, factory-applied brake wheel; and body-mounted McHenry scale couplers. \$34.99. January 2022. Roundhouse line. Athearn Trains, 800-338-4639, athearn.com



• **Pullman-Standard 40-foot PS-1 boxcar.** St. Louis-Southwestern (Cotton Belt, Boxcar Red and black with Blue Streak Fast Freight herald). 1951 as-delivered scheme in one road number. Separate, factory-applied grab irons, ladders, and other details; solid-bearing trucks; and Kadee scale couplers. \$40.95. Kadee Quality Products Co., 541-826-3883, kadee.com



• **National Steel Car barrel ore hoppers.** 42-foot car: Ontario Northland (Chevron scheme) and Canadian National (Mineral Brown). 35-foot car: Canadian National (Mineral Brown and Scale Test Car [single car and three-pack]) and Ontario Northland (Progressive Green). Also available undecorated in both body styles. Detailed underbody including all separate air and brake piping, 100-ton Barber S-2 trucks with metal wheels, prototype-specific details, see-through etched-metal end platforms, and Kadee

no. 158 couplers. \$59.95 each; three-pack, \$179.85; and six-pack, \$359.70. 2022 delivery. Rapido Trains, 905-474-3314, rapidotrains.com

HO scale structures



• **Modern bus shelter.** Injection-molded plastic kit builds one each open and enclosed shelters. Includes two bike racks with bikes. Open shelter measures 3 1/2" x 1 5/8" x 1 1/4". Enclosed shelter measures 3 3/4" x 1 3/8" x 1 1/4". Bike racks each measure 2 3/8" x 1" x 7/16". \$24.98. Cornerstone Series. Wm. K. Walther's Inc., 414-527-0770, walther's.com

N scale freight cars



• **International Car Co. bay-window caboose.** Phase 4: Burlington Northern (January 2007 repaint and with herald on left side of bay window, one number each), Soo Line (Milwaukee Road patchout), Southern Pacific (brown with

In Memoriam

Donald E. Fiehmman, 1934-2020

Donald E. (Don) Fiehmman of San Jose, Calif., passed away from complications due to heart failure in December. He was 86 years old.

Don wrote more than 60 articles for *Model Railroader* and *Railroad Model Craftsman* magazines. He was also the author of three Kalmbach books: *Basic Electricity for Model Railroading* (1988), *The DCC Guide* (2007), and *The DCC Guide, Second Edition* (2014).

orange bay window, three numbers). Phase 3: Chicago & North Western (red with yellow lettering), Norfolk & Western (red post-1971 scheme), and Rock Island (red and black with block-style lettering). Phase 2: Chicago & Eastern Illinois (red with buzzsaw herald) and Louisville & Nashville (red and yellow). Phase 1: Nashville, Chattanooga & St. Louis (red) and Southern Ry. (red and black with yellow Roman lettering). Half bay-window: Conrail (red shared assets scheme) and New York Central (Safety Green with "New York CentrALERT" lettering). Two numbers per scheme unless noted. Fox Valley Models metal wheels and wire grab irons. \$39.95. Bluford Shops, bluford-shops.com

HO scale



Milwaukee, Racine & Troy 50-foot double-door boxcar. This custom-decorated HO scale Accurail kit is available from the Kalmbach Hobby Store. The car, decorated for *Model Railroader's* Milwaukee, Racine & Troy staff layout, is offered in one road number. The kit (\$24.99) includes a plastic body, a low-mount brake wheel, molded side and end ladders, 8-foot Youngstown doors, and door straps. The underbody features screw-mounted draft-gear box covers, separate brake appliances, and a steel weight. The car rides on roller-bearing trucks with plastic wheelsets and includes Accumate couplers. Kalmbach Hobby Store, KalmbachHobbyStore.com

N scale



New York Central 4-6-4 Hudson steam locomotive. This model from Bachmann is in hobby shops now. The N scale 4-6-4 Hudson is offered in New York Central's as-delivered scheme with Roman lettering and the later Gothic lettering in two road numbers each. The steam locomotive (\$439) has a dual-mode SoundTraxx Econami sound decoder; an operating headlight and tender back-up light; a separate, factory-applied bell, whistle, pop valves, and handrails; a die-cast metal boiler and chassis; and E-Z Mate Mark II couplers. Bachmann Trains, 215-533-1600, bachmanntrains.com

- **Pullman-Standard 4,427-cubic-foot-capacity high-side covered hopper.** Cargill (yellow and black), Chessie System (yellow and blue with Baltimore & Ohio reporting marks), CSX (six paint schemes, one number each), Missouri-Kansas-Texas (red scheme in four numbers, green scheme in two numbers), Northern Pacific (gray), and Rock Island (blue). Six numbers per scheme unless noted. Body-mounted couplers, etched-metal grab irons and running boards, and 100-ton trucks with Fox Valley Models metal wheels. \$32.95. First quarter 2022. Trainworx, 970-874-9747, train-worx.com

N scale structures



- **La Maison du Roy.** Laser-cut cardboard kit. Measures 2.75" x 2.36" x 2.16". \$47.29. Price may vary based on exchange rate. Minifer, minifer.fr/en

Z scale locomotives

- **Electro-Motive Division F7A and F7B diesel locomotives.** Atchison,

Topeka & Santa Fe (for use with *Super Chief* passenger equipment, sold separately). Two single A units and two A-B-B-A sets. Directional light-emitting-diode lighting in A units, 7mm motor, blackened metal wheels, optional replacement truck with truck-mounted coupler, and drawbar (A units only). American Z Line, 614-764-1703, americanzline.com

Z scale freight cars

- **Pullman-Standard two-bay covered hopper.** CSX (Chessie System patchout); Atchison, Topeka & Santa Fe (gray with circle-cross herald in black square); and Pennsylvania RR (gray with shadow key-stone herald and "Pennsylvania" billboard lettering). Two road numbers per scheme. Injection-molded plastic with plastic wheelsets and Magne-Matic couplers. \$25.95 each. Micro-Trains Line Co., 541-535-1755, micro-trains.com

Z scale passenger equipment



- **Atchison, Topeka & Santa Fe summer 1953 *Super Chief*.** Two eight-car sets. Each set includes baggage car; Railway Post Office; *Palm*-series

10-roomette, 6-double-bedroom sleeper; dome; diner; *Regal*-series 4-bedroom, 4-compartment, 2-drawing-room sleeper; dormitory-lounge; and observation car. American Z Line, 614-764-1703, americanzline.com

- **Atchison, Topeka & Santa Fe summer 1953 *Super Chief* add-on set.**

Two four-car sets. Each set has two *Palm*-series 10-roomette, 6-double-bedroom sleepers and two *Regal*-series 4-bedroom, 4-compartment, 2-drawing-room sleepers. American Z Line, 614-764-1703, americanzline.com

Decals

- **Chesapeake & Ohio class L-1 4-6-4 Hudson steam locomotive.** HO scale. Set includes road names, road numbers, "donut" heralds, striping, number boards, and tender data in Enchantment Blue and white. Set based on After Hours Graphics no. AHG-31N artwork. \$13.99 postpaid. Virginia residents please add sales tax. PayPal accepted. Bill Mosteller, Great Decals, 3306 Parkside Terrace, Fairfax, VA 22031; greatdecals.com
- **Richmond, Fredericksburg & Potomac 9000-series Thrall 54-foot covered hopper decals.** HO scale. Set features road name, spelled out and block letter abbreviated RF&P heralds, road numbers, dimensional and capacity data, consolidated lube plates, wheel inspection dots, and Kartrak Automatic Car Identification labels. Includes bonus two-bay 55-ton covered hopper lettering. Set completes one each Thrall 54-foot and 55-ton covered hopper. \$4.99 postpaid. Virginia residents please add sales tax. PayPal accepted. Bill Mosteller, Great Decals, 3306 Parkside Terrace, Fairfax, VA 22031; greatdecals.com

Books

- **Gregg Railroad Cars.** Reproduction of an undated freight car equipment catalog presumed to be from the 1950s. Includes boxcars, cane cars, dump cars, flatcars, gable-bottom cars, gondolas, Granby cars, hoppers, mine cars, passenger cars, sisal cars, stockcars, and tank cars. Also shows various freight and passenger car trucks used by the company and the different types of couplers available for the cars. Softcover. \$35. Manufacturers' Catalog Archive. SilverLake Images LLC and Ron's Books, 914-967-7541, ronsbooks.com

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Showcase



1 Electro-Motive Division GP38-2 diesel locomotive. GATX Locomotive Group is one of five new paint schemes on this HO scale Atlas Trainman line offering. Direct-current models with a speaker are **\$159.95**. Versions with a dual-mode ESU Essential Sound sound decoder sell for **\$244.95**. Atlas Model Railroad Co., atlasrr.com

2 Quick release speed clamp. Excel produces this versatile tool, which has a 4" jaw opening. The speed clamp sells for **\$7.99**. Kalmbach Hobby Store, KalmbachHobbyStore.com
3 Double-ended pin vise. This tool from Excel (**\$9.99**) can accommodate nos. 50 through 80 drill bits. Kalmbach Hobby Store, KalmbachHobbyStore.com

4 Offset-cupola caboose. Chicago, Burlington & Quincy is among the schemes on this Bachmann HO model (**\$45**). Bachmann Trains, bachmanntrains.com
5 Gunderson Maxi-I five-unit articulated well car. Kato has released this car decorated for BNSF Ry. in two new road numbers. The N scale car (**\$150**) includes 10 Ocean Network Express

40-foot intermodal containers. Kato USA Inc., katousa.com
6 53-foot high-cube intermodal containers. Jacksonville Terminal Co.'s N scale Visionary Series containers are lettered for Allegheny Midland, Virginian & Ohio, and Virginia Midland. A two-pack sells for **\$33.95**. Jacksonville Terminal Co., jtcmodeltrains.com **MR**

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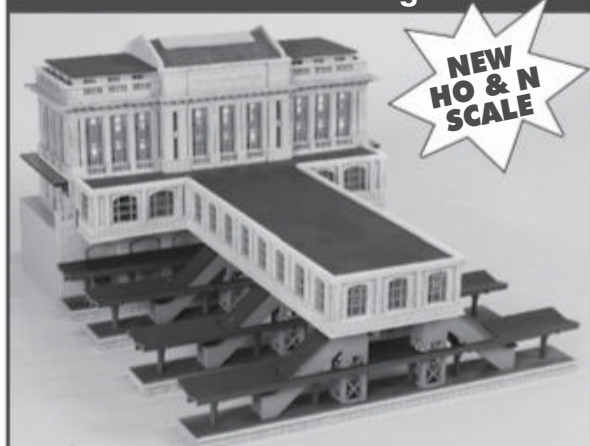


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Finding grain bin details

In the February issue of *Model Railroader*, you showed Pelle Søbørg's modular layout ["A fresh start," page 38 – Ed.]. The details on the grain bin are perfect.

I've hauled grain both off the farms and for various grain elevators. I've been building a layout for my grandkids, and grain is part of it. I'd like to know where he was able to find these details. I've been looking and have been unable to find the truck loading chutes and dryer fans.

Vernon A. Hintt

Pelle Søbørg replies: "Most if not all the details on my grain facility are built from scratch. The only commercial parts I used are the corrugated grain bin sides. Even the roofs are built from scratch. I have sent a picture of the two low bins, and everything in white styrene is built from scratch, even the elevator."



Pelle Søbørg's grain bin details, seen in his February article, are for the most part scratchbuilt. Pelle Søbørg photo

NASA and model railroading

I always look forward to a clever, sometimes hidden, April Fool's item in the April issues. Page 22 offered no disappointment, and you've gotta hand it to those innovative guys and gals at NASA! I still recall, many years ago, a terrific piece about scale bees on the layout. You had me there. Continued success, and, one can never have too much fun.

Bob Mitchell, Weston, Conn.

A commemorative caboose

I just read Tony Koester's April "Trains of Thought" with the commemorative caboose model photo, and had a huge flashback.

My friend Dave Garcia was a true railroad historian I used to call for feedback on my modeling projects. In February 2020, I was kitbashing an HO scale wood shorty caboose based on old photos. Dave actually worked in the Pacific Electric yard, so he told me the particulars of these cars and how they

were used. He even told me what shade of brown they were painted.

Dave gave me a lot of info to use in my construction and was quite a joy to speak to. Great memories. Unfortunately, he passed from COVID-19 last year. He is missed, but I have my Pacific Electric caboose, the "Dave Garcia."

Steve Bradley, Oceanside, Calif.

Reverse loops and DCC

I want to compliment Allan Gartner on his excellent article about reverse loops [April, page 46 – Ed.]. I'd like to make one minor point about Figure 1. The information is accurate for rolling stock with plastic wheels. But if you're using metal wheels, the entire train must fit in the reverse loop. Just one wheel can bridge the gap between the reverse loop and normal track. If this happens at both ends of the loop simultaneously, the reverser can't resolve the short circuit. While it would seem the chance of that is unlikely, experience indicates that it happens more often than you'd like.

One other useful rule is that the insulators for your reverse loop should be at least your longest engine away from any turnout frogs or insulated frog rails, particularly if you are using automatic frog polarity control. If the engine can touch the frog and the reverse loop at the same time, you can get an unresolvable short.

Larry Meier, Essex Junction, Vt.

Corrections

In "A fresh take on handlaid track" in our March issue, Pelle Søbørg describes his technique of weathering track with Vallejo Air acrylic paint washes. He first paints the rails and ties Camouflage Black Brown, then adds a Tank Brown wash to the main and Black to the sidings. The article gave the wrong color for the sidings.

The caption on Lee Bishop's Trackside Photo in the March issue incorrectly attributed the layout to an Ashley Bishop. Lee built the On30 scale East Tennessee & Western North Carolina model railroad. 

Comments, suggestions, and additional information on *Model Railroader* articles and departments are welcome in this column. Every comment will be read, but not all can be printed or answered. Make your statement in 300 words or less, and send it to **Railway Post Office, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187**, or e-mail rpo@mrmag.com. Please include your name, city, and state.

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A miles-long string of covered hoppers is seen on a storage siding near Lindsay, Mont., on August 8, 2020. R.C. Lopez photo

Why were so many hoppers parked in the middle of nowhere?

Q Recently, while driving along a highway in the vicinity of Lindsay, Mont., I came across a long, continuous line of covered hoppers. The photograph I took hardly does it justice. These cars stretched on for the better part of 8 miles across the Montana prairie. I'd never seen such a thing before. From what I was able to discern on Google Maps, these cars sat on what seems like a very long siding, although I couldn't identify any local industry that would service that many freight cars. Can you provide any insight?

R.C. Lopez, Wilmette, Ill.

A Those cars were likely in storage. During the harvest season on the prairie, railroads need

thousands of covered hoppers to promptly handle the grain that needs to move from collector elevators to flour mills, feed mills, export elevators, and other destinations. But in the off season, those cars aren't needed. Railroads will park idle hopper cars on long passing sidings like the one you saw until they're needed. This keeps the hoppers ready for use without clogging up train yards.

Another possible explanation is the cars could be parked there to form a windbreak. The cars' location on a flat, windswept prairie makes this possible. However, the fact that the cars are fairly well kept covered hoppers rather than heavily weathered older cars make this explanation less likely than the first.

Q I recently purchased the Kato *20th Century Limited* in N scale. The documentation with the set says that run-through service was provided with the Atchison, Topeka & Santa Fe. Where can I find information on which ATSF cars were used for this and where would they be cut into the NYC consist?

Mark Deutscher, Fulton, Ill.

A Starting on March 31, 1946, the Atchison, Topeka & Santa Fe inaugurated transcontinental service by including three run-through sleeping cars on its named train *The Chief*. These cars would travel from Los Angeles to Chicago on *The Chief*, where they would be swapped for run-through sleepers on the New York Central's *20th Century Limited*, the Baltimore & Ohio's *Capitol Limited*, and the Pennsylvania RR's *Broadway Limited*.

Three 4-bedroom, 4-compartment, 2-drawing room sleepers alternated *Chief* duties on the NYC: the *Imperial House*, *Imperial Domain*, and *Imperial Empire*. For the Santa Fe, 4-4-2 sleepers in the *Regal* series would do the run-through duties on the *20th Century*. In 1948-1949, the NYC switched to cars in the *Bridge* series. In 1949, a 10-roomette, 5-double-bedroom sleeper was added;

NYC used cars from the *Cascade* series and the Santa Fe used *Pine* cars.

One account for 1951 lists the cars in the NYC rotation as the 4-4-2 *Castleton Bridge*, *George Washington Bridge*, *Thousand Islands Bridge*, *Tri-Boro Bridge*, *Brooklyn Bridge*, *International Bridge*, and *Rip Van Winkle Bridge*, as well as 10-roomette, 6-double-bedroom sleepers *Chicago River* and *Chateaugay River*. For the Santa Fe, 4-4-2 sleepers *Nava*, *Bacobi*, *Saydatoh*, *Tsankawi*, and *Seboyeta* did the job, along with 10-6 sleepers *Pine Bell*, *Pine Beach*, *Pine Brook*, *Pine Cavern*, and *Pine Arroyo*.

In January 1954, Santa Fe switched its transcontinental service to the *Super Chief*, and run-through duties were performed almost entirely by ATSF cars. Santa Fe 4-4-2 sleepers that would be seen on the *20th Century Limited* included *Regal Gate*, *Regal Gulf*, *Regal Arms*, *Regal Creek*, *Regal Town*, and *Regal Court*. Sleepers *Pine Arroyo*, *Pine Brook*, *Pine Dale*, *Pine Island*, *Pine Cove*, and *Pine Fern* filled the 10-6 role.

Run-through service of 10-6 cars on the *20th Century Limited* came to an end January 12, 1958. In April of that same year, the 4-4-2's were dropped, as well.

Kato's nine-car *20th Century Limited* set includes the 4-4-2 sleeper *George*

Washington Bridge, which would have been in run-through service from 1948 to 1954; the 10-6 sleeper *Chicago River* is included in Kato's four-car add-on set. Both these cars would be coupled near the head of the train, just behind the baggage car, in order to minimize jostling the other cars in the consist while switching these over to the Santa Fe. If you're modeling the *Super Chief* era (1954-1958), look for Kato's *Super Chief* four-car add-on set; the 4-4-2 *Regal Gate* could be used on the *20th Century Limited* as-is, but 4-4-2 *Regal Hunt* and 10-6 sleepers *Palm Haven* and *Palm Top* would have to be renamed. Microscale decal set 60-114 includes the names *Pine Island*, *Pine Dale*, *Regal Creek*, and *Regal Arms*, among others.

Q In the 1990s I routed my cars using a software program that was industry-oriented, not car-oriented. The program was called *Railroad Management System* by Software Implementation-Sonora Software in Tucson, Ariz. It's no longer available. Is there any software out there that would be similar?

Thomas Lauritsen, Flippin, Ark.

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

A You might try out the Model Railroad System, an open-source, freeware system available from Deepwoods Software: www.deepsoft.com/home/products/modelrailroadsystem/. This suite of programs is available for Windows and Linux. Elements include programs to control signals and turnouts; create switch lists for car routing; make timetables for scheduled passenger trains; and other useful utilities. If it doesn't do exactly what you're asking, you might still find parts of it useful. And it costs nothing to try, since it's a free download.

Q Have the model railroad manufacturers ever considered making the wheels on car trucks free-wheeling, or more specifically, independent of the axles? It seems to me that trucks would bind less on tighter radius curves if each wheel could rotate independently.

Wilt Nelson, Leesburg, Fla.

A Wheels and axles on model trains are solid for a couple of reasons. First is practicality; making the wheels rotate



Snow falls on spare car wheel sets in Union Pacific's West Chicago, Ill., yard during a winter storm. Like on our models, car wheels and axles on the prototype are single, solid pieces. Howard Ande photo

independently would require more and smaller parts, making trucks more fragile, more expensive, and possibly less reliable. Second, it's actually more prototypical. Train car wheelsets on the prototype are solid units, just like our models. They handle curves by having a slightly

tapered tread profile. As a truck with a rigid wheelbase enters a curve, the inside rail curves away from the flange and rides on the outer part of the wheel, which has a smaller diameter. The outer rail curves inward toward the flange, riding on the thicker inner part of the



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wheel tread. This means that even though the inner and outer wheels are fixed to each other and rotate at the same rate, the outer wheel actually travels a longer distance than the inner one because of which part of the wheel is riding on the rail. On the model, our cars are light enough that it doesn't matter if the wheels slip a bit on tight curves.

Q I have two identical HO scale boxcars, one that came ready-to-run, the other that I built from a kit. Both roll on metal wheels that were supplied with the car. The ready-to-run car rolls very nicely, but the kit, not as much. The kit came with two nuts to serve as weights, mounted over the trucks. Could this affect how well they roll?

Bob Devine, Rumson, N.J.

A It's possible, though the trucks or wheels are the more likely culprits. Make sure that the needle points of the axles are seated properly in the very center of the sockets on the truck sideframes. Make sure the sideframes aren't so tight

READER TIP

Weighting N scale cars

To weight my N scale cars, I use automobile tire weights. The smallest ones are 1/8" x 1/2" x 3/4" and weigh 1/4 ounce. They come with an adhesive backing strong enough to hold them on a car wheel in all weather conditions. I've used them in boxcars and covered hoppers. You can buy them from Amazon.com and other sites on the internet, but you need to check the dimensions carefully to make sure they'll fit inside your rolling stock. You can get 48 for about \$8 (16 cents each).
— Michael Donnelly, Renton, Wash.

that the axles bind. Test that the trucks roll freely by themselves, before installation. And make sure that the wheels don't rub on the car underfloor, center sill, brake lines, or anything else.

Q Any suggestions on how to make or where to buy HO scale siding representing asbestos cement shingles? This was used a lot in the 1940s and 1950s, and many homes in older neighborhoods still have it today. I'm trying to model my childhood home, which had this type of siding. The shingles were about 24" long and 10" to 12" wide. They had a subtle texture of slight vertical ridges.

Dwight Oehlerich, Cedar Rapids, Iowa

A Rail Scale Models (rail-scale-models.com) offers three patterns of asbestos shingles in HO and O scale. King Mill Enterprises used to make some, though they aren't selling any more; even so, you might find some of their products still on offer online or in hobby stores. In a pinch, you could probably use any kind of scale shingle material. I would suggest laser-cut paper shingles from manufacturers like American Model Builders, Bar Mills, Branchline Trains, B.T.S., Northeastern Scale Lumber, GC Laser, or Motrak Models. **MR**

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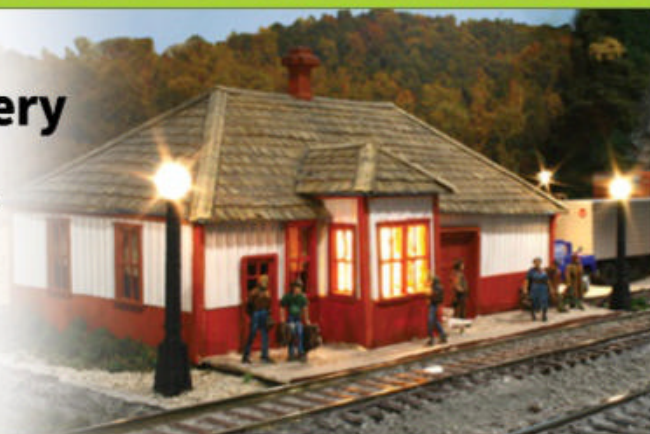
Tony Kell's On30 Raccoon Canyon Mining. Photo by Steve Flint.

