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August 2019
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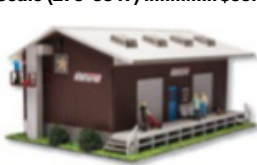
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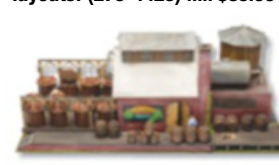
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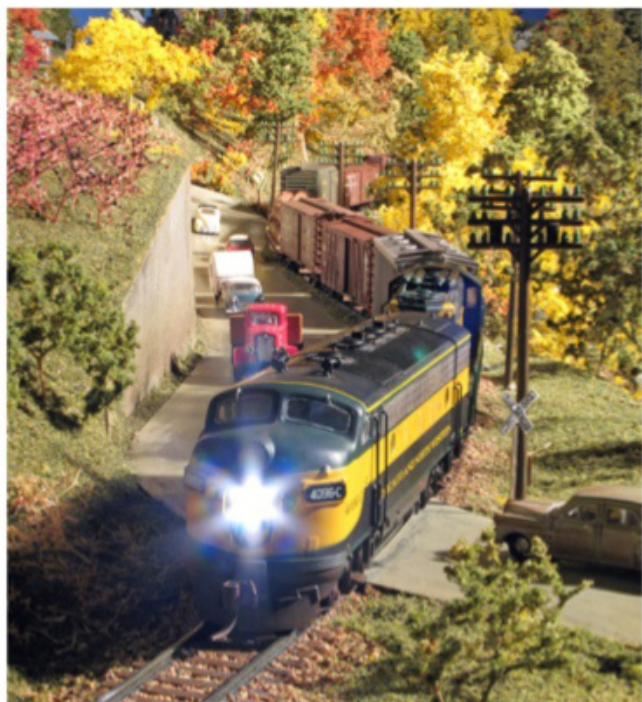
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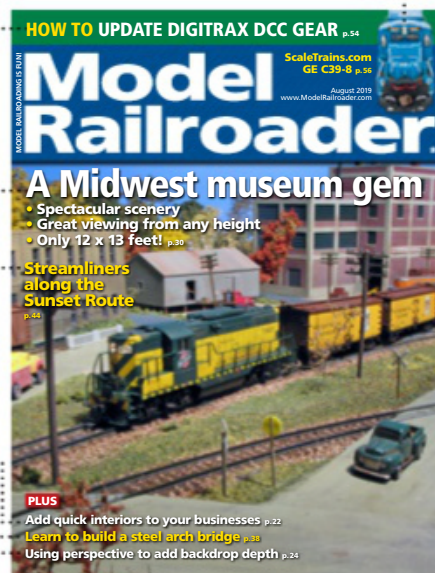
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On the cover: A reefer train rolls through the industrial Flats of Appleton, Wis., on Gordon Lind's HO scale Fox Valley RR. Dave Rickaby photo



Next issue

In September, three articles show you how to prepare for nighttime operations. We also visit an HO scale Midwestern layout, replace a dead turnout, and more!

MREXTRA

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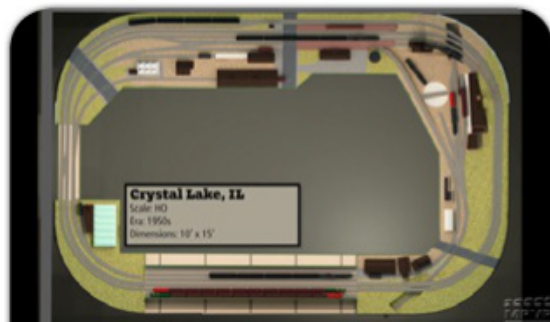
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DON'T MISS THESE VIDEOS FROM *MODEL RAILROADING THE ULTIMATE GUIDE 2019*



3-D track plan. This HO scale track plan for Crystal Lake, Ill., models Chicago & North Western in the 1950s.
MRVideoPlus.com/CrystalLakeTP



Drew's Trackside Adventures. Follow Drew Halverson as he railfans the Show Me State from St. Louis to Kansas City.
MRVideoPlus.com/DTA41



Airbrushing with Aaron. Learn shading techniques and more with *FineScale Modeler* senior editor Aaron Skinner.
[MrVideoPlus.com/AA7](http://MRVideoPlus.com/AA7)

Get even more in-depth information with Model Railroader Video Plus. In this month's Step by Step column on page 22, Group Technical Editor Cody Grivno shows you how he added interiors and lighting to an HO scale structure. MR Video Plus subscribers can follow Cody through the entire project in this special "Cody's Workshop" series.

Part one will show you how to build the Woodland Scenics/Design Preservation Models kit. Later episodes will describe painting, detailing, and adding a lighted interior.

No matter what your skill level, there's always something new to learn on MRVP. Shows like "Let's Make a Scene" with Kathy Millatt, "Off the Rails" with Gerry Leone, and "It's My Railroad" with Steve Brown provide a treasure trove of modeling tips and techniques.

New videos on a wide variety of model railroading subjects are added each month. See what you've been missing!

► Learn how to build a basic model railroad structure with lights and interior detail. MRVideoPlus.com/Workshop36



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THE STATE LINE CHALLENGE

We're always up for a challenge at MR Video Plus and *Model Railroader* magazine. This time we're having a kit-bashing challenge centered around the Walthers Cornerstone

State Line Farm Supply structure kit. Basically, everyone gets the same kit, but needs to make it into something different than what's depicted on the box.

Members of the MRVP and MR staffs have a wide variety of ideas. And of course you can play along at home. It's sure to be a lot of fun!

Not an MR Video Plus subscriber yet? Click on the link at left to watch the free introductory episode.

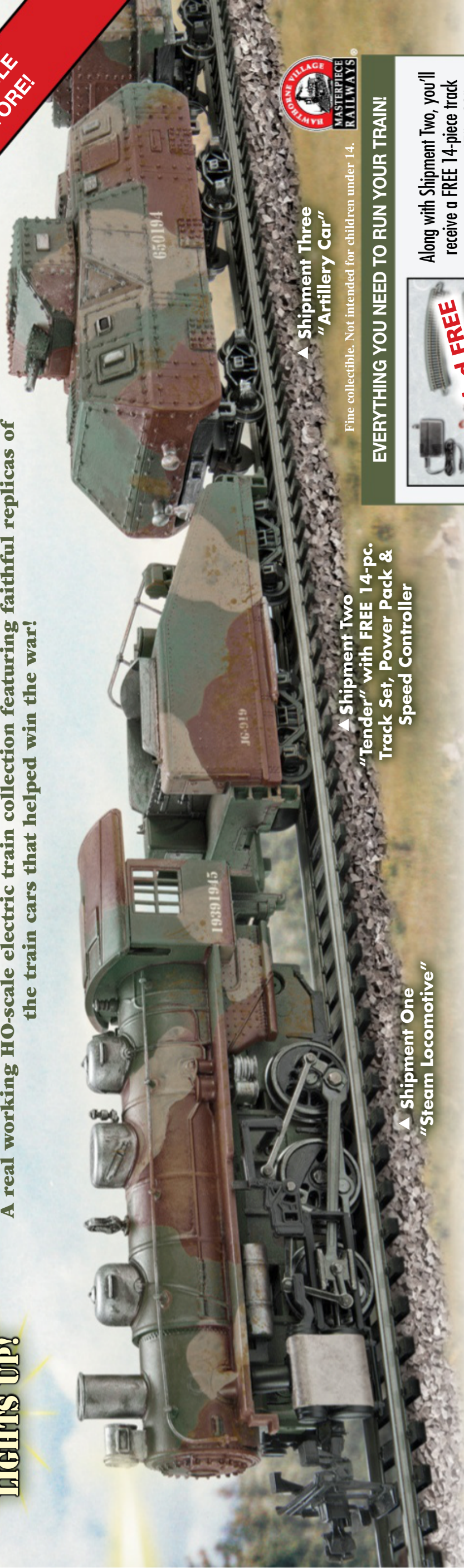


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Shipment Four "Anti-aircraft Car"

Armed with two 37mm anti-aircraft guns, these cars were vital in defending the trains against the ever-present threat of deadly air attacks!

What are you doing this summer?

Do your summer plans

include some model railroading? We sure hope so!

You might have a long list of things to do. Some track-laying, maybe some bench-work building. Even just some cleaning and maintenance.

Or, your summer model railroading activities might be less scripted and more spontaneous. While outside, you might just run across some plants that would make good trees or ground cover on your layout. Keep your eyes open!

This time of year, usually everything is in bloom, and a few days in the sun can dry things out enough to store them until needed. Just make sure there are no creepy-crawlies in whatever you pick and dry before you bring it in the house.

At any rate, be sure you take MR with you on vacation or wherever you travel.

The paper copies are pretty portable, and you can access the digital version or the archive from your phone or tablet wherever you have internet access.

On a serious note, by now you've probably heard how four teenage vandals wrecked a model railroad show in late May in England.

This was a terrible act, but what was encouraging was the reaction to it.

In the days after, news traveled rapidly by traditional and social media. The equivalent of over \$110,000 was raised to help club members replace what had been lost. Sir Rod Stewart gave more than \$12,000 and challenged other celebrity model railroaders to contribute.

The upshot is the world still views model railroading as a very positive thing, worth promoting and saving.

The money donated was fantastic and will go a long way toward getting the modelers up and running again. Alas, the thing none of them can get back is the time it took to create their projects.

From the mailbag this month comes an episode of making friends through model railroading.

James Soberman wrote of a recent commute on the Long Island RR: "I was traveling home on a particularly crowded train and pulled out the May issue of *Model Railroader*."

"As I was reading the magazine, the man sitting across from me asked if he could take a look at it."

Soberman handed it over, and pretty soon the gentleman and four of his friends were all looking at the magazine and talking about the trains of their childhoods.



The MR borrower related to Soberman he had trains but needed track and transformers to get them going, so Soberman invited him to a swap meet.

I'm never surprised at the common interest in model railroading. It can happen anywhere, even on the Route of the Dashing Commuter.

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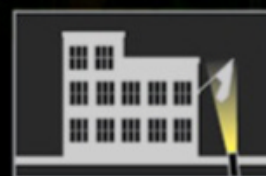
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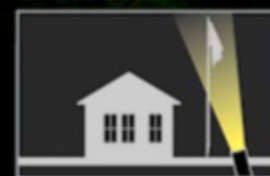
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HO scale



Electro-Motive Division GP9 diesel locomotives. Walther's has added these chopped-nose road switchers to its Mainline series. The HO scale GP9s are decorated for Chicago & North Western, Burlington Northern, Milwaukee Road, Canadian Pacific, Norfolk Southern, and Wisconsin & Southern in four road numbers per scheme (two each in direct current and Digital Command Control). An undecorated model is also

available. The models feature all-new tooling, prototype-specific details, molded drill-starter points (grab iron kit sold separately), and a ratchet style handbrake. Direct-current models with a 21-pin plug for a Digital Command Control decoder sell for **\$139.99**. Versions with a dual-mode ESU sound decoder are priced at **\$199.99**. Wm. K. Walther's Inc., 414-527-0770, www.walthers.com

Bachmann adds three new HO scale models

Following the success of the HO scale Siemens ACS-64, Bachmann Industries announced three new HO scale models based on Siemens Mobility prototypes: the Charger SC-44 passenger locomotive, the S70 light rail-vehicle, and a single-level mainline passenger car.

The SC-44 Charger will be the first model released, due out in 2020. The locomotive will be based on Siemens Mobility design documentation and feature prototype sound files. The Charger is currently used on some corridor

service trains operated by Amtrak and on commuter railroads (Caltrans and MARC). Other railroads and commuter agencies have ordered the SC-44.

Full-size S70 light-rail vehicles can be found in several cities throughout the United States, including Houston, San Diego, Salt Lake City, and Atlanta. Bachmann didn't provide details or a projected release date for the S70 or the single-level mainline passenger car.

"Combining Siemens' acclaimed designs and Bachmann's modeling

expertise, all three products will be sure to thrill any hobbyists who model in the modern era," said Rich Janyszek, Bachmann's senior vice president of sales and marketing. Spearheading the effort between the two companies are Dave Ward, chief advisor for Siemens Mobility, and Larry Harrington, vice president of product development for Bachmann Trains.

Learn about the entire range of model trains from Bachmann Industries at www.bachmanntrains.com.

HO scale locomotives

- **Alco RS-3 diesel locomotive.**

Chicago & North Western ("Route of the 400" slogan); Central RR of New Jersey (red and white, three road numbers); Delaware & Hudson (black and yellow); Milwaukee Road (orange and black with The Milwaukee Road herald on cab); Providence & Worcester (white, orange, and brown); Rock Island (maroon with white pinstripes); Spokane, Portland & Seattle (yellow and green with road name spelled out on long hood and SP&S Ry. herald on cab); and St. Louis Southwestern (Cotton Belt, orange and black). Four numbers per scheme unless noted. Factory-installed and painted

wire grab irons, light-emitting-diode headlights, and 21-pin NEM plug for Digital Command Control decoder. \$139.98. April 2020. Roundhouse line. Athearn Trains, 800-338-4639, www.athearn.com

HO scale freight cars



- **40-foot boxcar.** Atlantic & Danville, Canada Southern, CP Rail (Action Green with Multimark and "Newsprint Service Only" stencil), Genesee &

Wyoming (orange), Lehigh Valley (Boxcar Red with "For Flour Loading Only" stencil), and 10 other railroads. Three road numbers per scheme. Injection-molded plastic body with metal wheels and knuckle couplers. \$28.95 each. January 2020. Bowser Manufacturing Co. Inc., 800-327-5126, www.bowser-trains.com



- **Assorted freight cars.** Tidewater Southern 50-foot Pullman-Standard

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PS-1 boxcar (\$39.95) and Tank Gas Corp. American Car & Foundry 11,000-gallon insulated tank car (\$44.95). Injection-molded plastic models with separately applied detail parts, metal wheels, and Kadee couplers. Kadee Quality Products Co., 541-826-3883, www.kadee.com

N scale locomotives



- **Atchison, Topeka & Santa Fe Alco PA-1 and PB-1 diesel locomotives.** PA-1: Goldbonnet in one road number, red-and-silver warbonnet in two numbers. PB-1: Red-and-silver warbonnet in one number. Models feature five-pole motor with brass flywheels and blackened metal wheels. Direct-current models: PA-1, \$110-\$120; PB-1, \$100. With Train Control Systems K0D8-E Digital Command Control motor decoder: PA-1, \$170-\$180; PB-1, \$160. Kato USA Inc., 847-781-9500, www.katousa.com

N scale freight cars

- **Assorted freight cars.** Atchison, Topeka & Santa Fe 70-foot Husky-Stack well car (two road numbers), \$29.90. Baltimore & Ohio 40-foot boxcar (Time-Saver Service scheme), \$28.90. Crazy Water Co. 40-foot double-sheathed refrigerator car, \$27.95. Illinois Central 50-foot plug-door boxcar, \$25.90. Northern Pacific 40-foot single-sheathed boxcar, \$20.95. Union Pacific 50-foot double-door automobile boxcar with end

door (four-pack), \$99.95. Injection-molded plastic models with plastic wheelsets and Magne-Matic couplers. Micro-Trains Line Co., 541-535-1755, www.micro-trains.com

N scale details and accessories



- **53-foot high-cube intermodal container.** Trans X and APL (vertical logo with new and faded paint). Injection-molded plastic with inter-box connector pins and JTC magnetic connecting system (magnets on bottom and metal plate on top). Two-pack, \$33.95. Jacksonville Terminal Co., 904-253-3430, www.jtcmodeltrains.com
- **Aerial ladder truck.** Kit features resin body and cab, stainless steel photo-etched

parts, and pewter castings. \$49.95. Showcase Miniatures, 334-750-3276, www.showcaseminatures.net

O scale details and accessories



- **Operating oil pump.** Orange and black, black, blue and white, and Red Bird. Factory-assembled and wired.

N scale



Atchison, Topeka & Santa Fe class Bx-166 double-door boxcar. Atlas released this Master Line model in several Santa Fe schemes, including with a 24" circle-cross herald in 12 numbers, a late "Q" herald in two road numbers, Berwind "C" and "J" repaints in six numbers each, an early "Q" herald in two numbers, and reporting marks only in two numbers. The N scale plastic model (\$34.95) has wire grab irons, an etched-metal brakewheel platform, and 36" metal wheels. Atlas Model Railroad Co., 908-687-0880, www.atlasrr.com

Conducted by Cody Grivno

In Memoriam

Lloyd "Randy" Kennie, 1943-2019

Lloyd "Randy" Kennie, a longtime sales manager in the hobby industry, died on April 14. He was 75 years old.

Randy worked for several companies, including Felix V. Bass, Mel Pollack Sales Associates, Sbar's, United Model Distributors, Life-Like, Wm. K. Walthers Inc., and Bachmann Trains. Following his tenure with Bachmann, Randy returned to AC Moore/Sbar's, where he worked until retirement.

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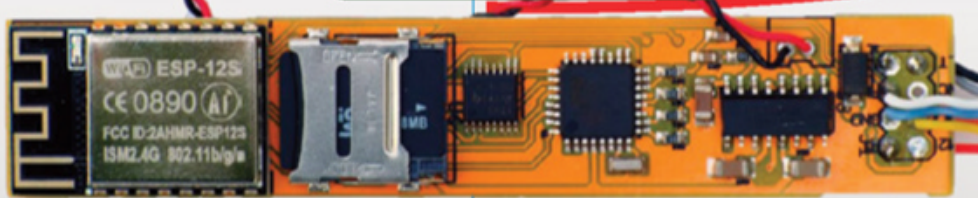
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Working from photos, Steven Otte scratchbuilt the Koppers Ashcroft tie plant located along the Thompson River canyon in British Columbia. Bill Zuback photo

Canadian Canyons

I enjoyed *Model Railroader's* latest project series, the N scale Canadian Canyons [January-May 2019].

I've never seen a creosote tie plant modeled in *Model Railroader* before, let alone so prominently featured as the Koppers Ashcroft Inc. plant along the Thompson River.

I visited that plant many years ago, before it was purchased by Koppers in 2014. I worked for Koppers Forest Products Group some 30 years ago and am keenly familiar with the crosstie creosoting process.

I was wowed by some of the details captured by your modeling, in particular the German sticker-stacking of the unseasoned ties. I can't imagine the time and meticulous work involved in assembling these racks in N scale. I had a devil of a time building these tie stacks in HO on my layout!

Congrats on the work. Canadian Canyons is quite an achievement and was delightful to follow.

*Cliff Smith
Tyrone, Ga.*

I've always built small layouts for one-man operation, each one a little better than before because of new products and increased modeling skills.

I was pleased to see the articles on the compact layouts of Howard Clark and Howard Gallagher ["Serving steel in 11 x 13 feet," June]. These were particularly satisfying to me because they used good old Atlas Code 100 flex track and direct-current control (always my choice). The super detail and beautiful scenery of their layouts clearly show outstanding results in compact space.

After all, model railroading is fun regardless of space or scale.

*Larry Owens
Kennett Square, Pa.*

Modern storage

Thomas Klimoski's article was both great and accurate ["Model a modern tilt-slab building," May].

About 45 years ago, I worked on the electric conduit for a large tilt-slab warehouse under construction. As a Hydro crane stretched out to lift one of the slabs, the crane reached beyond its limit and toppled over. The slab hit the one next to it, and like dominoes every single slab fell over and smashed into pieces. Several workers had serious injuries, but miraculously no one was killed.

*Sonny Alansky
Rockledge, Fla.*

I remember watching a large building being erected with precast concrete. The panels were built in an off-site building, which aided in construction during inclement weather. Panels were generally as wide as the flatbed semitrailers that carried them. Heavy panels required more axles on a truck or an oversize load, but most panels fit on 50-foot flatbeds.

Each panel was lifted and fit onto a groove on the floor, with the next panel welded to the first. Built-in metal edges aided in this construction.

Inner walls were either precast, cinder block, or concrete block. Hollow blocks were filled with concrete, depending on the location and if the wall needed to be fire resistant.

*Allen Kennedy
Pahoa, Hawaii*

Urban scenery

I was pleased to read about Howard Clark's layout in the May issue ["Big city scenes in the 1950s" by Lou Sassi]. It was refreshing to learn about someone who loves building realistic, highly detailed structures and who controls his locomotives with direct current. As one subhead read, "Built for train-watching." What a concept!

I decided some time ago to follow the same path, spending my model railroading time building realistically detailed

structures and scenery. When each model is completed and placed on the layout, I turn on a DC power pack and run a train past it in its honor.

Thanks, Howard, for creating a goal that I can aspire to and for showing that eschewing operations can still lead to satisfaction and recognition in the hobby.

*Jack Rummel
Longmont, Colo.*

I've been an HO model railroader since grade school and a subscriber to MR for more than 50 years.

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.

Everything to Keep You Current

Digital Command Control is a great way to run your model railroad but setting it up and keeping it current can be overwhelming. ***DCC Projects & Applications, Volume 4***, a new book by DCC expert Larry Puckett, simplifies the process with the most up-to-date and comprehensive information available.

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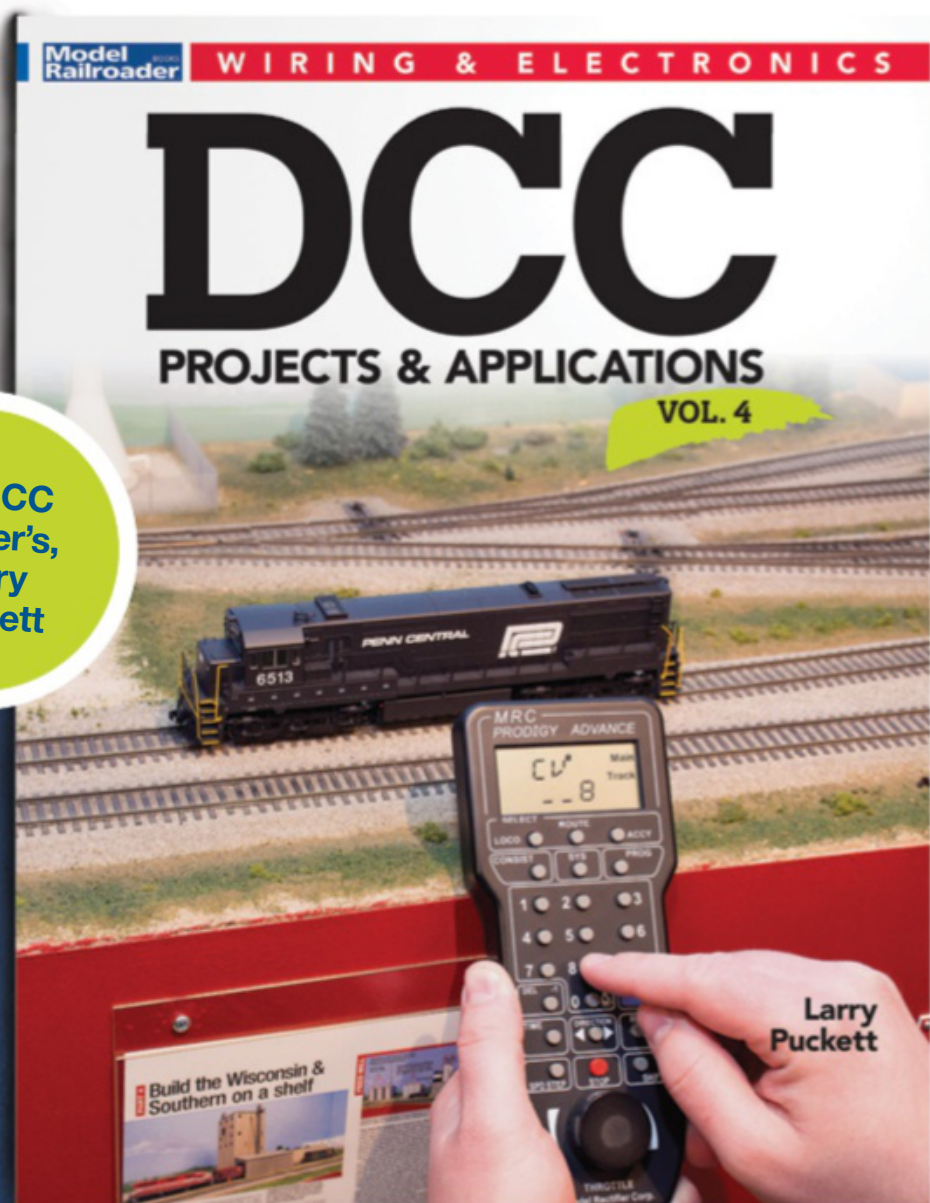
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Subtle weathering, as *Model Railroader* contributing editor Pelle Søeborg demonstrated in our October 2016 issue, can still be effective. Pelle Søeborg photo

Whether to weather? That's a tough one

Q Try as hard as I can, I just can't seem to muster up the desire to weather my trains. I'm not lacking in skills; I paint and detail my diesels, and I weather my structures. I've watched plenty of how-to videos, and I have the tools and materials – everything but the desire.

Even the low-end trains received as gifts from well-meaning friends and relatives are immune to the forces of nature. Once I replace the wheels, body-mount knuckle couplers, and kill the plastic sheen, those low-cost models take on an air of newfound respectability.

I'm not alone here. I've seen zillions of layouts with sparkling-clean trains. So what's a fellow like me to do? Am I missing something? I enjoy looking at weathered models. I just can't bring myself to do it.

Manny Gamallo, Sand Springs, Okla.

A I understand your reluctance to weather that shiny, new rolling stock of yours. When I was new to the hobby, couldn't afford an airbrush, and had never heard of powdered pastels, I weathered my rolling stock by drybrushing. Like many modelers new to the hobby, I got the idea into my head that if weathering equals realism, more weathering must equal more realism. Looking back on the results of those primitive efforts today makes me cringe. I wish I'd left those cars pristine, like you do with yours.

Today, I better understand not only the tools of the trade – airbrush, powdered pastels, paint washes – but also the idea behind weathering. The point isn't to make rolling stock look old and decrepit. Prototype railroads put a lot of effort into maintaining their equipment, after all.

But on the prototype, locomotives and rolling stock looked brand-new for a very short time after coming out of the paint shops. If realism in modeling is our goal, then we must weather our models. That's a fact that I suspect you already realize, since you weather your structures.

In the end, it's your railroad, and the decision whether to weather is yours. What you might not realize is you're already weathering your rolling stock. You mention that to improve your rolling stock, you "kill the plastic sheen." I imagine you do so with a spray of matte lacquer, like Testor's Dullcote. Well, that's weathering. By spraying your models to cut the shine, you're already subtly showing the effects of weather on your rolling stock.