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This HO scale Illinois Central covered hopper, with missing couplers and incorrect wheelsets (inset), spent years sitting on the repair-in-place track on the Milwaukee, Racine & Troy. But with some detail and decal upgrades, Cody Grivno made this car look like a modern-era salt hauler.

New life for an old covered hopper

Sometimes the answer is right in front of your face. That was the case when we were looking for freight cars for Cargill Salt, one of the industries on the Jones Island section of our HO scale Milwaukee, Racine & Troy (MR&T) staff layout. The full-size industry receives Trinity 3,601-cubic-foot capacity two-bay covered hoppers. The aluminum-and-steel cars have distinct lines, but aren't offered in HO. Because of deadline constraints, kitbashing wasn't an option. We had to look elsewhere for cars for Cargill Salt.

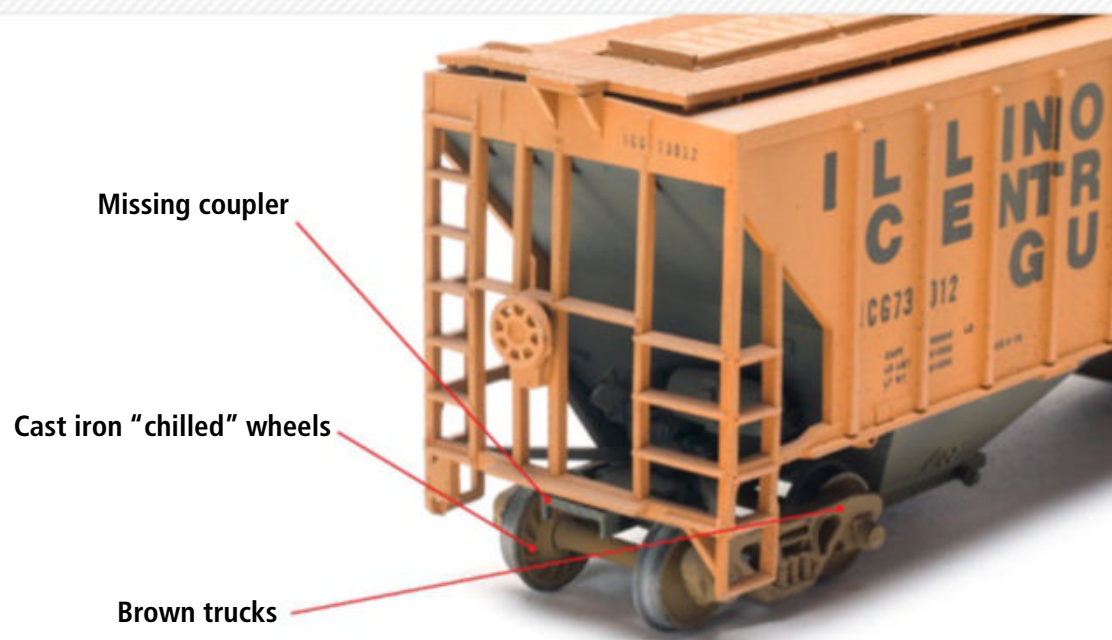
I searched various prototype freight car websites and noticed Interstate Commodities (INTX) has a sizable fleet of older three-bay covered hoppers, some of which are now used in salt service. One that caught my eye was INTX no. 47122. The ex-Illinois Central Gulf Pullman-Standard 4,740-cubic-foot-capacity three-bay covered hopper is still painted in the former railroad's orange-and-black scheme with billboard lettering and a large ICG merger herald on each side.

Around the same time, we were doing some much-needed cleaning on the MR&T for a video shoot. There were a bunch of cars sitting on the repair-in-place track, including an Athearn ICG 4740 covered hopper. The lettering placement didn't match the prototype car, but I could live with that.

Before the car could be put back into service, it needed to make a stop at the workbench. Follow along as I share how I took a car destined for long-term storage and gave it a new lease on life.

STEP 1 TAKING INVENTORY

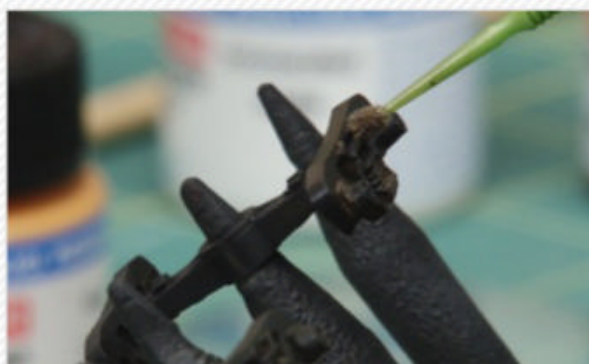
At first glance, the covered hopper looked to be in decent shape. Someone had weathered the car, the stirrup steps were intact, and all of the details had been installed. But when I looked closer, issues became evident. Both couplers were missing (most likely harvested for another car). The solid brown trucks didn't do much for me, but the wheelsets were the larger issue. The model was fitted with cast-iron (chilled) wheels. On the prototype, cars equipped with these wheels were banned from interchange after 1970.



STEP 2 TRUCKS AND WHEELSETS



Fortunately, I had an unpainted set of Athearn trucks in my parts bin. I installed plastic wheelsets to mask the sockets, set the trucks on a homemade painting jig, and spray painted the them with Tamiya Rubber Black spray paint (TS-82).



I let the spray paint dry for 24 hours. Then I used a Microbrush to apply Vallejo Oiled Earth (no. 76.521) and Dark Rust (no. 76.507) Model Wash to the sideframes. The Microbrush made it easy to flow the washes into the various nooks and crannies on the trucks.

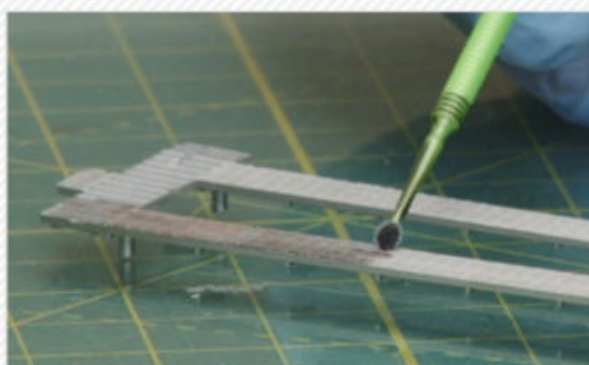


I replaced the cast-iron wheels with InterMountain 36" metal wheelsets (no. 40051). After cleaning them with a cotton swab and isopropyl alcohol, I painted them with Lifecolor Rusted Umber (no. UA 760, from Burned paint set no. CS29).

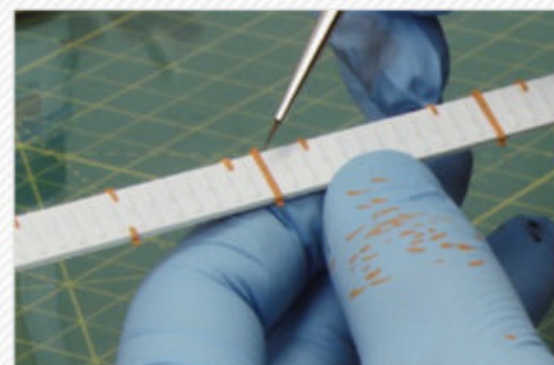
STEP 3 ROOFTOP DETAILS



The Athearn model had orange running boards. On the full-size car, the running boards appeared to be unpainted galvanized steel. To capture that look, I airbrushed the casting with Vallejo Model Air Aluminum (no. 71.062).



I let the paint dry for 24 hours. Then I sprayed the running boards with Testor's Dullcote (no. 1260). Once that dried, I applied Monroe Models Quick Age (no. 110-978). The alcohol-based wash settled into the low spots, helping the grate detail stand out.



I sprayed the hatch cover with Testor's Flat White (no. 1258). Then I brush painted the batten bars and hinges, which looked to be original on the prototype, with Lifecolor Rust Light Shadow 2 (no. UA 704, from Rust and Dust Diorama set CS10).

STEP 4 WEATHERING AND DECALS



When studying prototype photos, I noticed the black and white paint on the herald was wearing off. I was able to capture that look by gently wet sanding the herald with 1,500-grit sandpaper.

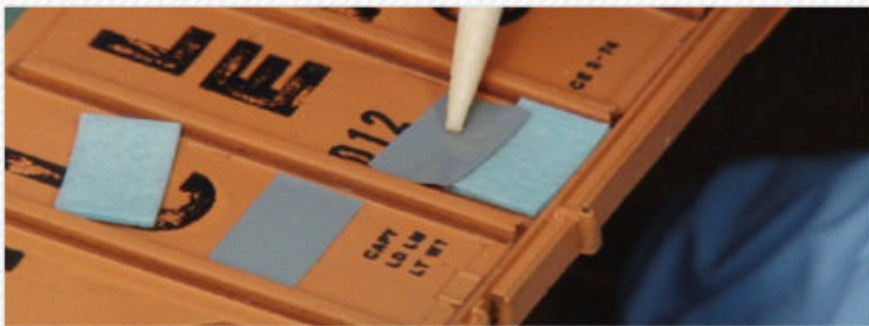


To give the lettering a worn look without disturbing the weathering, I used an Alpha Abrasives fine grit plastic sanding needle (no. 0403, available from Flex-I-File). The abrasive tool can be used wet or dry.



After cleaning the model with water, I used a paintbrush to apply Tensocrom Burnt Brown (no. TSC 211) along the exterior posts. Once that was dry, I sprayed the model with Tamiya Clear Gloss (no. TS-13).

STEP 4 WEATHERING AND DECALS (CONT'D)



I covered the side and end reporting marks with Microscale New York Central trim film (no. TF-21) and the original consolidated panels with black rough-edge patches from Smokebox Graphics set DF6587.



I used Smokebox Graphics decal sets DF6287 (INTX patch jobs) and DF5787 (yellow conspicuity stripes) and Microscale set MC-5004 (COTS triple panels), all applied with Micro Set and Micro Sol, for the rest of the project.



I wiped the model with a cotton swab dipped in distilled water to remove any decaling residue. Then I sprayed the car with a single coat of Clear Gloss. Bad idea! The lacquer attacked a few of the decals. For best results, mist on two or three light coats before applying the wet coat.



I couldn't do much to fix the distorted decals, but I was able to salvage the wrinkled ones by poking through the clear coat and applying more decal setting solution. Then I applied Tamiya Clear Flat (no. TS-80) to give the car a flat finish. I built up the clear coat in light passes this time!

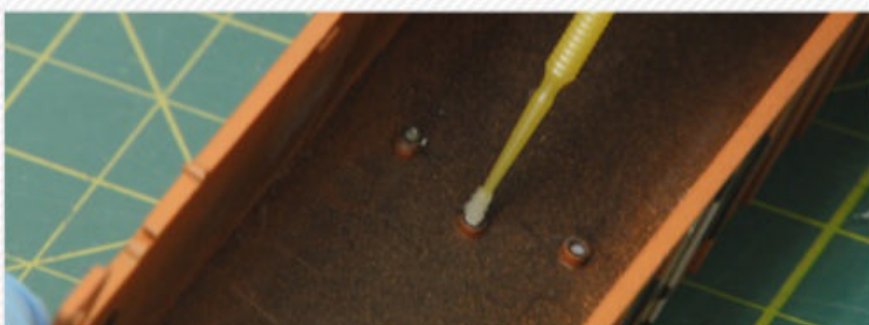
STEP 5 FINISHING TOUCHES



I replaced the missing draft-gear box covers with Athearn part no. 90602. However, the plastic tabs on the sides of the boxes were damaged. To hold the covers securely to the model, I used A-Line's Bulls Eye jig (no. 11007).



After drilling the coupler boss with a no. 50 bit, I used a 2-56 tap to thread the hole. Then I installed Kadee no. 148 whisker couplers and placed the metal covers on the boxes. I secured the covers with a 1/8" x 2-56 screw.



Finally, I reattached the hatch cover and running boards. The parts are press fit and probably would have stayed in place on their own. Just to be safe, I secured them to the body shell with plastic solvent cement, which I applied from the inside using a Microbrush.



With that, a covered hopper that was sitting on the RIP track and probably not much longer for the MR&T now has a bright future as a salt hauler. Before you decided to give up on a locomotive or freight car, see if you can give it a new lease on life. 

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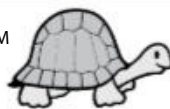
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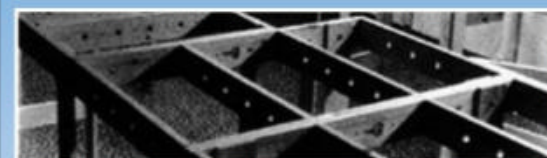
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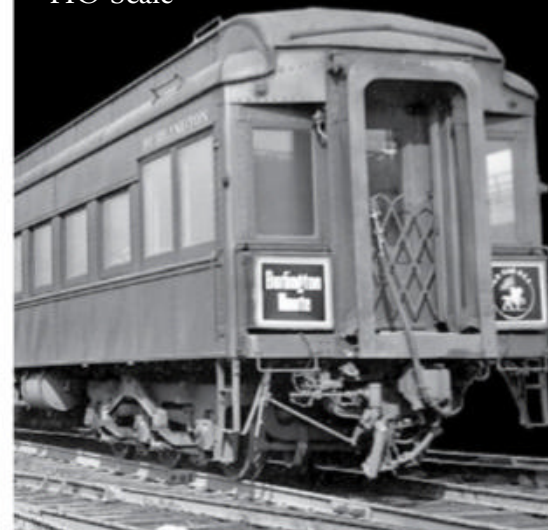
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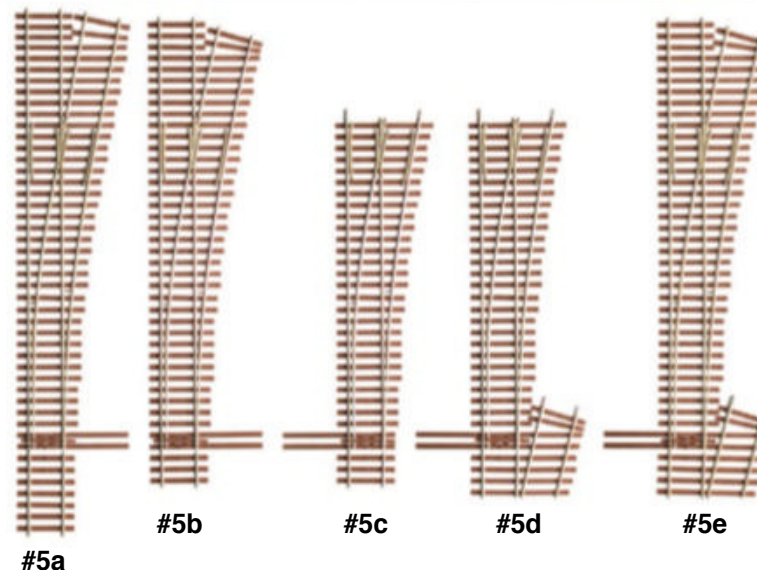
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If you don't like how the deck looks on your plastic flatcar, give stripwood a try. Bob Frankrone shares how he applied and weathered 2 x 6 lumber to the deck of this Athearn HO scale flatcar.

Add a wood deck to a flatcar

Use stained stripwood to enhance injection-molded plastic models

By **Bob Frankrone** • Photos by the author

Flatcars, especially those with wood decks, are one of my favorite modeling subjects. Unfortunately, many flatcar models have plastic decks that, though they're designed to look like wood, don't look very realistic. There are many skilled modelers who can make plastic look like wood, but I'm not one of them. The only way I was going to achieve the appearance of wood was to use the real thing. So I purchased some HO scale 2 x 6 stripwood and got to work.

Getting started

Adding a wood deck to a flatcar isn't particularly difficult, but it does take a little time and a fair amount of patience. The tools and materials I used are shown in **1**, opposite.

The first step is to create a stain using India ink and isopropyl alcohol. I find that adding a few drops of India ink into a small container of alcohol does the trick **2**. I generally prefer a lighter stain as opposed to a darker one, because I don't want to conceal the wood grain with a stain that is too concentrated.

I needed 85 boards to re-deck the 40-foot flatcar shown above. It took 11 strips of 2 x 6-inch scale lumber, each 11"

long, to yield that much material. I used Midwest Products scale lumber because that's what my local hobby shop stocks. Other brands of scale lumber will also work.

Before cutting the material, I stained five of the 11 pieces of stripwood using a sponge-tipped makeup applicator **3**. You can find these at beauty supply and drug stores. It's essential to stain both sides to prevent warping.

Cutting and gluing

I used The Chopper, a tool from NorthWest Short Line, to cut the stripwood into lengths equal to the width of the flatcar's deck **4**. I cut one board and tested it for proper fit before I cut the rest of the stripwood. Once satisfied that I had the correct length, I cut all 11 strips into individual boards.

Before attaching the boards to the flatcar, I lightly sanded the plastic deck to remove some of the paint and to provide some "tooth" for better adhesion. I used white glue to adhere the boards. While it may seem odd to use white glue to bond wood to plastic, I've never had a board come loose. Some of my wood-deck flatcars are more than 25 years old.



1 Tools of the trade. Here are the materials and tools Bob used for his flatcar deck project. Shown from top: sandpaper, white glue, black chalk, a sponge-tipped makeup applicator, a toothpick, The Chopper, India ink, 70 percent isopropyl alcohol, and HO scale 2 x 6 stripwood.



2 The classic solution. Bob added a few drops of Higgins waterproof India ink to a small glass jar of 70 percent isopropyl alcohol to produce the stain he used on the stripwood. He didn't want the stain too dark, as that could hide the wood grain.



3 Adding variety. Bob used a sponge-tipped makeup applicator to pre-stain five of the 11 pieces of stripwood required for the project. He stained both sides the strips to minimize warping.



4 Quick cuts. Cutting 85 individual boards for each flatcar sounds daunting. To make the task more manageable, Bob used The Chopper from NorthWest Short Line. The plastic miter holds the wood to the same length for cutting.

Using a toothpick as an applicator, I spread a thin layer of glue to the bottom of each board **5**. Be careful not to use too much glue so it doesn't ooze out and get on the surrounding boards. Though white glue wipes off easily, it also seals the wood, preventing it from absorbing additional stain.

The scribed lines on the plastic deck served as a guide while I aligned each board. The reason I stained about half of the scale lumber strips was to avoid a uniform appearance. The mixture of stained and unstained boards causes them stand out from one another, thus highlighting the board-by-board construction, as shown in **6** on the next page.

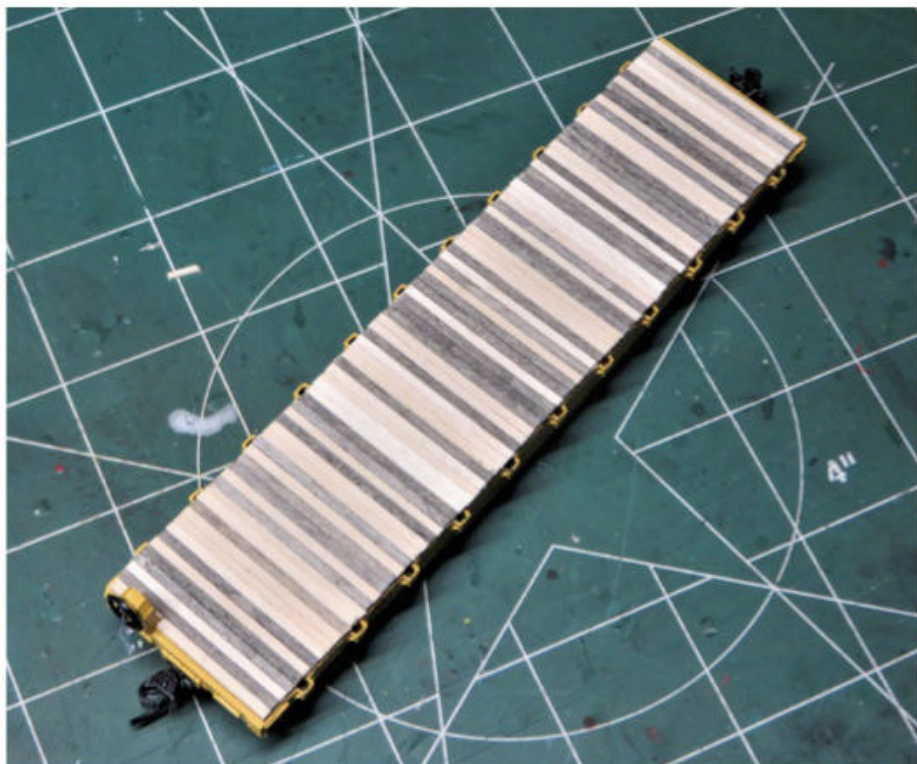
Finishing touches

Once the new wood deck was in place and the glue had dried, I stained all of the boards. Those I'd already stained became darker, and the previously unstained boards turned light gray. Don't "flood" the surface with the alcohol-based stain, as it could seep through the joints and loosen the glue.

After the stain had thoroughly dried, I weathered the deck with black chalk. The chalk subtly blended everything together



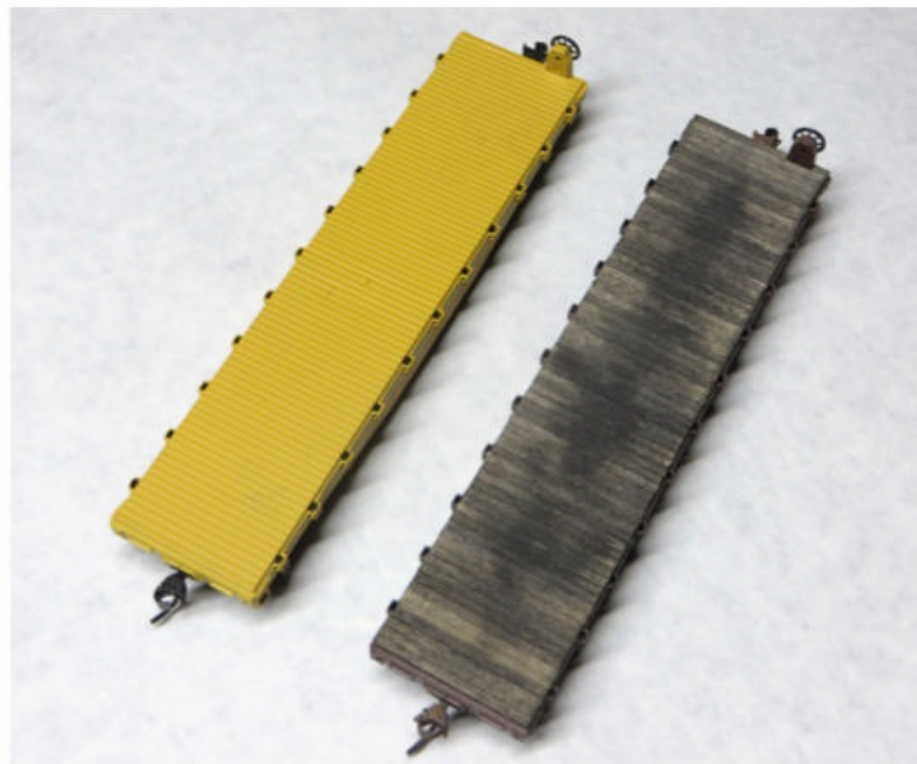
5 One by one. Bob used a toothpick to apply a thin layer of white glue to the underside of each scale board. He then attached the boards to the lightly sanded flatcar deck.



6 Almost finished. This is how the deck appeared before Bob added the final application of stain. The contrast between the pre-stained and unstained boards confirms the deck's board-by-board construction.

without concealing the individual boards. It also made the boards look like they'd been on the car for a while.

Re-decking the flatcar proved to be a lot of tedious work, but for me, the end result was worth the effort. The difference between a stock flatcar with a painted plastic deck and one with a wood deck **7** is obvious. **MR**



7 Before and after. A second application of stain, as well as some black chalk, gave the wood deck a weathered, realistic finish. A stock flatcar with a painted plastic deck is shown for comparison at left.

Bob Frankrone enjoys creating and building open loads for his many flatcar models. He is the author of the monthly series "Love Those Loads" in the NMRA Magazine. This is his first Model Railroader byline.

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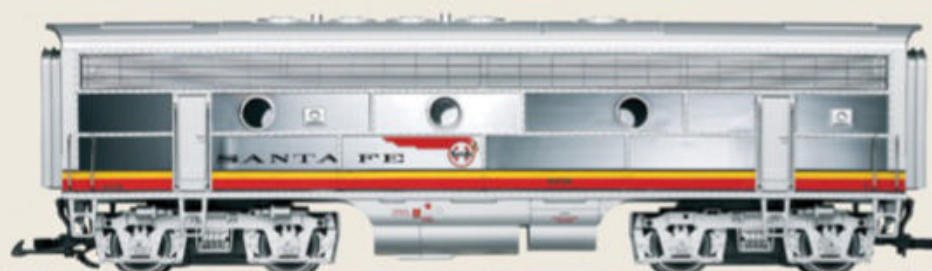


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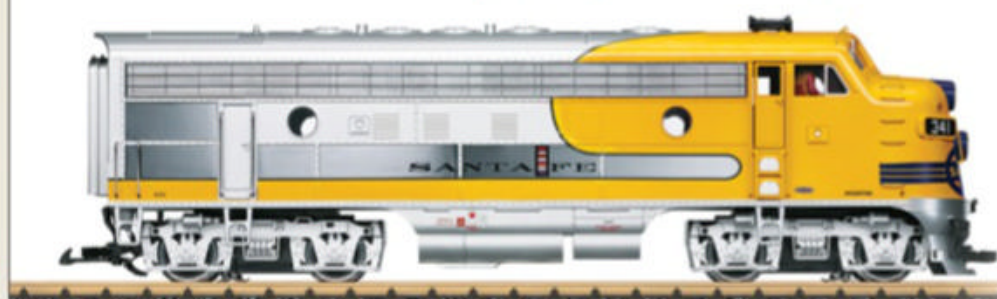
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Full-size railroads use propane- or natural-gas-fired switch heaters (inset) to keep turnouts free of snow and ice in winter. Follow along as M.R. Snell explains how he modeled this common trackside detail in HO scale.

Modeling a SWITCH HEATER

This lineside detail is a common sight in snowy climes

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

Winter has always made railroad operations challenging, and one of the biggest can be the operation of track switches. Switch points and flangeways can quickly become clogged with compacted snow and ice, making operation of the switch impossible.

Over the years many methods have been used to combat this, including kerosene-filled smudge pots with live flames placed between the ties. A more modern method is the blower-style switch heater. Both safer and more environmentally friendly than methods of the past, these pre-fab systems are essentially large hot air blowers. Fueled by either propane or natural gas, these systems are comprised of a blower, combustion chamber, and duct system, all working in unison to direct the hot air to the switch.

Though they're manufactured by several railway equipment suppliers, most have similar designs. A large base unit

mounted adjacent to the track houses the air intake, manifold, and combustion chamber. Extending toward the track is a short transition duct which attaches to a duct tie, literally a metal duct that takes the place of a tie. Extending from the top of the duct tie, two small nozzles direct air toward the switch points while two long ducts atop the ties carry the hot air the length of the switch.

Commonly found on mainline track switches controlled remotely by dispatchers, heaters can be a notable addition to our trackwork. Adding them is an easy modeling project that can be completed in an evening or two by combining commercial castings with simple scratchbuilding techniques. Follow along with a project to conquer the elements and keep the main line moving.

M.R. Snell lives in Milford, Ohio, and is a frequent contributor of how-to articles to the pages of Model Railroader.

STEP 1 Turnout modifications

The first item that a remotely controlled switch requires is a switch machine. Prototype switch machines are substantially smaller and look quite different than our working model versions. To control our turnout remotely, we need to use an under-the-benchwork switch motor, such as a Tortoise by Circuitron. This needs to be installed before any of the detail parts to come.

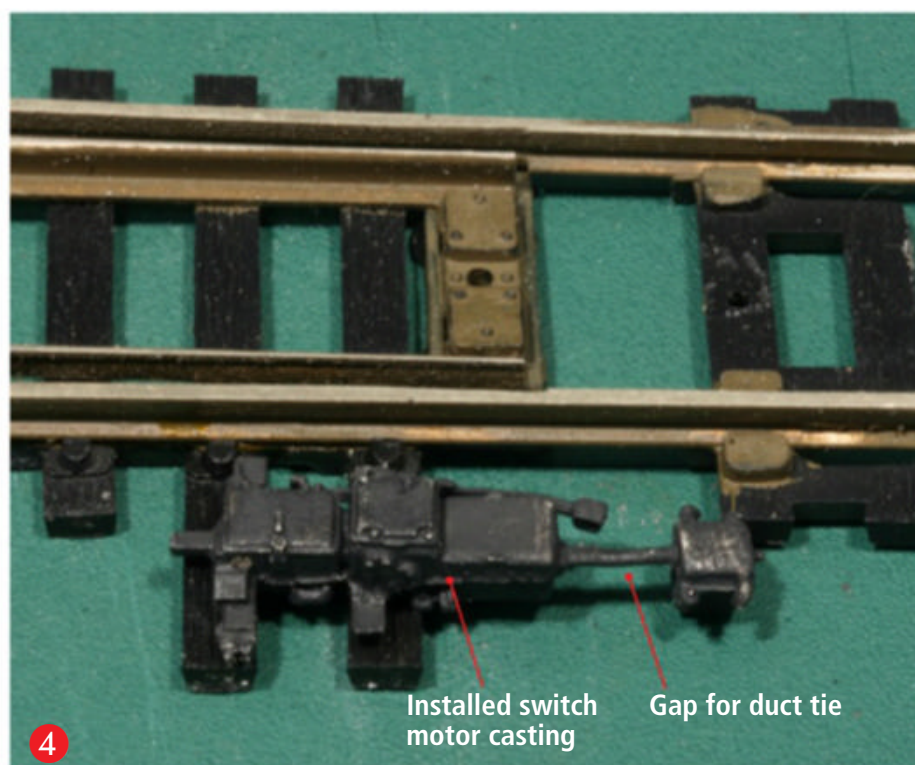
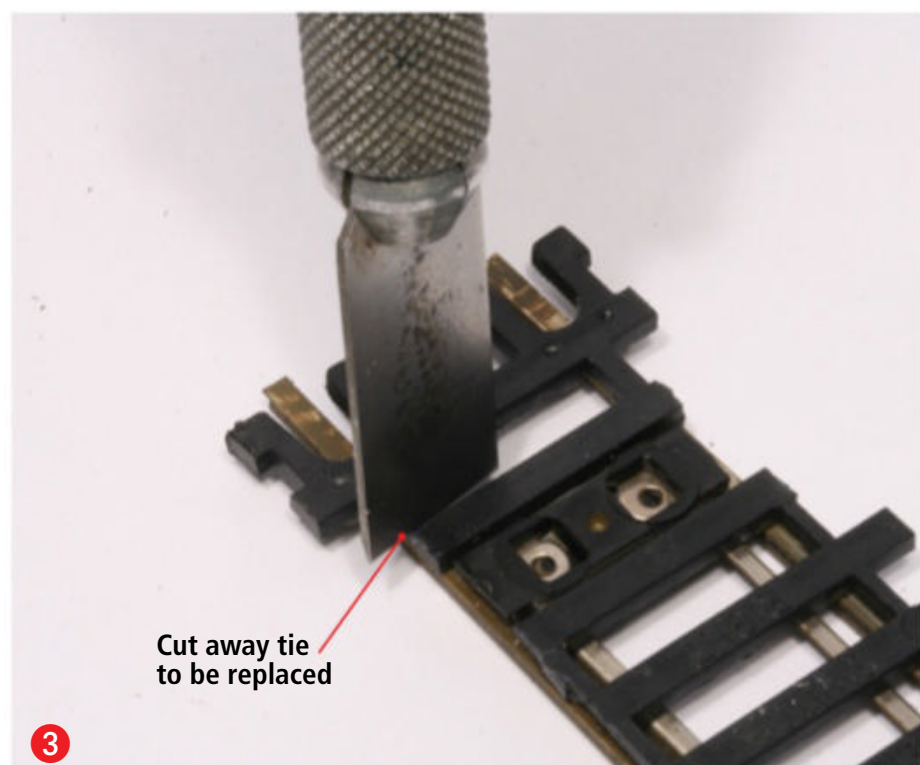
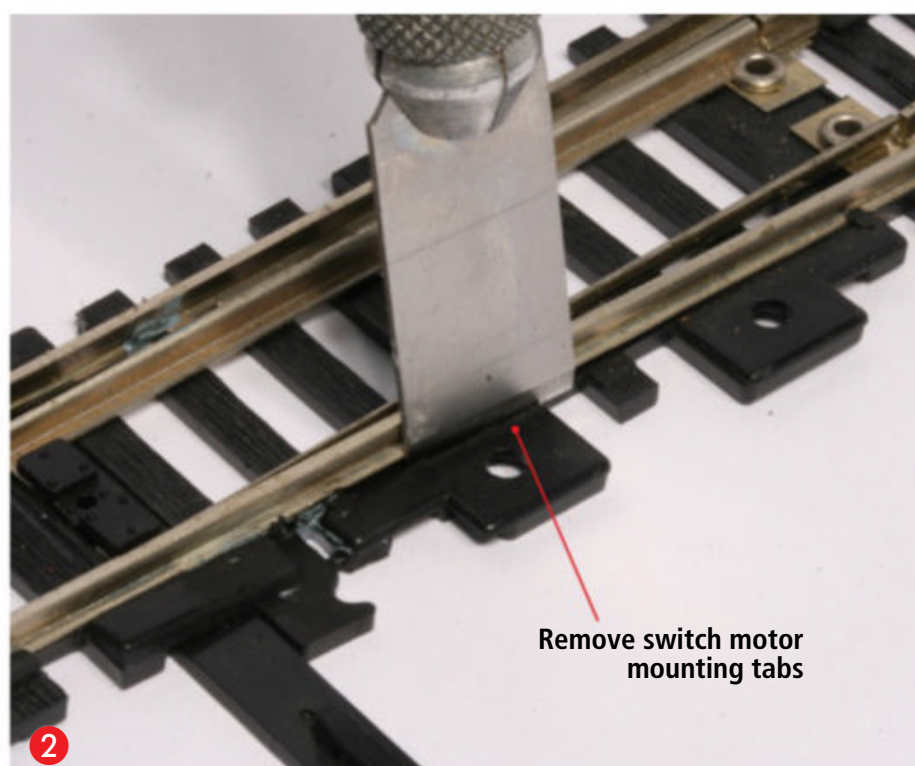
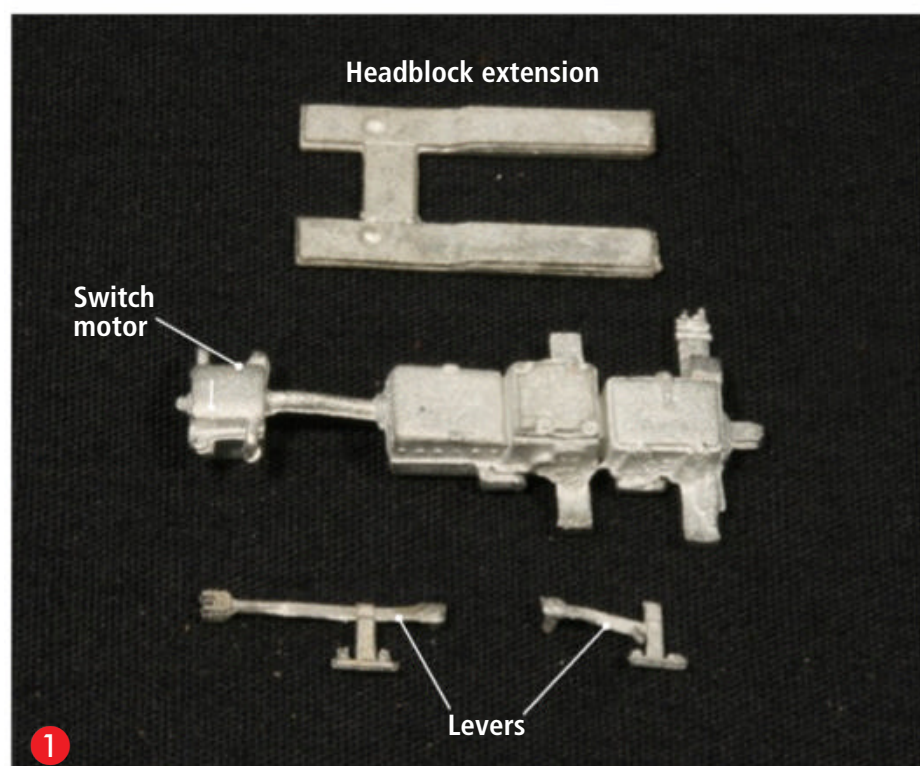
Above the benchwork, we can use a detail casting such as a Details West switch machine number SM203 **1**. Cast in white metal, the kit consists of four pieces: the long switch motor casting, the base, and two manual throw levers that mount onto the side of the motor casting. After trimming the flash from the casting, drill out the two small holes in the side of the motor casting and cement the switch rods in place. Then paint the entire assembly either black or silver, depending on your road's preference of color.

Next we can modify the turnout to accept the casting, if necessary. Model turnouts have come a long way toward a more realistic look in recent years. But for my project, I chose an Atlas Snap-Switch, which has large plastic tabs to hold an old-style trackside switch machine.

I began by cutting away the large, molded tabs on the outside of the rail using a hobby knife with a no. 18 chisel blade **2**. Next, I cut the switch rod back so its end would match the outer end of the headblocks when the turnout was lined in that direction. I then cut sections of ties from a length of scrap flextrack to replace the now missing pieces, including two extensions to the headblocks to hold the switch motor casting. I cemented them in place using Plastruct Plastic Weld. This transformed the model track switch from a toylike look to more closely resemble something we would see on the prototype.

With the turnout modified to hold the switch machine casting, there was one more modification required – making room to install the duct tie. I removed the tie it would replace by flipping the turnout over and cutting it from the molded tie web with the chisel-bladed hobby knife **3**.

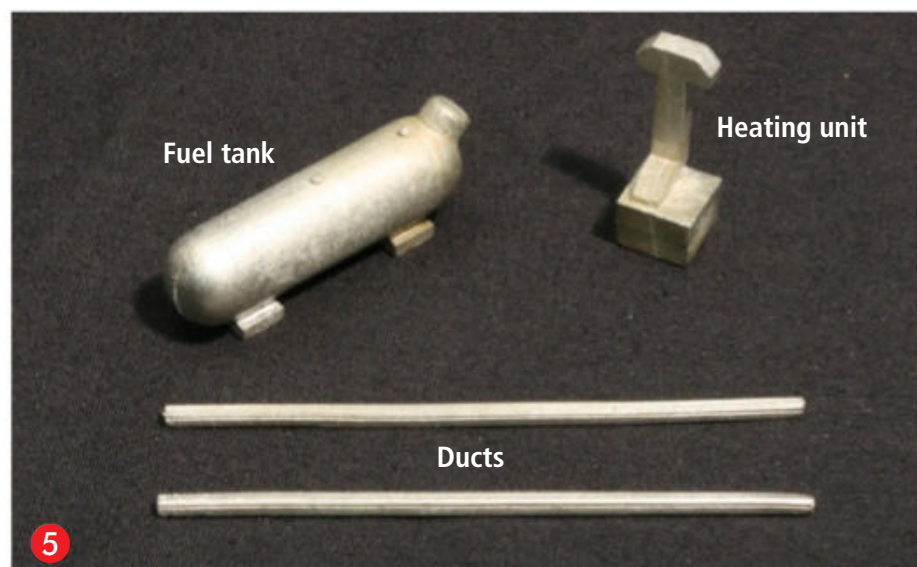
Now the switch machine casting could be mounted atop the tie extensions using cyanoacrylate adhesive (CA) to hold it in place, positioned so the heater ductwork would fit into the gap between the motor and electrical ground box of the casting **4**.



STEP 2 Heater assembly

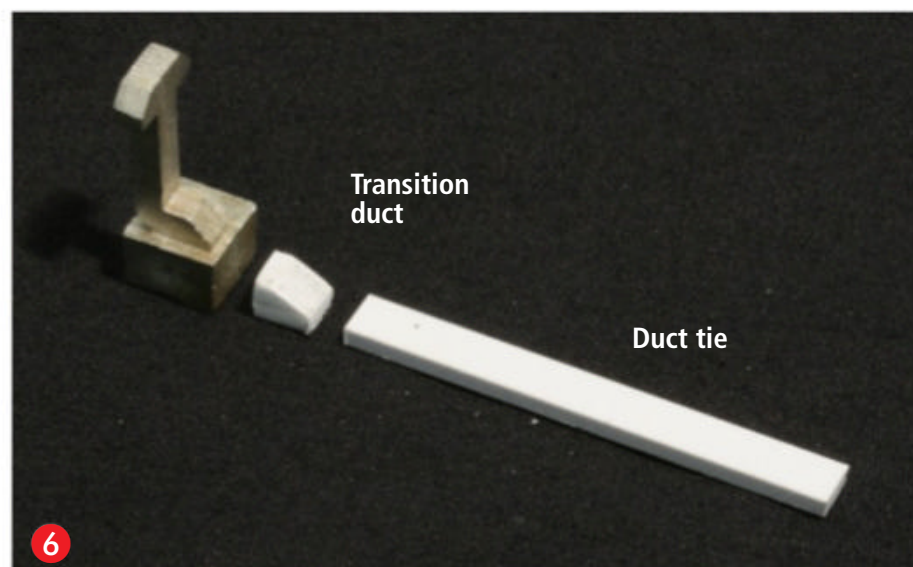
With the switch modified I turned my attention to constructing the heater assembly. Custom Finishing offers a cast detail part set (part no. 283) that's representative of the large style of combustion chamber and tall manifold **5**. Also included is a propane tank and two heater ducts.

Test-fitting the casting beside the switch, I set about constructing the transition duct and duct tie from styrene shapes. I first created the duct tie, cutting a length of Evergreen .060" x .156" styrene strip (part no. 157) to a scale 10'-6". This would enable the duct tie to extend outwards from one side, extending through the gap between the switch machine casting and the ground electrical box.



The next item to build was the transition duct, which connects the combustion chamber to the duct tie. I began by laminating two pieces of Evergreen .100" x .156" styrene strip (no. 177) using Plastruct Plastic Weld. Once this had dried, I sanded the sides to conceal the seam. I placed this piece on its side and cut through one end at a 45-degree angle with a chisel blade, then sanded the cut smooth. Finally I trimmed the excess length from the transition duct, leaving a short angle **6**.

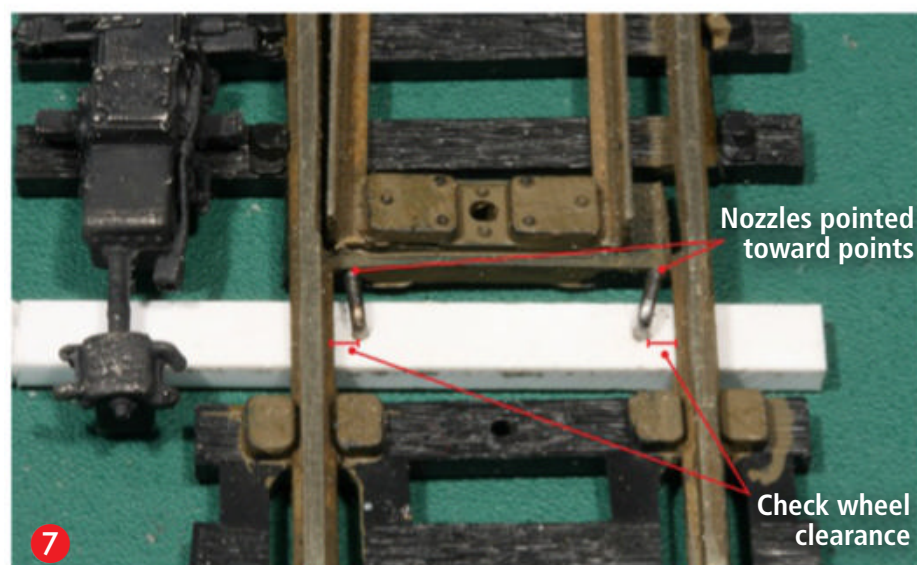
I glued all three components together using gap-filling cyanoacrylate adhesive, then test-fit the now one-piece assembly in place on the turnout.