Weathering need not be heavy to be effective. The best kind may be weathering you barely notice. Pick out one of those inexpensive locomotives you mentioned and fade the paint with a spray of thinned-out Reefer White. Grab a brush and some black weathering powder, and add just a touch of soot around and behind the exhaust stacks. Dust a bit of Rust on the trucks. Add a shiny black streak below the fuel filler. You'll surprise yourself what a big improvement a little weathering will make.

Q I'm building an On30 rail motor car or "doodlebug" from a resin kit. What's the best way to mount the acetate windows to the resin car sides? Should I use cyanoacrylate adhesive (CA), or does that not work well with acetate?

Scott Zieske, Rapid City, S.D.

A Try a glue that dries clear, like Elmer's Glue-All or Testor's Clear Parts Cement. Apply sparingly with a toothpick so it doesn't ooze onto the clear window surface. The vapors that are emitted from CA as it cures tends to fog acetate and clear styrene, making it less than optimal for gluing window glazing.

Q I have an HO scale F7A-B set. Both units are powered. The A unit runs faster than the B unit. Can that cause any damage to the locomotives?

Bob Devine, Rumson, N.J.

A It's possible, but not likely, and the damage wouldn't be severe. If the locomotives' speeds were badly unmatched, about the worst that might happen is that the wheels on one or both of the units would wear unevenly, or the couplers might come loose under the strain.

You don't mention whether your locomotives are operated under direct current (DC) or Digital Command Control (DCC). If they're DCC-equipped, you can address the problem by speed-matching the locomotives.

Many DCC decoders – at least, those made in the last decade or so – have three Configuration Variables (CVs) that govern speed at different speed steps: CV2, or Vstart, the voltage delivered to the decoder in speed step 1; CV5, Vhigh, the voltage at full throttle; and CV6, Vmid, the voltage at the midpoint speed step. Testing how your locomotives perform at different values of Vstart, Vmid, and Vhigh can let you make your DCC-equipped locomotives respond similarly to the same speed step.

If you want even more control, some decoders have adjustable 28-step speed curves for precise performance tweaking. To find out how to do it, read Larry Puckett's DCC Corner column "Speed matching for DCC consists" in our September 2016 issue and watch episode 4 of "DCC Programming with Dana Kawala" on Model Railroader Video Plus.

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

Q Is there a way to fix InterMountain Ry. freight car trucks? I've taken the trucks off, only to have the trucks and wheels come apart. I've tried cyanoacrylate adhesive (CA), to no avail. Any suggestions?

Jason Layne, Elyria, Ohio

A InterMountain's HO scale trucks are two-piece assemblies. The sideframes and bolsters are one piece; the brake beam is a separate piece that fits into notches in the bottom of the bolster.

Group Technical Editor Cody Grivno recommends using Loctite's Plastics Bonding System to repair the trucks. This system includes an etchant to give the gluing surfaces some tooth before applying the glue. This makes it effective on some types of plastics other glues won't work on.

But if you don't want to go through that trouble, replacing the trucks is a simple and inexpensive solution. You can get replacement trucks from numerous manufacturers, such as Kadee, Atlas, Walther's, Accurail, Bowser, Rapido,

Micro-Trains, and more. Upgrading a truck is usually a matter of removing and replacing a screw.

Q I'm sending you a picture of my 4 x 12-foot HO scale layout. As you can see, there are wide gaps between the subroadbed and the base of the layout. What magazine or pamphlet do you have that can show me how to fill in these spaces with realistic terrain?

John Harms, Williamsburg, Va.

A We run articles about different techniques for modeling terrain at least once or twice a year. Rather than make you track down a bunch of issues to find the technique you prefer, I'll suggest you head over to the Kalmbach Hobby Store (www.kalmbachhobbystore.com) and lay your hands on a copy of *How To Build Realistic Model Railroad Scenery, 3rd Edition* by Dave Frary. This book covers dozens of scenery techniques in detail, not just terrain-building, which should help you fill in the flat areas of your layout, as well.



Reader John Harms has his 4 x 12-foot HO scale layout running; now, he just needs a little information to fill in the gaps. John Harms photo



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Hobby manufacturers offered HO and N scale boxcars decorated to mark MR's 60th anniversary. The models were based on this prototype boxcar, which was painted in the magazine's honor by Wisconsin Central. Jim Hediger photo

Q I have an HO scale Wisconsin Central 50-foot boxcar. I believe it was made by Walthers and is numbered WC 26173. It's decorated for the 60th anniversary of your magazine. Was this indeed a Walthers model? Would you happen to know the original price and stock number?

Art Nyberg, via Facebook

A Here's a bit of trivia: Did you know that in 1993, the Wisconsin Central decorated a 1:1 scale boxcar with our 60th anniversary commemorative logo? It was also numbered 26173. Models of that car were offered in both HO and N scale. The HO model was a Model Die Casting/Roundhouse model, back before the Roundhouse line was purchased by

Athearn. The original part number was 7749. Though Walthers carried Roundhouse at the time, this was a limited-run offering, so it didn't appear in Walthers catalogs of the day. But similar Roundhouse boxcars sold at the time were priced at \$5.75. (That would be \$9.86 in today's dollars.) These cars can sometimes still be found at railroad swap meets and on eBay.

Q I'm going to build an HO scale city. Are Hot Wheels HO scale?

Joseph Corbett, Helena, Mont.

A No. Toy car lines like Hot Wheels and Matchbox vary in scale; most fall between 1:72 and 1:64 scale. Also, features like the wheels are usually out of scale or exaggerated for appearance. Model train stores carry a variety of realistic vehicles sized to match popular model railroad scales. Look for products from makers like Atlas, Classic Metal Works, Walthers, and Woodland Scenics, as well as European firms including Busch, Kibri, Vollmer, and Wiking. **MR**

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Baldwin Model Locomotive Works in the 1960s

The 1960s through 1970s were a stressful period for O scale. A notice in an undated Clark Benson Custom Services O scale Baldwin Model Locomotive Works catalog from the mid-1960s stated “All prices, materials and designs subject to change without notice. Locomotives for three-rail are outside third rail, center third rail roller collectors extra.”



This Tom Bedell-designed B-B-trucked electric switcher is similar to a model Al Kalmbach had.

The catalog listed a variety of models: AHM plastic locomotives and freight cars; a mix of Baldwin Models locomotives, including an Electro-Motive Division (EMD) F7A and B, an E8A and B, a Fairbanks-Morse (FM) H-12-44 switcher, and a Pennsylvania RR GG1 electric; and a Tom Bedell-designed New York, New Haven & Hartford B-B boxcab.

The pages followed the contemporary Walther's catalog format and typeface, and included three pages reproduced from a 1939 Parmele & Sturgess catalog showing a two- or three-rail New Haven 2-C+C-2 class EP-3a, and other models.

Clark Benson intended selling the models built-up and ready-to-run, but with so

many requests for kits, he was unable to prepare assembly sheets. Walther's and Baldwin had parted company around 1954 to 1955, and Benson had taken on manufacturing and selling of Baldwin's models.

The EMD F7 and E8 in

Benson's catalog were different from those in Walther's 1947-1951 catalogs. The Walther's 1948 catalog showed the F7B units having a mix of castings with tinplate sides and a wood roof and ends. By the mid-1960s, the A units came single- or double-motored, as did the B units. The A unit body was one main casting with separate roof inserts, a fuel tank ballast block, and many hand-applied details.

The B units had a main body casting and flat end castings.

The FM model had a detailed body casting with a separate cab, a bronze chassis casting, and hand-



The O scale Baldwin Model Locomotive Works Electro-Motive Division F7A was a cast-metal model available as a kit or unpainted and assembled locomotive.

applied details. Kits came as an unpainted “machined finished” locomotive (“the next best thing to a Custom

Built locomotive,” the catalog said), and as an assembled, run-in chassis cab kit. On “machined finished” kits, the castings and parts had the important holes drilled and tapped; the less important ones were spotted, requiring hand tools to assemble. The assembled “run-in chassis cab kit” came with assembled trucks that were wired, tested, and ready to install.

Two electric

locomotives completed the line: Baldwin's 1947 GG1, and Tom Bedell's late 1930s General Electric-Alco

B-B 100 ton, 11,000 volt switcher. (See Al Kalmbach's postwar simplified version in the January 2019 issue of *Model Railroader*.)

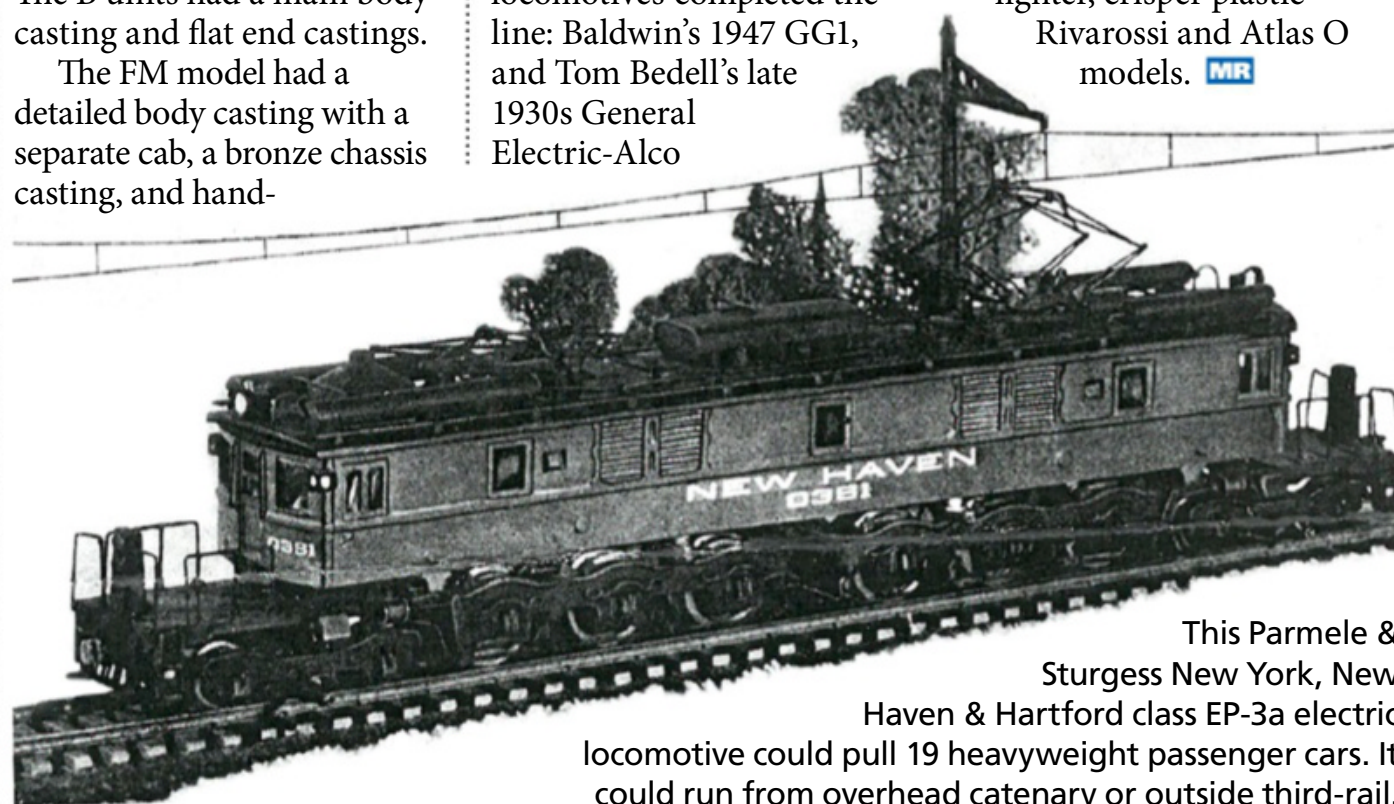
Walther's had arranged to sell Baldwin items, including Bedell's model, in 1946. The 1947 GG1 had strange C-C truck frames and passenger trucks at each end. This was corrected in 1950.

Parmele & Sturgess' EP3a prototype, which had all axles powered, could pull 19 heavyweight passenger cars and operate from overhead catenary or outside third rail. It came as a complete machined kit; assembled chassis-cab kit; and built-up, ready-to-run, unpainted.

It's strange. Parmele & Sturgess models should have been resurrected for a more modern generation appreciative of excellent brass and lighter, crisper plastic Rivarossi and Atlas O models. **MR**



CLARK BENSON INTENDED SELLING THE MODELS BUILT-UP AND READY-TO-RUN, BUT WITH SO MANY REQUESTS FOR KITS, HE WAS UNABLE TO PREPARE ASSEMBLY SHEETS. — KEITH



This Parmele & Sturgess New York, New Haven & Hartford class EP-3a electric locomotive could pull 19 heavyweight passenger cars. It could run from overhead catenary or outside third-rail.

Group Technical Editor Cody Grivno used a Roomettes interior kit and City Classics Window Dressings to enhance the interior of Robert's Dry Goods, a Design Preservation Models HO scale kit.



Add an interior to a structure

Building structures to fill a downtown scene is an enjoyable part of model railroading. After all, most of us enjoy an opportunity to sit down at the workbench and build a kit. How about adding interiors to those buildings? Well, let's say that might not peg as high on the interest meter.

Fortunately, a couple of new items have come along to speed up adding building interiors. The first is the Roomettes line of laser-cut cardstock interiors by The Electric Wallpaper Co. (www.roometteslighting.com). The fold-and-glue interiors, designed to fit Design Preservation Models (DPM) buildings, come factory printed and include light-emitting-diode lighting that's compatible with the Woodland Scenics Just Plug system and NCE Illuminator module. I used kit no. 01-102-01, The Paint Pros, designed to fit Design Preservation Models kit no. 10200, Robert's Dry Goods.

I paired the interior kit with Window Dressings from City Classics. There are a variety of window treatments to choose from in this line. I used set no. 718, small dark curtains for windows up to 1/4"-wide and up to 1 3/16" tall.

The most time-consuming part of the project was painting and weathering the DPM building. Assembling the three laser-

cut rooms went fairly quickly, as did cutting and installing the window glazing.

I added a few figures to the store interior to make it look active. The printed window treatments enhance both the illuminated and dark windows. The finished results look quite convincing.

STEP 1 BUILDING THE ROOMS



I started by cutting, folding, and gluing the Roomettes interior kit. The manufacturer recommends tacky glue for assembly; I used Aleene's original. I started with the window shelves, then added the service counter.

I added a couple of HO scale figures (an employee and customer) to the first floor. I used a sanding stick to make sure the feet were flat and attached the figures with tacky glue.

Once satisfied with how the first floor looked, I applied glue to the left and right wings and attached them to the bottom of the floor. Then I applied glue to the upper wings and attached them to the top of the ceiling.



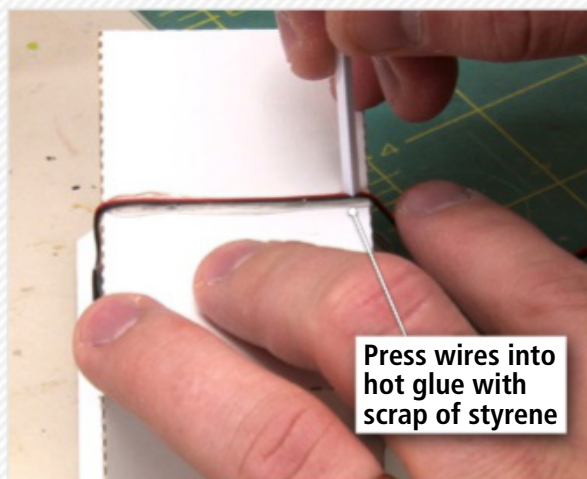
▶ Watch "Cody's Workshop" to learn more great modeling tips. Check out the series at MRVideoPlus.com.

STEP 2 GOING INSIDE



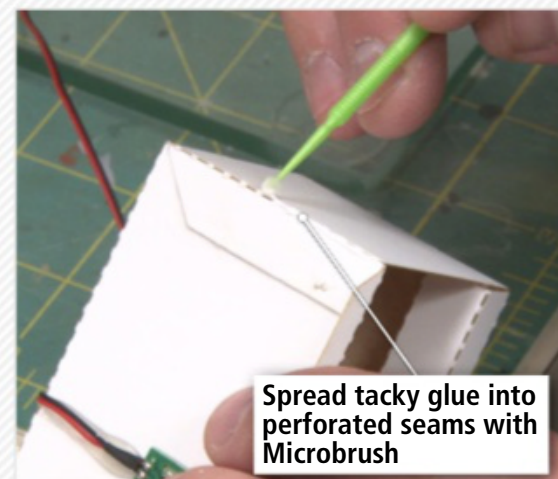
I used the supplied window glazing for the front of the first floor. Then I used curtains from City Classics Window Dressings kit no. 718 (left-hand photo). If you don't want curtains, City Classics offers a variety of other window treatments, including venetian blinds, roller shades, and window signs. All of the Window Dressings are printed on clear PVC.

Another handy feature on the Window Dressings is that they feature



printed cut lines, taking the guesswork out of making the cuts. After cutting the needed windows, I used Testor's Clear Parts cement to secure the glazing to the interior. Aleene's tacky glue and Pacer's Formula 560 canopy glue are also suitable options for securing the window glazing.

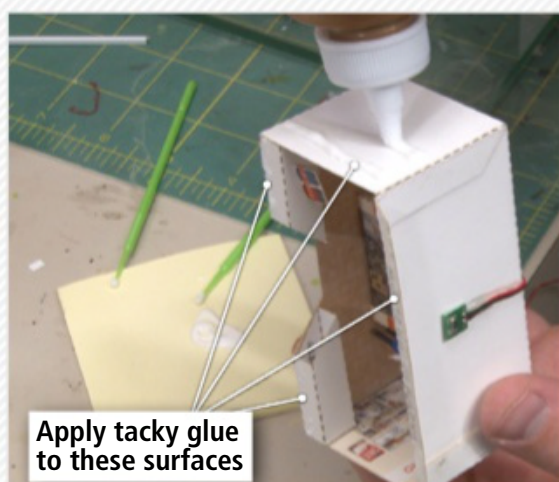
The Roomettes interior kit included three light-emitting diodes (LEDs). The manufacturer recommends using tape or glue to hold the



wires in place. I chose the latter and ran a bead of hot glue along the exterior of each room and pressed the wires into place, as shown in the middle photo.

Per the manufacturer's instructions, I ran a bead of tacky glue along the perforated edges (right-hand image). This makes the seams stronger and helps minimize the chances of light leaks. A Microbrush made it easier to spread glue along the seams.

STEP 3 FINISHING TOUCHES



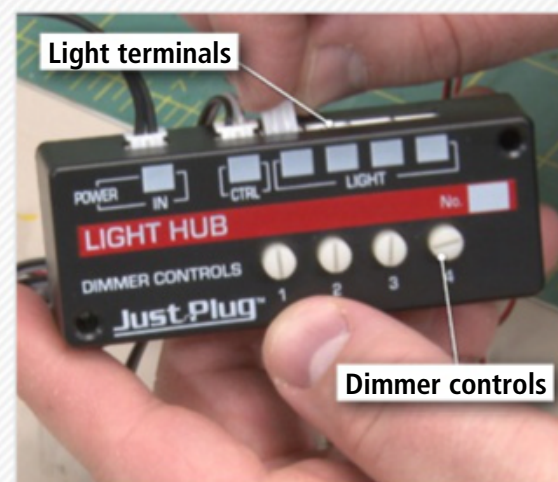
Now came the fun part, adding the rooms to the interior and turning on the lights. I started with the two upstairs rooms: the bathroom in the back right corner of the structure and the living room in the front left corner of the building. Once the tacky glue had dried, I added the paint store, shown above left.

The wings indicate where to apply the glue. You may need to trim the wings slightly to fit around window glazing or other obstructions. I then applied a generous amount of Aleene's to the large gluing faces.



The Roomettes kit also includes an exterior sign. I carefully trimmed off the nubs where the sign was attached to the carrier sheet. Then I applied tacky glue to the building, centered the sign, and pressed it into the glue with a toothpick, as seen in the middle image.

The final step was to connect the three light-emitting diodes to the Woodland Scenics Just Plug Light Hub (sold separately). After plugging the LEDs into the LIGHT terminals, shown at right, I flipped the rocker switch to the on position. The hub has a



dimmer control to adjust the brightness of each LED.

As you can see in the top photo on the opposite page, pairing the Roomettes interior kit with City Classics Window Dressings takes DPM's Robert's Dry Goods kit to a new level.

With a fold-and-glue interior that's designed to fit and window treatments that have factory-printed cut lines, you no longer have the excuse that adding an interior takes too much time. These products make a once-arduous task quick and fun. 

Adding depth



Simple one-point perspective drawings can create the impression the scene continues past the back wall

By C. Walter Noble • Photos by the author

When I was building my shelf layout, I tried to make it as realistic as possible. I handlaid code 70 rail, built turnouts with operating switch stands, ballasted roadbed, buried uncoupling ramps, detailed buildings, and added a seamless, sky blue, tempered-hardboard backdrop. I also built a fascia with shielded illumination to create the effect of a diorama.

The result, however, failed to satisfy me; the 16"-wide by 12-foot long layout still looked like a shelf, lacking the sense of realism I wanted.

I needed a more detailed backdrop to add depth to the layout, but I thought that hills, fields and trees painted with my dip and dab technique would be insufficient. Buildings seemed a simple solution, so I started by kit-bashing a couple industrial

building kits into flats to act as customers for freight cars. These I detailed and glued to the surface of the backdrop.

While effective, they did little to increase the perceived depth of the layout; the roofs and sides of the buildings would have to be added.

One-point perspective

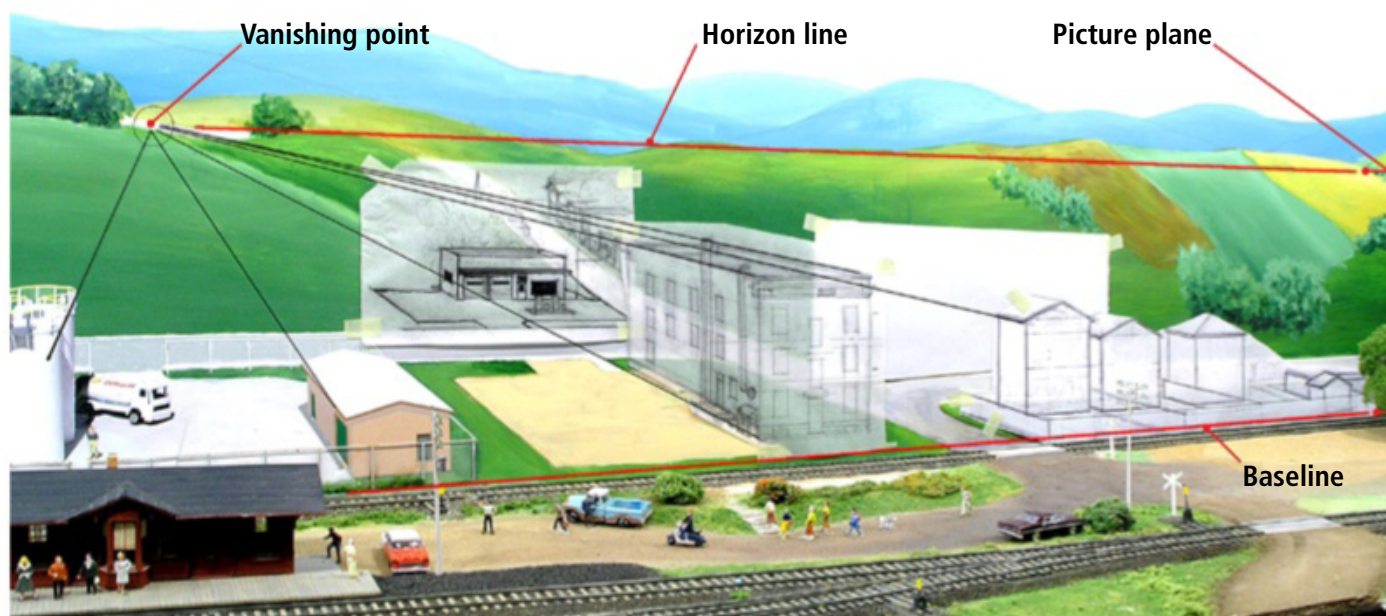
To do this, I used perspective drawing techniques to

create the illusion of buildings extending back into the backdrop scene. I used a single-point perspective, the simplest and most useful for a layout builder, because it allows the faces of buildings to remain parallel to the backdrop, or what's called the picture plane.

To create these building extensions, I needed to locate a vanishing point to which all horizontal lines forming the sides would lead. This point, located on the horizon line, is always at eye level.

I chose its position to coincide with my seated eye height directly in front of the control panel, since I don't normally have to move during operation. Being in one position to view the layout makes one-point perspective more successful. While seated, I can then view all the buildings, on either side of me, realistically and in proper perspective.

After the vanishing point is established, it doesn't matter where you place a building on the picture plane, which aligns with the edge of the



1 One-point perspective illustrated. The red line at the top of the image represents the horizon. The red line near the bottom is the baseline. The angled black lines are the walls of the structures, leading back to the vanishing point.

to your backdrops



To create a diorama effect for his shelf layout, Walter Noble used one-point perspective to give his model railroad depth and improve realism.

benchwork. Anything drawn or placed on the picture plane will be full scale. Any horizontal line receding from an object on the picture plane should always end up at the vanishing point on the backdrop ①.

The red line at the top of the background ridge, representing the horizon, and the lower red line at the layout edge appear to have a slope to them. This is a result of the camera angle. When viewed head-on, these lines are horizontal.

I drew pencil lines on smooth-surfaced, heavyweight watercolor paper from all corners of the buildings toward the vanishing point to establish the walls and roofs in perspective. Where to terminate them at the rear of the buildings was an arbitrary decision based on how large I wanted the buildings to appear.

Then I moved the drawing to a drawing board where I could work with greater control than while reaching over the layout. I painted the walls, roof parapets, and other

details. When the results satisfied me, I cut out the renderings and pasted them behind the factory fronts ②.

The town gets larger

Encouraged by some success, I began to enlarge the town by adding houses, a hotel, retail stores, and commercial buildings. The houses were at the right of the layout, close enough to the picture

plane to allow the use of HO scale building materials on the facing side. They represent the backs of buildings up against the tracks.