STEP 3 Adding details

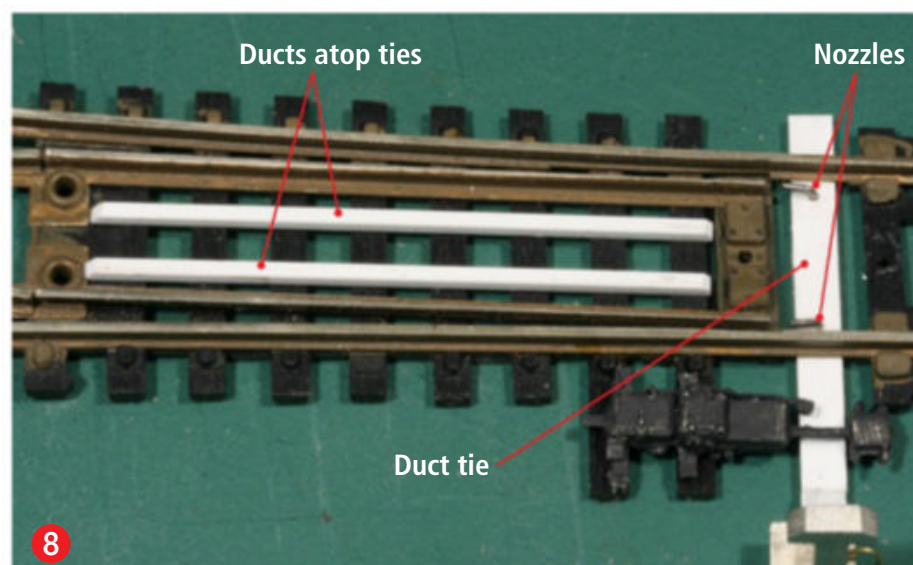
I next turned to two small but important details – the two nozzles extending upward from the tie duct. Placed on the inside of each rail, these nozzles keep the switch points thawed by blowing heat directly onto them. To add these, I marked their locations onto the tie duct using a sharp pencil, keeping in mind the space a passing wheel would require. I then cut two small lengths of Detail Associates brass wire (no. 2507) and bent each into a L shape to represent the 1.5" wide nozzles.

I drilled mounting holes through the duct tie and installed the nozzles, pointing toward the switch points **7**. After checking them for wheel clearance, I secured them with a drop of CA applied from the bottom of the duct tie.



With the duct tie assembly complete, it was time to install the ducts that run atop the ties to carry heat the length of the switch. Although these parts are included with the Custom Finishing kit, I chose to scratchbuild my own from styrene strip, as this would allow me to make them slightly larger and longer.

I began by cutting two lengths of Evergreen .060" square strip (no. 153) to a scale 16-foot length. This would fill the length between the switch rod and the pivot points of the switch **8**. I beveled the ends to 45 degree angles and painted them a dull silver color. When the paint was dry, I cemented them in place atop the ties, once again factoring in the clearance required for passing wheelsets.



STEP 4 Fuel supply

Our project is now almost complete. All that's left to do is add a fuel supply. Installations of this type are commonly fueled by propane stored in nearby tanks. These tanks are kept some distance from the rail for both safety and ease of filling from the trucks of local propane dealers.

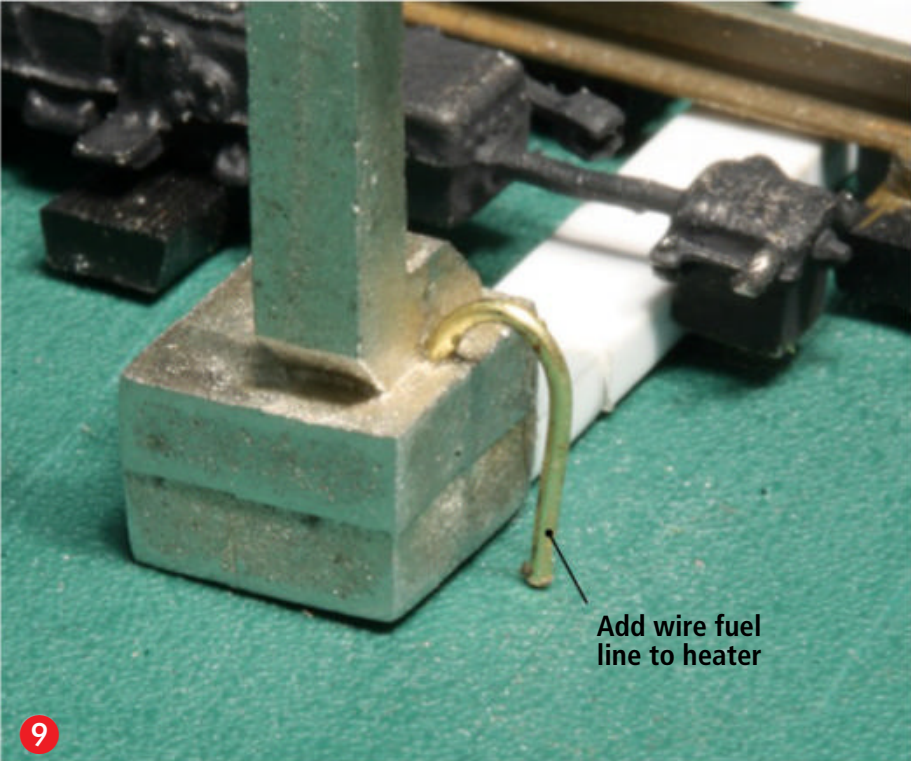
The lines running from the fuel tank to the heater are often buried to prevent damage to the lines and injury to employees walking in the vicinity. To represent this line, all we must do is add a small piece of brass wire to both the tank and the heater assembly.

Simply bend a small brass wire into a candy-cane shape. Drill a small hole into the combustion chamber casting, insert

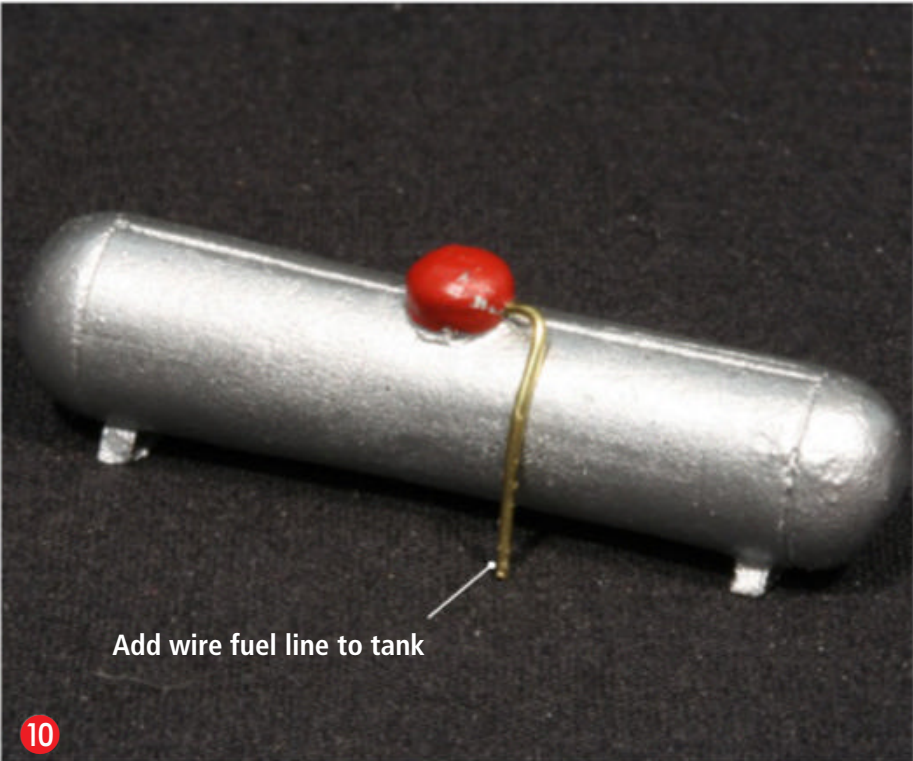
the short end of the wire, and secure it with cyanoacrylate adhesive 9. Cut the long end off even with the surface of the ground.

Do the same at the propane tank 10. For a multi-heater installation, we can daisy-chain tanks together by adding more fuel lines.

All that's left at this point is to paint our components and install them on the layout 11. Generally, the combustion chamber and manifold will be a stainless steel color, while the transition duct and duct tie will be a weathered steel color, as they are subject to the effects of trains passing directly over them. MR



Add wire fuel line to heater



Add wire fuel line to tank



Installed. The scenery may say summer, but M.R. Snell's installed switch heater tells knowledgeable viewers that snow and ice are not unknown on this railroad.

Materials list

Custom Finishing
283 switch heater kit

Detail Associates
2507 brass wire

Details West
SM203 switch machine

Evergreen styrene strip
153 .060" x .060"
157 .060" x .156"
177 .100" x .156"

A Michigan mining road in On30

A chance reunion with a fellow modeler led to the freelanced Ashland & Iron Mountain RR

By **Dave Rickaby** • Photos by the author

Mark Ballschmeider was 6 or 7 years old when he received a Marx train set for Christmas, introducing him to model railroading. But he already loved trains. He and his family lived in Wausau, Wis., across the street from a door factory served by the Chicago & North Western. Mark loved sitting on the front porch and watching the C&NW steam switcher work.

Mark later owned a pharmacy in the Wausau area when he met Chris Comport. Chris sold Mark advertising in a free “shopper” newspaper. When the paper was sold, the two lost touch.

But one day Mark was thumbing through an issue of *Model Railroader* when he saw Chris’ name in the caption of a photo of a layout at a children’s hospital in Dallas. Mark wondered if it was the same Chris he knew. A few days later, Chris walked into Mark’s pharmacy and asked, “Hi, do you remember me?” Mark showed him the magazine. Neither had known the other was also into trains.

Chris arrived at Mark’s house that evening to see his Milwaukee Road layout. The first words out of his mouth were, “Too much track, not enough

scenery.” Mark agreed, and the two started getting together once a week to work on the layout.

In 1995, a model railroad company, AIM Products, which stood for Adventure In Miniature, came up for sale. Mark had long held aspirations to become a model railroad manufacturer. He met with the owner and bought the company. Its product line included cast plaster tunnel portals, bridge abutments, rock molds, and weathering powders.

For his part, since leaving the ad business, Chris had become the owner of Russian River Models, which offered On30 rolling stock and buildings. Chris lent much inspiration and many ideas for AIM Products. The two of them started working train shows together.

On their way home from a narrow gauge show in Durango, Colo., in 1998, the two discussed converting Mark’s HO scale layout to On30. They stopped to buy some legal pads so while one person was driving the other could write down ideas. By the time they got home to Wisconsin, they’d filled up half a pad. That discussion gave birth to the On30 Ashland & Iron Mountain Railroad, which bore the initials of Mark’s

company. The very next week they started ripping up the HO scale rails and laying On30 track.

Real setting, fictional railroad

While narrow gauge railroading makes most people think of Colorado,



Mark had a different prototype in mind. At the top of Michigan's Upper Peninsula lies a finger of copper-rich land known as the Keweenaw Peninsula. The first large-scale mining operation on the peninsula opened in 1844, and by 1869, the area was producing more than 95 percent of the nation's copper. The

mines, smelters, and stamp mills were served by a number of railroads, including the narrow gauge Quincy & Torch Lake. This piece of railroading history inspired Mark to come up with his free-lanced Ashland & Iron Mountain RR.

Mark's Ashland & Iron Mountain is primarily a copper hauler set in the late

① Ashland & Iron Mountain no. 5, a Baldwin Shay, takes a spin on the turntable at Knowlton. The scene is part of Mark Ballschmeider's On30 A&IM RR, which models a copper mining road in Michigan's Upper Peninsula.



2 No. 5 pulls empties out of the smelter at Tamarack to take back to the stamp mill for reloading.

1930s to early 1940s. Loosely based on the Quincy & Torch Lake, the A&IM serves the region's copper mines, stamp mills, and smelters. A secondary source of revenue is hauling aggregate from a limestone quarry.

The railroad also serves a large deposit of whiter limestone, which was quarried and shipped to cities on the Lake Michigan shoreline for use in making breakwaters. The A&IM ships this product from the Rawles Rock Co. quarry to the rest of the world via a transload with the standard gauge Copper Range RR.

Mark's operations include passenger trains, rock trains, copper trains, and general merchandise. He also operates a second, fictional line with trackage rights on the A&IM, called the Lac du Flambeau Railway (LDF), which translates to "Torch Lake." Torch Lake served as an interior harbor in the Portage Channel that bisects the Keweenaw Peninsula and was the location of several copper-related interests. Mark's fictional LDF Ry. runs along Torch Lake to Lake Linden and then on to Calm Port.

Layout construction

After 23 years of work, Mark feels that the layout is 99 percent complete. Mark believes in putting details everywhere; he can never have enough.

The layout is 24'-6" x 39'-0". It starts out following the walls, then extends into a peninsula that spirals in upon itself. The track schematic is a loop-to-loop design with no hidden staging, but there is visible staging at Painesdale. The benchwork is primarily L-girder, with some open-frame additions. He used 1 x 4 pine for the framework and 1 x 4s and 2 x 2s for the legs.

The Micro Engineering code 70 flex-track is laid on spline subroadbed topped with Homasote. The turnouts are mostly Micro Engineering, but there are some custom-built curved turnouts from Cream City Turnouts. All of the turnouts are operated using Caboose Industries ground throws.

Scenery

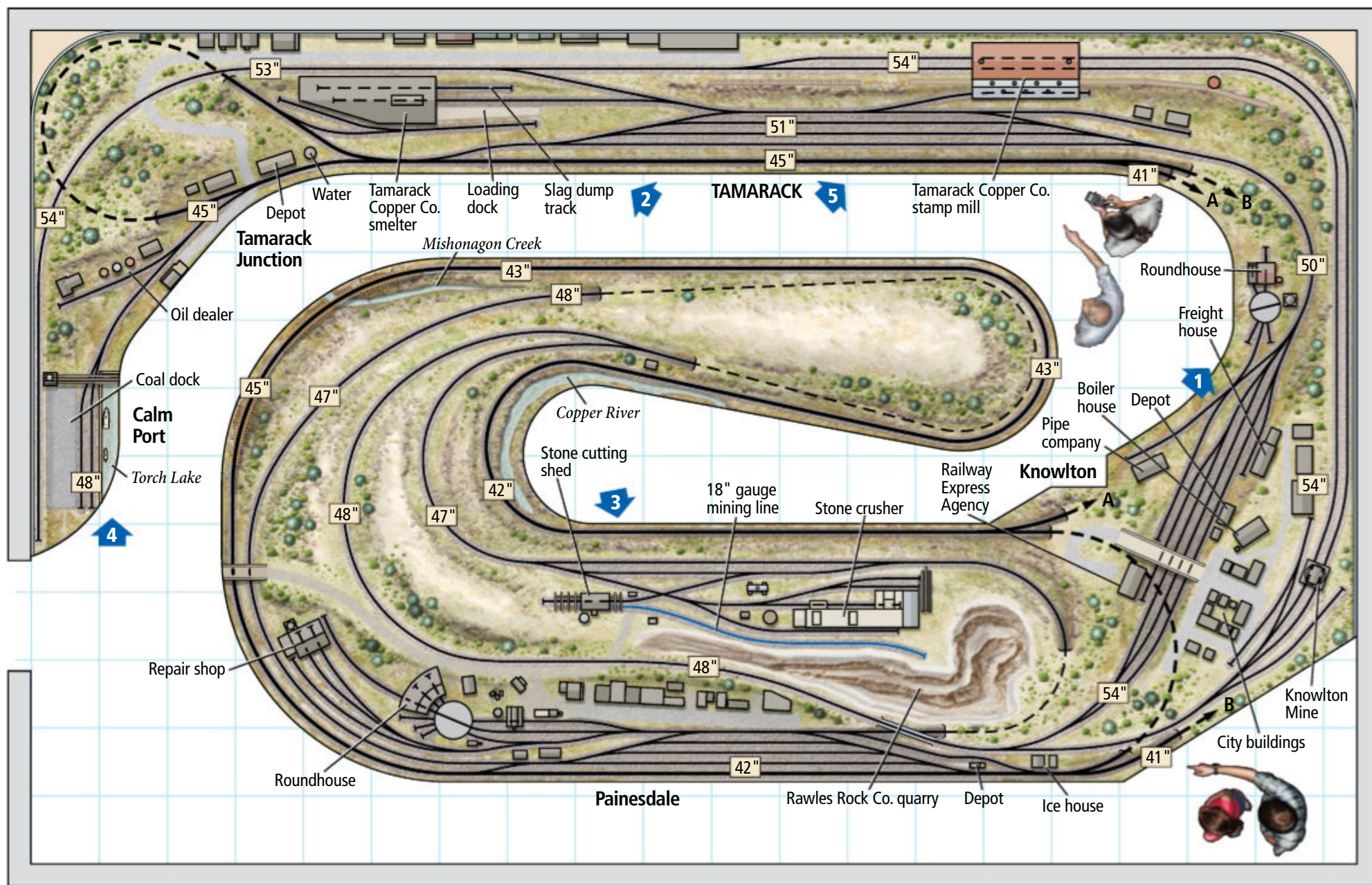
To create his landforms, Mark built a latticework of cardboard strips. He covered this with brown paper towels dipped in a soupy plaster and then



3 Mr. Dmytro moves slabs of stone at the Rawles Rock Co.'s stone-cutting building. Mark's friend Chris Comport built this little On18 side-rod critter, which works the quarry's in-plant narrow-gauge trackage.

layered over the strips. He found that these towels, made for industrial applications, are more fibrous and don't tear as easily. Two to three layers of plaster-soaked towels gave the landforms the strength need to support the scenery.

Mark switched to extruded-foam insulation board, which he found to be



Ashland & Iron Mountain RR

On30 (1:48 proportion, 30" gauge)
Size: 24'-6" x 39'-0"
Scale of plan: $\frac{3}{16}$ " = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

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

lightweight and easy to carve. To cover this, Mark used Sculptamold, a papier-mache and plaster-based material that clung to the foam well. All of the base landforms were painted an earth color before scenery material was applied.

Mark used real sifted dirt to cover his landforms, topped with Woodland Scenics ground foam, turf, and bushes. These are held in place with diluted white glue. Mark has also used static grass in places.

While some of the rockwork on the layout is plaster cast in rock molds from both his company and from Bragdon Enterprises, a lot of his rocks are hand-carved. One night Chris showed up with a 50-pound bag of concrete mix on his shoulder and proclaimed that they would be making rocks that evening. They mixed the batches, applied the first layer, then used the trowels to throw later batches onto the rock face. As this was setting up, they used trowels, dental

picks, and other tools to carve the rock walls.

Mark used diluted acrylic paints to stain his rocks. Before he sprayed any color, he started by spraying diluted India ink on the rocks to create a base color of gray. His palette included browns, tans, burnt and raw sienna, and burnt and raw umber. To apply the color to the rocks he would add one part paint to three or four parts water, along with a drop of dish detergent, into a spray bottle. He would also spray this mix onto the painted rocks as they were drying to achieve a flowing mix of colors.

The trees on Mark's layout come in many forms. He used Scenic Express SuperTrees and a variety of natural weeds found in the local area to form armatures. Mark has also picked his own sagebrush in Colorado. His pine trees are from Grand Central Gems.

To create the water effects at Calm Port, Mark painted the bottom black to suggest depth and then poured Enviro-Tex Lite. He used the same painting techniques for his river and stream beds, gently feathering the colors out to a lighter shade toward the shoreline, then used Woodland Scenics Water Effects to make waves and ripples.

The layout at a glance

Name: Ashland & Iron Mountain RR
Scale: On30 (1:48 proportion, 30" gauge)
Size: 24'-6" x 39'-0"
Prototype: freelanced, inspired by Quincy & Torch Lake RR
Locale: Keweenaw Peninsula of Upper Michigan
Era: late 1930s-1940s
Style: walk-in
Mainline run: 202 feet
Minimum radius: 27"
Minimum turnout: no. 5
Maximum grade: 2.5 percent
Benchwork: L-girder and open grid
Height: 42" to 54"
Roadbed: Homasote on spline subroadbed
Track: Micro Engineering code 70 flextrack with some handlaid elements
Scenery: hardshell over cardboard webbing and extruded-foam insulation board
Backdrop: $\frac{1}{8}$ " tempered hardboard
Control: NCE Digital Command Control with radio throttles



4 Ashland & Iron Mountain RR no. 50 switches the coal dock at Calm Port while the boats *Bumblebee* and *Milwaukee* bob nearby. The overhead crane is an HO scale Walthers kit.

Mark illuminated his layout using a combination of fluorescent tubes and track lighting with both light-emitting diode and compact fluorescent bulbs.

Eighteen or so of the structures on Mark's layout were built by Chris. Sometimes Chris would show up with a new building and tell Mark to find it a home. Other structures were built by his friend D. Scott Peterson, also an accomplished builder, and still others were built by Mark. While he scratchbuilt some of them, such as the smelter and stamp mill, others were made from Downtown Deco, Design Preservation Models, and Walthers kits. Mark scratchbuilt his highway bridges, as well.

Mark used 1/8" tempered hardboard to make his backdrops. He painted the sky a basic light blue. To paint the clouds in the sky, he used commercially available stencils for some and drybrushed others freehand. He also hand-painted his background hills.

Operating the layout

Most of Mark's more than 20 locomotives are from Bachmann, while the rest come from Broadway Limited Imports. All are equipped with DCC sound decoders. The Shays, which are Bachmann models, were regeared with North West Short Line's regearing kits at Enginehouse Services in Green Bay, Wis.

His rolling stock is primarily from Bachmann, with a few offerings from American Model Builders, and some scratchbuilt. Chris designed the ore/rock cars based on Quincy & Torch Lake cars. He created a master mold and made the bodies from poured resin.

Mark operates his trains with NCE Digital Command Control, with four Procab radio throttles.

Mark has not yet ventured into serious operation, and with Chris's passing, the layout has become a one-man operation. But Mark's grandson, Rhilen, has taken an interest in the layout. By the time he was 4 years old, he was handling the throttle and had become quite adept at the speed, direction, and braking aspects of it. As with many young boys

these days, he was inspired by Thomas the Tank Engine and learned from it such practices as going slow for switching. While visiting, he'll often ask to go downstairs and run trains.

While the loop-to-loop design gives the opportunity for continuous running, the layout can be operated prototypically. Empty ore cars are delivered to the Knowlton Mine and exchanged for loads. These loads are run to the stamp mill at Tamarack, with the stamped ore bound for the smelter and the final product shipped out at Calm Port or to the Copper Range RR. There's a loads in/empties out track between the Tamarack stamp mill and the Knowlton Mine. Along with general merchandise movements, plenty of passenger trains can be run, as well.

As far as the foreseen future, Mark doesn't see a need to add car cards for car forwarding, since all of the rolling stock is "captive" on the railroad.

Closing thoughts

Mark recently sold AIM Products to Monroe Models of St. Cloud, Minn. Now



5 Tamarack Copper Co. is the largest business on the A&IM. Here, Shay no. 5 pushes loaded ore cars into the stamp mill at Tamarack. Processed copper ore will be delivered to the smelter.

in his 70s, Mark sits atop a heap of wisdom and sage advice, given freely to those who will lend an ear.