With tracing paper taped to the backdrop, I roughly sketched in the building outlines shown in ①, drawing the width and height of the houses and a hotel in HO scale to the dimensions of existing buildings I'd photographed for reference. This

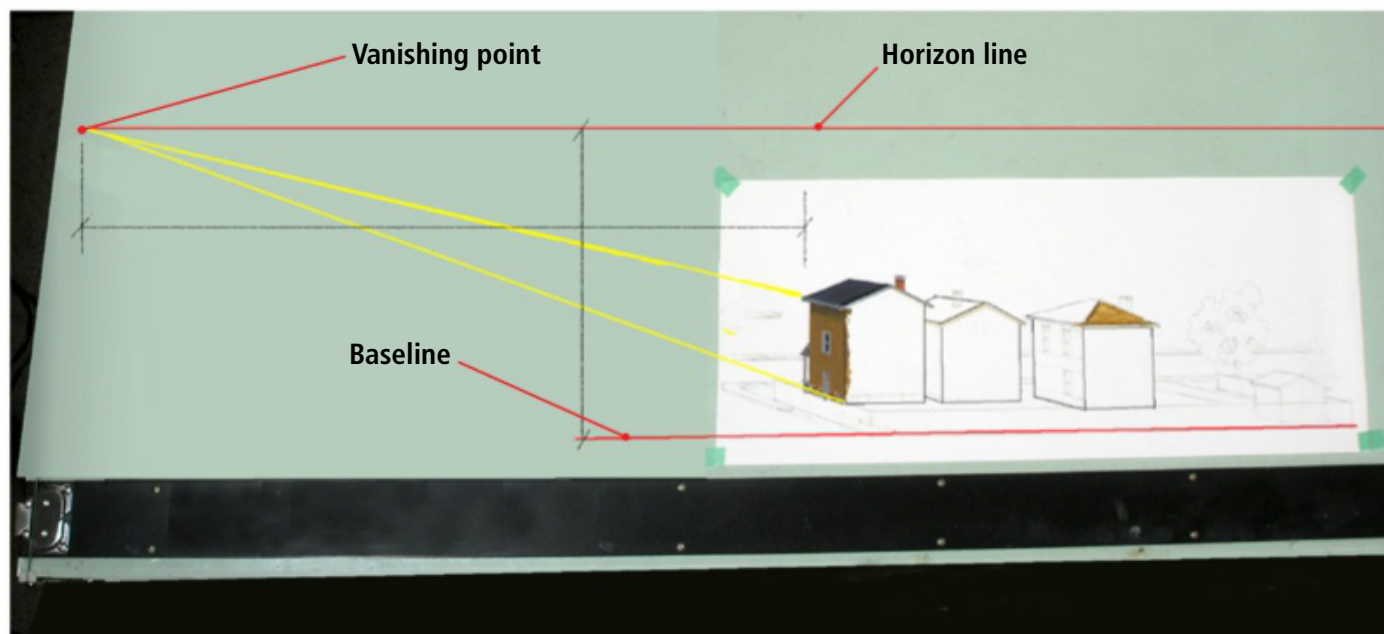
preliminary sketch was transferred to the drawing board.

I had to replicate the location of the vanishing point, horizon, and baseline on my drawing board that I'd already established on the backdrop. I drew a horizontal baseline to represent the rear edge of the layout near the bottom of the paper, ③ on the next page.

The base of the sketches was placed on this line. Next,



② A good front. Walter was pleased with the building fronts he made from kits, but realized he needed to add the side walls and roofs receding into the background to complete the illusion of depth.



3 Back to the drawing board. Walter took his sketch of the houses to his drawing board, where it was easier to work than directly on the backdrop. A flat, smooth surface with a straight edge, a T-square, and a 45-degree triangle are the only drafting tools required.



4 Detailing building faces. Walter made the building faces from 3-D materials. The stucco wall is sandpaper mounted to mat board. The other walls are plastic siding material. The windows are from Grandt Line, now San Juan Model Co.

from the backdrop, I measured the height of the horizon line above the layout surface (baseline) and the horizontal distance from the vanishing point to the edge of a building. These measurements established on the sketch the horizon line and the vanishing point in relation to the edge of the building.

I then transferred the building outlines sketched on the tracing paper to the watercolor paper and detailed the face of the buildings with the application of different siding materials: sandpaper glued to cardstock for the stuccoed house, HO scale beveled

siding for the other two, and Grandt Line (now San Juan Model Co.) windows modified to better represent the house styles being modeled.

The challenge was to disguise the building faces to blend with the painted elements without looking stuck on. Building out the roof eaves of the houses with basswood a scale 6" thick and wide enough to cover the top of the facing with some overhang was one answer, but this presented problems as well.

Everything needed to be shaped so it would blend with the painting on the flat surface. I beveled the edges at a

45 degree angle to allow me to blend the roof into the backdrop. The roof overhang facing the viewer also had to be shaped to make it appear to line up with the painted fascia forming the edge of the roof along the building side.

By looking at the model from my seated viewing position, the angles to be cut became clear, as illustrated in **4**. Everything looked fine until I painted the eave projection into the roof.

Seeing the light

The light, striking the roof projection at a different angle

than it did the backdrop, made the projection appear lighter than the roof painted on the backdrop. Darkening the color on the projection eventually blended the two surfaces together.

The difficulties didn't end here, however. Because the window moldings are deeper than the siding material they were cut into, and with acetate glazing and window blinds added behind, the total thickness of the wall had to be built up. Now the thicker wall cast a deep shadow at its base, which I camouflaged with shrubbery.

The edge of the modeled wall presented another obstacle. It becomes part of the painted side wall, but because it's not facing the frontal lighting, it appeared as a darker strip, accentuating the separation. I beveled the edge to a 45 degree angle, creating a knife-edge where it met the backdrop surface, but a difference in light value still prevailed. I finally accomplished a satisfactory color blend by trial and error **5**, opposite.

As a final detail, I placed sections of Central Valley fence along the base of the cutout to mask the joint, and returned the end with a piece of painted poster board cut to perspective.

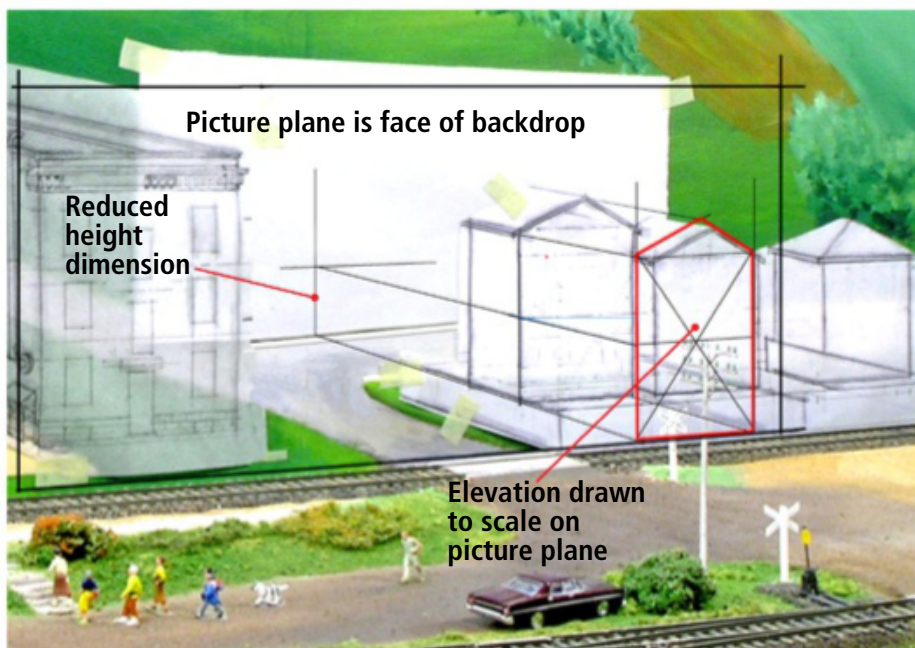
The building sides appear darker in color than the side facing the light. This mimics the sun shining on the back of the buildings, casting the sides in shade. I experimented with the side wall colors until the shade looked right to me.

By observing buildings in sunlight, even the side in shadow will appear to have greater darkening immediately under an overhanging roof eave. There's no sharp shadow line; the shading merely fades out to blend with the siding color below. Note the effect in **5**.

In direct light, however, any projecting detail, such as window sills, roof overhangs, and so on, will cast a sharp, distinct shadow below. These



5 Completed houses. Beveling the edges of the walls and roof overhangs helped blend the 3-D components into the flat background. Walter also had to accommodate the fall of the light in choosing his colors to hide the transitions.



7 Finding building height dimensions. For buildings that were behind the picture plane, Walter had to project the height back toward the vanishing point, then choose the reduced height dimension.

should be accentuated when doing a painted rendering of a building. Since the rear sides of the three houses in **5** are modeled from 3-D materials, however, there was no need to enhance the shadows; the layout lighting took care of that. Notice the shadows below the eaves, window sills, and window heads.

The hotel across the street from the houses is likewise modeled from 3-D materials, in this case styrene sheet embossed with a brick pattern **6**. The finished piece was glued to the watercolor paper backdrop surface, and I finished the painting around it.

Photo-editing software

The town's commercial block came next. While searching for examples of turn-of-the-century commercial buildings, I discovered a suitable illustration in a catalog. I scanned this into my computer to enlarge it, then realized I could use a photo-editing program rather than drawing by hand. I used Adobe Photoshop, but most editing programs contain drawing tools that may be used effectively.

I first had to correct the perspective to ensure that horizontal lines were truly



6 Hotel face detail. Walter modeled the rear of the hotel from brick pattern styrene sheet. He colored the mortar joints with a wash of flat light gray acrylic paint he wiped off quickly with a damp sponge, leaving paint only in the joints.



8 Photo-edited buildings. Instead of drawing all of the background buildings, Walter scanned images from a catalog, sized them to fit his planned locations, then added walls and roofs to complete the images.

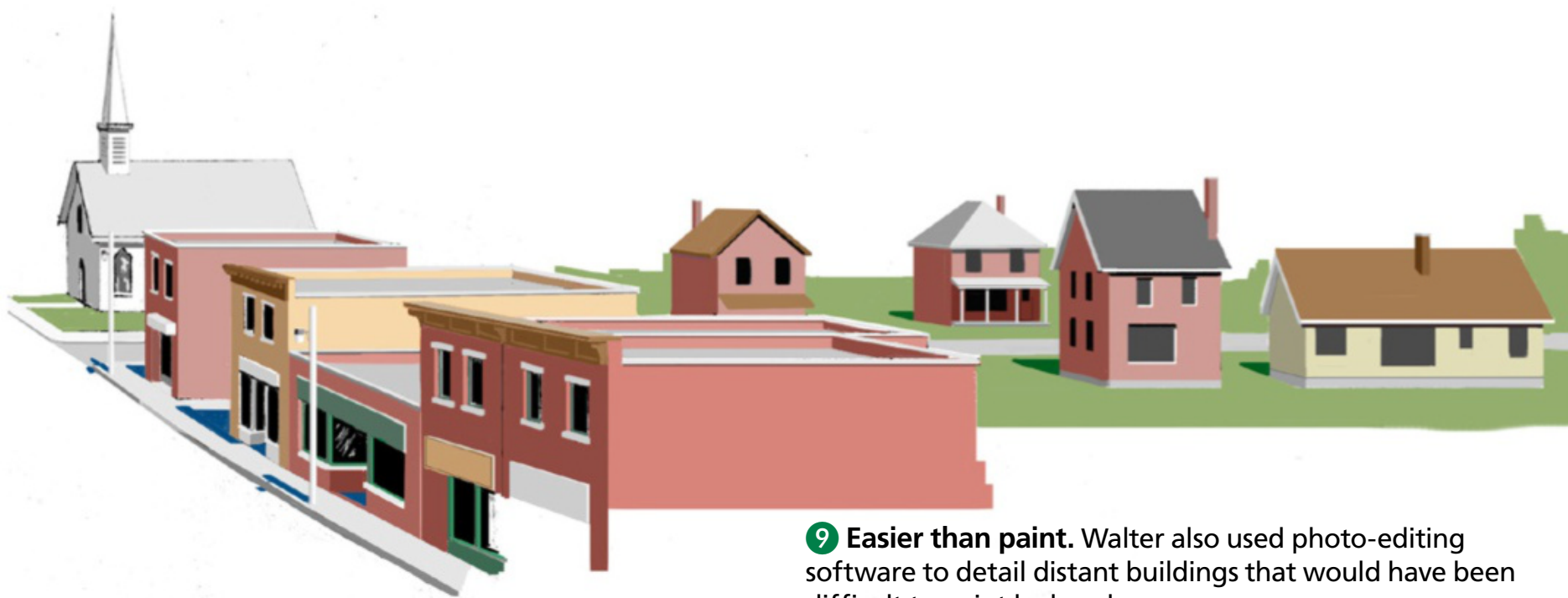
horizontal and vertical lines plumb, then I sized the image to scale. Exterior doors in commercial buildings are commonly 7 feet high, and by scaling a door on the illustration I was able to calculate the height of the building.

I marked the height on the picture plane to full HO scale and ran lines from top and bottom toward the vanishing point. As these buildings would be set back behind the picture plane, which is the backdrop face, I had to determine the appropriate height to match the building's location.

Where the ground line struck the curb at the street

edge I drew another vertical line to intersect with the line from the top of the building. This established a known building height at a predetermined distance beyond the picture plane **7**. After resizing the computer image to match this dimension, I was able to rework the store fronts to my liking. The roof and building sides had yet to be added.

Since I knew where I would place the building on the backdrop, I measured its distance from both horizon line and vanishing point and located the print accordingly on the drawing board.



9 Easier than paint. Walter also used photo-editing software to detail distant buildings that would have been difficult to paint by hand.



10 Completed townscape. Once the buildings were finished, Walter added trees and other foliage to his backdrop painting to blend them into a realistic scene. More trees and foliage softened the line between layout and backdrop.



11 Picture perfect. Walter wanted to add the oil dealer to the backdrop, but felt painting it would be too difficult. Instead, he built a model, then photographed it in the proper orientation so he could blend it into the background.

Drawing lines from the top corners of the building toward the vanishing point established the roof and side wall perspective.

Rather than finish the rendering by hand, I scanned the reworked print into the computer to finish, **8** on the previous page. I printed the image on heavyweight matte photo paper and cut it out, then pasted it to the backdrop behind the hotel and houses.

I completed the service station next, then the balance of the retail district on Main Street. A church and a few houses finished the scene **9**.

As these buildings became smaller in scale, it became difficult to maintain a steady hand painting the finer details. So, using the same procedure as before, I scanned

the sketches into the computer and completed them with the photo editor's drawing tools.

The cutouts have white edges that catch the light and must be painted to match the adjoining color before they were applied to the backdrop. If the material is more than paper-thin, feathering the edges with sandpaper beforehand makes blending easier.

Finally, trees were painted to blend the cutouts into the backdrop scenery. The final presentation is seen in **10**.

The oil storage depot behind the station on the layout is a departure from the methods used above. It's a cutout of a photograph of a model with a figure and vehicle included **11**.

A drawing proved too complex for me to render

accurately at HO scale, so I built a model instead. Mounting it on a cardstock base, I photographed it to match the perspective it would have when mounted on the backdrop.

I used the sun for my light source and waited until its height in the sky closely matched the position of the lights illuminating the model railroad. Before taking the picture, I turned the model to achieve the same shadow line it would have if placed on the layout. I copied the digital image to the computer and sized it to fit the scene before printing.

I added details such as automobiles by photographing scale models in attitudes and positions to match the perspectives of the buildings

they're associated with. I scaled them to suit their locations before printing.

With that, I had created what I had envisioned – a scale model railroad with depth and realism. Try applying these techniques to your backdrop projects as well. **MR**

Walter began building his first model railroad when he was 14. The war years intervened, and after leaving the armed forces following World War II, he earned an architecture degree, started a family, and began a 40-year career as an architect. He's now 95 and retains a keen interest in the hobby, writing construction articles for model railroaders and finding enjoyment in switching cars on the layout periodically.

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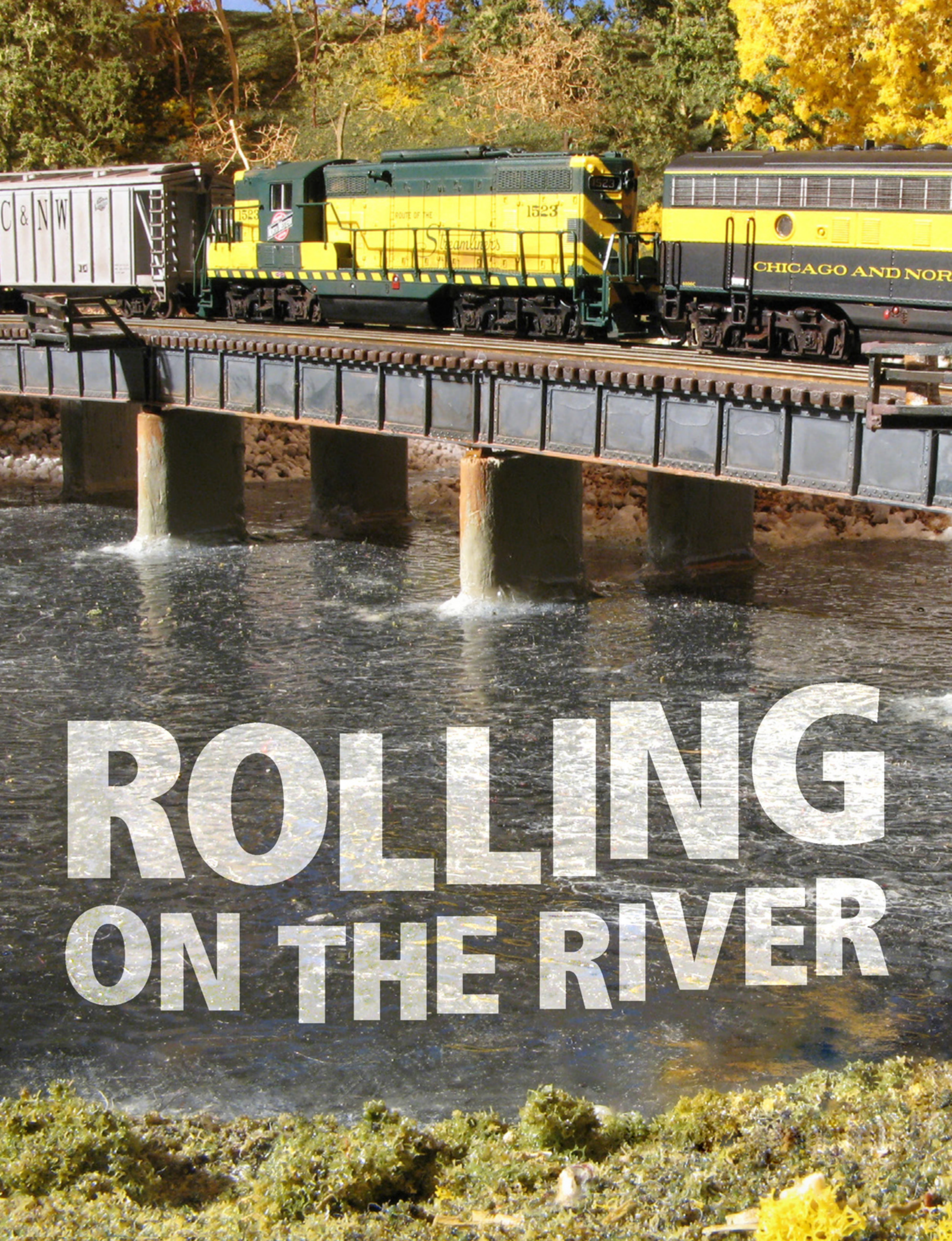
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ROLLING ON THE RIVER



An N scale depiction of the builder's Wisconsin hometown ends up in a museum

By **Gordon Lind** • Photos by Dave Rickaby

I LIVE IN APPLETON, WIS.,

home of The History Museum at the Castle, which is best known for its exhibit on illusionist and escape artist Harry Houdini. Little did I imagine that after my local newspaper ran an article on my N scale model railroad in June 2017, my layout would escape my basement and reappear in that museum. Yet, in 2018, that happened.

Appleton may be a small city, but it's big in industrial and railroad history. Incorporated as a village in 1853, Appleton built its first paper mill that same year to take advantage of the rich forests in the area. To power the industry, the nation's first hydroelectric station began operation in the city in 1882. In 1886, Appleton had the nation's first commercially successful electric streetcar company.

The Chicago & North Western Ry. (CNW) entered Wisconsin through a number of subsidiary roads it either founded or acquired, including the Chicago, St. Paul & Fond du Lac RR and the Green Bay, Chicago & Milwaukee RR. The CNW connected Appleton to Oshkosh to the south in 1861 and Green Bay to the north the following year.

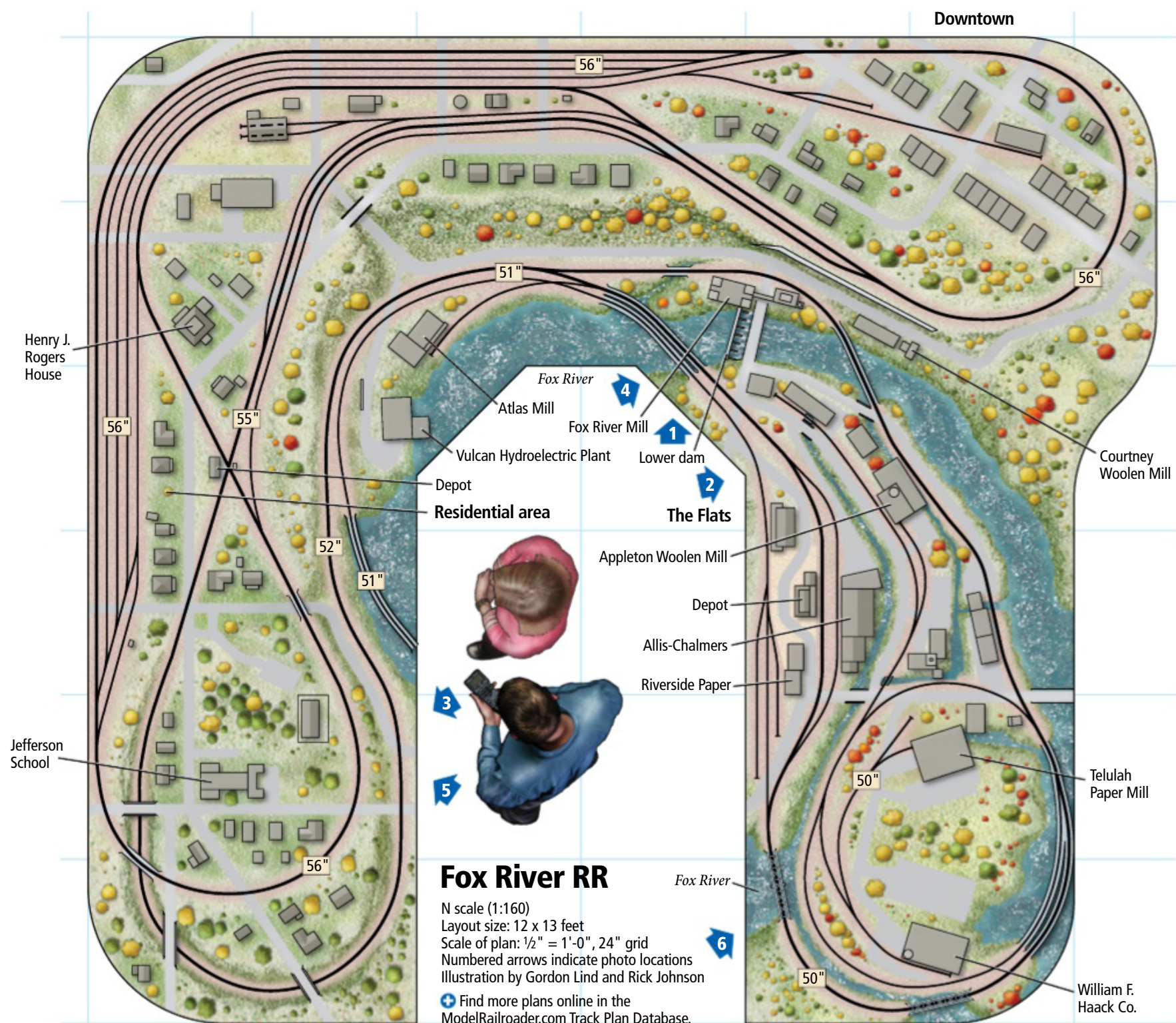
The other railroad to serve Appleton in the steam-to-diesel transition era was the Chicago, Milwaukee, St. Paul & Pacific, known as the Milwaukee Road. This railroad had trackage rights on the Soo Line from Hilbert Junction, Wis., to Neenah-Menasha, Wis., and owned tracks into the industrial section of Appleton. Though its line into the city was bought by the Chicago & North Western in 1951, the Milwaukee Road operated in Appleton until its last days. The eastern half of the CNW, which included Wisconsin, merged into the Soo Line in 1986.

When I was planning my layout, I drove around Appleton's riverfront, taking in the mainly early-20th-century industrial buildings there. I was drawn to the CNW track winding up from the industrial area along the river to the residential areas and downtown. In the early 1950s, if you worked at the Fox River Mill Paper Co., Kimberly-Clark's Atlas Mill, or the Vulcan Hydroelectric Power Plant, out a window you could see the train working its way up the hill.

I wanted to include steam locomotives as well as diesel power, so I chose to model the steam-to-diesel transition era. Because the riverfront and residential areas are heavily wooded, I also wanted to feature fall color, so I set my model railroad in October 1951.

Just one of the many joys of the model railroad is watching local friends discover and delight in scenes and buildings they recognize. For me, to look at my Fox River RR layout is to live the dream.

① A pair of Chicago & North Western diesels pulls a Grand Chute Island-bound freight across the Fox River. Gordon Lind's N scale model railroad, which faithfully models his hometown of Appleton, Wis., is now displayed in a museum in the city.