To anyone interested in the hobby, Mark would tell them to start with a simple loop of track on which they can learn to understand the workings of electricity, rolling stock, couplers, trucks, rail joiners, turnouts, and other basic elements. Starting with something too big could become overwhelming and cause one to become frustrated and quit.

Mark says there have been times when he went down to the layout to tackle a little task, ostensibly for five minutes, and finds himself still there two hours later. He feels that any time spent in the basement is time well spent, and after 20-plus years of working on the Ashland & Iron Mountain, he is pleased with what he has produced.

The need to always do things better, he feels, is what hones his own skills as a modeler. His passion is the challenge. As

he gradually learned about electricity, painting, carpentry, and model building, he was finally able to answer the “how did you do that?” questions so often asked by visitors.

Mark has found that most model railroaders are very generous in sharing their opinions and their thoughts. Mark accepts even this as a gentle kind of guidance and doesn’t begrudge this kind of sage advice.

Mark hopes that his work can make enough of an impression upon fellow modelers who come to visit that they will try to emulate some of the things he’s done. He also loves it when people ask if they can bring their grandchildren over to run the layout – under his watchful eye, of course.

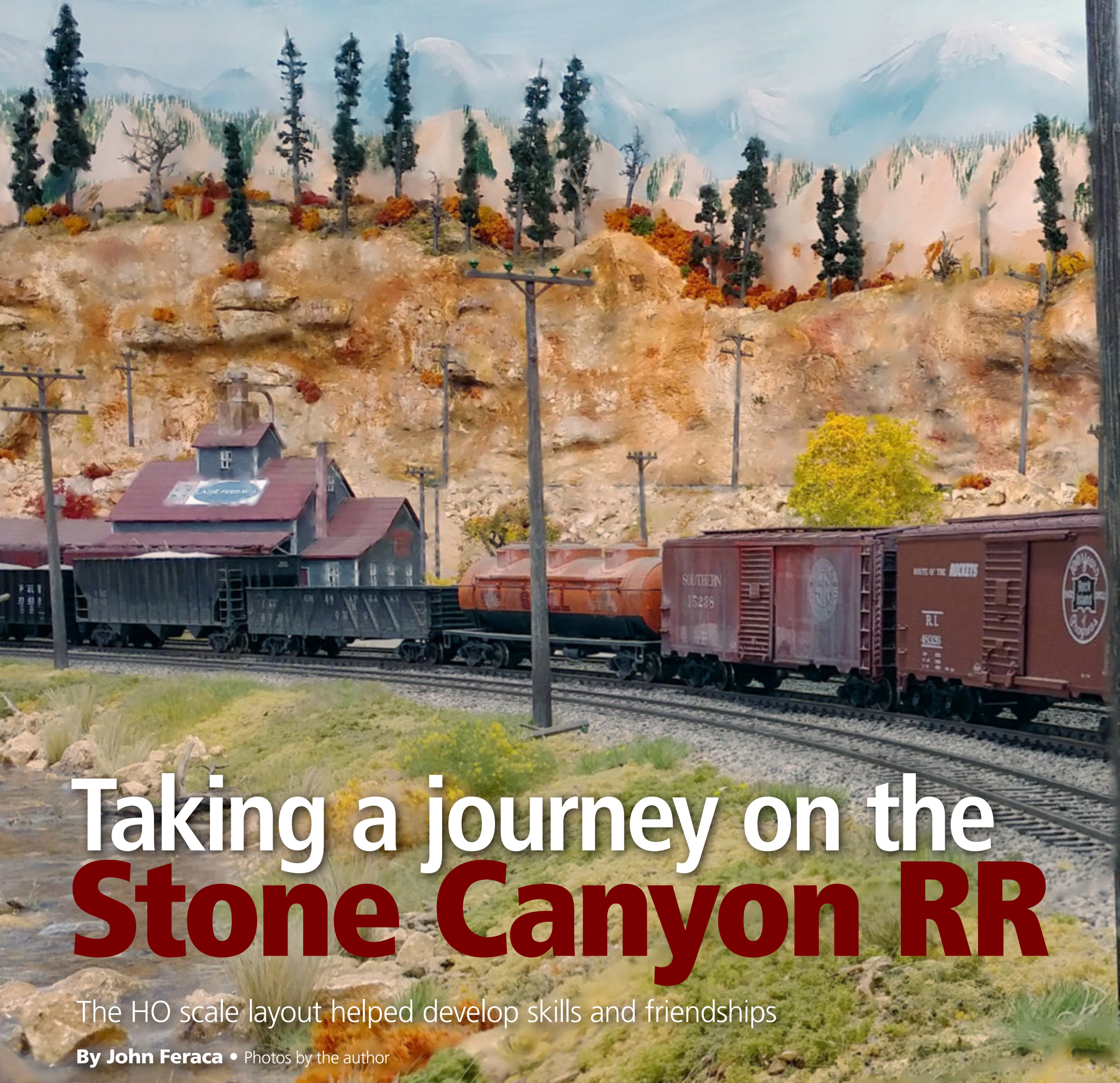
Mark hoped to continue running the Ashland & Iron Mountain for a long time to come, but says that if he tires of it, he can always tear it down and build something else. **MR**

Dave Rickaby is a Marinette, Wis.-based photographer and author who has contributed numerous articles to Model Railroader and its special publications.



Meet Mark Ballschmieder

Mark was born and raised in Wausau, Wis. In 1970 he both graduated from the University of Wisconsin with a degree in pharmacy and married his wife, Char. Mark is retired after owning and operating several drug stores in the Wausau area. He and Char now live just outside Wausau and have two daughters, Sara and Lisa. Besides model railroading, Mark enjoys trail riding on his four-wheel ATV, yard work, and gardening.



Taking a journey on the Stone Canyon RR

The HO scale layout helped develop skills and friendships

By John Feraca • Photos by the author

My model railroading story doesn't have the typical beginnings with Lionel trains running around the Christmas tree. I grew up on Long Island, N.Y., in the 1960s and '70s and just missed the peak of the Lionel era. Instead, I spent a lot of my time building models: rockets from the space-race era, cars, planes, and more.

Around the age of 11 I picked up an issue of *Model Railroader* magazine and was enthralled with the photos and articles of trains, track, buildings and scen-

ery. With my dad's help, I built a 4 x 8-foot HO scale layout with a few sidings in the family room and purchased a set of Tyco trains.

Scenery consisted of papier-mache mountains and some grass mats. I built structures from cardboard and finished them with paint from my dad's workbench. Without realizing it, this hobby was fulfilling my artistic needs and kept me busy for about a year until my parents took back the family room.

In 2001, my wife, Denise, and I had three boys under age 10: Nicholas,

Christian, and Alec. I thought it would be fun to get back into the hobby and build a small layout together.

I visited a hobby shop and purchased plastic structure kits and a couple issues of *Model Railroader*. I was surprised how far the hobby had progressed, especially with Digital Command Control (DCC).

I used computer-aided design (CAD) to design a small HO scale L-shaped layout, then I purchased lumber, track, turnouts, structures and a DCC system. Over a two-year period I built an operating layout.



During this time, I read many books on benchwork, track laying, scenery, and honed my modeling skills. In 2003 I started designing my dream layout, the Stone Canyon Railroad (SCRR). This current layout fills my basement.

Computer-aided planning

I designed the initial SCRR over a six-month period in 2003. I read John Armstrong's book *Track Planning for Realistic Operation* (Kalmbach Books) and learned all I could.

I consider model railroading an art form, so my goal from day one was to take my time and build the best layout possible with the highest quality scenic elements. My love of the mountain West and big steam led me to design a single-deck, freelanced layout set in the 1950s steam-to-diesel transition era.

Union Pacific (UP) and Atchison, Topeka & Santa Fe (ATSF) are the predominant roads. I designed the Stone Canyon RR in CAD, which enabled me to design the track plan, subroadbed, and benchwork together. I used the

① Union Pacific GP9 no. 150 leads an engine service facility train eastbound through Red River Canyon on John Feraca's 28 x 40-foot HO scale Stone Canyon RR layout.

L-girder system for the benchwork, enabling me to easily incorporate free-flowing curves in lieu of sharp corners.

I created working drawings in CAD of the initial five freestanding L-girder frames and all the subroadbed required for the layout. The initial overall layout size was 25 x 28 feet. Over a period of 14 years the layout expanded three times to



② This view shows Stone City Yard and Dwyerville on the left and Ryan's Corner on the right. The layout was designed and built over a 15-year period.



③ The Flat Rock and Little Fork peninsula shown here was added in 2015.

a final size of 28 x 40 feet. The closed loop double track east/west mainline is 400 feet long. All mainline curves are superelevated.

I also designed a full-service steam/diesel engine facility, which includes a 130-foot turntable, 12-stall roundhouse, and a diesel shop. The freight yard has two arrival/departure tracks and three classification tracks for about 50 cars.

All visible track is Atlas code 83 flex on cork roadbed. The hidden staging is Atlas code 100. The 12-track staging yard can accommodate up to 200 cars.

Turnouts are a mix of Walthers, Peco and Micro Engineering, about half of the turnouts have Tortoise by Circuitron switch motors. Maximum grade is 2 percent.

There are 36 industries on the layout including coal, lumber, paper, food distribution, and fuel, among

others. A 1 x 10 foot curved city scene, with street lighting and more than 25 lighted buildings, occupies a space behind the engine service facility.

Construction in three phases

Construction began in December 2003. The layout is built in my unfinished basement. I first installed fluorescent lighting along the contours of the benchwork based on the CAD layout drawing. I built the L-girder frames over a two-week period in January 2004. A large-scale inkjet plotter at work allowed me to print full-scale paper plots of the subroadbed.

These plots were arranged to minimize waste on 4 x 8-foot sheets of $\frac{3}{4}$ " plywood. Using a jigsaw, I cut the subroadbed sections and numbered them so they could be joined together per the

track plan. Flat areas of the layout such as the yard and engine service facility were cut from full sheets of $\frac{3}{4}$ " plywood.

By early 2004 all the benchwork was complete and I started work on the 100 feet of backdrop. I used $\frac{1}{8}$ " tempered hardboard. After all seams were sealed with joint compound, I primed the surface. Next, flat blue latex sky color was rolled on the top two-thirds and white on the bottom third. The colors were blended while the paint was still wet to transition from blue at the top to near white at the horizon.

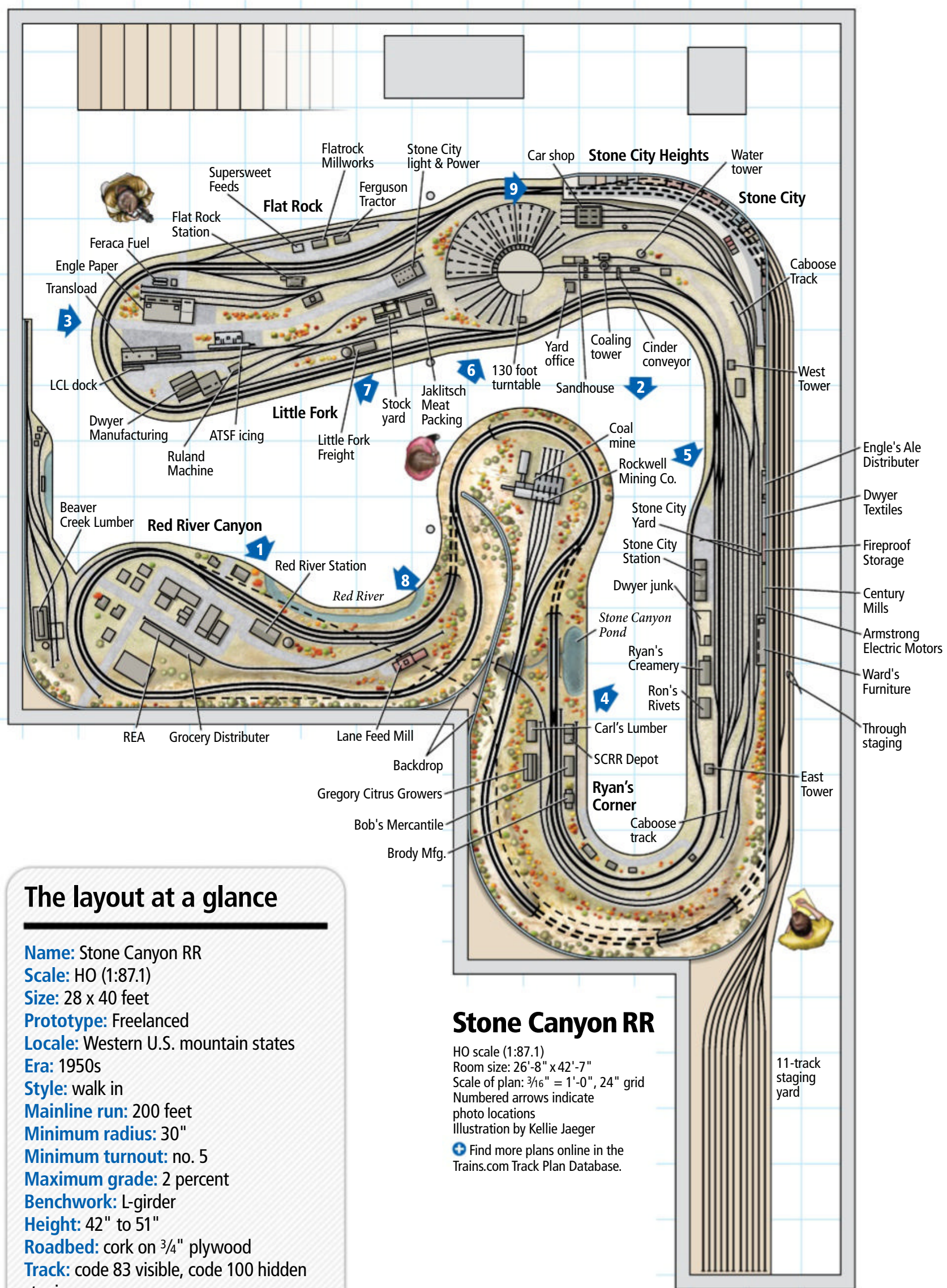
I hand-painted foreground trees and distant mountains using artist's tube acrylic paints. Once the backdrop was complete, I installed a light valance suspended from the ceiling that follows the contours of the layout. The valance is made from $\frac{1}{8}$ " tempered hardboard with a gloss white coating on the inside to reflect light onto the layout. The valance is painted flat black on the outside.

With the backdrops and valance complete, I focused on subroadbed construction and trackwork. I decided early on the layout control would be DCC-operated and chose a Digitrax Super Chief DCS200 system. I later upgraded to duplex radio throttles. I ran multiple 12AWG bus runs under the layout for mainline, staging, engine service area, and freight yard tracks. These are wired into four power districts to a Digitrax PM42 power manager.

Track and turnouts were installed and tested in sections. One of my goals was to have smooth-running track with zero derailments.

I worked in sections. Once trackwork and wiring was complete and tested, I moved on to scenery. The benchwork is finished with a $\frac{1}{8}$ " tempered hardboard fascia that follows the curves of the benchwork. The layout is fully skirted with black cotton panels my local tailor made. These come in 8-foot-long sections and are held on to the backside of the fascia with hook-and-loop strips. The light valance, fascia, and skirt are all black, which draws the eye to the layout for a museum-like effect.

The layout has been expanded several times. In 2014 I added a hidden staging yard, and in 2015 I built a new peninsula to enhance operations. The 6 x 12-foot addition includes two towns, Flat Rock and Little Fork, with 13 new industries. The project added 60 feet of new main line and 90 feet of sidings and spurs. In 2018 I added a 2 x 14-foot logging branch line that includes a scratchbuilt lumber mill, river scene, and logging camp.



The layout at a glance

Name: Stone Canyon RR

Scale: HO (1:87.1)

Size: 28 x 40 feet

Prototype: Freelanced

Locale: Western U.S. mountain states

Era: 1950s

Style: walk in

Mainline run: 200 feet

Minimum radius: 30"

Minimum turnout: no. 5

Maximum grade: 2 percent

Benchwork: L-girder

Height: 42" to 51"

Roadbed: cork on 3/4" plywood

Track: code 83 visible, code 100 hidden staging

Scenery: Sculptamold/plaster over plaster gauze hardshell

Backdrop: handpainted on 1/8" tempered hardboard

Control: Digitrax Digital Command Control with duplex radio throttles

Stone Canyon RR

HO scale (1:87.1)

Room size: 26'-8" x 42'-7"

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.



John builds up the underbrush in his forested areas in layers. This scene along the westbound mainline right-of-way near Rockwell Mine shows some of the materials used.

Don't forget the forest floor

One scenic feature that's often overlooked is the forest floor. A few simple techniques can add a high degree of realism to any area that's modeled with tree cover.

Modeling a convincing scene is all about layering. In nature, the forest floor is made up of many layers of decaying material: leaves, branches, fallen trees, and the like.

I start by first painting the base with flat brown latex paint. While still wet, I sprinkle on a layer of dead leaves. I make my dead leaves by mixing actual dead leaves with water in a blender. After blending, I remove the stems and let the mixture dry. I then sift out the coarse material, leaving a fine mix perfect for modeling.

Once the paint and leaves have dried, I start layering in coarse ground foam, small twigs, and deadfall. For this I like to use pieces of sagebrush. When I'm satisfied with the scene, I spray the entire area with a 50/50 mix of water and 70 percent isopropyl alcohol, then soak with a 4:1 dilution of water and matte medium. Some of the larger twigs are held in place with full strength white glue.

To finish the scene, I add a variety of small underbrush vegetation using leftover scraps of Scenic Express SuperTrees material and small "bottle brush" conifer saplings. — *John Feraca*

Scenery as an art form

My goal from day one was to create highly realistic scenery. I used many techniques from Dave Frary's book *How To Build Realistic Model Railroad Scenery* (Kalmbach Books).

Mountainous areas were constructed from hot-glued cardboard webbing, plaster gauze hardshell, and plaster rocks cast from molds. These areas were colored with acrylic washes. Raw sienna is the primary color used on the terrain throughout the layout.

For non-mountainous terrain I used Sculptamold. I painted these areas with diluted earth-colored flat latex paint, then sifted real dirt directly into the wet paint to create the scenic base. Over this

base I applied a combination of static grass, ground foam, shrubs, and weeds.

My layout is set in fall. The 1,000-plus trees on the layout are a combination of Scenic Express SuperTrees, other commercial trees, and scratchbuilt. I scratchbuilt more than 80 highly detailed conifers used throughout the landscape.

One area often overlooked is the forest floor (see the sidebar "Don't forget the forest floor" above). I added many details at the base of trees to simulate dead leaves, twigs, branches, and undergrowth brush.

All visible track is weathered. The rails were airbrushed with a mix of rust and roof brown acrylics. After ballasting the main line, I sprayed a dilute mix of grimy black down the center of the ties

as well as along the sides. For spurs and sidings, I painted random ties with diluted light gray for a sun-beaten effect.

Roads were modeled with .040" styrene. Expansion joints and cracks were scribed in, then painted with acrylics and weathered with pastels.

Rivers and ponds were created with Enviro-Tex Lite casting resin tinted with amber-colored dye.

Structures

There are more than 100 structures on the layout. They're a mix of plastic, wood craftsman, plaster kits, and scratchbuilt. The majority of the plastic kits are Walthers Cornerstone. I also built kits from City Classics, Downtown Deco, Woodland Scenics/Design Preservation Models, Bar Mills, and Laser-Art. My scratchbuilt structures were all built using scale basswood and scribed siding.

All the structures are painted and weathered to some degree. A focal point of the layout is a city scene I created called Stone City Heights. This area is about 10 feet long by 1 foot deep and is behind the engine service facility and Stone City Yard. Most of the buildings have interior lighting with individual interior rooms sectioned off so only certain rooms are illuminated.

There's also street lighting as well as several animated signs from Miller Engineering. All the lighting is powered from a 12V DC bus that runs along the length of the scene behind the buildings. I used .001" thick x .25" wide copper strips for the bus. All lighting is soldered to this bus. I have a dedicated 12V DC, 5-amp power supply for layout lighting and Tortoise switch motors on the layout.

Locomotives and rolling stock

Motive power for the SCRR consists of a mix of steam and diesel. Steam engines range in size from 0-6-0 switchers to a 4-8-8-4 Union Pacific Big Boy. Most are first-generation Broadway Limited Imports models with a few Bachmann, Athearn, Life-Like, and Rivarossi engines.

The diesel roster includes Electro-Motive Division (EMD) E and F units and Alco PAs for passenger service, and EMD GP9s, SD7s, and Alco RS-3 road switchers for freight power. I use Alco S-2s and S-4s for yard switching. These are a mix of Broadway Limited Imports, Bachmann, Atlas, and Life-Like models.



④ Atchison, Topeka & Santa Fe no. 3755, a 4-8-4 Northern, leads its freight westbound across the Stone Canyon bridge east of Ryan's Corner.

Since the timeframe of my layout is toward the end of steam, most of my steam fleet is heavily weathered. Airbrushing and pastels are the primary techniques I use. Passenger diesel engines are lightly weathered.

Rolling stock includes boxcars, reefers, stock cars, gondolas, hoppers and tank cars, some of which I scratchbuilt. Blue-box Athearn cars and others from Walthers and Bachmann make up the fleet of about 225 cars. Most are weathered to some degree. Streamliners from Walthers, Bachmann, and Rivarossi comprise my passenger fleet.

Operations: the finishing touch

The SCRR began monthly operations in 2013 and has hosted more than 80



⑤ No. 3755 has arrived in Stone City Yard with its train and is getting set to depart westbound. John and his crews run 12 to 16 trains during an operating session, with Stone City Yard being a major hub.



6 After leaving Stone City Yard, trains pass the Stone City Engine Service Facility. The facility's 130-foot turntable can handle all of the road's locomotives and align them for the 12-stall engine house or the adjacent garden tracks.



Meet John Feraca

John lives on Long Island, N.Y., with his wife, Denise, and three sons, Nicholas, Christian, and Alec. He's an engineering manager for a manufacturing company. Besides model railroading, John's other interests include playing drums and guitar, golf, and travel.



8 Union Pacific Alco S-4 switcher no. 1167 ices reefers at the facility in Little Fork.

sessions, including all of the yearly IslandOps sessions beginning in 2014. I belong to an operations group, CSOG (Central Suffolk Operations Group), which meets weekly and operates across six layouts in Suffolk County, N.Y.

We use the car-card-and-waybill system for freight forwarding. The layout can operate with five to 10 people. Positions include dispatcher, yardmaster, motive power hostler, local and through freight crews, and passenger operation.

We run anywhere from 12 to 16 trains in a 3-hour session. Most trains begin and end their runs in staging. Several trains are made up in the Stone City freight yard. At any given time, there can be up to three local freights running along with passenger trains.