The layout at a glance

Name: Fox River RR
Scale: N (1:160)
Size: 12 x 12 feet
Prototype: Chicago & North Western and Milwaukee Road
Locale: Appleton, Wis.
Era: 1951
Style: walk-in
Mainline run: 100 feet
Minimum radius: 22"
Minimum turnout: no. 6
Maximum grade: 2 percent
Benchwork: open grid
Height: 49" to 56"
Roadbed: cork
Track: Micro Engineering code 55 flextrack
Scenery: extruded-foam insulation board and cardboard mesh with plaster shell
Backdrop: painted on 1/8" hardboard
Control: Digitrax DCC

The river runs north

The industrial development of what would become colloquially known as Paper Valley was fueled by the Fox River. The Upper Fox begins as a stream north-east of Pardeeville and joins the Wolf River at Lake Butte des Mort, from which it flows into Lake Winnebago at Oshkosh. The Lower Fox River begins at Lake Winnebago and flows northeast to Green Bay, where it enters Lake Michigan. On this 40-mile trip the river drops 164 feet, making it an ample source of hydroelectric power.

On my Fox River RR stand the Fox River Paper Mills, Riverside Paper, and Telulah Paper. In addition to several paper companies in the industrial flats, the Appleton Woolen Mills was powered by water. Without water power, the area economy would have been different.

The construction of the two Appleton dams and the lock system turned a river with many treacherous rapids into a

navigable waterway. The Lower Dam was rebuilt with concrete in 1934; it appears on the Fox River RR. The Upper Dam was converted to concrete in 1941. Appleton's four hand-operated locks, built between 1848 and the late 1870s, enabled transport of paper and other products into the Great Lakes and the rest of the world.

Layout design by Stan

By far my biggest assist came from Neenah, Wis.-based model railroad designer Stan Bye. Without his help, I struggled with how to adequately model the riverfront. Stan designed a walk-in layout shaped like a U, so the viewer is surrounded by the river. When you stand inside it, you're always looking north. Stan guided me in the placement of track, river, roads, and structures. Stan died in 2015, but his design lives on.

In its display position at the museum, the layout will be about 20" lower so even

kids can see it all. But another benefit of lowering it is the bird's-eye view it gives of Stan's design. At the museum, adults and children are still able to see the trains at eye level by sitting on benches.

Choosing N scale was easy. I've worked with N scale most of my life.

I wanted the trains to run some distance and circle back on larger radius curves. If I run a train from loop to loop as a main line, the train travels more than 3 scale miles. There's a reversing loop in each of the three major areas: the industrial flats, the residential area, and the downtown.

Stan included a yard at the rear of the layout where I can store several trains. Stan thought trains are beautiful, so we shouldn't hide the staging area. In its position in my basement the staging yard was somewhat out of sight, but at the museum, this area is in plain sight because of the lower height.

The Fox River RR layout was 16 years in the making. Except for the design, grid construction, and track lighting, this was a one-person project. I worked winters mostly, taking on one major project each winter. The first year the legs and frame; the second year, the sub-roadbed; the third winter, cork roadbed; the fourth, track. In subsequent winters I did the wiring, plaster-soaked paper towel terrain, more than 100 buildings, styrene roads and parking lots, ground cover, trees, backdrop, figures, interiors, and weathering. Phew! I chose to do each step of the construction in phases for the sake of efficiency.

Models that move

I have 11 locomotives. In the Chicago & North Western colors, they include a United States Railroad Administration (USRA) 4-6-2 Pacific made by Model Power, an Electro-Motive Division F7A made by InterMountain, an Alco DL-109 passenger unit from Walthers, a Phase I EMD GP7 with rooftop air tanks from Atlas, and an SW9 from Life-Like. Milwaukee Road locomotives include EMD FT A and B units, two SD7s, and a Baldwin VO-1000. I have one Chicago, Burlington & Quincy engine, an EMD NW2 made by Kato.

My only passenger cars are six CNW streamliners from Rivarossi. Freight cars include 22 from Micro-Trains, 20 from Atlas, three from InterMountain, two by Fox Valley Models, and one each from seven other producers.

The layout is topographically correct. From the industrial flats to Pierce Park,

the climb represents 80 feet – from 710 to 790 feet above sea level. The bench-work consists of three 4 x 8-foot frames and one 4 x 4 frame, plus a 1 x 4 add-on to the downtown area to better accommodate one of the return loops. The tables are bolted together and bolted to the leg framework, which made the move to the museum possible.

Trains are operated by a Digitrax DCS 50 Digital Command Control (DCC) system with three loops that reverse with a PM 42 circuit breaker/reversing unit mounted under the table.

Over the years at home, my operations were informal. I occasionally made up a train, but I most enjoyed running one train after another up and down the

grades and through the city. At the museum, operations are automated. The trains run from the industrial area to the residential and downtown areas.

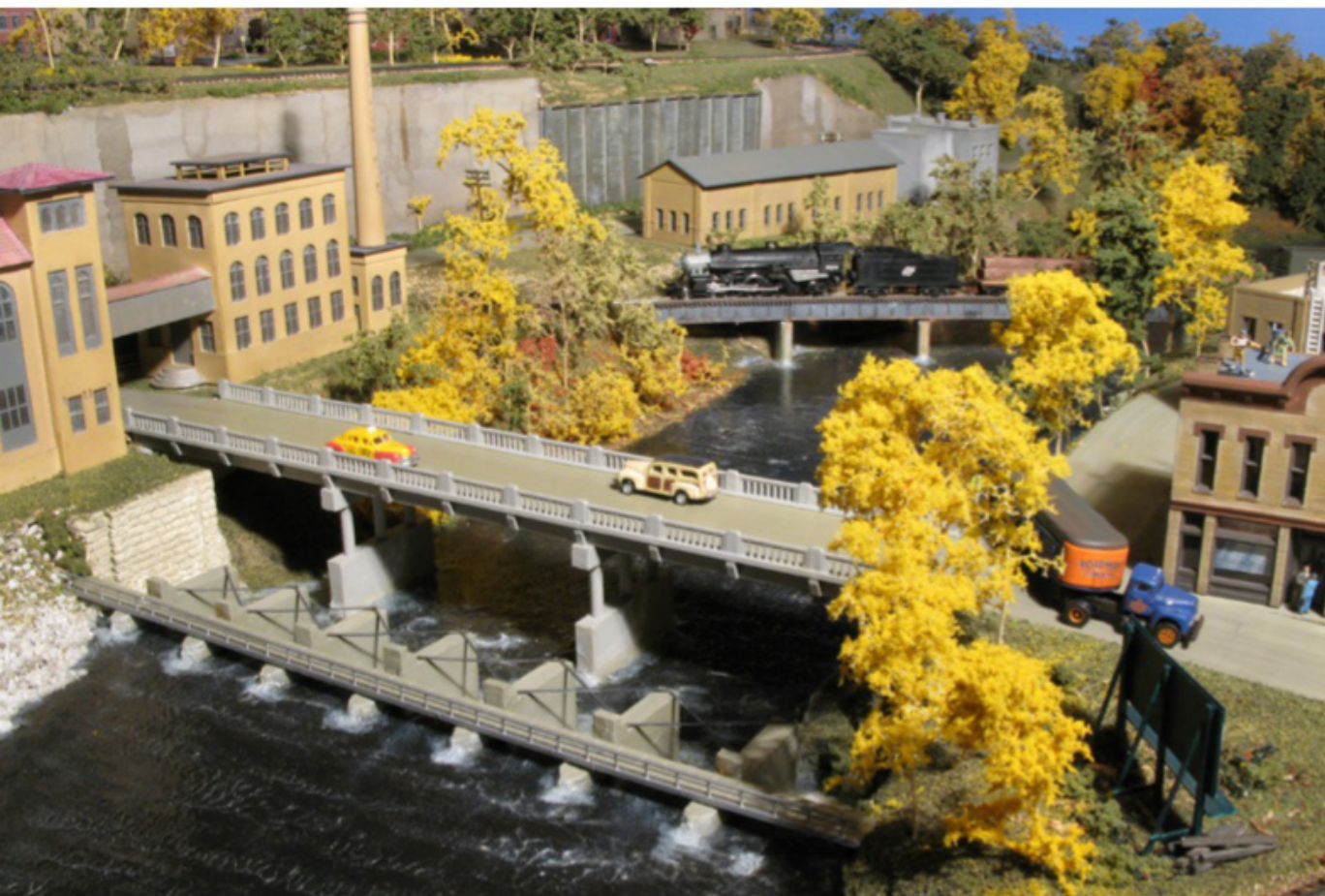
The track is weathered Micro Engineering code 55, a decision made for realistic appearance. The no. 6 turnouts are also from Micro Engineering. The turnouts are lined by Tortoise by Circuitron switch motors mounted below the table. These are activated by toggle switches mounted on hardboard boxes. The track is glued to the cork roadbed. Derailments are virtually eliminated by weighting cars to 1 ounce (slightly over National Model Railroad Association recommendations for a 40-foot N scale car).



② Chicago & North Western Electro-Motive Division GP7 no. 1523 pulls out of Appleton's industrial flats with a local freight. Gordon strove to accurately depict the area's paper and other industries.



③ Gordon set his layout in 1951 to justify running the occasional steam locomotive, like C&NW Pacific no. 2219, seen here passing one of Gordon's favorite scenes, the Jefferson Elementary schoolyard.



4 Appleton's early industries were powered by the Fox River, and the city was the site of the first hydroelectric power station. Gordon scratchbuilt the Lower Dam, seen here, from basswood with plastic details.

Over the river and ...

The principle of vignettes, or framed scenes, provides focal points for viewers, as do leading lines. I enhanced the sense of perspective by placing details in the front half of the layout and keeping smaller buildings and trees to the rear half.

Almost all the trees are SuperTrees by Scenic Express with Woodland Scenics ground foam applied with matte medium. I built about 50 trees at a time. I broke the SuperTrees to size and spray-painted them light brown. When they dried, I dipped each into matte medium, turned the tree right-side up, and sprinkled ground foam over the tops of the branches. After a few seconds I could clothespin each tree to a line to dry.

Visit this layout

If you'd like to see the Fox River RR, plan a trip to Appleton. You can eat at Fratello's Riverfront Restaurant (in the old Vulcan Hydroelectric building) overlooking the river and the Upper Dam, experience the Paper Discovery Center next door (the former Kimberly-Clark Atlas Mill), tour the Hearthstone Historic House Museum (the Henry Rogers home), and visit the History Museum at the Castle to see my Fox River RR layout. – *Gordon Lind*

Most ground cover is Woodland Scenics ground foam. Before applying it to the terrain, I painted it the color of Appleton dirt. The track is ballasted with Woodland Scenics ballast – two parts fine buff, and one part each of fine brown and fine dark brown.

Making the river and channels was easy. First, I ensured that the Oriented Strand Board (OSB) base was level in the river, canal, and channel bottoms. Then I smoothed the surface, primed it, and painted the water areas flat black. Next, I poured Woodland Scenics Realistic Water. I poured three coats, each thin enough that I didn't even need a barrier at the table's edges; the material's viscosity halted its flow at just the right place.

I made the waves, ripples, and dam spillover with Woodland Scenics Water Effects. I applied this with a small brush to create the splashes and ripples. The result gets rave reviews.

I built the Appleton Lower Dam from basswood with plastic details, topped along the plastic walkway with a railing I took from a long bridge I had on a previous layout 30 years ago.

Many modelers use tempered hardboard for their backdrop. What I like about this board is it can be bent severely. For the years the layout was at my home, I had four corners coved at a 24" radius and one S curve to accommodate the add-on piece of the tabletop. Four pieces were 2 x 8 feet, so there were three joints. I built each section with a

clear-pine support structure and glued a pine strip over the joints to strengthen them. One of the three joints didn't align as well as the other two, so I spackled and sanded until it was good enough, protecting the tracks with plastic. It would have been easier to build the backdrop before building the tracks and the city. At the museum, there's no backdrop, just a sky blue painted wall.

Over the years, I've consulted many *Model Railroader* articles on a range of topics, including weathering. I used the PanPastel Rust and Earth Weathering Kit on buildings, roads, locomotives, rolling stock, trucks, and cars. It's easy to apply and easy to remove if you overdo it, and avoids the cost and use of an airbrush.

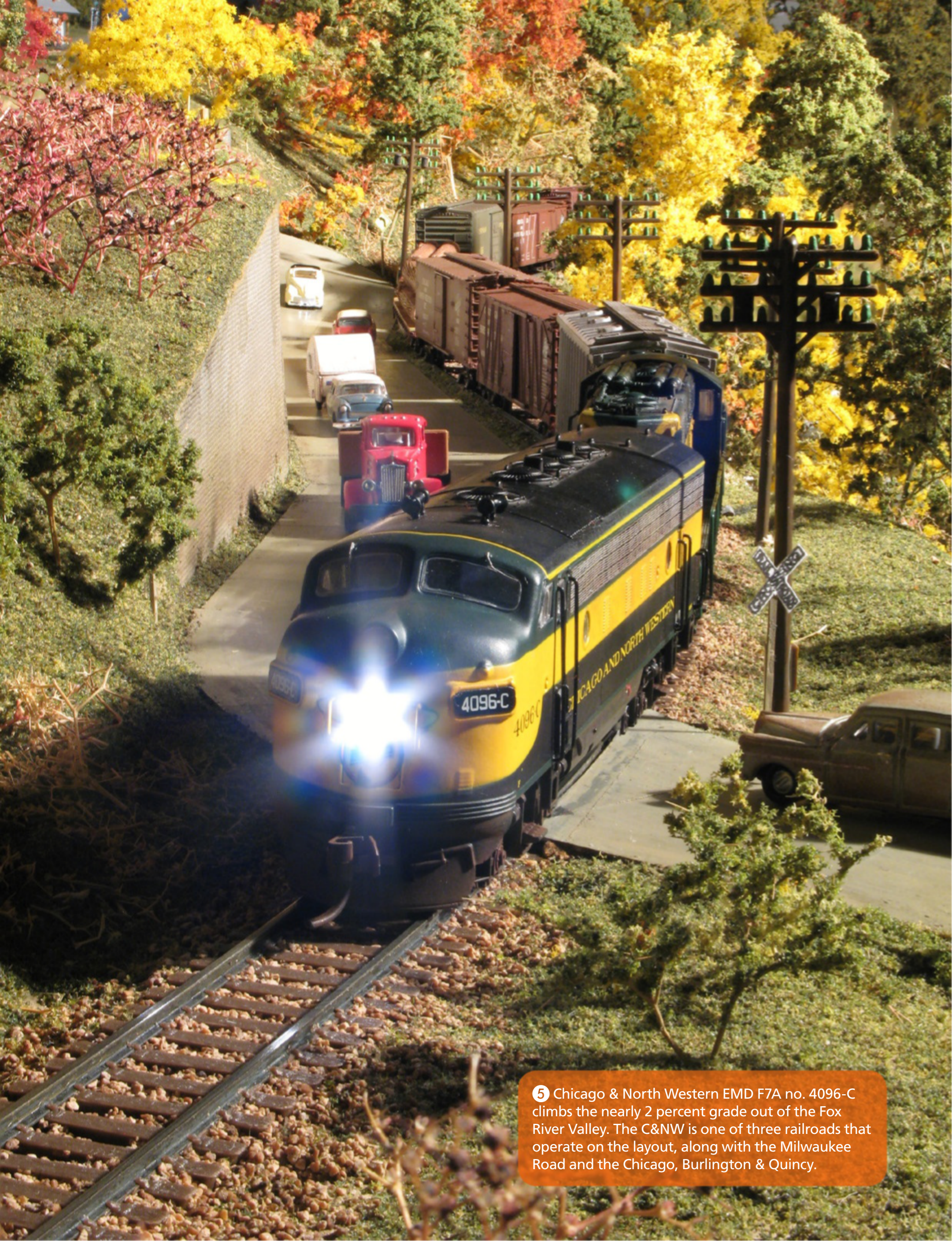
Inspired partly by the fabulous Colorado Model Railroad Museum in Greeley, Colo. [see the December 2008 *Model Railroader* – Ed.], I placed several scenes of people in action around the layout. Seeking them out provides a fun activity for spectators at the museum. I have firefighters rescuing a cat from a tree, friends fishing from a train bridge, roofers tarring a roof, a cement truck patching Lawe Street, bikers resting along Water Street, and many Jefferson School students at recess. All my little people are made by Woodland Scenics.

A building or two

Most of the more than 100 buildings on the layout I made straight from kits. I used 21 Design Preservation Models buildings, modifying only a few. Most of these sit along College Avenue in the downtown area of the layout, while others are in the industrial area.

I built 11 Model Power kits, all houses, the most important being the Victorian House, which represents the Henry J. Rogers home. Rogers was a banker and paper company executive who in 1882 introduced electric power to three buildings at once – the Appleton Paper & Pulp Co., which Rogers ran; the Kimberly-Clark Vulcan Paper Mill; and his new family home. The type K dynamo first sat in the beater room of the Appleton Paper & Pulp Co. This was the nation's first Edison central hydroelectric station.

I used several Walthers Cornerstone kits to model the Appleton Woolen Mill, Telulah Mill, the William F. Haack Co., the CNW depot, the Pierce Park Pavilion, and the Vulcan Hydroelectric Plant. The Vulcan plant is the Northern Light & Power kit, modified to extend over the river. The stone abutment in the river I shaped and scored from basswood.



5 Chicago & North Western EMD F7A no. 4096-C climbs the nearly 2 percent grade out of the Fox River Valley. The C&NW is one of three railroads that operate on the layout, along with the Milwaukee Road and the Chicago, Burlington & Quincy.



6 The local freight crosses the swing bridge to Grand Chute Island, known to residents as “The Flats.” Gordon models water with multiple layers of Woodland Scenics Realistic Water, with waves made with Woodland Scenics Water Effects.

Some of these structures will be upgraded or replaced at the museum in order to resemble more closely the prototypes.

Laser-Art Structures by Branchline Trains offer a number of quality wood house kits; many of them appear in the residential area of the layout. There are also a number of Atlas American homes, Colonial homes, and bungalows, with a few garages thrown in.

Banta Modelworks provided a CNW depot and elevated crossing shanty. The County Courthouse is a Woodland Scenics Landmark Structure. Life-Like made the fire station. Foremost Dairy is a Heljan Cold Storage building. The Fox River Paper Corp. is a laser-cut micro-plywood meat packing company kit.

Coincidentally, at the corner of College Avenue and Drew Street on the layout is the History Museum at the Castle, an etched-brass Micro Structures kit.

One of my favorite buildings is the Allis-Chalmers plant, built from modular pieces. To find an appropriate company logo, I searched the internet for an article that included a 1949 logo, which I printed and resized before gluing it to the side of the building.

The building that gets the most comments from visitors is the modular-built Jefferson School, which features children at recess in the playground.

Most of the railroad bridges over the river are Micro Engineering deck girders atop hand-crafted wooden piers. But my favorite bridge is the Appleton Swing Bridge. For this, I laid two Atlas Warren truss bridges end-to-end with a

scratchbuilt middle section on which the prototype would pivot.

Trucks and cars on the layout are virtually all Mini Metals by Classic Metal Works. Automobile bridges are Rix highway overpasses. I made all roads and parking lots out of styrene, scored to simulate concrete expansion joints.

Plans are to install streetlights and illuminate several buildings. The brightest lights will have to go in the Henry Rogers home.

Inspiration and support

My friend Will Haack, who helped me build the tables and install the track lighting, is memorialized in the name of one of the industrial buildings on Grand Chute Island. Will insisted that we install a dimmer on the lighting so we could create everything from high noon to dusk. Will died in 2010; I can say that everyone should have a friend like him.

The History Museum at the Castle provided numerous photos and maps, as did the Appleton Public Library. I’ve also been aided by EngineHouse Services, a train shop in nearby Green Bay.

I’ve had model trains all my life. My dad and I built my first railroad based on the book *The HO Railroad That Grows* by Linn Westcott (Kalmbach Books, out of print). During summers of my college years I started with N scale. My first layout, about 3 x 9 feet, featured two main lines side by side running through a mountain and over a long trestle, completely freelanced.

When I lived in the Milwaukee area and Mom and Dad were visiting from Omaha, Dad and I went to see the staff and projects at the *Model Railroader* offices in downtown Milwaukee. I was also inspired by my uncle Jack Rezner, who worked for the Burlington Northern, and by my aunt Barbara Schnauber, who worked at Union Pacific headquarters in Omaha.

I’ve lived long enough in our present home to build something I previously could only dream of. In addition to displaying my Fox River RR in the History Museum at the Castle, my part in continuing the legacy of little trains is that my wife, Debbie, and I give every newborn in our extended family a wooden toy train. **MR**

Meet Gordon Lind

Gordon was born in Cleveland and raised in the shadow of the Union Pacific RR in Omaha. After receiving his Master of Divinity degree from Yale, he and his wife, Debbie, moved to Wisconsin and raised two children, Andy and Jenny. Now a retired United Methodist pastor, he enjoys golfing, reading, travel, and spending time with his family.



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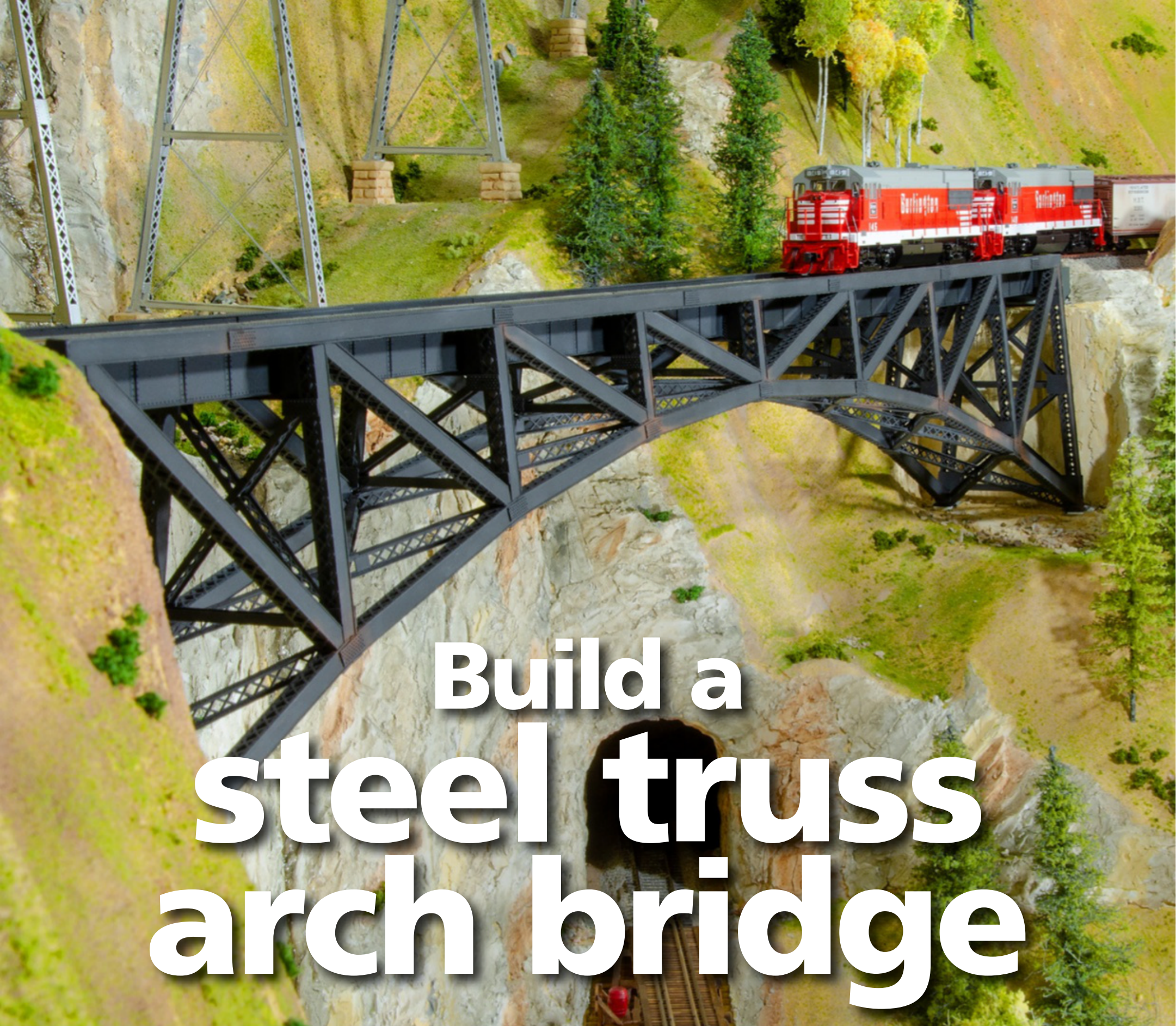
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Build a steel truss arch bridge

A pair of Chicago, Burlington & Quincy U28Cs leads a freight over a steel truss arch bridge. Gerry Glancy modeled this dual-gauge bridge for his HO and HOn3 layout.

A prototype span in Oregon inspired this HO scale model

By Gerry Glancy • Photos by the author and Jack Zivik

Most railroad bridges have an intrinsic beauty, but I'm a big fan of the steel truss arch bridge. Such a bridge was required on my HO scale layout when one track level crossed obliquely over the level below. The steel truss arch bridge allows an entire gap to be spanned without intervening bents, towers, or other supports.

The inspiration for my project was the Crooked River steel truss arch bridge in Oregon ¹. The bridge was built in 1912 by the Oregon Trunk RR. The 107-year-old span is 340 feet long and 320 feet above the river. Today the bridge is used by the BNSF Ry.

I built my version of the Crooked River bridge using parts from two Central Valley 150-foot Pratt truss kits

(no. 1902) and three of the company's steel girder packets (no. 1902-5). In addition, I used two Micro Engineering steel viaduct tower kits (no. 75-169) and assorted styrene strip and sheet.

I hesitate to call this a kitbash project, as the final product doesn't resemble the bridges from which it's derived. Arguably, it's not a scratchbuild, either. Except for gluing styrene strips to make



an I-beam lattice, the components are reassembled differently from their intended purpose.

Fitting the space

Since I only had 24.8" (180 scale feet) available, I couldn't reproduce the bridge in its entirety. I didn't want to reduce the size of each panel, so I constructed fewer of them. The result is a bridge with eight panels.

I couldn't find prototype plans for the Crooked River bridge, but there were plenty of prototype photos. Many of the images were taken directly perpendicular to the span, eliminating perspective distortion. Using a pair of architectural dividers, I could step off 40 feet from a



1 The prototype. A short BNSF Ry. local, powered by Electro-Motive Division GP38-2 and GP50 diesels, crosses the Crooked River bridge at Terrabonne, Ore., on Sept. 28, 2016. Mike Danneman photo

1930s photo of a boxcar on the bridge

2. I corroborated this measurement using contemporary photos.

Based on my measurements, I determined the distance between each post is 30 feet. Measuring from the top of the upper chord to the bottom of the lower chord, the center post is 13 feet long. The length of each subsequent post is 15, 20, 28, and 40 feet. For those who wish to build the entire prototype bridge, the calculated lengths of the remaining posts are 55 and 70 feet.

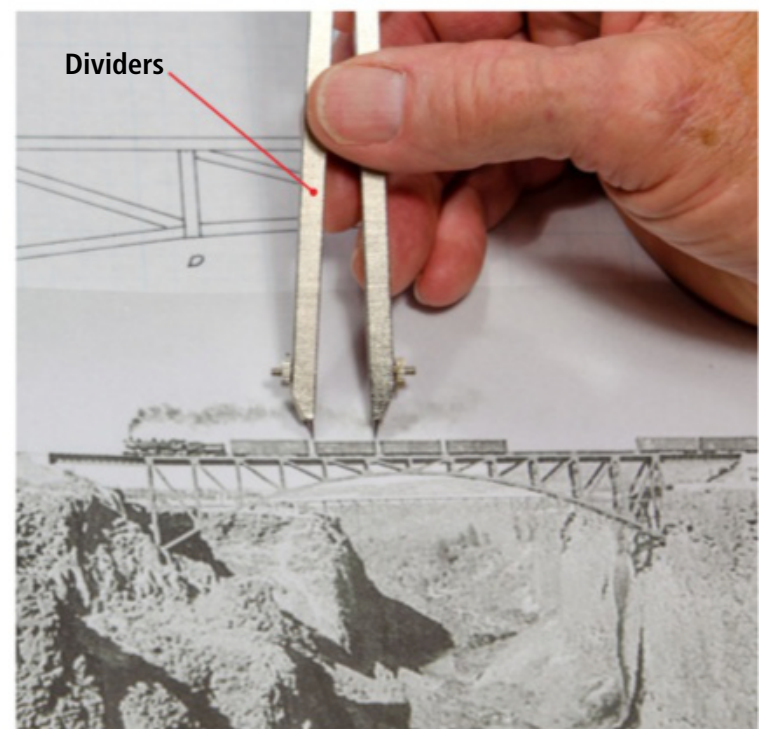
I then drew plans for the bridge, as seen in **3** on the next page. The full-size bridge shown above and at right appears level, but my layout required the bridge to have a 3.8 percent grade.

Because of this the posts aren't perpendicular to the deck, but rather angle slightly toward the low end of the bridge in order to be perpendicular to the ground.

Let the building begin

Each truss arch section consists of two steel girder posts made from Central Valley kit no. 1902-5; a floor beam from the same company's kit no. 1902; and I-beam lattice cross frames and cross frame struts fashioned from part no. 19 in Micro Engineering kit no. 75-169 and Evergreen .020" x .100" and .125" styrene strip.

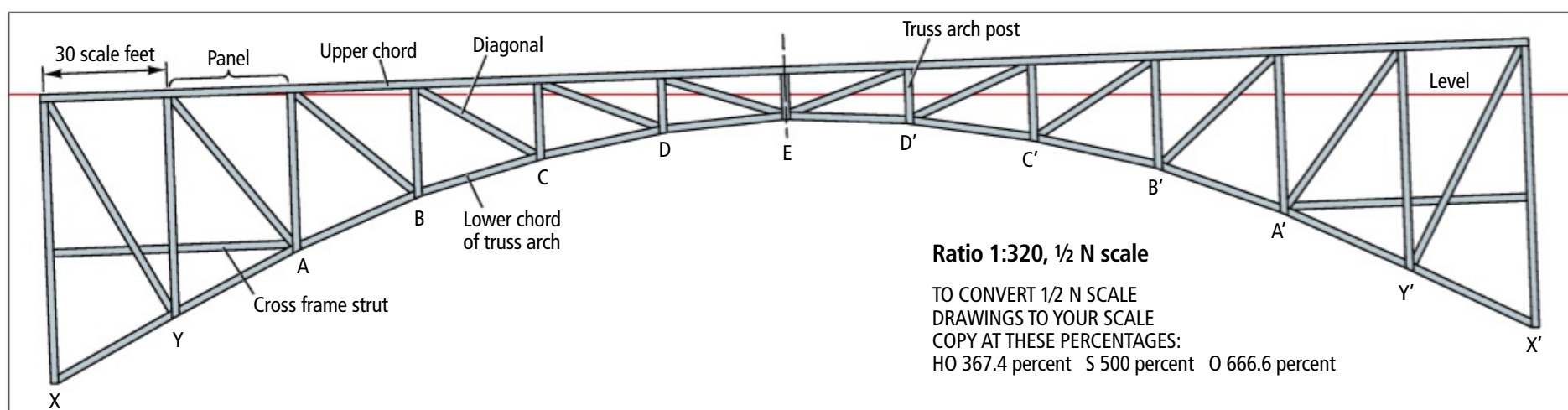
I used no. 26 drill bits to assist in keeping the posts square while the glue set **4**.



2 Getting the measurements. Gerry was unable to find prototype plans for the bridge. He estimated the bridge's dimensions using dividers scaled against a 40-foot boxcar in a prototype photo.

Refer to **5** to determine the angle of the truss arch sections and cross frame and cross frame strut locations. Note that the length indicated for each post doesn't take into account the bevel of the column as it abuts the upper chord. Nor does it take into account the complex angle at the opposite end resulting from the angle and the arch of the lower chord. I made the cuts slightly long and filed the materials to fit.

I then cut each floor beam to match the angle at the top of the post, as shown in **6** on page 41. Make sure the two



3 Making plans. Next, Gerry drew a scale plan of the steel truss arch bridge. Gerry's bridge has a 3.8 percent grade, rising from left to right. The red line indicates level.



4 Post construction. The truss arch posts are from Central Valley kit no. 1902-5. Gerry built his with the lattice detail on two sides. He used a no. 26 drill bit to keep the posts square.

vertical slots point upward. The slots will engage the deck stringers from below.

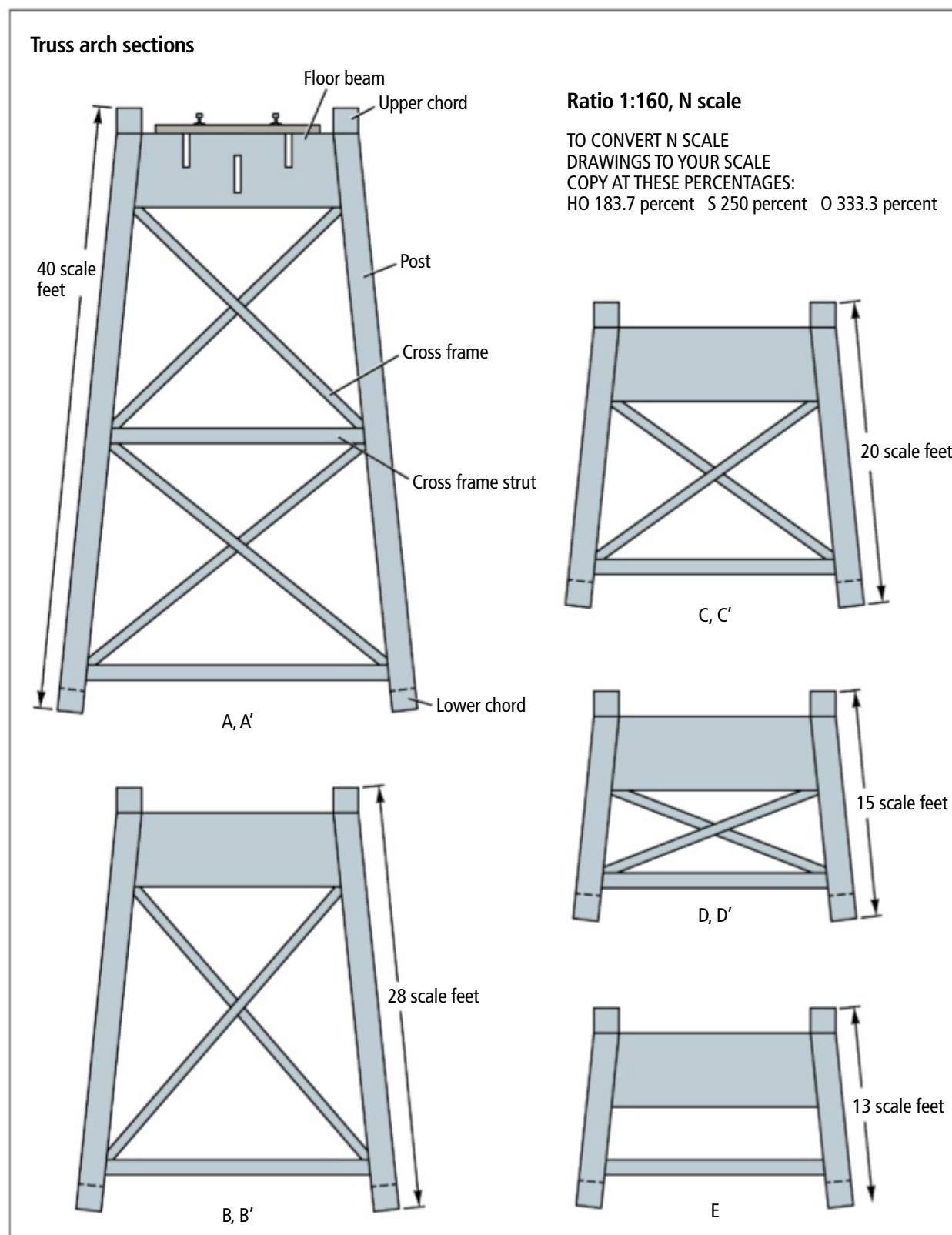
I found it helpful to construct a styrene jig for building the posts **7**, opposite. Once the posts were attached to the floor beam, I built the I-beam lattice for the cross frame and cross frame struts **8**.

I started by placing the cross frame struts. Then I measured and constructed the cross frames. They intersect each other and must be slotted. Cut the rectangular gusset plates from the Pratt bridge kit in half lengthwise and glue them to the intersection point of the two cross frames. Truss arch section E doesn't have cross frames.

A completed truss arch section is shown in **9**. The cross frame strut is located 2 1/2 scale feet above the lower end of the post. Only the two end panels have an intermediate cross frame strut.

Constructing the deck

The deck is a long girder bridge utilizing the stringers from two Central Valley Pratt truss bridge kits. To keep the deck

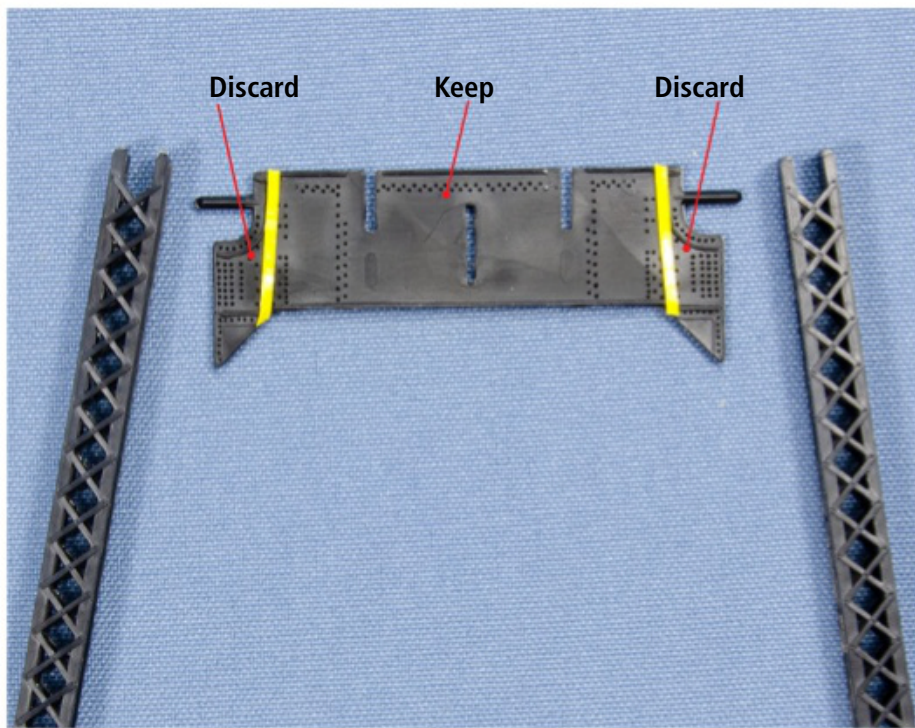


5 More drawings. Gerry also made drawings of the truss arch sections. The length of the columns is in HO scale feet. Truss arch section E has a cross frame strut but no cross frames.

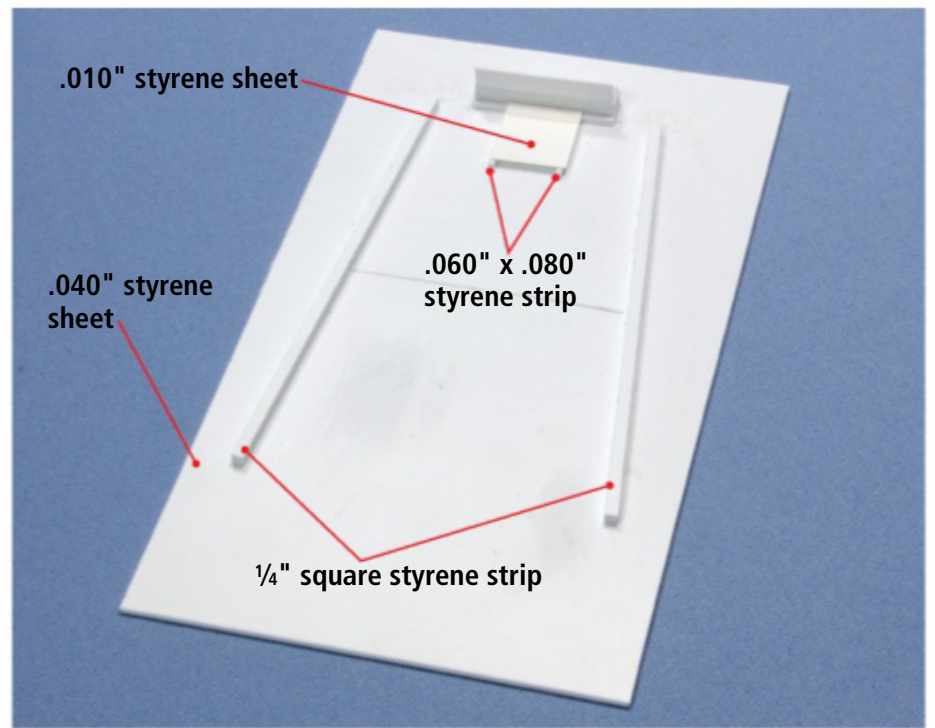
flat, I worked on a 14 x 30-inch piece of plate glass.

There are eight stringer sections per side. The kit stringers measure 24 1/2 scale feet. First, I cut 4.80 scale feet

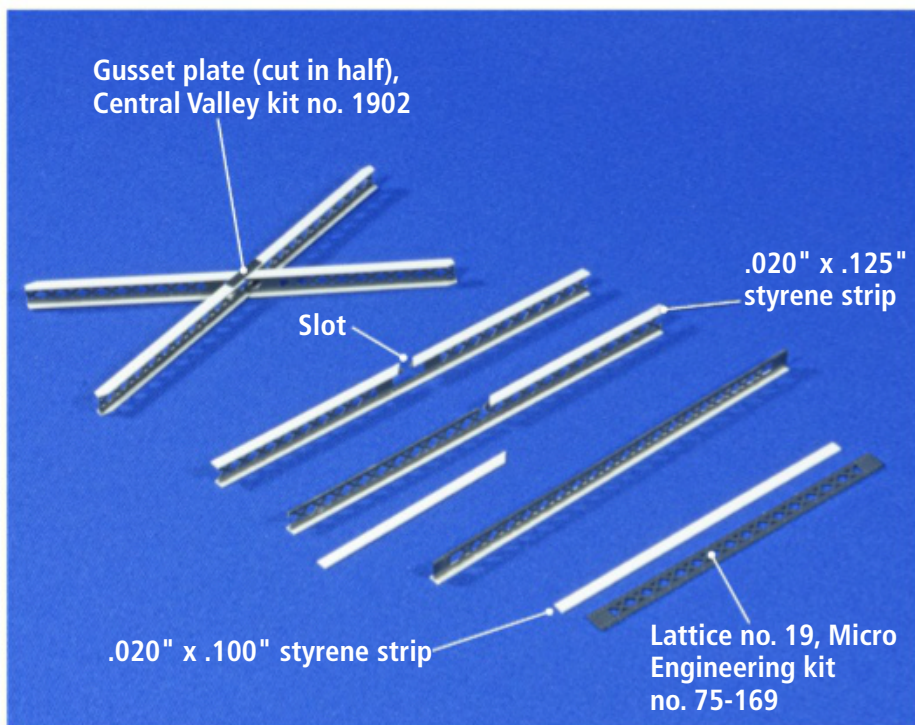
from the end of a donor stringer and glue it to a full size stringer **10**. Then I reinforced the butt joint from the back side with pieces of plain .020" styrene sheet.



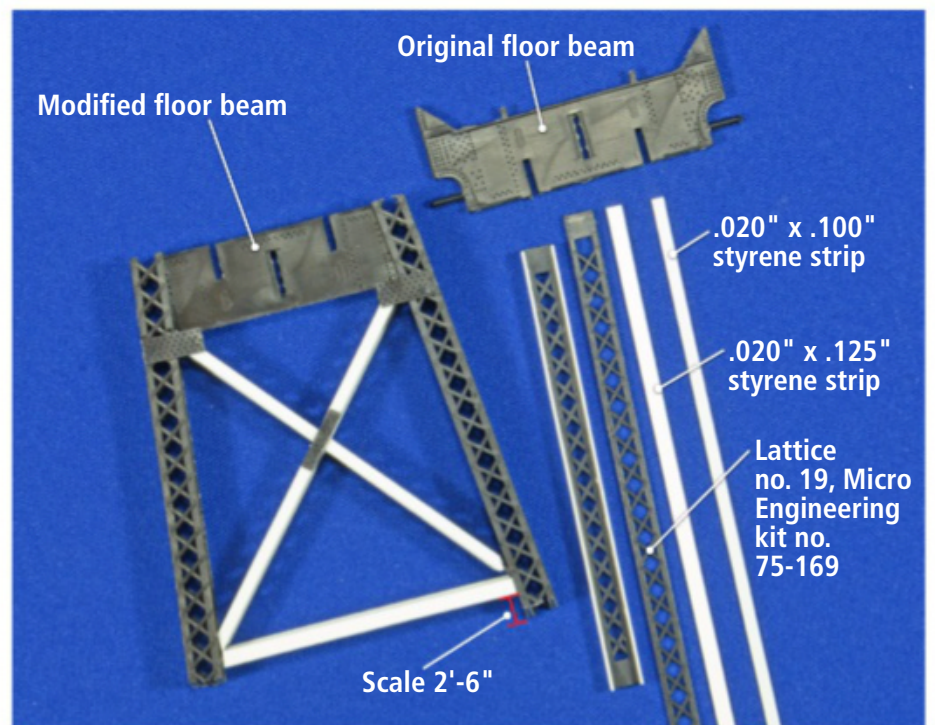
6 Cutting pattern. To ensure the floor beams would be consistent, Gerry made a cutting pattern. Note that the slots point up so the truss arch section will engage the deck stringers from below.



7 Assembly jig. To ensure the truss arch sections would be consistent, Gerry made this styrene jig. The shelf near the top holds the floor beam in mid position when it's glued to the posts.



8 From start to finish. Gerry used styrene strip and lattice to build the cross frames and cross frame struts. A slot needs to be cut where the cross frame pieces intersect.

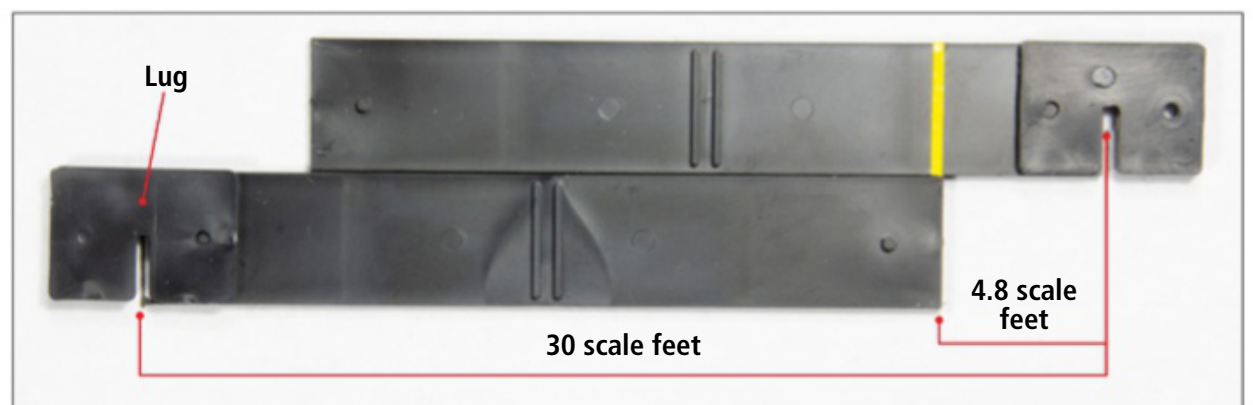


9 Putting it all together. A completed truss arch section is shown at left. The base components for the truss arch are shown at right.

The end of each lengthened stringer section must have the lug to fit the splice/joiner. It's at this location that each truss arch section is slotted into the deck. I filed the ends of each section slightly to accommodate the 3.8 percent grade and permit the truss arch section to be plumb.

With enough 30 scale foot stringer sections completed, I glued them together. I used a 3 foot metal rule to keep the stringers aligned, as shown in **11** on the next page.

Join the two stringers together using only the intermediate braces. The intermediate braces should be glued upside down to line up with the floor beam, which is also placed upside down relative to the Pratt truss kit's instructions. This

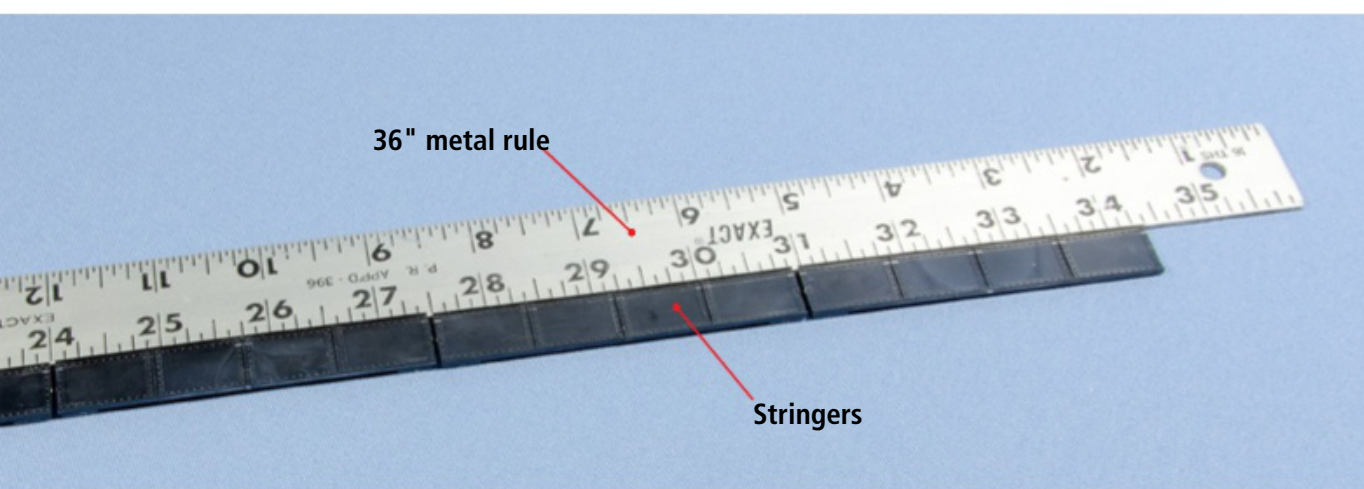


10 Splicing stringers. Gerry used stringers from Central Valley's Pratt truss bridge kit. He cut a scale 4.8 feet off a donor stringer and glued it to an unmodified stringer.

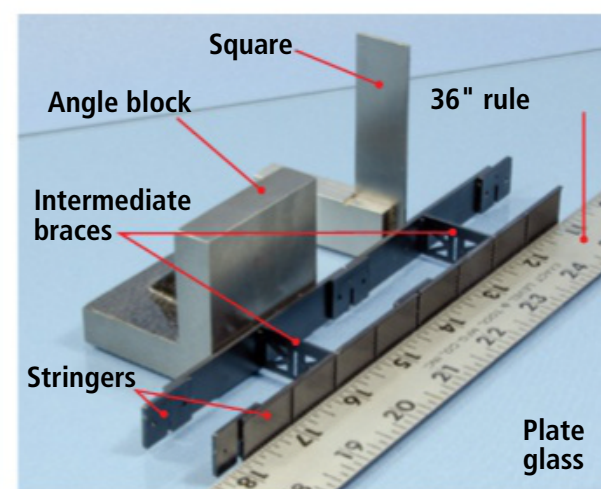
will allow you to utilize the steel reinforcing strip should you so desire. I used a variety of machinist's squares and angle blocks to hold pieces square while the glue set **12**.