Operations added the finishing touch to my layout. I would like to thank fellow modelers and operators Howard, Mike, Ron, Ward, John, Dave, Jeff, Stephen, Byron, Joe, Ben, and the late Carl Rotolo



9 The eastbound Southern Pacific Daylight, headed by Electro-Motive Division E7A and B no. 6003 pulls into Red River Canyon.

for their friendship, advice, and camaraderie over the years.

As of 2019 I consider the layout “finished.” I plan on spending many more years super-detailing as well as upgrading some structures and scenes built in the early years.

Developing skills

In late 2012 I received a phone call from Sunrise Trail Division board member Steve Perry. He had noticed I was a National Model Railroad Association (NMRA) member, but had not attended any of the Sunrise Trail Division meets. He also informed me of the NMRA Achievement Program (AP) and encouraged me to participate.

I went on the NMRA website, and I felt I could qualify for the Golden Spike, Scenery, and Electrical certificates. Sunrise Trail Division AP chairman Mike Siegel, along with Steve, visited my layout in early 2013 to judge it for scenery and gave me advice on how to get started on the required paperwork. I received Scenery, Electrical, and Civil certificates, plus Golden Spike in 2013.

Between 2014 and 2019 I received the remaining four certificates – Chief



12 This view looks down Main Street in Stone City Heights. John built the city scene behind the Stone City Yard and above the entrance to his 11-track staging yard.

Dispatcher, Author, Structures, and Cars – to qualify for Master Model Railroader (MMR). In July 2019 was awarded MMR certificate no. 643 at the Northeastern Region convention.

The Achievement Program pushed me into areas I probably wouldn’t have gone, such as handlaying track, and scratchbuilding structures and cars. My modeling skills improved dramatically, as did my enjoyment of the hobby.

I’ve presented clinics on weathering and scenery at NMRA regional and

division meets and had several “how-to” articles published in the *NMRA Magazine*. I strongly believe in “paying forward” and look forward to helping modelers achieve their goals.

I would like to thank AP chairman Mike and Steve for all their help in achieving this honor. Building the SCRR is my highest artistic achievement. Last but not least I want to thank my wife, Denise, who has allowed me to take over the basement of our house and build my dream layout. 



Secrets of STAGING YARDS

Hidden vs. visible. Fiddle yards or passive. Which one is right for you?

By **Tony Koester** • Photos by the author unless noted

Perry Squier, Ted Pamperin, Dave Olesen, and I were recently chatting about getting our HO basement-size railroads ready for an operating session. I noted that it usually takes me at least a long afternoon, often extending into the evening, to restage the Nickel Plate Road (NKP). I'll discuss the particulars in a moment, but right up front I want to share with you an observation that the four of us instantly agreed upon: Staging our railroads is a bit of a pain. And it's time to chat with you about that.

What isn't a pain at times?

To be fair, almost any aspect of scale model railroading can be onerous at times. Some kits are harder to assemble than others; some locomotives don't perform as well as they should and defy our

best efforts to make them do so; some turnouts insist on occasionally derailing cars but only when we're not looking – the list is quite lengthy.

And let's be clear about the need for staging. Unless you're modeling a very small railroad or perhaps a branch line, you're faced with the need to simulate the connections that the part of the railroad you've opted to model makes with the rest of that same railroad or with other railroads. Even a short or branch line needs to connect with a trunk line, but that can simply be a long siding where inbound cars are picked up at the beginning of a session and outbound cars are left as the session winds down.

But staging is almost never what I'd call fun. It's not all bad news, however. On the Allegheny Midland, I ran all coal loads back to the mines and empty hoppers back into staging yards between

sessions, which gave me a chance to test-run the entire railroad. I found things crews hadn't reported, and watching coal trains snake their way through the verdant Alleghenies wasn't all that painful. If only we had Digital Command Control (DCC) sound decoders, especially for diesels, back then!

Today, staging the NKP for the upcoming 12-fast-clock-hour (four actual hours at 3:1) session includes backing some, but not all, of the trains out of the four stub-ended ("muzzle-loading") staging yards, hand-turning the steam power, cycling the waybills, and backing each freight into its proper staging track. Thanks to NCE's clever advance consisting feature, diesels don't have to be re-consisted, as selecting the trailing unit automatically makes it the lead unit. The two passenger trains require more work, as almost every car

Trains – here eastbound No. 48 meeting No. 41 at Linden, Ind. – don’t magically appear on the railroad; they ideally come from somewhere beyond the modeled area. Contributing editor Tony Koester shares advice on different staging yard options for model railroads.



has to have its position changed. And the Frankfort general yardmaster prefers that I do some pre-blocking of inbound freights to ease the chores for the west-bound yardmaster.

My next between-sessions job is to walk around the railroad and cycle some or all (my choice) of the waybills to show empty cars are now loaded and loaded cars are now empty. I also check to see that the required numbers of empties-for-loading are at or near various industries and grain elevators. If not, I pull one or more Empty Car Slips out of that industry’s bill box and hand them to the appropriate yardmaster so he can find suitable empty cars to fill the demand.

Last, I fill out a form noting how many cars are waiting on each interchange track for the NKP to pick up headed east or west and put that tally on the dispatcher’s desk. He can then issue a message via one of the two operators to the next east- or westbound through or even symbol freight to pick up those cars, especially if they’re “hot” cars such as those containing livestock, perishables, or auto parts.

Some of this work could probably be computerized. But unless there are scanners that detect the movements of each car via barcode-type labels or other devices, the computer will assume that the humans perfectly executed all of the work it had planned for them during each session. Just as on a full-size railroad, however, that’s very unlikely to be the case. Locating misplaced (often in-transit or off-spot) cars soon becomes an onerous task. I therefore do what the



The east-end staging yard on Tony’s railroad is actually two yards: the 12-track Sandusky Division and 5-track Toledo Division. Both are stub-ended, which requires trains to be backed out between sessions so engines and cabooses can swap ends and passenger consists can be repositioned.



The west-end NKP staging yard represents the Fourth Subdivision of the St. Louis Division and is hidden from view by a low fascia. Unlike the other three staging yards, which are managed by one staging crew member, this yard is managed by the nearby Charleston, Ill., yard crew.

prototype did in 1954: use paper waybills that travel with each car (actually, with the train's conductor).

Fiddle yards: real-time solution

The most elegant solution to the need to restage the railroad between operating sessions is to do so during the session. Two well-known examples are on the late Jack Ozanich's Atlantic Great Eastern and Lee Nicholas's Utah Colorado Western. The term "mole" for the operator of the usually hidden fiddle yard originated on Lee's UCW.

The concept originated in the United Kingdom where layout space is often limited. "Layouts," which are typically built for viewing at large public exhibitions, are generally limited to a single scene such as a branch line terminus that's fed by a hidden fiddle yard – pay no attention to the man behind the curtain! *Model Railroad Planning* author Iain Rice has expounded on the merits of such designs on numerous occasions.

North American fiddle yards are fully operational yards but usually lack scenery. They typically have locomotive turning facilities for steam-era railroads to

Much of the visible action on Tony's railroad takes place in the east- and westbound yards at Frankfort, Ind. These yards are fed by the modeled Third Subdivision of the St. Louis Division as well as the staged Second Sub of the Toledo Division and the Peoria and Sandusky Divisions.

minimize handling, and they're fed by shelves and/or drawers that allow the mole to quickly change consists. This contrasts with my two railroads, where the same cars tended to appear month after month. That isn't much of a handicap, however, when the roster comprises hundreds of similar freight-car-red boxcars and black gondolas and hopper cars, but I do cycle cars with distinctive loads on and off the railroad.

Railroads that employ moles still need to cycle waybills at each industry between operating sessions. That could be done during sessions on their railroads and mine by assigning a person as a general freight agent who monitors in- and outbound traffic and cycles waybills as he or she feels is appropriate or as stated on a job aid. I have the Swift soybean plant crew cycle waybills to keep inbound loads of soybeans from plugging up the unloading tracks as new boxcar loads continually arrive from online grain elevators.



On an early version of David Barrow's Cat Mountain & Santa Fe, trains were visibly staged in an outlying yard. This simulated a holding yard outside of the main yard, something that would not have worked for a steam-era railroad. Note the equipment storage drawers below the yard. David Barrow photo

Caveat: I strongly advise against having road crews cycle waybills. Experience has shown that this will be at best a hit-and-miss proposition. It's better that they simply "read and heed" the instructions on the waybill and let the layout owner or general freight agent handle the cycling duties. It's more realistic that way, too.

Hidden vs. visible staging

I've always been a proponent of hiding the staging yards based on the idea that the trains that originate or terminate there are supposed to be miles and miles away from the modeled portion of your railroad. Convenient access aside, if I can see it sitting there, the illusion is gone.

Based on experience with the Allegheny Midland, which required road crews to run their trains into and out of hidden staging yards, Frank Hodina and I designed my current railroad based on the Nickel Plate Road's St. Louis Division in such a way that road crews don't deal with staging. Instead, one person handles three of the four staging yards, and the Charleston, Ill., yard crew handles the fourth.

This follows the design of Bill Darnaby's Maumee Route. Bill coached me that road crews would derive a lot more satisfaction from a terminal-to-terminal trip than if they had to begin or end their runs in a hidden staging yard. It pays to listen to those who have done their homework.

One major difference between the Maumee and NKP designs is that the NKP staging yards are entirely passive. Trains enter and leave them, but their consists aren't revised during operating sessions. The Maumee's two staging yards are stacked one above the other, and Bill does some fiddling during the operating session. This approach adds flexibility, but it requires attention at times when I'd rather be doing something else, if only enjoying seeing my railroad in action.

Just prior to the dismantling of the Allegheny Midland, I was in the process of resolving the problem of having crews run trains in and out of hidden staging yards on the north end of the railroad by daylighting the north-end staging yard. The yard would then represent the main classification yard at Midland, W.Va. Southbound trains wouldn't have power

attached. Rather, the steam power would be lined up sequentially on a ready track and moved to the appropriate yard track as needed. Inbound trains would enter the yard and stop when their cabooses cleared the ladder, and a yard engine could pull the cabooses and shove them into a caboose track.

Those who model a more modern era could follow David Barrow's example with a visible staging yard that represented an outlying holding yard. Seeing trains with multi-unit diesel consists attached sitting still for hours on end isn't as visually discordant as seeing the same trains with steam locomotives up front.

Worth the effort

The bottom line is that the time and effort required to stage a railroad for an operating session isn't one of the most enjoyable aspects of scale model railroading, but it's worth the effort. None of us can think of an alternative short of not holding regular operating sessions at all, and frankly we've had our fill of that during the recent national health emergency. 

Resistance soldering for track feeders

Some people hate soldering. But it doesn't have to be that way. Usually, the problem is lack of knowledge, improper equipment, or the need for just a little practice.

Thanks to Insulation Displacement Connectors (IDCs, also known as suitcase connectors) and T-taps, feeders can be attached to buses without soldering or the risk of dripping hot solder on your pants. Ouch!

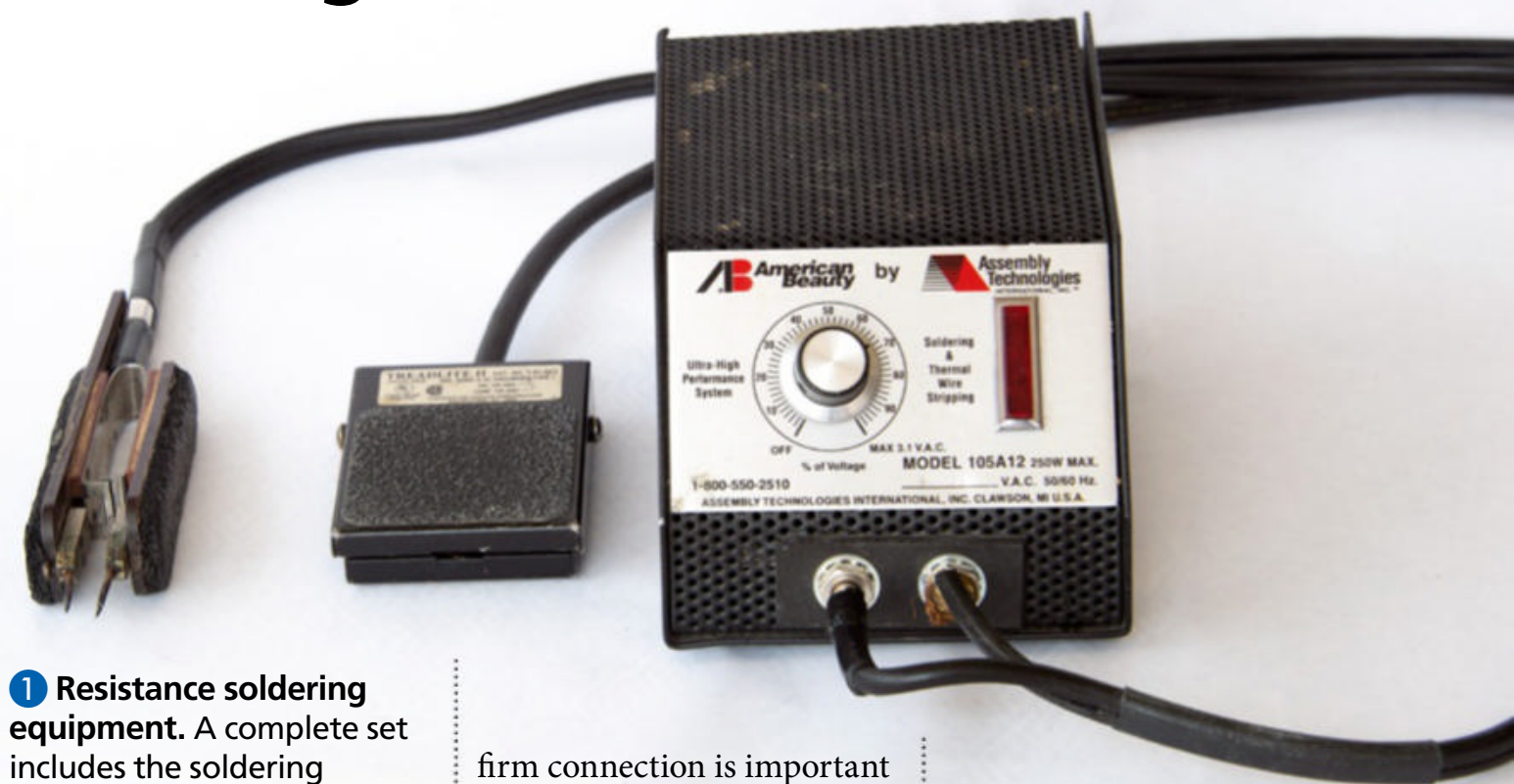
Thanks to screw terminals on many Digital Command Control (DCC) modules, much of your wiring can be joined without soldering. But it can't be avoided when attaching feeders to track.

Years ago, I tried to find a way to weld feeders to track. I wanted a fast way to get the track heated, make my joint, and get out quick to minimize melting ties. I could never get nickel-silver track to weld, but along the way, I discovered resistance soldering.

A resistance soldering station consists of a power transformer, tweezers to apply the heat, and a foot pedal to instantly apply power at the moment you're ready. Resistance soldering tools typically use stainless steel tips. A low voltage and a high current passes through those tiny tips.

A typical soldering pencil takes many seconds to heat up a joint. Even a soldering gun takes several seconds to heat up. But a resistance soldering tip heats in a second. You'll know it because the tip often glows red and the flux sizzles.

When soldering feeders to



1 Resistance soldering equipment. A complete set includes the soldering tweezers, foot pedal, and the power supply. Yes, you might not expect soldering equipment to be named "American Beauty," but this company has been around a very long time.

track, you'll often use 85W to 100W for N scale, 150W to 170W for HO, and 250W or more for G scale to heat the rail with your resistance soldering tool, so you'll be getting a lot of heat right where you want it.

The action of soldering will happen as quickly as the tip heats up. The solder will usually flow in about five seconds. As soon as you get your soldered joint, stop

applying heat. The joint cools. Tie melting is minimized. All the objectives I had for welding track were met.

There's another benefit to resistance soldering. The resistance soldering tweezers grip the rail and the wire, holding them firmly together. As you probably know, a

firm connection is important when soldering.

It gets better. Since the tips are stainless steel, solder won't stick to them. When you're done applying soldering heat, you can continue to hold the joint with the tweezers as it cools. No cold solder joints! Try this with a soldering gun and your tip will be soldered to the rail.

To maximize the benefits of a resistance soldering tool, use it with liquid flux and solid solder wire instead of rosin core solder. Think about it. If you're using solder with a rosin core, you first have to melt the solder so the flux can get out. Then the rosin flux has to turn from a paste to a liquid so it can protect the metal to be joined. Liquid flux bypasses these two steps, which means you get your joint faster. With liquid flux, you're well on your way to avoiding melted ties!

Liquid flux comes in two viscosities, liquid and gel. The liquid is very thin. If you solder your feeders to your buses, liquid flux can be applied with a cotton swab.

Gel is somewhat of a misnomer. It's about the consistency of pancake syrup. I like it for soldering feeders to rails

because you can apply a drop with a toothpick. I suggest coloring one end of the toothpick with a marker so you always pick up the dry end.

Liquid flux is available from H&N Electronics, online at hnflux.com. I use the Superior No. 30 Supersafe gel flux. A 2-ounce bottle will probably be enough for even a large home layout. Keep the lid on it so you don't spill it.

The sequence of using a resistance soldering tool is important. Apply flux, then squeeze the rail and the feeder between the tweezers, then step on the foot pedal. Don't get these last two steps reversed or the tips will arc and get dirty. It won't work if this happens. Clean your tips and try again.

If all is well, the tip may glow and you will hear the flux sizzle. Quickly apply solid wire solder. You should be done in about five seconds. As soon as the solder flows over the joint, take your foot off the pedal. Give the joint about 10 seconds to cool, then release the tweezers. Don't release them before taking your foot off the pedal or, again, the tips will arc and dirty the tips.



THE RESISTANCE SOLDERING TWEZERS GRIP THE RAIL AND THE WIRE, HOLDING THEM FIRMLY TOGETHER.
— ALLAN

Remove excess flux with a damp cloth or sponge.

If your tips won't heat up, it's because they're not clean. Unlike a normal soldering iron where you clean a tip with a damp sponge, instead use an old fingernail file or a cordless rotary wire brush to remove any residue. File gently. You will likely get 10 years or more out of one set of tips.

If you're using weathered rail, use a motor tool with a wire brush to remove the weathering before soldering.

If the feeder won't lay right up against the rail, I use forceps to hold the feeder in place.

Resistance soldering tools can be very useful installing decoders, too. This is particularly true of Athearn locomotives that have large metal wipers inside them. Use forceps to hold the wire to the metal wiper. You'll get your solder joint in seconds without having to heat up the entire wiper.

Here are a few other things you need to know. Solder generally comes in sizes in increments of .031". I like the .031" size for HO and smaller because it melts quickly. The .062" diameter solder is good for larger scales. Solid wire solder in .031" size has become hard to come by in small quantities. H&N Electronics offers hobbyist quantities. Most home layouts can probably be built with an ounce or two of solder.

Again, don't use rosin core solder with liquid flux. Having to melt the rosin defeats the advantage of using the liquid flux.

Before you try soldering to your mainline track, practice on scraps first – you know, the pieces too long to throw away but too short to use.

Resistance soldering equipment comes in different wattages. Get one that has at



2 Resistance soldering set up. Clamp the wire to be soldered to the track with forceps, then apply a drop of gel liquid flux to the wire with a toothpick. Squeeze the tweezers on the spot you want to solder, step on the foot pedal, apply solder, wait about 5 seconds, release the foot pedal, wait 10 more seconds, then release. Done!

least a couple different power settings. You can buy resistance soldering tools from Micro-Mark (micromark.com) or get a used one on eBay. Micro-Mark usually has great sales during the summer.

Resistance soldering tools pass power through the tips, so be sure you don't attempt to solder track when power from your Digital Command Control (DCC) system is applied to it. Disconnect your automatic reverse section controllers and electronic circuit breakers from the track, as well. I solder my wires to the track, then attach them to the track bus.

Solder typically contains lead, which is a serious health hazard. You can buy solders that don't contain lead. These typically melt at somewhat higher temperatures.

According to the Centers for Disease Control's National Institute for Occupational Safety and Health website, lead fumes are produced when you solder.

If you decide to use solder with lead, follow safety

practices as you would with any hazardous chemical. Avoid the fumes. Don't eat food or touch your face while working. Wash your hands thoroughly when done. Keep the solder away from children.

I've recently tried with great success and have switched to tin/silver solder from H&N Electronics. While it melts at a higher temperature, I found I could use my resistance soldering station at the same power setting I used for tin/lead. It didn't take noticeably longer to melt, still minimized melting ties, and flowed well.

Resistance soldering tools cost more than the typical hobbyist soldering equipment, but the cost and inconvenience are offset by the great results. Whenever I demonstrate a resistance soldering tool, people become instant believers and run out and buy one for themselves.

For more on soldering and my video showing resistance soldering, see the Soldering section of my website, WiringForDCC.com/dcc_currents.htm. (Note: This link

contains a list of all the links that appear in my column. Bookmark it!)

Q I saw on your Wiring for DCC site information about resistance soldering. Two different systems were mentioned – one from American Beauty sold by Micro-Mark. Micro-Mark also has its own system, which is less expensive. I need to do a lot of N scale feeder wires. Will this system work well or do I need to take the plunge on the more expensive system?

*Steven Low
Grand Blanc, Mich.*

A You don't have to buy the American Beauty, but you do need one with enough power. I found the winning formula is heating up the rail quickly and getting the job done before you melt ties. I dialed down my American Beauty to the same power as that put out by the Micro-Mark MicroLux and tried it on some N-scale track. It wasn't enough. I found I needed at least 85W. Check eBay for some good deals on anything with enough power.

Q I'm "converting" DC to DCC with selectable power using a double-pole double-throw (DPDT) switch to choose DC or DCC on a 4 x 8-foot layout. Guides I've read say don't use DC common rail wiring with DCC. If I'm isolating DC from DCC source, do I need to do anything special with the existing common rail wire, given the small size of the layout?

*Mark Taylor
Gresham, OR*

A The warning about not using common rail refers to those using multiple boosters and auto reversers. Do you have any reversing sections? Are you using multiple boosters? If the answer is no to either of these, you're OK. 



ScaleTrains.com HO scale CSX GE ES44ACs

In 2019, CSX Transportation unveiled its Pride in Service locomotives, three General Electric (GE) ES44ACs painted to commemorate the service of military, first responder, and police personnel. Now, HO scale modelers can add these colorful locomotives with available dual-mode sound decoders to their fleets, thanks to ScaleTrains.com.

The prototype. General Electric introduced the ES44 line in 2005 after building demonstrator and pre-production locomotives in 2003. The ES44 replaced the AC4400CW and introduced GE's new Evolution Series diesel engines, known as GEVOs.

These 12-cylinder engines were developed to meet the Environmental Protection Agency's (EPA) Tier II emissions standards. Though they still produced 4,400 hp like the predecessor 7FDL 16-cylinder engines, they produced fewer emissions and used less fuel.

More than 7,000 locomotives were built. All of the North American Class 1 railroads – Canadian National, Canadian Pacific, BNSF, CSX, Norfolk Southern, and Union Pacific – bought from a dozen to more than 1,000 units, as did Florida East Coast, Kansas City Southern, Iowa Interstate, and Ferromex and Ferrosur in Mexico.

In 2012, GE introduced the ET44 series of locomotives, which meet the stricter EPA Tier IV emissions standard, replacing the ES models.

The model. ScaleTrains.com is offering the CSX Pride in Service locomotives in its Rivet Counter line, and as you'd expect, there are lots of details to count. Although, since it's a modern unit, I could find no rivets.

Instead, I found underframe piping carrying sand, air, and electricity to various components, detailed GE steerable trucks with brake and sand lines, and

detailed pilots with plows (front) and spare coupler knuckles (rear).

Brake and m.u. hoses hang from the pilots and m.u. cables are draped above the Type E lower-shelf couplers. Ditch lights illuminate and flash when the horn is sounded.

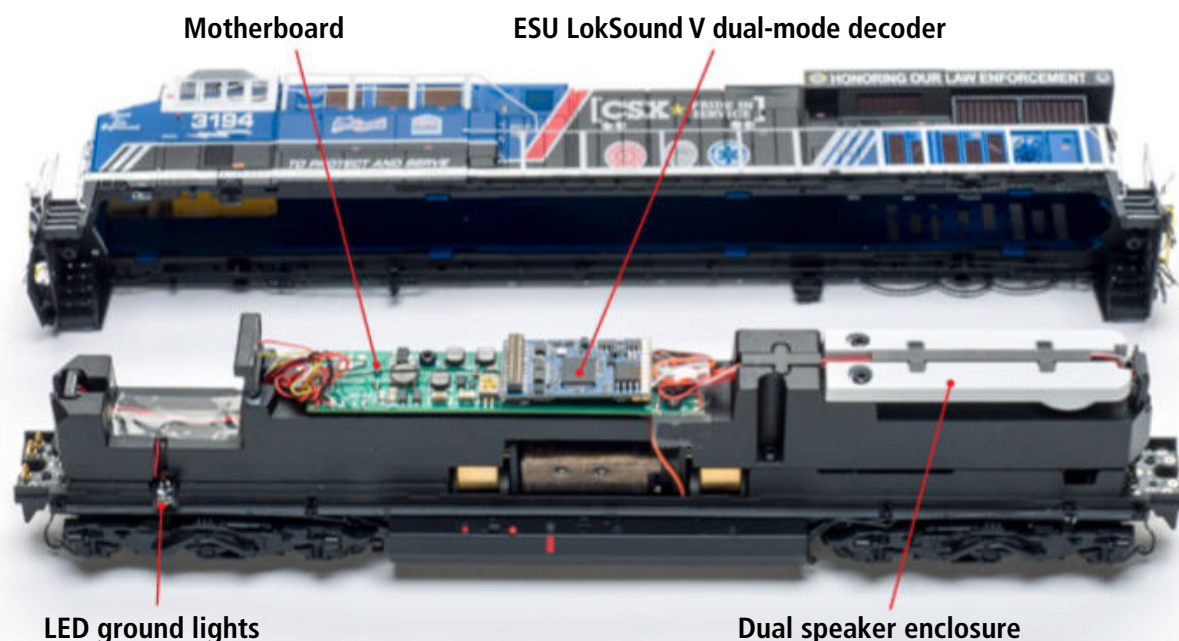
Etched metal grills cover the appropriate vents in the long hood, with visible bracing and fan blades behind some of the openings. All dimensions were within scale inches of drawings in the November 2004 issue of *Model Railroader*.

But the real eye-catcher is the multi-color paint schemes. I found several photos of these locomotives online, and all of the striping, lettering, and decals appear to be correctly placed. The only discrepancy I found was a missing warning label at the top of the pilot stairwell on the no. 3194 *Spirit of Our Law Enforcement* locomotive. All of the paint was smoothly applied and opaque with sharp separation of the colors.

The prototype locomotives were from separate orders. No. 3194 was part of the order built in early 2015 numbered 3175 to 3199. The no. 911, *Spirit of Our First Responders*, was built in 2008, part of a group numbered 800 to 949. No. 1776, *Spirit of Our Armed Forces*, was built as part of a 2013 order numbered 3065 to 3174, and originally assigned no. 3112.

Detail differences from the various production dates include engineer-side nose doors on the 1776 and 3194, heavy anticlimbers on the 911 and 3194, and different door and grill arrangements on the long hoods, all of which match prototype photos.

Under the hood. Removing the shell was easy. I unscrewed the couplers at the



The ScaleTrains.com General Electric ES44AC has a die-cast metal frame split horizontally with the motor secured between the halves. All wheels pick up electricity and move the locomotive.



front and rear and lifted the body off the frame. Inside I found a horizontally split die-cast metal frame with the motor secured between the upper and lower halves.

An Electronic Solutions Ulm (ESU) LokSound V decoder was plugged into a motherboard secured to the top of the upper frame piece in the center of the locomotive. The speaker enclosure is mounted above the rear truck. Surface-mount light-emitting diodes were fitted at various locations around the frame to illuminate the ditch lights, headlight, number boards, ground lights, and walkway lights.

All wheels are powered and pick up electricity. A pair of brass flywheels helps smooth motor operation. The die-cast metal lower-shelf couplers were mounted at the correct height and the wheels were all in gauge.



The *Spirit of Our Law Enforcement* locomotive has red and blue operating ditch lights. Following CSX practice, they flash while the horn is sounded.

PERFORMANCE CHARTS

DRAWBAR PULL	1 pound, 7.5 ounces
	4 ounces, equivalent to 56 freight cars on straight and level track

SCALE SPEED (DC)	
VOLTS	SCALE MPH
10.25 (start)	1.3
11	9.1
12	21
13	38
14 (max.)	60

SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
2 (start)	1.6
7	12
14	31
21	57
28	68

On the test track. I began testing the ScaleTrains.com ES44AC with an NCE PowerCab Digital Command Control (DCC) throttle, recording a low speed of 1.6 scale mph at speed step 2 and a high speed of 68 scale mph in speed step 28. I got a similar speed range in direct-current (DC) testing. After the dual-mode sound decoder woke up at 8.5 volts, the locomotive started moving at 1.3 scale mph at 10.25V. Speed at 12V was 21 scale mph, and top speed at our power pack's maximum voltage (14) was 60 scale mph.

With their nearly 1.5 pounds of weight, the ES44s produced 4 ounces of tractive effort, equivalent to 56 freight cars on straight and level track. Testing on the staff Milwaukee, Racine & Troy layout found a single locomotive stalling on the curve heading up the 3 percent grade out of Bay Junction with 13 heavy enclosed auto racks and an 86-foot high-cube boxcar behind it. I consisted a second locomotive with the first one, and the pair handled the load and the grade with no problem. The roar of two 12-cylinder GEVO engines only added to the excitement.

I also tested the locomotives on my home switching layout, where I had no trouble working through Atlas no. 4 turnouts in the yard and spurs.

While the sound effects had all of the expected features, the lighting included a few extras, such as the ground and walkway lights that illuminated when I triggered function 8, starting the diesel engine sounds. Our sample of no. 3164, the *Spirit of Our Law Enforcement* locomotive, had red and blue ditch lights. Of course, they flash when the horn is sounded. Photos of the prototype locomotive show standard white ditch lights

Facts & features

Price: \$374.99 (DCC, sound), \$264.99 (DC, no sound)

Manufacturer

ScaleTrains.com

7598 Highway 411

Benton, TN 37307

scaletrains.com

Era: 2019 to present

Road numbers and paint schemes: 911, *Spirit of Our First Responders*, 1776, *Spirit of Our Armed Forces*, and 3194, *Spirit of Our Law Enforcement*

Features

- 5-pole skew wound motor with dual flywheels
- Accurately profiled frame with separately applied plumbing and cabling
- All-wheel drive and electrical pick-up
- Detailed cab interior
- Die-cast metal semi-scale bottom shelf knuckle couplers at correct height
- Directional LED headlights
- Factory-applied wire grab irons, uncoupling levers, windshield wipers, mirrors, sunshades
- Late GE steerable trucks with separately applied brake cylinders, air plumbing, rotating bearing caps
- Multiple etched-metal see-through grills
- Nose door and other details as appropriate for prototype
- Operating LED front deck-mounted alternating ditch lights; front, rear, and side walkway lights; ground light on left side of locomotive; lighted number boxes
- Sound-equipped models have ESU LokSound V decoder and PowerPack with two super capacitors
- Weight: 1 pound, 7.5 ounces

now adorn the locomotive. Models with clear lights are also available.

Judging by the ease with which I found photos of these locomotives online, the Pride in Service fleet is popular. The locomotives are in regular service across CSX. A portion of the proceeds from these locomotives will go to the organizations benefiting from the Pride in Service program, so you don't just get new models, you're helping police, first responder, and veteran organizations with your purchase – a win all around. – *Eric White, senior editor*



Athearn Genesis 2.0 HO scale SD80MAC

An HO scale Electro-Motive Division

SD80MAC diesel locomotive is the newest addition to the Athearn Genesis 2.0 series. The model features prototype-specific details, light-emitting-diode (LED) lighting, illuminated number boxes and ground lights, and see-through etched-metal pilot steps.

A short-run diesel. The mid-1990s saw longtime locomotive manufacturing rivals Electro-Motive Division (EMD) and General Electric in another horsepower battle thanks to the development of alternating-current traction. In July 1995 EMD unveiled the SD80MAC, a 5,000-hp, six-axle road locomotive that featured a 20-710G3B diesel engine, HTCR-II radial trucks, and an isolated cab. Measuring 80'-2" and with large, flared radiators, the locomotive stood out compared to earlier EMD offerings.

Though the SD80MAC sounded promising on paper, it didn't deliver in sales. Between July 1995 and May 1996, a

mere 30 units (28 for Conrail plus two demonstrators, which ultimately wound up as part of the Conrail fleet) were produced. Chicago & North Western was scheduled to receive 15 units, but the order was canceled after the railroad's merger with Union Pacific in 1995.

The SD80MAC fleet was divided between CSX (13) and Norfolk Southern (17) when Conrail's assets were split in 1999. In 2014, NS traded 12 EMD SD40-2s to CSX for its remaining dozen SD80MACs (one was damaged in a 2009 wreck and scrapped five years later after being used as a parts source).

Norfolk Southern sold its fleet of 29 SD80MACs in 2020. Six were purchased by Canadian Pacific as part donors for the railroad's SD70ACU rebuild program. Progress Rail acquired the rest.

The model. The Athearn Genesis 2.0 SD80MAC has an injection-molded plastic body with Celcon handrails, stanchions, and uncoupling levers;

factory-installed and painted wire grab irons; and etched-metal see-through screens on the dynamic brake section.

The cab roof is held in place by two magnets. Inside is an engineer's control desk, a conductor's desk, three seats, and circuit breaker panels on the back wall. The cab side windows are tinted.

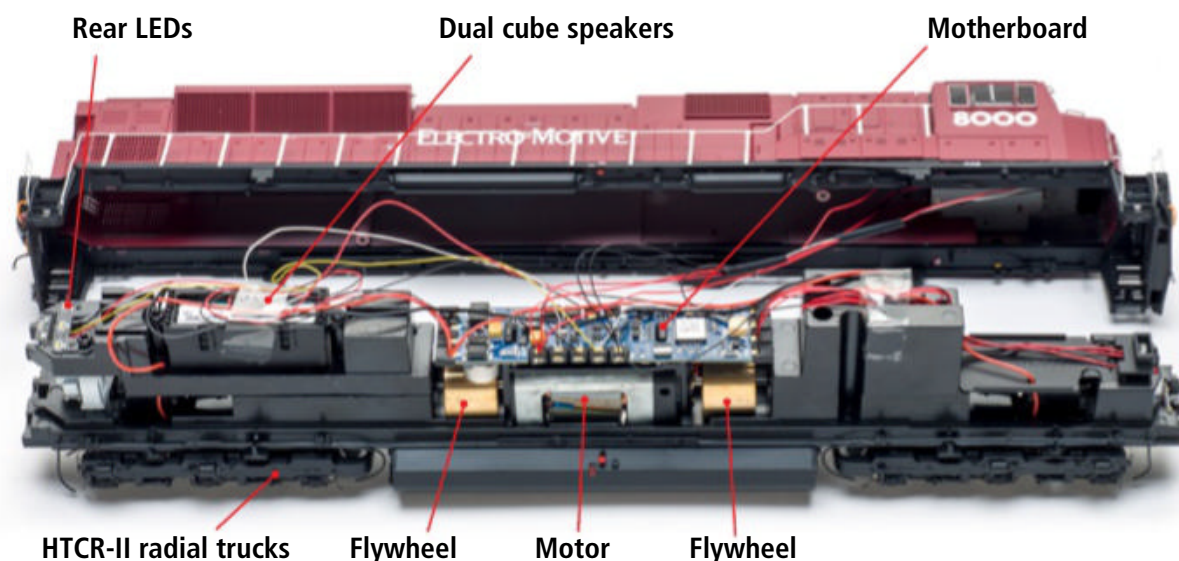
Additional rooftop details include grab irons and lift rings, a metal three-chime air horn, and an etched-metal dynamic brake grill. The three 48" Q-fan housings on top of the radiator section are plastic and feature separate fan blades held in place with a retainer pin.

A variety of freestanding details are attached to the bottom of the sill, including air tanks, traction motor cable bundles, a bell, and a battery starter and fuse box, among other items. Light-emitting-diodes are hidden behind the castings for the ground lights below the cab.

The front and rear pilots both have plastic uncoupling levers, m.u. receptacles, vinyl m.u. cables and trainline hoses, and grab irons. The front pilot also has ditch lights and a snow plow; the rear pilot has spare knuckles.

What's inside? Separating the shell from the chassis required a multi-step process. First, I unscrewed and removed the front and rear draft-gear boxes. Next, I took out two screws, one each above the front and rear truck. Then I gently wiggled the shell until it slid free. Use caution, as wires from the motherboard are tethered to the shell.

A five-pole skew-wound motor, framed by brass flywheels, is centered in the chassis. The motherboard for the SoundTraxx Tsunami2 decoder is attached to a plastic mount above the



Here's a look under the shell of the SD80MAC. The SoundTraxx Tsunami2 motherboard is located on a plastic mount on top of the motor and flywheels. The dual cube-type speakers can be found above the rear truck.

motor. Two downward-facing cube-type speakers are located above the rear truck. A PC board for the rear headlights and number boxes is attached to the rear frame weight with a single screw.

Test track. The model's dimensions closely follow drawings published in the April 1997 *Model Railroader*. The one difference was the truck pivot locations. On the model they're centered over the middle axle, about 52 scale feet apart. On the prototype, the pivot points are ahead of the middle axle on the front truck and behind the middle axle on the rear. The distance between those points is 54'-2".

Our sample is decorated in EMD's maroon-and-black demonstrator scheme. The paint is smooth and evenly applied with crisp separation lines between colors. The white printing is opaque. All but the smallest warning labels are legible under magnification.

The 44" metal wheel stubs, mounted on plastic axles, are correctly gauged. The body-mounted McHenry scale couplers are mounted at the right height. The model tips the scales at 1 pound, 7.1 ounces.

The version we reviewed has a dual-mode SoundTraxx Tsunami2 sound decoder, so I tested the model in both direct current and Digital Command Control (DCC) environments.

First, I used a Bachmann power pack to test the unit in DC. The sounds came



A detailed cab interior, light-emitting-diode headlights and marker lights, and vinyl m.u. cables are just some of the features on the front of the model.

PERFORMANCE CHARTS	
DRAWBAR PULL	5.4 ounces 76 free-rolling freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
7.2	Sounds on
10	3
11	13
12	26
13	35
13.8	42
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	4
7	34
14	67
21	80
28	82

on at 7.2V. The model started moving 3 scale mph at 10V, and achieved a top speed of 42 scale mph at 13.8V. The full-size SD80MAC had a top speed of 75 mph.

Diesel rumble is the only sound effect in DC. When the locomotive is running forward, the front headlights and ditch lights are illuminated and the rear markers are red. In reverse, the front markers are red and the rear headlights are on.

I turned to an NCE PowerCab for the DCC testing. At speed step 1, the locomotive ran at 4 scale mph. At step 28, the road locomotive maxed out at 82 scale mph.

The model has a drawbar pull of 5.4 ounces, equivalent to 76 freight cars on straight and level track. When I took the locomotive over to our Milwaukee, Racine & Troy project layout, I was able to pull 15 50-foot boxcars up the 3 percent grade between Bay Junction and Skyridge.

Covering the eras. Athearn's selection of paint schemes covers the history of

Facts & features

Price: Direct-current model with 21-pin NEM connector, \$249.98; with dual-mode SoundTraxx Tsunami2 sound decoder, \$339.98

Manufacturer

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

Era: 1995 to present

Road names: Electro-Motive Division demonstrator (two road numbers), Conrail ("Quality" scheme), CSX (Conrail patchout), and Norfolk Southern (Thoroughbred scheme). Four numbers per scheme unless noted.

Features

- Body-mounted McHenry scale couplers, at correct height
- Celcon handrails and stanchions
- Detailed cab interior
- Light-emitting-diode lighting
- Metal wheel stubs mounted on plastic axles, correctly gauged
- Removable cab roof
- Vinyl m.u. cables
- Weight: 1 pound, 7.1 ounces
- Wire grab irons

the SD80MAC, from the first two demonstrators built in 1995 to units repainted in Norfolk Southern's Thoroughbred scheme that operated from 2005 through 2020. The model is a strong puller, too, and should be more than able to meet the demands of most model railroads. – *Cody Grivno, group technical editor*

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RailSmith N scale P-S 56-seat coach



A lightweight Pullman-Standard

coach that saw service on the Northern Pacific, Great Northern, Union Pacific, and others is available in N scale for the first time thanks to RailSmith Models. Built to PS plan 7510 starting in June 1946, these 56-seat day coaches replaced heavyweight coaches on name trains after World War II.

A streamlined beauty. Our sample represents Northern Pacific car no. 517, part of an 18-car order for the NP's Chicago-to-Seattle *North Coast Limited*. The cars were delivered in 1947 with skirts and painted in the NP's Pine Tree scheme; in 1953, it was repainted in the two-tone green Loewy scheme, named for famed designer Raymond Loewy, and the skirts were removed. This is the version represented by our sample, but RailSmith also offers the car in the Pine Tree scheme.

Many of these cars also saw service in the *Mainstreeter*, the *Alaskan*, and the Portland-to-Seattle pool trains. The cars bore the Loewy scheme until 1970, when NP merged with three other railroads to form Burlington Northern. Some of the cars were transferred to Amtrak when it took over long-distance rail passenger service in the U.S. in 1971.

The cars had 56 seats, two large rest-rooms (called "dressing rooms") at the vestibule end of the car, and an eight-seat smoking lounge at the blind end. Large windows let those in the smoking lounge see the main compartment, the adjacent hall, and the end door.

The once-over. RailSmith's newly tooled N scale model looks impressive. The body shell's sides and ends are a single injection-molded plastic piece, into which snaps a separate roof piece. The

flush-mounted window glazing has painted silver gaskets, adding to the car's realism. The sprung diaphragms are also separately applied pieces; they don't quite touch when the cars are coupled.

The one-piece molded undercarriage also snaps into the car sides. I used my thumbnails to gently pry the sides apart and remove the shell from the floor. A one-piece molded plastic interior snaps into the floor and sandwiches two thin metal weights. The generic interior doesn't match P-S plan 7510, lacking both the smoking room and the dressing rooms. The seats match up to the window spacing, though, giving a realistic impression from the outside.

At the blind end of the interior are two stanchions that reach to the ceiling, carrying a pair of metal contact strips. These are connected to the electrical

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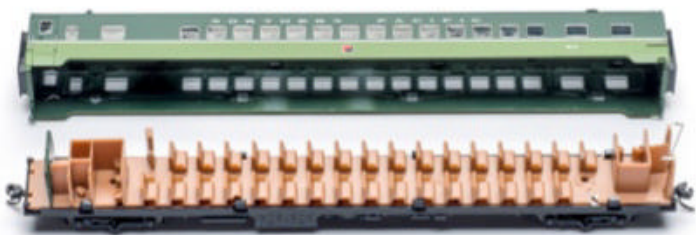
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The cars have a one-piece plastic interior that doesn't match the Pullman-Standard plan, but looks fine from the outside.

pickups on the trucks in case the owner chooses to install a lighting unit.

The model closely resembles a photo of a prototype car from the same series published in *NP Color Guide to Freight and Passenger Equipment* by Todd Sullivan (Morning Sun Books, 1995). The colors seem to match, too.

The paint is smooth, even, and thin, obscuring none of the fine molded rivet detail around the doors. Color separation is crisp, and the white printing is opaque and legible.

I compared the model's major dimensions to those on a prototype drawing published in *The Official Pullman-Standard Library: Vol. 3* (W. David Randall and William M. Ross, RPC

Publications, 1986). They all matched, as did the placement of windows, grab irons, and other details.

I coupled two of the cars together on my N scale Spartanburg Subdivision layout and pushed them around through the tight curves and no. 5 turnouts. Although they handled the 11" radius, they overhung the inside of the curves, and would look better on broader curves. I would not recommend trying to run them on 9¾" radius track. The couplers were mounted at the correct height, but I had to adjust one of the trip pins to clear the closure rails on the turnouts.

Fulfilling a need. These cars are an important part of postwar passenger service for several western railroads. Even if you don't model the *North Coast Limited*, *Mainstreeter*, *Empire Builder*, *Challenger*, or *City of San Francisco*, these cars would fit right into any postwar streamlined consist. These newly tooled, nicely decorated cars would be a fine addition to any N scale fleet.
— Steven Otte, associate editor

Facts & features

Price: \$46

Manufacturer

RailSmith Models

P.O. Box 188

Prineville, OR 97754

lowellsmith.net/railsmith/

Era: 1953-1970 (NP Loewy scheme)

Road names: Northern Pacific (two-tone green "Loewy scheme" and Pine Tree scheme); Great Northern (*Empire Builder* and Big Sky Blue schemes); Illinois Central; Southern Pacific; Spokane, Portland & Seattle (broad stripe, *Empire Builder*, and four stripe); and Union Pacific.