Bringing it together

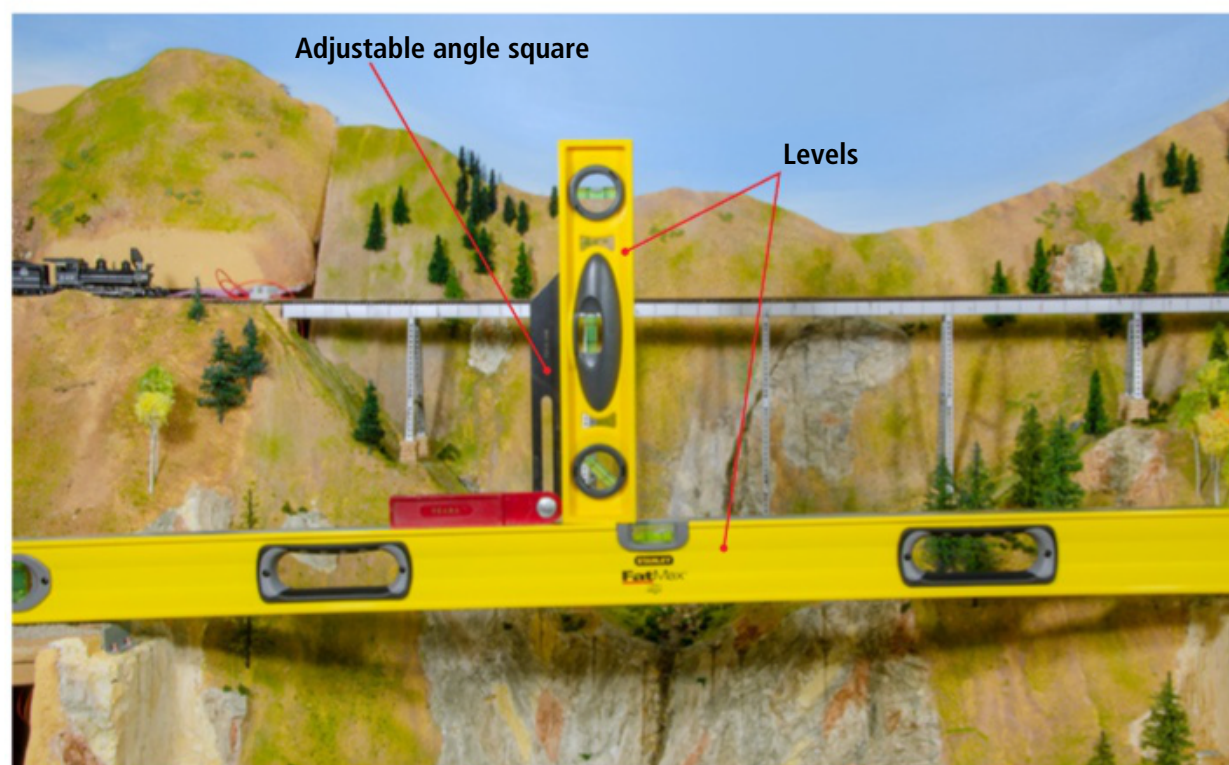
I glued the truss arch sections to the deck in sequence. Since my bridge was built on a 3.8 percent grade, the



11 Connecting stringers. With a sufficient number of 30 scale foot stringer sections completed, Gerry glued them together with liquid plastic cement. He used a 36" metal rule to keep the stringer sections in alignment while the glue dried. Be sure to pay attention to how the slots are oriented. They should all face the same direction.



12 Square it up. Intermediate braces hold the stringers together. Gerry worked on a piece of plate glass and used various squares and angles to maintain alignment.



13 Determining the grade. Gerry used an adjustable angle square and levels to determine the angle for the truss arch sections relative to the deck.

sections aren't perpendicular to the deck. Instead, they're vertical relative to the underlying terrain. The exact angle was determined using an adjustable square and two levels **13**.

Next, I slid each truss arch section into the deck stringer slot (file the slot larger if necessary). There should be just enough play in the slot to allow tilting of the truss arch sections.

Then I made jigs from .080" styrene sheet. The jigs hold the truss arch sections at a slight angle toward the low side of the bridge while the glue dried **14**.

Lower chord

The lower chord of the steel truss arch bridge is also constructed from steel girders in kit no. 1902-5. The top and bottom are lattice; the sides are solid.

I used the plan as a guide when cutting the pieces for the lower chord. If

your bridge spans a level crossing, each panel will have a mirror image of itself. If your bridge is on a grade, like mine, the posts will all be slightly different from one another. Refer to **3**.

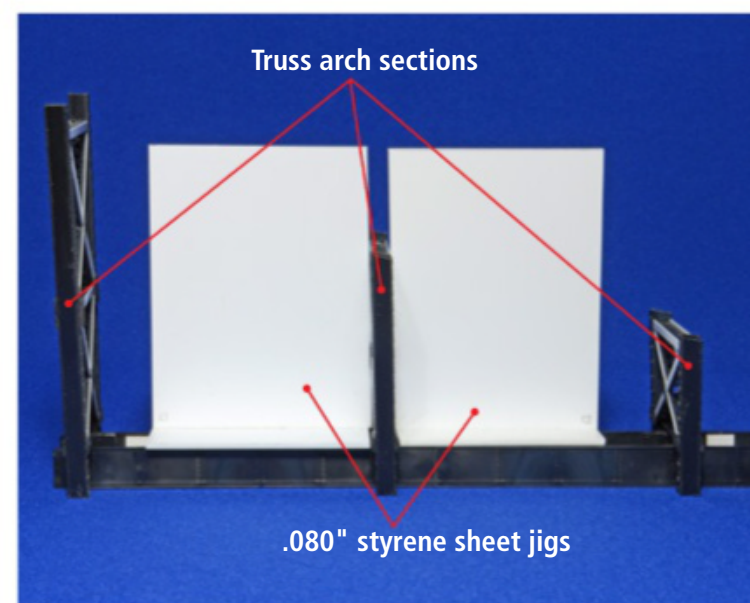
The fit of the lower chord pieces is a complex angle at each end. I estimated the complex angle and cut each piece oversize with a razor saw. I adjusted for final fit with a single cut mill file **15**, opposite.

I glued each section of the chord with the bridge lying on a flat surface to avoid introducing a twist. Be careful not to distort the truss arch sections **16**.

I cut, fit, and glued the diagonals in like manner. Again I harvested gussets from both the Pratt bridge kit and Micro Engineering lattice ends.

Building the upper chord

The upper chord runs the length of the bridge and sits squarely atop each



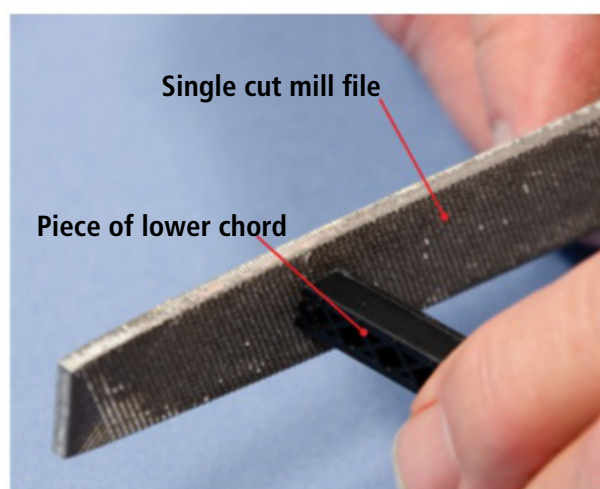
14 Glue and jigs. Next, Gerry attached the truss arch sections to the deck. The .080" styrene sheet jigs hold the truss arch sections at a slight angle toward the low side of the bridge while the glue sets.

post. I built each chord using Central Valley no. 1902-5 steel girders. The top and both sides are solid plate; the bottom is lattice. I glued the girders in an overlapping fashion and kept them aligned with a 36" metal rule **17**. Once completed, I glued each chord to the top of the posts.

Lower lateral braces

Before placing the lower lateral braces, you may want to consider painting the bridge **18**. Both silver and black have been used on the full-size Crooked River bridge over the years. It's easier to reach the bottom recesses of the deck with an airbrush or spray can without the braces in place.

The lower lateral braces have parts from Micro Engineering kit no. 75-169 with an I beam made from .020" x .125" styrene strip. The braces intersect each other. However, because of the trapezoid



15 Final adjustments. Gerry cut the pieces of the lower chord slightly long with a fine-tooth razor saw. He adjusted the final fit with a single cut mill file.

Materials list

Central Valley

1902 150-foot Pratt truss bridge (2)
1902-5 bridge girder set (3)

Evergreen styrene

125 .020" x .100" strip
126 .020" x .125" strip
154 .060" x .080" strip
186 .125" x .125" strip
199 .250" x .250" strip
9010 .010" sheet
9020 .020" sheet
9105 .040" sheet
9107 .080" sheet

Micro Engineering

75-169 steel viaduct tower (2)

shape between truss arch sections, the braces don't intersect in the center. Instead, the crossing point is shifted toward the center of the bridge.

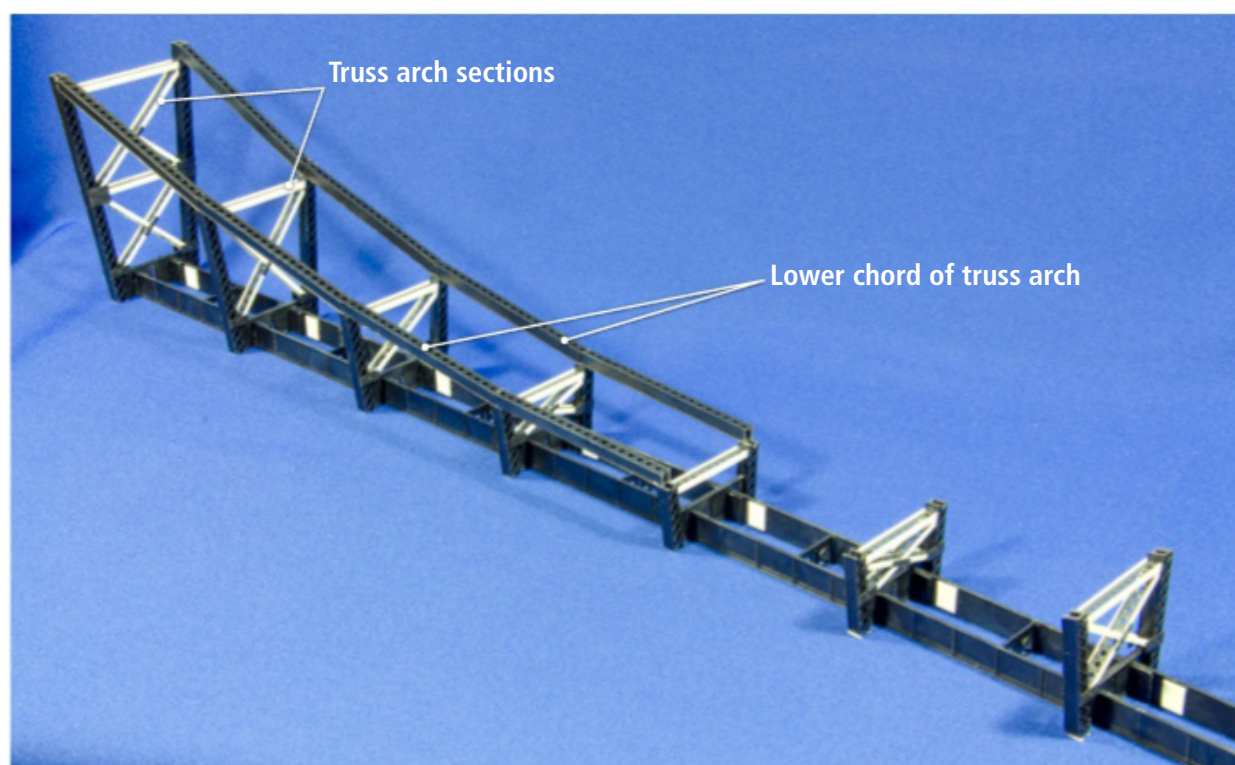
Measure and cut each diagonal brace individually. Apply gusset plates at the crossing points.

Final assembly

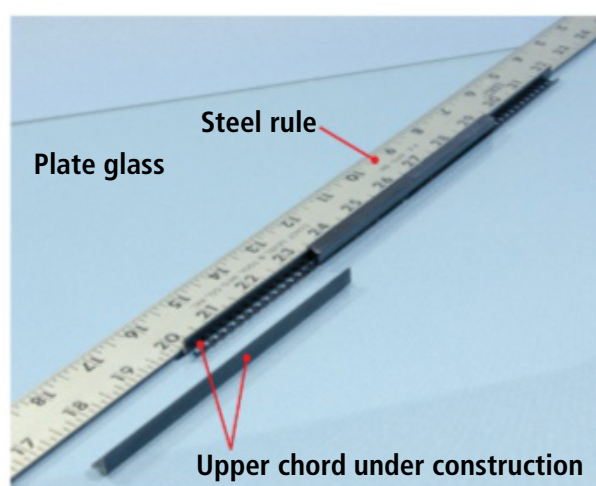
My bridge is dual gauge, so I used the ties that came with the Central Valley truss bridge kit and installed the standard gauge rails per instructions. Then, instead of guard rails, I added a third rail for HO_n3 with cyanoacrylate adhesive.

The footers are .020" styrene sheet. The full-size bridge had 40-foot connecting links of deck girder at each end. Because of space, I shortened mine **19**.

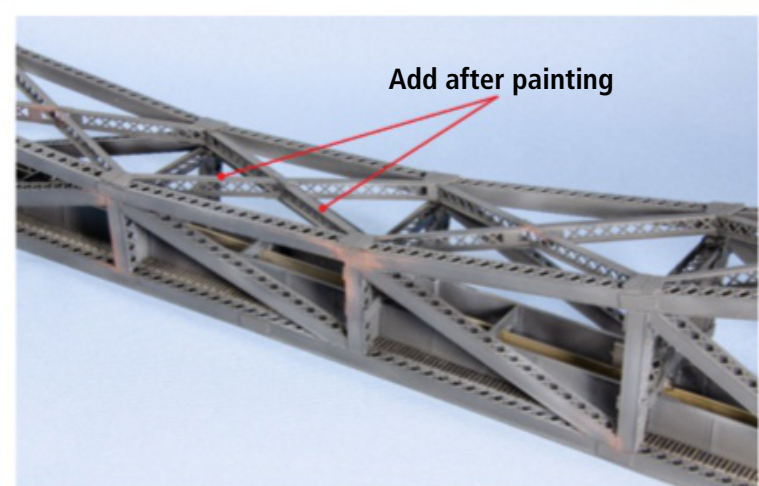
The finished steel truss arch bridge on my layout crosses gracefully over the standard gauge trestle below and complements the terrain and the narrow gauge steel viaduct above. **MR**



16 Adding the lower chord. This in-process photo shows half of the lower chord of the truss arch bridge in place. Gerry glued the pieces of the lower chord carefully to avoid distorting the alignment of the truss arch sections.



17 Building the upper chord. Gerry constructed this part of the bridge using overlapping steel girders, solid on three sides and lattice on the fourth side. The metal rule keeps the parts aligned. Plate glass provides a flat work surface.



18 Paint first, install later. Gerry recommends painting the bridge before adding the lower lateral braces to make airbrushing easier. He painted the bridge black and added some light weathering.

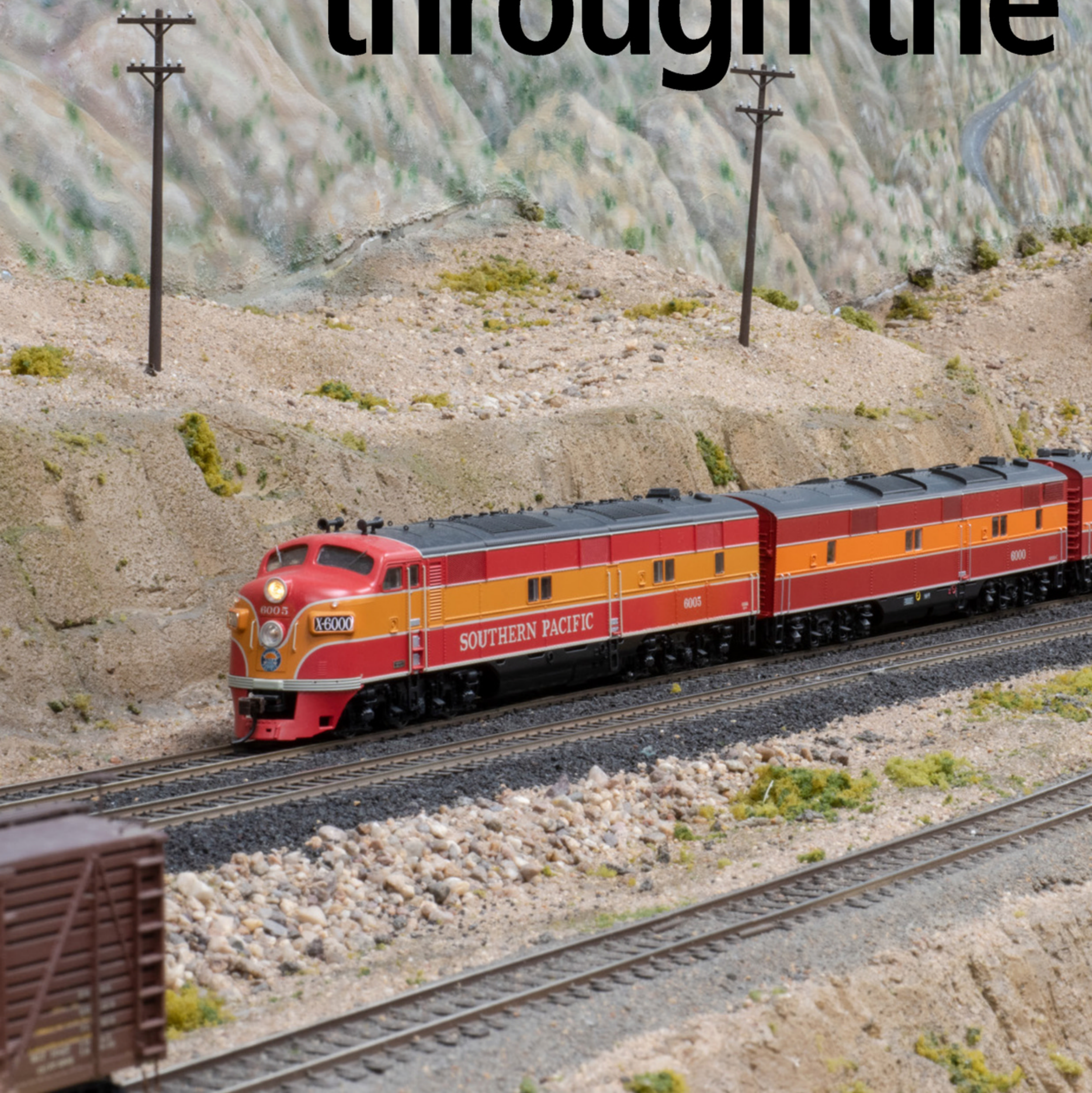


19 Ready for installation. Here is the finished bridge ready for installation. Gerry added connecting lengths of deck girder at each end.

Gerry Glancy and his wife, Karen, live in Littleton, Colo. His previous articles in Model Railroader include kitbashing a Santa Fe mission-style depot (October 2018) and kitbashing Denver's Union Station (November 2013).

STREAML

through the





INNERS Southwest

Transition-era passenger and freight trains speed through Arizona and California on the club-sized Sunset Route

By Lou Sassi • Photos by the author

RON MEI HAS ALWAYS had a passion for passenger trains, ever since his childhood years in Chicago when he and his family regularly rode Chicago & North Western (CNW) commuter trains. In 1969, when he was a teenager, Ron and his family moved to Arizona, where his railroading interests soon shifted focus from the CNW to the Southern Pacific (SP) and other southwestern roads, including the Atchison, Topeka & Santa Fe (ATSF) and Union Pacific (UP). A model railroader since age 7, Ron met a group of like-minded friends he could share his hobby with.

More than 50 years and a few layouts later, those experiences culminated in the HO scale Sunset Route. The layout fills 2,354 square feet with scenes of 1950s railroading through Arizona and California.

Signature scenes

The Sunset Route is a freelanced design that's primarily influenced by the SP. In a few key scenes, the layout follows prototype locations closely.

The Los Angeles Union Passenger Terminal (LAUPT) is built on a 5 x 38-foot benchwork section and features 12 arrival/departure tracks, two engine escape tracks, three baggage/Railway Express Agency (REA) tracks, two U.S. Postal Service tracks, and five private car tracks.

Many of the buildings are modified Walthers kits. Alameda Street runs in front of the station and features Pacific Electric streetcar tracks running down its center.

1 Southern Pacific No. 2, the *Sunset Limited*, races through Wellton, Ariz., on Ron Mei's 58 x 68-foot Sunset Route. The HO scale model railroad celebrates SP and other southwestern railroads in the 1950s.

The layout at a glance

Name: The Sunset Route

Scale: HO (1:87.1)

Size: 58 x 68 feet

Prototype: Southern Pacific; Atchison, Topeka & Santa Fe; and Union Pacific

Locale: southern California and Arizona

Era: 1950s

Style: walk-in

Mainline run: 733 feet

Minimum radius: 32"

Minimum turnout: no. 10 (main line), no. 6 (yards), no. 5 (industries)

Maximum grade: less than 1 percent

Benchwork: open grid

Height: 43" (average)

Roadbed: cork

Track: code 83 flextrack

Scenery: plaster hardshell

Backdrop: painted on drywall

Control: NCE Digital Command Control

MORE ON THE WEB

Get the image on page 44 to use as computer wallpaper, and watch an exclusive layout video at ModelRailroader.com

The Sunset Route

HO scale (1:87.1)

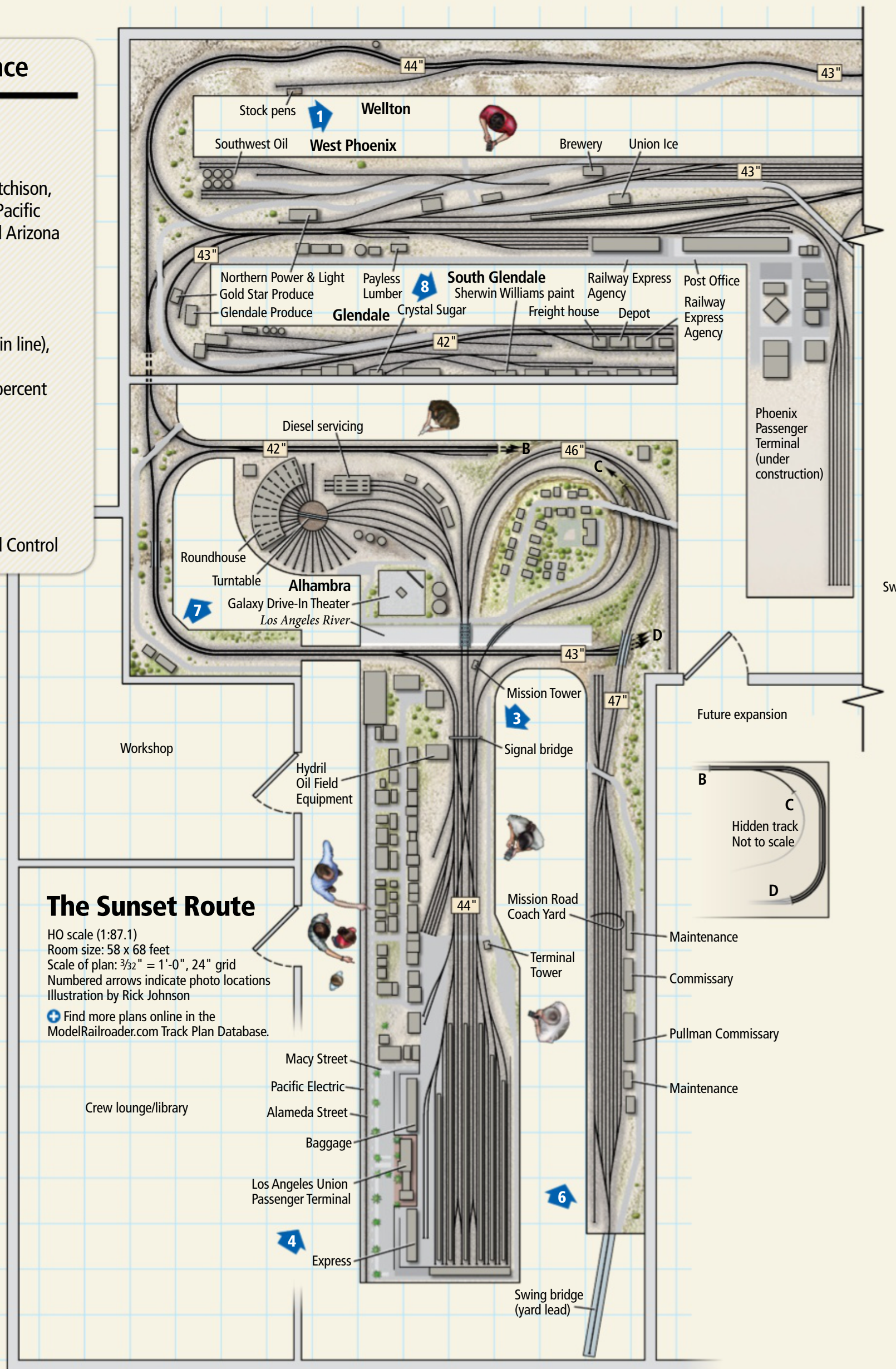
Room size: 58 x 68 feet

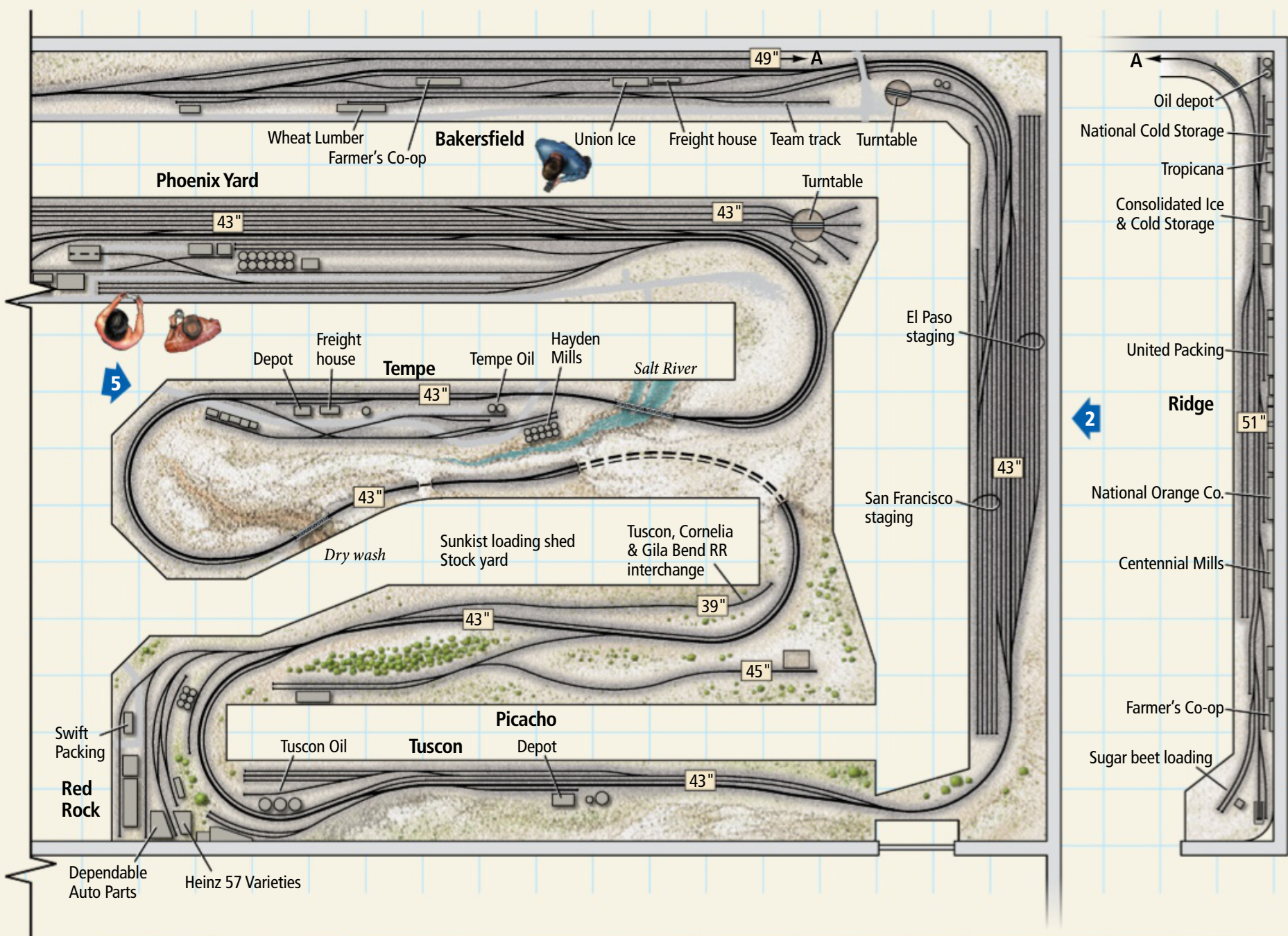
Scale of plan: $\frac{3}{32}$ " = 1'-0", 24" grid

Numbered arrows indicate photo locations

Illustration by Rick Johnson

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





Built on a 3 x 36-foot benchwork section, the Mission Road Coach Yard is across the aisle from LAUPT. The yard has the capacity to hold 110 passenger cars. It also features a car washer, commissary, maintenance facilities, and other prototype-based buildings.

The Alhambra engine terminal is built on a 6 x 10-foot benchwork section. The engine terminal has facilities that

handle both steam and diesel-electric locomotives. There's also a turntable, 11-stall roundhouse, and 13 open-air servicing tracks.

Another notable location is Phoenix Yard, which fills a 3 x 48-foot benchwork section of the layout. In addition to the yard tracks, this location includes a locomotive terminal and a scale 960-foot (12 actual feet) icing track with enough

2 This overall view shows the expanse of the main layout room with its scenes inspired by California and Arizona. A typical three-hour operating session involves 10 operators and a minimum of 14 trains.



③ A signal bridge spans the yard throat at Los Angeles Union Passenger Terminal (LAUPT). NCE block detectors and custom electronics ensure the signals show the correct aspect.

capacity to serve four dozen 40-foot refrigerator cars, or “reefers.”

More than just a train room

The Sunset Route is Ron’s fourth layout. Construction began in 1990, inside the detached workshop/garage behind Ron’s house. Ron also added three air-conditioning units and a grid ceiling with 48" fluorescent lights above the 28 x 62-foot main layout room.

Ron always planned to share the construction and operation of the Sunset

Visit this layout!

The HO scale Sunset Route will be one of the featured layouts on tour at the National Model Railroad Association, Pacific Southwest Region, Arizona Division Convention. The 2019 convention will be held September 25-29 at the Sheraton Wrigleyville West in Mesa, Ariz.

For more information, including layouts that will be open for tour or operating sessions, visit the Arizona Division’s website at <http://azdiv-nmra.org>. The guest speaker will be Tony Koester, *Model Railroader* contributing editor and editor of *Model Railroad Planning*. – Ron Mei

Route with his friends, and they became known as The Sunset Route Model Train Club. After several years of building and running trains, the club was ready for phase two of the project. In 2005 they

added the 15 x 30-foot benchwork section for the Los Angeles area.

In addition to the layout rooms, the building includes a 15 x 22-foot crew lounge. This room has space for a



reference library, a large display screen for viewing railroad videos, a computer with internet access for online research, and display cases for some of Ron's passenger trains.

There's also a workshop with a spray booth and clearly labeled storage bins for the club members to use. Ron finds that a clean and organized workshop leads to more productive and more enjoyable work sessions.

Benchwork, track, and DCC

Once room prep was complete, the club installed backdrops and benchwork. The backdrops feature coved corners and images painted by one of the club members. The benchwork consists of open grids made of 2 x 3 lumber topped with 1/2" plywood followed by 1/2" homasote.

Code 83 flextrack was laid atop cork roadbed. Most of the turnouts are from Shinohara, although Ron recently

④ A 15 x 30-foot space is dedicated to the LAUPT and Mission Road Coach Yard scenes. Ron modified Walthers HO scale LAUPT structure kits to fit the space. On the left side of the photo, Pacific Electric streetcar tracks are visible in the middle of Alameda Street.





5 A Southern Pacific reefer block led by EMD FP7 no. 6455 passes through Tempe, Ariz., with loads of oranges and grapefruits. The crowd on the depot platform is waiting for the westbound *Golden State* streamliner.

installed a turnout that he scratchbuilt using a Fast Tracks jig. Turnouts are controlled either remotely via Tortoise by Circuitron switch motors or manually.

Full-length passenger cars run on the Sunset Route, so broad curves and long turnouts are the rule. The minimum radius is 32". Number 10 turnouts are

used on the main line. Club members laid nos. 6 and 8 turnouts for yards and nos. 5 and 6 turnouts at industries.

The layout is wired for Digital Command Control (DCC) using an NCE system. NCE block detectors and resistor-equipped wheelsets will be used for the layout's signal system.



Currently the only operating signals are on the LAUPT signal bridge, shown on page 48. The bridge structure is an Overland brass model with target signals from NJ International. Club members added 3mm bi-polar light-emitting diodes (LEDs) for the signal aspects as well as custom-built electronics that



6 At Mission Road Coach Yard, the red-and-orange *Coast Daylight* waits to be moved to LAUPT. In the foreground, an Electro-Motive Division NW2 diesel switcher spots heavyweights that came in on *The Imperial*.

then covered this scenery base with assorted colors and textures of commercially available ground cover. The brush and trees are made of lichen and Woodland Scenics products.

Club members hand-carved plaster to model exposed rock faces. They painted the rocks by mixing primary colors of acrylic craft paint.

The structures and bridges on the layout are a mix of kit-built, kitbashed, and scratchbuilt models.

Almost all the buildings have been painted and detailed both inside and out. Many of the urban structures feature interior and exterior LED lighting, including some animated signs. There's also a drive-in movie theater on the outskirts of the Los Angeles section where 1950s movies are played via a hidden DVD player.

Running trains

Locomotives and rolling stock on the Sunset Route are representative of the equipment found on the prototype railroads in the steam-to-diesel transition era. All equipment is painted, decaled, and weathered. Passenger cars also include detailed and lighted interiors.

The locomotive roster is a mix of 25 percent steam and 75 percent diesel power. All motive power is equipped with DCC sound decoders.

A typical operating session lasts about three hours with a minimum of 14 trains running over the line. Operation follows

work with the NCE BD20 block detectors. Plans include adding signals to more locations along the main line.

Scenery and structures

The club built basic landforms using screen, risers and hard-shell plaster. They

a sequence that includes local freights, reefer trains, and through freights that run between staging tracks and Phoenix Yard. Passenger trains also run to and from staging as well as LAUPT. Operators use a car-card-and-waybill system to route cars around the layout.

There can be up to 10 operators per session. Specialized jobs on the railroad include engineers for LAUPT and Mission Road Coach Yard, a Phoenix yardmaster and assistant yardmaster, and an Alhambra Engine Terminal hostler. Local jobs include the Glendale Local, Ridge Switch, Valley Local, and South Local. There are also eastbound and westbound mainline trains for SP, ATSF, and UP. All operators communicate with each other using radio headsets.

Still going strong

The Sunset Route Club continues to run trains and work on the layout. New scenes and details are being planned and added, including a large passenger terminal at Phoenix.



The Sunset Route crew: (Front row, left to right): Syd Payne, Ron Mei, Bob Sherlock, and David Greenberg. (Back row, left to right): Gary Ray, John Holmes, Scott Wheat, Walt Walewski, and Larry Platt. Not shown: Richard Wehr and Matt Robinson.

Meet Ron Mei

Ron Mei is the owner of a motorcycle and race car shop in the Phoenix area. He's been interested in model railroading since age 7, when his father introduced him to the hobby with a Lionel O gauge train set around the family Christmas tree. Prior to beginning construction on the Sunset Route in 1990, Ron built three model railroads. With each one he's recognized the benefit of having the support of fellow modelers. Ron values the expertise of all his crew members, some of whom have helped him for more than 35 years.

It's been nearly 30 years since work started on the layout, and Ron feels that the Sunset Route has accomplished its goals, especially in modeling some favorite areas of the Southwest in the 1950s. The layout can also reliably handle running full-length passenger trains.

The Sunset Route continues to provide everyone involved with a great sense of satisfaction. Whether building the railroad or running trains during an ops session, Ron feels that sharing the Sunset Route with his friends has been a great way to enjoy the hobby. **MR**

7 Just out of Los Angeles, the Santa Fe *Super Chief* speeds through the Southern California countryside on its way to Chicago. The train's rubber-tired competition, a Continental Trailways bus, follows the highway in the opposite direction.





8 While EMD SW900 no. 4632 works the local, Baldwin VO-1000 no. 1329 pulls a gondola, now empty, after delivering equipment to the Crystal Sugar plant in Glendale, Ariz. The plant also receives sugar beet loads from Ridge on the upper level.



Keeping Digitrax equipment up to date



Almost all new Digitrax products have upgradable firmware capability. This month, Larry Puckett takes you through the steps for a successful update.

Over the years, various companies have provided a way for Digital Command Control (DCC) system owners to update firmware or system software on their command stations. For some companies, the firmware came installed on a large EPROM (erasable programmable read-only memory) chip.

This chip could be removed and replaced by the owner, installing the new firmware. NCE still uses this approach for some systems. Other companies have begun to offer systems for which the owner can download software from a website and install it.

Beginning in 2015 Digitrax took a big step forward and began providing this capability for almost all its new equipment releases. This includes the new DCS210 and DCS240 command stations, DB210 and DB220 boosters, DT402 and DT500 throttles, Zephyr Xtra and Zephyr Express sets, UR92 duplex transceiver, LNWI WiFi

interface, LNRP LocoNet repeater, and BXP88 occupancy detector/power manager.

Let's take a look at the update process and discuss some tricks I've discovered to make this easier. I'll begin by going over the basic equipment requirements and update procedure.

To perform the update

you'll need a Digitrax-compatible computer interface. This can be an older device such as an MS100 or PR2. More recent devices include the PR3, PR4, and USB-enabled DCS240 command station. Even the LocoBuffer-USB from RR-CirKits will work.

Next, you'll need to download and install the free Digitrax

DigiIPL program (IPL means initial program load) ¹ from the Digitrax website (www.digitrax.com/downloads/digi-ipl/). This Windows program sends the firmware to the device being updated through the computer interface connected to the LocoNet and DCC system.

Next, download the firmware package for the device you want to update. If you're

not sure which firmware version is installed in each device, open the DigiIPL program and hit the FIND DEVICES button ¹. The program will locate all upgradable devices connected to your LocoNet and display their current firmware version in a new window ².

To begin the download process, click the SELECT FILE button and

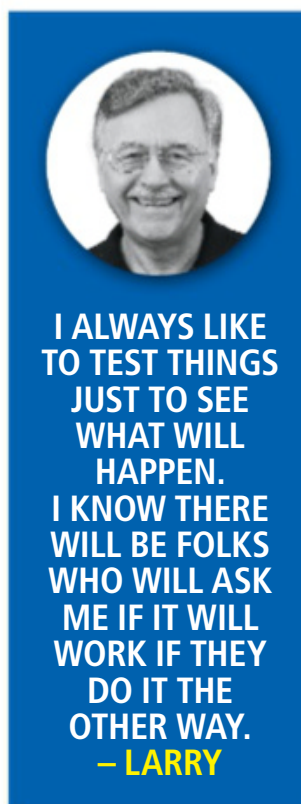
browse your computer to find the file you need – it will have a “.dmf” extension. Once you select the desired file and hit the OPEN button, the program will load and the display will prompt you with a green START button. Press the button and allow the firmware to upload. This is all explained clearly in the DigiIPL instructions.

Let me point out that it's a good idea to disconnect everything from the command station when updating devices and then connect the devices directly to the command station. This will give you a clean, noise-free connection and make updates more reliable. You can update several of the same devices, such as throttles, at the same time by using a line splitter, or just plug in two or three at a time depending on your command station.

I recently tried updating a throttle connected to a UR92 panel on the LocoNet and it failed. As soon as I connected it to the command station and disconnected the LocoNet, the update went through on the first try. Like the man said, it usually pays to read the instructions, which tell you this.

However, I always like to test things just to see what will happen. I know there will be folks who will ask me if it will work if they do it the other way.

I also want to make it clear that devices that have two firmware items in them, like the duplex radio throttles and UR92 duplex transceiver, require that both the device firmware and the RF24 device firmware be upgraded. (The RF24 is the device inside the throttle and UR92 that handles radio communications. It's only



installed in wireless throttles and the transceiver).

This was one of the problems folks ran into when Digitrax first released the duplex throttles. Users were updating the throttle firmware and but not the RF24 device firmware. When Digitrax released firmware updates for both throttles and RF24s, owners were only doing half the job, and things didn't get better until they figured out what was going on.

When installing updates in some devices, it's a good idea to plan ahead. For example, occasionally you're going to have to update the UR92 device firmware. One requirement for reliable updates is that you need to connect the UR92 directly to the command station without any other devices in the line of transmission.

This means disconnecting all the other devices on the LocoNet and isolating the UR92. This last factor turned out to be a problem on a friend's layout because his UR92 transceivers are installed on a LocoNet cable along with UR91 simplex radio receivers.

Consequently, when updating the UR92s, they had to be disconnected from the UR91s, and then connected to the command station directly for the update to work reliably. I had no luck trying to update them while they were connected to the command station along with the UR91s.

My suggestion is to install devices like these in such a way that they can be easily removed for periodic updates, or install them on their own dedicated LocoNet cable that can be connected directly to the command station.

Another important part of the update process is to ensure the devices being

updated have a good power source. This applies especially to throttles, which should have a fresh battery installed.

Finally, make sure to power cycle – turn off, then turn back on – the devices after the update process. Turn the power supply off and remove the battery from throttles. I power cycle the entire DCC system just to make sure everything has a fresh, clean load of the system and device firmware.

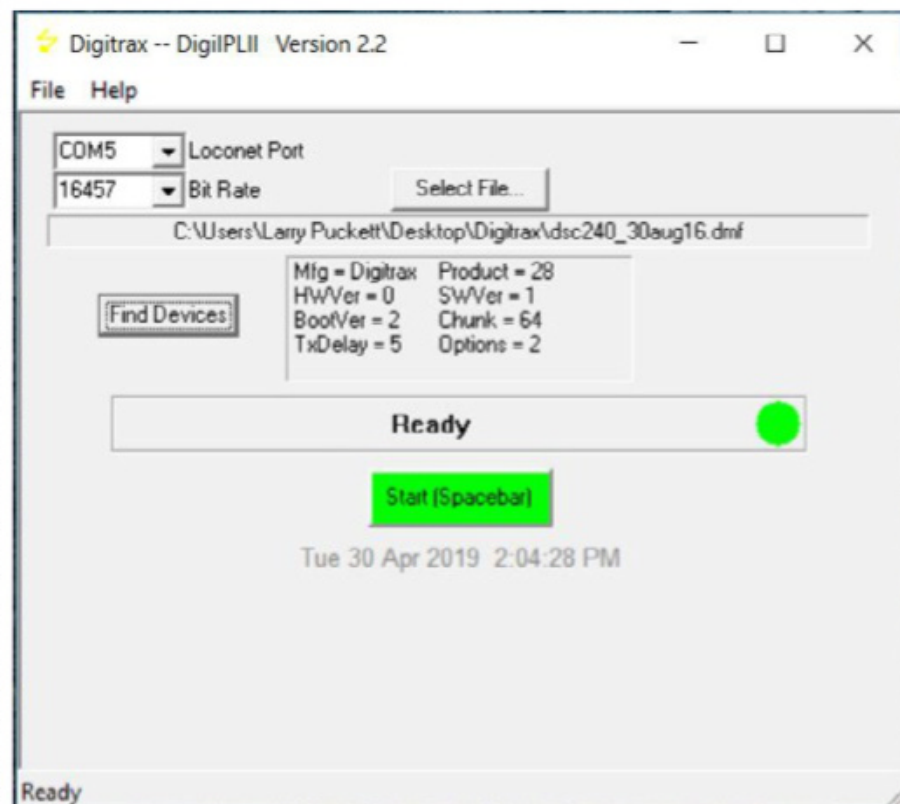
Before I leave the subject of DigiIPL, let me point out another neat trick you can do with the program. Let's say you need to find your throttle among a dozen others plugged into the LocoNet at a club event or friend's layout.

If you know the serial number of your device, check the little box in the SELECT column next to the device with your serial number and then click the IDENTIFY button shown in 2. The throttle will flash lights or spell out IDENTIFY on its display. This works with any of the IPL-capable devices, which can help you find devices on your own layout as well.

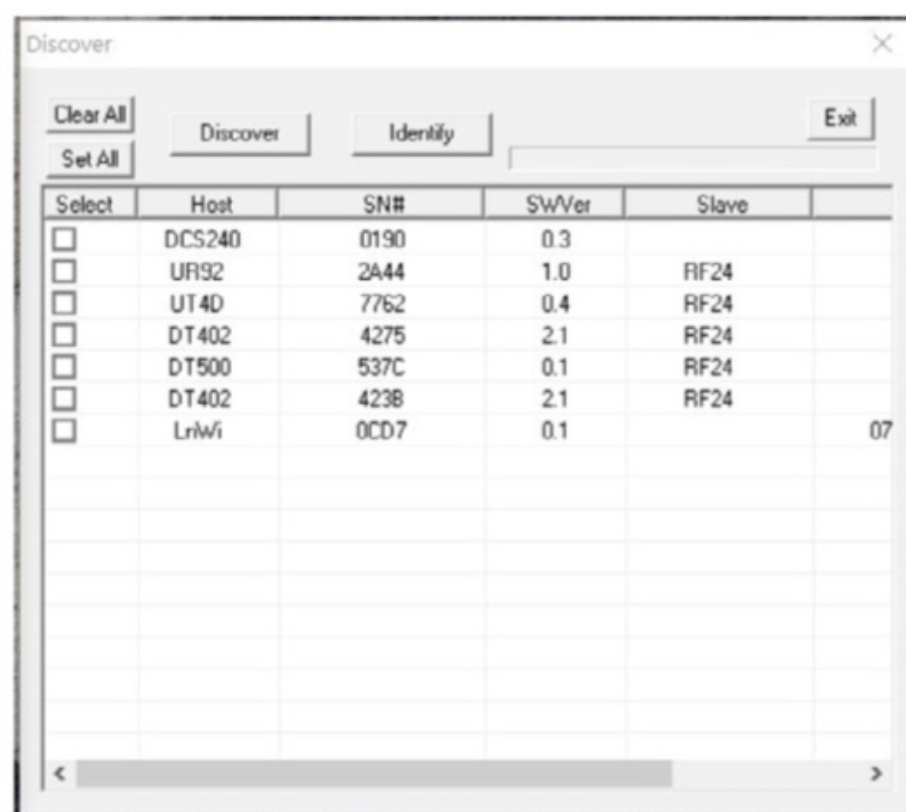
Some users might be concerned about the frequency of these updates for their equipment, so I asked the folks at Digitrax about that. Their response was that updates will be released as needed to tweak the firmware to cover something that may not have been seen in pre-release testing, or to add new features.

I asked about support for older equipment that's being replaced by the new releases. Digitrax will continue to repair legacy equipment as long as parts are available. In addition, its new DCC systems will continue to support the use of older equipment.

The ability to periodically replace your DCC



1 Main window. The free DigiIPL software uploads new firmware into Digitrax equipment. In the main window, users can select the com port, set the bit rate, select the file to be uploaded, then hit the START button to begin the process.



2 Device list. After you press the FIND DEVICES button shown in 1, the program looks for all upgradeable devices on the layout connected to the LocoNet and displays them along with their serial numbers, firmware versions, and notes if a slave device such as an RF24 is installed. Scrolling to the right shows more information about the slave firmware.

equipment firmware is a great way to keep it up-to-date and take advantage of new features as they're released. With Digitrax, this no longer requires sending your equipment back to the factory for a chip replacement. To see if your

equipment has a recent firmware update, visit the Downloads page on the Digitrax website at www.digitrax.com/downloads. Also, for more information on the use of DigiIPL, I have a video tutorial on my website at www.dccguy.com. 



ScaleTrains.com N scale GE C39-8 diesel

For the first time in N scale, a General Electric C39-8 is available as a ready-to-run plastic model. Produced by ScaleTrains.com as part of the firm's Rivet Counter series, the N scale diesel-electric locomotive features roadname-specific detail. We tested a version that came factory-equipped with an ESU LokSound dual-mode decoder that provides realistic sound and other effects on Digital Command Control (DCC) and direct-current (DC) layouts.

The prototype. General Electric introduced its Dash 8 series of locomotives in the early 1980s. The locomotives featured better microprocessor control and improvements to GE's FDL line of diesel engines. Among the first Dash 8 locomotives was the six-axle, 3,900 hp C39-8.

Between 1984 and 1987, GE produced 161 C39-8s. Norfolk Southern had the largest fleet with 139 units. The only other original customer was Conrail, which purchased 22 C39-8s. On both roads, the C39-8s hauled all manner of freight along Class 1 main lines throughout the 1980s and 1990s. In 1998, when NS and CSX purchased Conrail, the two roads split up Conrail's C39-8 fleet. A few of the locomotives were repainted in CSX paint schemes.

By the early 21st century, NS and CSX began retiring the C39-8s. Some found second careers on short lines, including Pennsylvania Northeastern RR and Savage Alberta Ry.

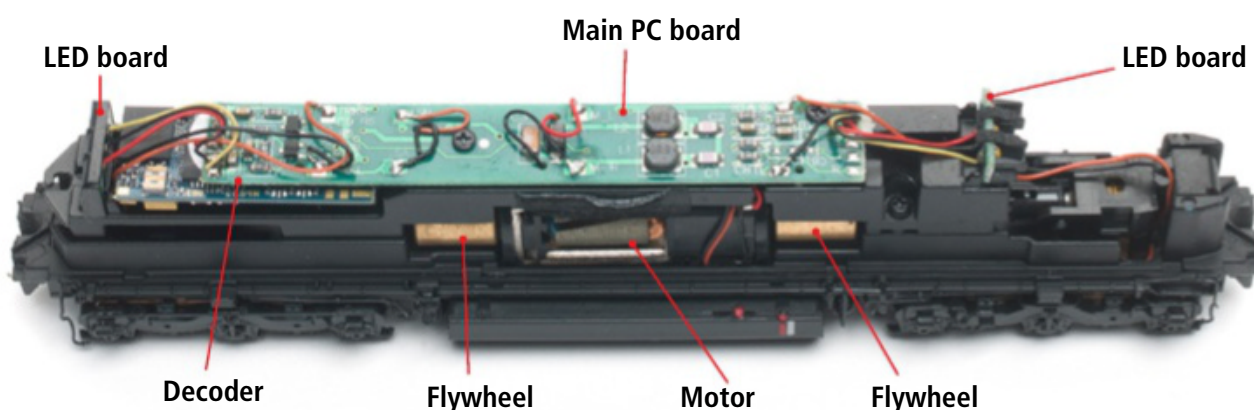
The model. The ScaleTrains.com N scale model matches the major dimensions of

a prototype C39-8 given in the *Car and Locomotive Cyclopedia of American Practice, Fifth Edition* (Simmons-Boardman, 1984). Placement of grab irons, grills, and other details also match prototype photos.

Our review sample models Conrail no. 6012. Like the other Conrail units delivered in 1986, this prototype represents what railfans refer to as a phase III C39-8. The model's plastic body shell is accurately detailed for its phase III prototype, with a six-panel radiator grill and a separately applied brake wheel. (ScaleTrains.com also makes the carbody in other phases as appropriate for each prototype modeled.)

The ScaleTrains.com model depicts no. 6012 as it appeared in the early to mid-1990s. Era-specific retrofitted details include inverted "L" grab irons on the front of the short hood and a long vertical grab iron on the right rear end of the long hood. As per the CR prototype, there are front and rear red marker lights. However, they are non-operating. Correct for its era, the model doesn't have ditch lights. These weren't added to the prototype until 1997.

Other separately applied detail parts include m.u. hoses, windshield wipers, and the correct Leslie RSL-3R air horn mounted on the long hood. Grab irons are made of wire, and handrails and stanchions are flexible engineering



The model's mechanism provides impressive tractive effort for an N scale locomotive. The ESU LokSound decoder plugs into a Next18 socket on the main printed-circuit board.

plastic. The cab features seats and interior detailing.

The plastic General Steel Castings truck sideframes are especially well done, with separate brake cylinders, piping, and sand lines. The right front truck also has separate handbrake chain detail.

The model is accurately decorated for its 1990s-era Conrail prototype, with clearly printed and properly placed lettering, logos, and stencils. Grab irons, end hand rails, lower step edges, and uncoupling lever ends are all correctly painted white.

The mechanism. After removing both coupler boxes, I could easily lift off the plastic body shell. The dual-flywheel-equipped can motor is mounted in the center of the die-cast metal frame, with more weight attached above it. Driveshafts connect the motor to the truck-mounted gearboxes.

The main printed-circuit (PC) board is atop the mechanism. The ESU LokSound Select Micro decoder is plugged into a Next18 socket under the rear of the PC board. Our sound-equipped sample also includes a well-enclosed sugar cube-style speaker. All lighting is provided by surface-mounted light-emitting diodes (LEDs).