Features

- All-wheel electrical pickup
- Blackened metal wheelsets, in gauge
- Flush-mounted clear window glazing
- Skirted or unskirted body, as appropriate
- Sprung diaphragms
- Truck-mounted knuckle couplers
- Weight: 1.4 ounces (matches RP-20.1)

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Sign, sign, everywhere a sign

*Sign, sign, everywhere a sign
Blockin' out the scenery,
breakin' my mind
Do this, don't do that,
can't you read the sign?*

Those lyrics from the Five Man Electrical Band's biggest hit might be a railfan's lament these days. Come anywhere close to a railroad property line and you're likely to be confronted with "No Trespassing" and other don't-do-that signs, bristling more menacingly than a porcupine.

Railroads were once much friendlier about "No Trespassing" signs than now. However, they have long relied on other signs, especially trackside signs, and enforced them vigorously. In fact, many signs meet the definition of a fixed signal: "A signal of fixed location indicating a condition affecting the movement of a train." Rulebooks have made this explicit for more than a century, noting that the definition includes switch signals, stop boards, yard limit boards, slow boards, "or other means for displaying indications that govern the movement of trains."

How does a yard limit board govern train movement? Let's revisit Rule 93. It requires that all trains on the main track except first class trains slow to restricted speed unless the main track is known to be clear. If freight trains are allowed 50 mph on the main track, they must slow to a speed that allows them to stop short of another train, locomotive, or obstruction

within yard limits. Today's rulebooks require a speed that allows stopping within half the distance seen to be clear and limits speed to not more than 20 mph. (See my On Operation column from March 2019, "Complying with Restricted Speed.")

Great Northern displayed an advance yard limit board. Its purpose was "Engineer, do this: over the next mile, prepare for yard limits using good train handling to reduce speed safely." The photo shows one that Rich Remiarz placed on his Willmar Division layout. Great Northern standards specified the size of the sign, the height of its post, its placement 14 feet from the track centerline, and, of course, a location one mile before the yard limit board. Rich sent me several examples of original GN drawings: station signs, speed limit signs, and whistle posts, all rich with detail.

I stumbled across a similar source of information for my Susquehanna, an Advisory Mechanical Committee (AMC) book. The AMC established standards for the Van Sweringen railroads, including Erie, Chesapeake & Ohio, Pere Marquette, Nickel Plate Road, and their subsidiaries. These drawings include a wonderful Susquehanna

don't-do-that "No Trespassing" example with others as obscure as Bath & Hammondsport and Flint Belt.

Another sign that appeals to me is a clearance post used to mark the point on a siding that fouls the main track. It resembles a



A simple trackside sign makes this scene so realistic you could step into it. Rich Remiarz developed his signs using official Great Northern drawings. Rich Remiarz photo

concrete whistle post lettered "Clear." Such a sign can be used to mark the boundary between neighboring electrical blocks on a layout, useful in troubleshooting because it's more easily spotted than a double gap.

Many railroad historical societies sell reproductions of standards books. The Great Northern Railroad Historical Society offers a digital, five-part bundle of reference sheets, *Standard Signs*. The Santa Fe Railway Historical and Modeling Society has a three-volume set of *Santa Fe System Standards*; Volume 1 includes signs. The AMC sign standards I described are available from the C&O Historical Society. Its title is *Maintenance-of-Way Standard Drawings, Volume 1*. The New York Central System Historical Society offers a flash drive titled *Standard Plans for Right of Way and Structures*.

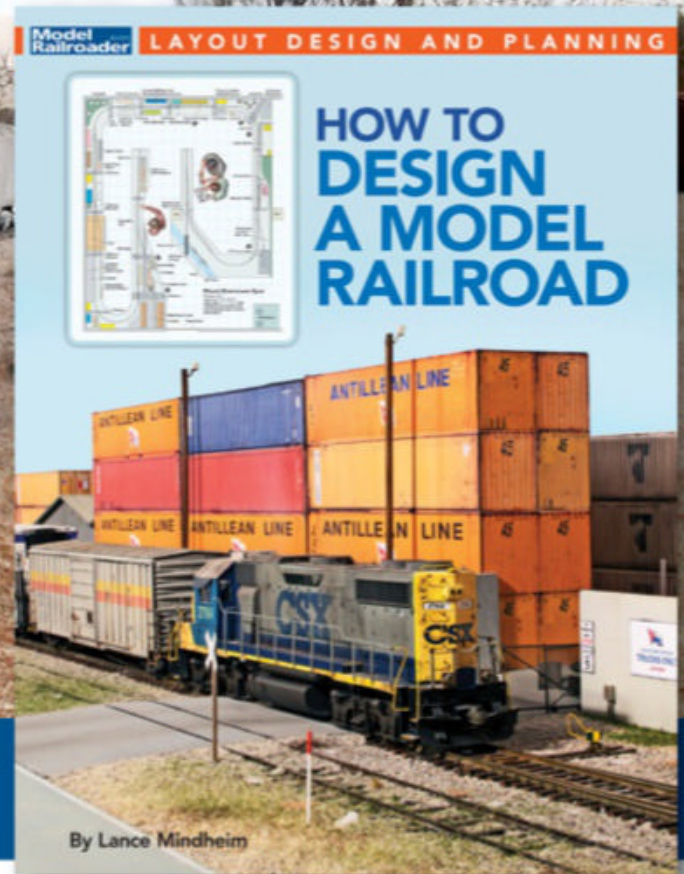
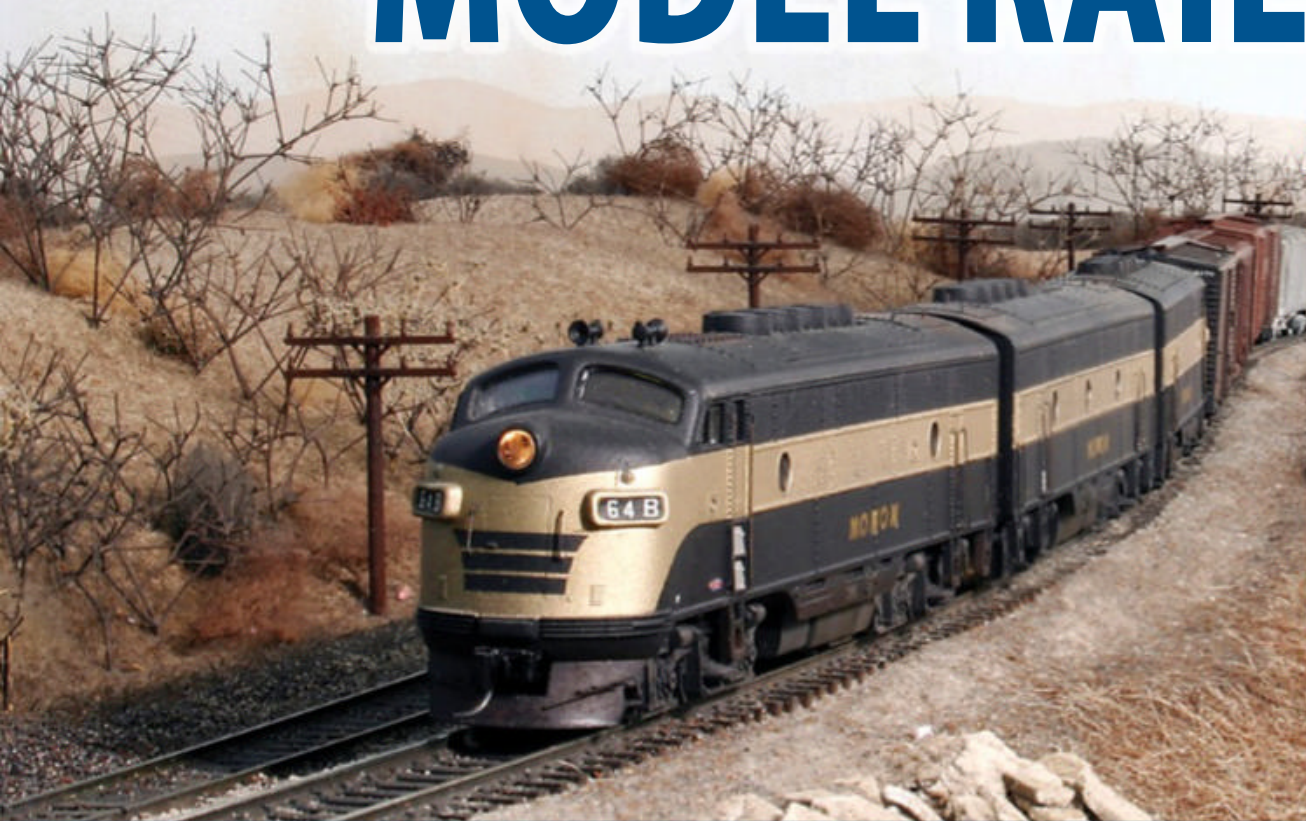
These references specifically include signage. Some also include other drawings that run from cattle chutes and section houses to coal bins and outhouses. Check your favorite prototype's historical society.

There's plenty of inspiration, enabling any modeler to create a common look for company signs and structures, whether for a particular prototype or for a freelanced layout. These documents and drawings may date much earlier than the period you model, but remember that such signs and structures remained for a long time, changing little since they were first installed.

Do this: Make signs an easy one-night detailing project. Use photo editing software to adapt a drawing to your scale, print it on cardstock, give it a boiler tube or scrap rail post, and place it on the layout. 



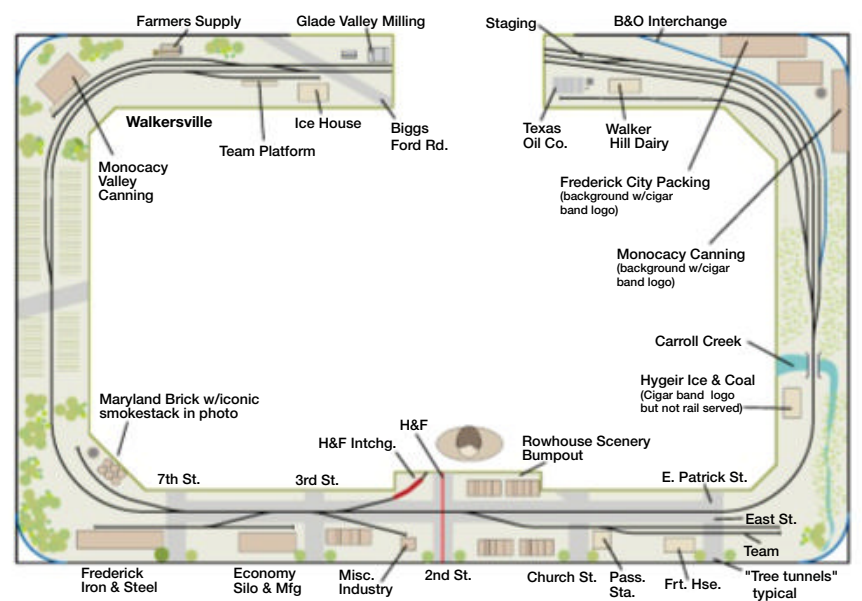
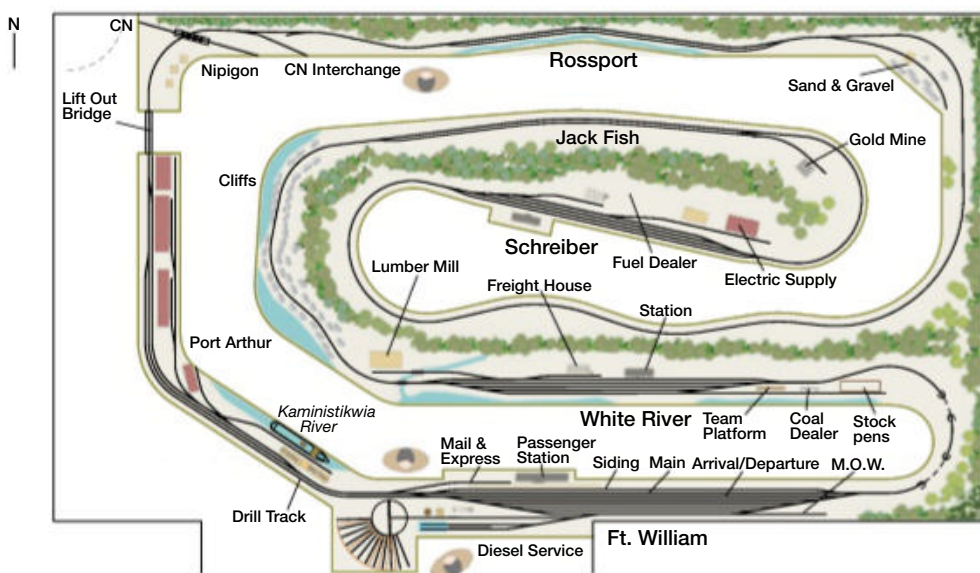
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**MORE ON
THE WEB**

🔗 Gary Hoover's
photo of his Norfolk
& Western layout
is June's wallpaper.
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In a shot inspired by the nighttime photography of O. Winston Link, a Norfolk & Western class M2C locomotive is seen pulling a short local through the darkened Virginia countryside on an autumn night. Gary Hoover of Florissant, Mo., captured the image by using a one-minute exposure time and “painting” the scene with a small, mobile light source. The engine is a Precision Scale brass import Gary weathered and equipped with Digital Command Control.





A pair of Alco RSD-4s leading a long westbound coal drag emerges from a tunnel and pass under a signal bridge indicating a clear signal for the eastbound main. Vincent Lee shot the action on the HO scale layout belonging to the West Island Model RR Club of Hicksville, N.Y. Vincent detailed the Atlas locomotives and equipped them with DCC and sound. Club member Vic Grappone built the layout's signal system and John Regler did the scenery.

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New York Central no. 6228, a Baldwin RS-12, eases onto the turntable so it can enter the Clinton Street roundhouse for some much-needed maintenance. Russ Weis of Louisville, Ky., photographed the locomotive on his HO scale NYC-themed railroad. The engine is a Bowser chassis equipped with a Stewart Hobbies shell that was upgraded by Russ' friend Steve Lasher, a retired Rock Island engineer.



A Denver & Rio Grande Western K-59 Mikado approaches the trestle over Santa Cruz Gulch with a mixed freight while a passenger train tops off its tender at the water tank below. Tim Schreiner of Roland, Okla., shot the photo on the Faith Canyon Route, his HO/HOn3 D&RGW layout.



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Schedule of Events Rate: \$45 per issue (45 word maximum). Ads will contain the following information about the event: state, city, sponsoring organization and name of event, meet, auction or show, dates, location, times, admission fee, name and/or telephone number and/or email of person to contact for information. Name, daytime telephone number and street address of the person providing the information is also required but need not be included in the ad. Unless otherwise requested, ads will be published in the issue month that the event occurs in. Please specify issue date(s). **Word Ad Rates;** per issue: 1 insertion — \$2.03 per word, 6 insertions — \$1.89 per word, 12 insertions — \$1.77 per word. \$40.00 MINIMUM per ad. To receive the discount you must order and prepay for all ads at one time. Count all initials, single numbers, groups of numbers (i.e. 4-6-0 or K-27), names, address number, street number, street name, city, state, zip, phone numbers each as one word. Example: John A. Jones, 2102 South Post St., Waukesha, WI 53187 would count as 10 words. For MR's private records, please furnish: a telephone number and, when using a P.O. Box in your ad, a street address. *Model Railroader* reserves the right to refuse listing. **All Copy:** Set in standard 6 point type. First several words only set in bold face. If possible, ads should be sent typewritten and categorized to ensure accuracy.

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

Schedule of Events

AZ, GLENDALE: ARHS Model Train Swap Meet. Glendale Christian Church, 9661 North 59th Ave. Saturday, May 15, 2021, 9:00am-1:00pm. STRICT COVID PROTOCOLS WILL BE OBSERVED. Admission \$5.00. Tables \$25.00 - To sign up send stamped envelope, check or money order to ARHS, PO Box 5816, Glendale, AZ 85312-5643. Contact: Craig Faris 623-340-3529

FL, OCALA: Lions Tri-Annual Train Show. First Christian Church, 1908 E. Fort King St. Saturday, June 12, 2021, 9:00am-2:00pm. Adults \$5.00, children 12 and under free w/ adult. Bring two canned goods and receive \$1.00 off admission. Information: Bob 352-694-6381 or cell 813-203-3216

IL, GREENVILLE: American Heritage Railroad Train Show @ American Farm Heritage Museum I-70 @ IL Rt. 127 (Exit #45). Saturday, June 12, 2021, 10:00am-4:00pm. Admission: \$5.00, under 12 FREE. Train ride with paid admission. Operating layouts. Dealers welcome, \$15.00 per table. Contact Jim @ 217-825-6230.

IL, ST. CHARLES: 45th Annual Kane County Railroadiana and Model Train Show. Kane County Fairgrounds, 525 South Randall Rd. Sunday, June 13, 2021, 10:00am-3:00pm. Admission: \$6.00 w/tax. Tables \$60.00. Please visit our website for latest Covid updates. For information: 847-358-1185, RussFierce@aol.com or www.RRShows.com

All listed events were confirmed as active at the time of press. Please contact event sponsor for updated status of the event.

IN, FRANKLIN: Central Indiana Division/NMRA announces the 2-DAY Franklin Spring Train Show! Johnson County Fairgrounds, 100 Fairground St., Zip: 46131. Saturday & Sunday, May 15-16, 2021. 10am-3pm. Admission \$3, Family \$5. NMRA members FREE w/current membership card. Clinics, CID Annual Meeting, Door Prizes, Displays, Operating Layouts, Free Parking, Food available. Info/table rental: Michael Roderick 317-833-3556, mdrghost@hotmail.com or www.cidnmra.org

KS, HUTCHINSON: Kansas Central Model Railroaders, Center of the Nation Model Railroad Expo. Kansas State Fairgrounds, Pride of Kansas Building, 2000 N Poplar, June 5-6, 2021. Saturday 9am-5pm, Sunday 10am-3pm. Admission \$7.00, under 12 free w/adult. 100+ Vendor Tables & numerous layouts, free parking (handicap accessible). Contact Don Phillips 620-662-5906 or go to www.kansascentralmodelrailroaders.org

NE, DESHLER: Train Show & Open House, July 24-25, 2021. Thayer County Activity Center, 4th & Race St. Hours: Saturday, 9:00am-5:00pm, Sunday 10:00am-4:00pm. Clinics, custom vendors, layouts, and manufacturers. Admission \$6.00, under 12 FREE. Extended hours at Spring Creek Model Trains. 304 E. Bryson Ave. Details: www.springcreekmodeltrains.com

WI, LA CROSSE / ONALASKA: La Crosse & Three Rivers Railroad Club's 40th Annual Model Railroad Show. Omni Center, 255 Riders Club Road, Onalaska, WI. May 22-23, 2021. Saturday 9:00am-5:00pm, Sunday 10:00am-4:00pm. Adults \$8.00, \$7.50 with a non-perishable food item, children 11 and under free w/ adult. Info: Belva Thompson 608-780-7364

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Coping with truncated structures



When he was forced to truncate several buildings between the track and the aisle on his HO Yosemite Valley RR, Jack Burgess chose to extend the valance upward with plugs that fill the ends of the cut-off structures. Jack Burgess photo

Several of us were chatting online (how else these days?) about how to treat the backs of buildings that are truncated by the “end of the world” – that is, they theoretically extend out into the aisle and thus must be unceremoniously cut off at the fascia. I discussed this in my book, *How to Kitbash Structures* (Kalmbach Books, 2012).

The cover photo showed how Gerry Leone coped with this dilemma by detailing the interior of a truncated structure. This approach provides a chance to show operating crews and visitors what goes inside a structure and offers a chance to do a lot of interior detailing that can actually be seen without removing the roof of a structure to show off the interior.

I similarly truncated several of the stalls of the 22-stall roundhouse at Frankfort, Ind., on my Nickel Plate Road’s St. Louis Division, not primarily to show off the interior but rather to make it possible for the roundhouse foreman easily to reach the

turntable and locomotives in any stall that might, well, stall. It also made it possible to build a decently wide aisle past the roundhouse. That the foreman and others can get a glimpse of activities in the roundhouse interior through the clear protective Lexan wall is purely a bonus, as I also made the roof sections removable if visual or physical access is needed.

On the Allegheny Midland, I planned to build the first few inches of a Railroad YMCA alongside the yard lead with some comfy overstuffed sofas where retired and off-duty railroaders could relax and watch the action. We could join them, too! But I suspect they’d all be asleep between runs or turned the other way eating, playing cards, or watching TV.

The sentiment of most participants in the discussion leaned toward opaque walls to cover the truncated opening. So the conversation then segued to how to treat the

blank wall. There were clearly several options.

The first is to borrow a trick from the theater folks and paint the “plug” black. I discovered how effective this is when I had to deal with Lally columns (steel posts) that held up a center beam in my basement and stuck up from the central Appalachian ridge on the Allegheny Midland. My first thought was to paint them sky blue, but they still seemed rather evident poking up from the verdant ridge like tall blue water tanks. I then painted them black and never saw them again.

That’s what Bill Darnaby does with truncated building backs on the Maumee Route, as I showed in my book. He went one step further in a lumberyard and built short “tunnels”

where the unloading doors are so the local’s crew could look through the building to more accurately spot boxcar doors for unloading.

Plan B might be to cover the plug with the same type of siding material (brick, corrugated metal, or the like) or paint it the same color as the rest of the structure. This could have the unfortunate effect of making the building look smaller than you want it to, however.

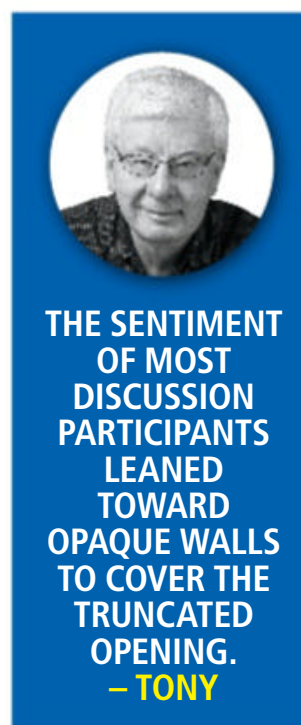
A third approach, one I like a lot, is to extend the fascia upward into the back of the building to fill the void. The photo at left, taken on Jack Burgess’s Yosemite Valley, illustrates this technique.

“I just cut some 1/8” thick plywood to fit the buildings, painted them to match the fascia color, and glued them in place as shown in the attached photo,” Jack recalled. “This is the only place where I have buildings on the front of the layout without room for the entire building.

“There are actually three such buildings in this scene. When I was designing my layout, I didn’t know the size of these buildings or I might have widened the layout

here,” he admitted.

“If I had a building on a curved section,” Jack replied to a question, “I would probably cut a piece of plywood just a little taller than needed and much longer. I would then soak the wood in water until it could be easily bent and then strap it in the needed curve until it dried.”



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