Performance. As shown in the charts at right, the model accelerated smoothly in both DC and DCC speed tests. In DCC tests, the model's top speed was quite a bit higher than the 70 to 80 mph of the prototype, but this can easily be adjusted



The model has many prototype-specific details, including a retrofitted vertical handrail on the end of the long hood.

with configuration variables (CVs). During force meter testing, the model produced a drawbar pull equivalent to 29 N scale freight cars.

I confirmed that the model will handle 9¾" radius curves, but it looked better rounding the 13" curves on our Canadian Canyons layout. The C39-8 also had enough pulling power to haul 20 N scale 50-foot freight cars up the 1.9 percent grade of the layout's helix. The all-wheel electrical pickup ensured reliable operation through turnouts.

Sound. When I set the C39-8 on our DCC-equipped test track and pressed function 8, I heard the 7FDL16 diesel engine start up. Other user-triggered sound effects include the bell, a realistic dynamic brake sequence, coupler crash, and sanding valves. The playable horn effect sounds the Leslie air horn. There are also 15 other prototype horns to choose from by programming CV48.

All functions are also remappable to any available function key. I was easily able to switch the headlights from directional to manual control, which I find more realistic.

The ESU LokSound Select decoder includes the Full Throttle diesel sound and effects package. I especially enjoyed pressing F9, DRIVE/HOLD. This function keeps the locomotive speed steady while the throttle knob is used to manually notch the engine rpm. There's also a button-controlled independent brake.

All aspects of the decoder can be adjusted using CVs. I programmed the locomotive address to the locomotive number on the cab. Although the model features some built-in starting and stopping momentum, I added a little more. I also thought the default sound volume was a little low, so I turned it up to full.

The decoder supports CVs 19, 21, and 22, so it was easy to set up an advance consist with another DCC-equipped N scale diesel.

A complete programming guide is available for free on the ESU website at www.esu.eu/en/. A LokProgrammer computer interface makes programming LokSound decoders a simpler task. Although this device is sold separately, the LokProgrammer software is available as a free download and can be used without the interface. The software provides CV values that can be entered manually into a DCC system.

Facts & features

Price: \$279.99 (DCC sound), \$169.99 (DC no sound)

Manufacturer

ScaleTrains.com Inc.

7598 Highway 411

Benton, TN 37307

www.scaletrains.com

Era: 1986 to early 2000s (early to mid-1990s as detailed for Conrail no. 6012)

Road names (multiple numbers):

Conrail, Norfolk Southern, and Pennsylvania Northeastern RR

Features

- All-wheel drive and electrical pickup
- Blackened metal wheels, in gauge
- Body-mounted plastic semi-scale type E knuckle couplers at correct height
- Cab interior
- ESU LokSound Next18 Select Micro dual-mode decoder (DCC version)
- Five-pole, skew-wound motor with dual brass flywheels
- Light-emitting diode headlights and number boxes
- Minimum radius: 9¾", 11" or greater recommended
- Next 18 DCC socket (DC version)
- Operates on codes 55 and 80 rail
- Weight: 3.7 ounces

PERFORMANCE CHARTS

DRAWBAR PULL	
1.2 ounces	29 N scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
8 (start)	1
9	20
10	38
11	76
12	85
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
7	1.5
14	21
21	68
28	100
	105

On our DC test track, the sound is limited to the engine rpm, which rev up or down according to the locomotive speed. The directional headlights also function in DC.

Exceptional sound and detailing make the N scale C39-8 from ScaleTrains.com an exceptional model of a freight-hauling workhorse of the 1980s and '90s. – Dana Kawala, senior editor



Atlas Trainman Gold HO Alco RS-32 and RS-36

The Alco RS-32 and RS-36, four-axle, second-generation diesel road switchers issued by Atlas Model RR Co. more than 10 years ago, have been upgraded and re-released as part of the company's Trainman Gold line. We reviewed the first Atlas model in May 2007. This latest review sample has been outfitted with an ESU LokSound Select dual-mode sound decoder.

The prototype. Alco introduced the 2,000-hp RS-32 in 1961, intending it to compete with second-generation four-axle diesel-electrics like Electro-Motive Division's GP20 and General Electric's U25B. But while those locomotives sold hundreds of units to railroads across the country, just 35 of the 251C-engined Alcos were sold. Twenty-five went to the New York Central; the other 10 were sold to the Southern Pacific.

Alco tried again in 1962, outfitting the same body with an 1,800-hp 251B engine and designating it the RS-36. This version did slightly better than its predecessor, selling 40 locomotives to a half-dozen railroads. Though they may not have sold well initially, the railroads that bought Alco's RS-32 and RS-36 seem to have liked them, as they proved to be cheap and reliable. Five are still in service today on short lines and excursion railroads.

Once over. Our sample model is decorated for the Norfolk & Western, an RS-36 that started out life on the Nickel Plate Road. The model closely resembled photos of the prototype, both pre- and post-N&W purchase, published in the March/April 2005 issue of *Diesel Era*.

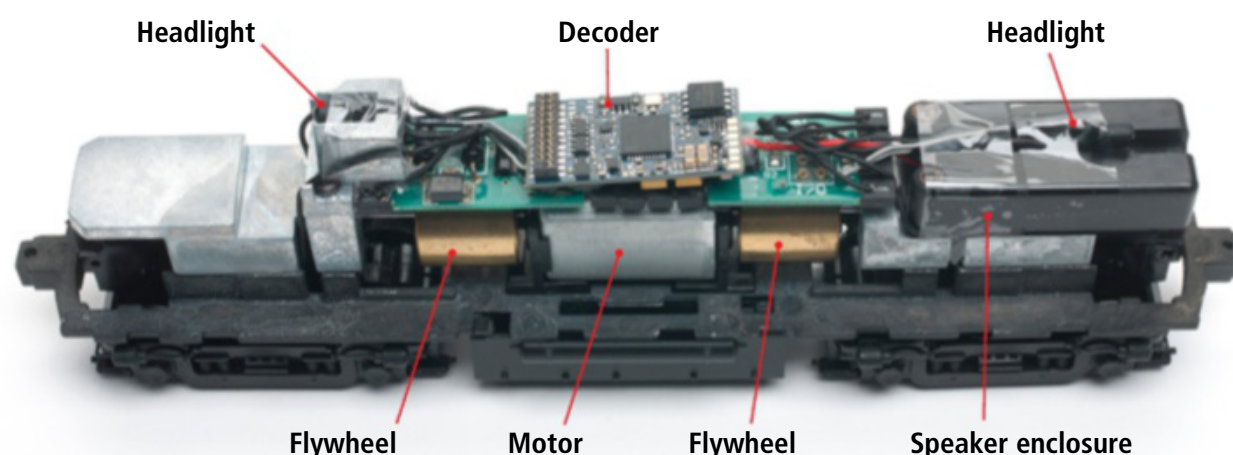
As its prototype appeared in the early 1970s to 1980s, the model is painted in a simple black dip scheme. The black paint is smoothly and evenly applied. There's a small void in the large "NW" herald where it crosses a panel seam, but other than that, the white lettering is crisp and opaque. The small warning labels are legible under magnification.

All the major dimensions I measured matched drawings published in the October 1988 issue of *Mainline Modeler*.

Atlas' model has a low short hood and the *Mainline Modeler* diagram is of a high-short-hood version, so some details differ. Most details match, though, such as the large side grills, rooftop fan, nose-mounted brake wheel, hood doors, fuel tank, and truck details.

The body shell details are finely molded, as are the truck sideframes, which have separately applied brake cylinders. The handrails are molded in black slippery engineering plastic and are slightly thicker than the prototype. Though grab irons aren't included, drill starter points are molded into the shell.

The locomotive's blackened metal wheels are in gauge, and its plastic Accumate magnetic knuckle couplers are mounted at the correct height.



Lifting off the plastic body shell involves removing the coupler draft gear boxes and disengaging plastic clips above both trucks.

PERFORMANCE CHARTS	
DRAWBAR PULL	2.4 ounces 33 HO scale freight cars
SCALE SPEED (DC)	
VOLTS	SCALE MPH
7.5 (start)	1
9	14
10	28
11	45
12	58
SCALE SPEED (DCC)	
SPEED STEP	SCALE MPH
1	1
7	15
14	39
21	58
28	62

DC and DCC testing. Our sample locomotive came equipped with an ESU LokSound Select dual-mode sound decoder. This means it will operate, with sound, on either Digital Command Control (DCC) or direct-current (DC) layouts. I tested our review sample first under DCC.

Pressing function key 8 (F8) woke up the engine with a characteristic Alco burble. The engine responded in speed step 1 with a 1 scale mph roll, perfect for switching. At speed step 28, it topped out at 62 scale mph, which is only a bit slower than the prototype's 70 mph top speed in freight gearing.

I also tested the locomotive under direct current. Though most dual-mode sound decoders take a fairly high voltage to respond under DC, the Atlas model had a relatively broad response range. At 6.5V, I heard that familiar Alco startup sequence. The engine started rolling at 7.5V at a nice, slow switching speed. The locomotive topped out at 58 scale mph at 12V – again, slower than the prototype, but fast enough for most layouts.

Sound effects under DC were limited to the engine RPM, which ramped up and down appropriately with the throttle setting. Under DCC, I was able to trigger the bell, horn, coupler clank, dynamic brake, and other sound effects, as well as control the directional lighting. Function key 8 triggered a startup/shutdown sequence when the locomotive was idle; when moving, F8 muted the engine.

I was impressed with the engine's pulling power. On our test bench force meter, the locomotive mustered 2.4 ounces of drawbar pull, which is equivalent to 33 HO scale 40-foot boxcars on straight and level track. In a real-world test on our Milwaukee, Racine & Troy

Facts & features

Price: \$259.95 (Direct-current/no sound Silver version available for \$149.95)

Manufacturer

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

Era: RS-32, June 1961 to present; RS-36, February 1962 to present

Road names: RS-36: Norfolk & Western (black and white); Apache Ry. (Bicentennial paint scheme, three road numbers); Ferrocarriles Nacional de Mexico (National Railways of Mexico); Livonia, Avon & Lakeville (one number); and Ontario Central (one number). RS-32: Central Vermont (one number), Chicago & North Western, and Lamoille Valley (chop-nose ex-Duluth, Winnipeg & Pacific RS-11, one number). Two numbers each unless noted. Both body styles also available undecorated, with or without dynamic brakes.

Features

- Accumate magnetic knuckle couplers, at correct height
- Blackened metal wheels, in gauge (all eight pick up current)
- Directional light-emitting-diode lighting
- Drill starter points for user-installed grab irons (not included)
- Dual-mode ESU LokSound Select Digital Command Control sound decoder
- Engineer and fireman figures in cab
- Five-pole, skew-wound can motor with dual flywheels
- Recommended minimum radius: 18"
- Weight: 10.4 ounces

house layout, the locomotive pulled nine 60-foot freight cars up a curving 3 percent grade without slipping. It also ran forward and backward through a ladder of no. 5 turnouts without derailling.

Outdoing its prototype. Atlas' re-released RS-36 is a solid performer, impressive in its powerful drawbar pull, smooth low-speed operation, and authentic sound effects. With a few added details, like wire grab irons, uncoupling levers, and lift rings, it could be a real standout on a 1960s-1980s HO scale layout. Its prototype might not have impressed the railroading world, but Atlas' model shouldn't have that problem. – Steven Otte, associate editor

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BRO2284 UP SD40-2 #3137	\$150.00
BRO2334 SF EMD E6B #15A	\$150.00
BRO2359 NYC E8 A #4046	\$175.00
BRO2380 UP EMD E7B #929B	\$165.00
BRO2392 D&RGW EMD SD7 #5301	\$165.00
BRO241X 2/3 NKP SD9 Asst. #s	\$165.00
BRO2441 Santa Fe C30-7 #8018	\$150.00
BRO244X 4/5 Conrail C30-7 Asst. #s	\$150.00
BRO245X 0/1 NS C30-7 Asst. #s	\$150.00
BRO2454 UP GE C30-7	\$150.00
BRO270X 6/7 BNSF SD40-2 Asst. #s	\$165.00
BRO271X 0/1 CN SD40-2 Asst. #s	\$165.00
BRO2713 CSX SD40-2 #2439	\$165.00
BRO2718 UP SD40-2 #3056	\$165.00
BRO2844 BNSF SW1500 #3465	\$145.00
BRO2847 Conrail SW1500 #9532	\$145.00
BRO2863 US Steel SW1500 #150	\$145.00
BRO292X 0/1 Santa Fe 4-6-2 Asst. #s	\$195.00
BRO293X 3/7 NYC 4-6-2 Asst. #s	\$195.00
BRO332X 6/7 UP SW1500 Asst. #s	\$140.00
BRO3337 CSX SW1500 #1125	\$140.00
BRO406x 3/4 NYC BF-16 Sharknose AB Asst #s	\$225.00
Operating Water Towers w. Sound	\$84.00
6090 Red Unlettered; 6091 Brown Unlettered; 6092 AT&SF	
6093 NYC; 6094 PRR; 6095 UP; 6096 City of Abilene	

MTH HO

MTH8520160 BNSF GP38-2 DCC Ready	\$79.99
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Model Railroader August 2019

MRC Prodigy Express² DCC system

Are you looking for a starter Digital Command Control (DCC) system? Then head over to your local Model Rectifier Corp. (MRC) retailer and check out the Prodigy Express² system.

Inside the box. The Prodigy Express² is a complete system. The set includes a Prodigy Express² throttle, called a cab in MRC's literature. It features a backlit display 2 1/8" wide x 1" high. The cab is the same size and shape as the Advance² and Prodigy Elite cabs, except that some of the buttons have different functions.

For example, you can't operate accessory decoders from an Express² throttle. However, function buttons F10 through F13 have their own buttons instead of having to use the shift key to access them.

Other buttons at the top of the cab include the LOCO button for choosing a locomotive and the PROG button for choosing either the programming track or programming on the main.

The 10 function buttons are in the middle of the handset, with 0 at the bottom. This key is also labeled with a light bulb icon, as this is the common function button for locomotive headlights.

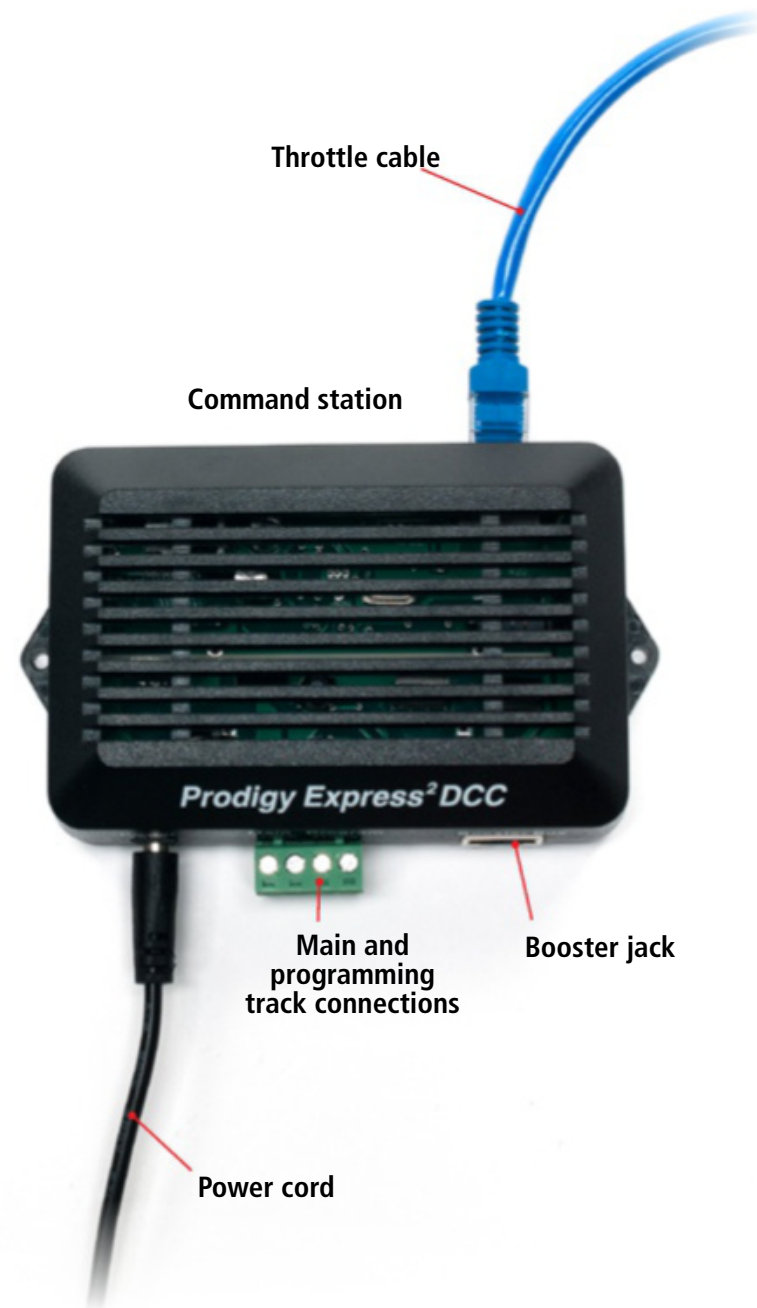
To the left and right of F0 are buttons labeled DEL -1 and +1 ENTER. In addition to deleting or selecting an entry, they also advance or retard the throttle by one speed step. The next row of three buttons are, from left, PROG CV ON MAIN, DIRECTION, and RECALL. PROG CV ON MAIN allows you to easily access configuration variables (CVs) while running a locomotive so you can see the effect of programming changes. RECALL allows you to select a locomotive you've run previously. DIRECTION, of course, allows you to change your locomotive's direction.

The last row of buttons are labeled SPD STEP, STOP, and SHIFT. SPD STEP allows you to choose between 14, 28, and 128 speed steps. The default setting is 28. STOP brings your train to an immediate halt. Holding down the button stops every train on the layout. SHIFT allows you to access higher functions (F14 through F28).

Below the buttons is a 1 1/16" diameter speed control knob. The handset



Throttle, or cab



Throttle cable

Command station

Main and programming track connections

Booster jack

Power cord

measures 3 1/8" x 7 1/2" x 3/4" thick and weighs 5.3 ounces.

The command station is 2 7/8" x 5" (including the mounting tabs) x 1 5/8" thick. The box itself is 4 5/16" wide.

On the back are a barrel jack for the power supply, two screw terminals each for the main track and program track, and an eight-conductor booster bus jack for adding additional power boosters. On the front are a cab jack, a pilot light, and a link light, used to check the connection between the cab and command station.

Also included is a wall-wart type 2A power supply with a 61"-long cord, and a 55"-long, eight-conductor cable to connect the cab to the command station. The system has enough power to handle about four DCC-equipped HO engines.

Simple set up. After opening the box, I connected two track feeder wires to the Prodigy command station, plugged the cord into the cab jack and the throttle, then plugged the DC adapter into the power jack and a wall outlet.

Once the pilot light came on and the backlit throttle illuminated, I was set to go. I pressed the LOCO button on the throttle, entered the decoder address of the locomotive with the number pad, then pressed ENTER, and I was ready to run a train.

Even if you've never worked with a DCC system before, you could probably get this far just by turning over the command station and throttle – all of these instructions are printed right on the back.

In fact, the throttle gives you just about every instruction you'll need to run and program trains in simple, step-by-step format. Need to program a locomotive? It's all there. Want to create a consist of multiple locomotives? Flip the throttle and follow the steps. The instructions even tell you how to set up your throttle with a new address when you expand your system to add more operators.

If expansion is on your mind, the Express² can accommodate that. To add more cabs, you need to add Extension Plates. The Express² system can handle



The Prodigy Express² command station requires only a few connections. This side shows the Cab Jack for the throttle.

up to six cabs by itself. Special powered Extension Plates are available directly from MRC for every five cabs you want to add beyond that, for a total of 20 cabs.

If you need more power for your layout to run more trains, you can add Prodigy DCC boosters, and for wireless control, the Wireless Conversion Set is compatible.

The Express² cab is compatible with other MRC systems as well. I connected it with the Prodigy Advance² system on the *Model Railroader* staff's Wisconsin & Southern layout and ran trains with no

problem. Likewise, Advance² and Prodigy Elite cabs worked with the Express² command station. Advance² or Prodigy Elite cabs are required to operate accessory decoders.

The Express² system covers all of the basics, though. With its separate main track and programming track outputs, it's easy to set up a dedicated programming track. This allows you to read back configuration variables on your decoders and takes the worry out of programming decoder addresses, since the programming track can be electrically isolated from the rest of your layout.

Another advantage of a programming track is its low-power operation. If you've installed a new DCC decoder, the low power output means you likely won't damage a decoder that's been incorrectly installed.

With its compact size, simple setup, and easy-to-follow instructions, plus the capability for expansion, the MRC Prodigy Express² might be just the DCC system you're looking for. – *Eric White, associate editor*

Facts & features

Price: \$229.98

Manufacturer

Model Rectifier Corp.
360 Main St., Suite 2
Matawan, NJ 07747
www.modelrectifier.com

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System:

- 13.8V, 2A power supply
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- Program on the main or on the program track
- Recall up to 25 locomotive addresses
- Separate terminals for main line and programming tracks
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- Two- or four-digit addressing (9,999 addresses available)

Handheld throttle:

- 14, 28, or 128 speed steps
- 28 functions
- Backlit display

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QUICKLOOK

ExactRail HO scale GSI 53'-6" bulkhead flatcar

Price: \$54.99

Manufacturer

ExactRail

525 E. 1860 S.

Provo, UT 84606

www.exactrail.com

Era: 1966 to present (depending on paint scheme)

Road names: Rock Island (six road numbers); Burlington Northern (18 numbers); and Chicago, Burlington & Quincy (nine numbers).

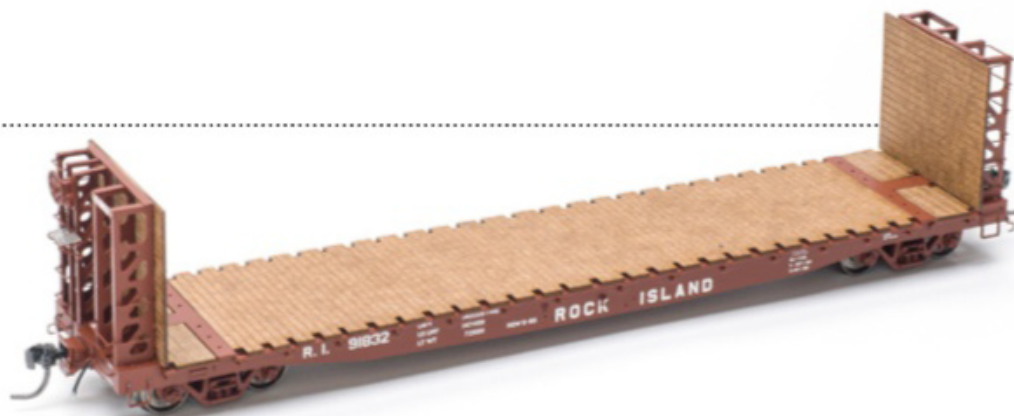
Comments: A General Steel Industries (GSI) 53'-6" bulkhead flatcar is the latest addition to ExactRail's HO scale Platinum line. The plastic model features American Steel Foundries 70-ton Ride-Control trucks, factory-installed and painted wire grab irons and uncoupling levers, and a laser-cut modeler-installed deck and bulkhead ends.

Our sample is decorated as Rock Island no. 91832, part of the railroad's 91825 through 91874 series built by GSI in 1966.

The ExactRail car is offered with prototype-specific truck centers (42'-0" or 43'-6") and detail placement. The Rock Island model accurately features end-of-car cushioning detail.

ExactRail has a tutorial video on its website that shows how to add the laser-cut deck and bulkhead ends. I attached the deck with the recommended cyanoacrylate adhesive. I used Aleene's Tacky Glue on the bulkhead ends, which also worked well.

The details and lettering on the model follow a prototype photo in the *Rock Island Color Guide to Freight and Passenger Equipment* by Steve Hile, David H. Hickcox, and Todd Miller (Morning Sun Books Inc., 1996). The dimensions match prototype drawings in the 1966 *Car and Locomotive*



Cyclopedia of American Practice (Simmons-Boardman Publishing Corp.)

The model weighs 2.8 ounces, which is 1.9 ounces too light per National Model Railroad Association Recommended Practice 20.1. There's room under the car to add extra weight. The 33" metal wheelsets are properly gauged. The Kadee scale coupler was at the correct height on the B end. The A end coupler was .030" too high. However, this didn't have a negative impact when I operated the car on our Wisconsin & Southern layout.

Prototype-specific details plus accurate painting and lettering equals another winner for ExactRail. The Platinum line HO scale GSI 53'-6" bulkhead flatcar will certainly be a standout whether in a train or spotted at an industry. – Cody Grivno, Group Technical Editor

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Realistic, prototypical operation was a part of this hobby even before *Model Railroader* began 85 years ago. I'm certainly an operations devotee; I wouldn't be writing this column if I weren't. I work to make "On Operation" appeal to all, from modelers new to this side of model railroading to those who can recite operating rules better than I can.

Our hobby's diversity is remarkable. Some of us are master craftsmen and -women scratchbuilding locomotives that run like Swiss watches. Others are talented artists creating scenes so realistic that photographs fool us into thinking we're looking at the real thing. Programmers write code and imagineers design track plans and develop novel construction techniques. No matter our chosen specialties, they all started with a beginner's first hesitating steps.

It's natural to be wary of trying something new. A friend who is a very prominent model railroader admitted that while he's been serious about the hobby for 25 years, he's never participated in an operating session. "Imagine if you've read every pamphlet the Division of Motor Vehicles offers and subscribed to *Road & Track* for years, but have never driven a car," he said.

There's no better place to obtain a driver's permit than the Operations Special Interest Group (OPSIG). Its focus is realistic prototype operation

that transforms a model railroad layout into a miniature transportation system, as purposeful as if it really were vital to a national economy.

Past president Phil Monat explained to me that OPSIG, an independent nonprofit organization, enjoys a good partnership with the National Model Railroad Association (NMRA). This group organizes operating sessions that have become a popular feature of NMRA National Conventions. Thirty percent of conventioners, a figure so high it startles me, give Special Interest Groups as the reason they attend, and OPSIG draws the most. Jim Allamian, who has served OPSIG in various roles for more than 20 years and is now its treasurer, gave me figures showing that the group's membership has surged to more than 1,500, doubling since 2007.

A visit to the group's website, www.opsig.org, shows how much OPSIG offers. *The Dispatcher's Office* is a quarterly that contains much prototype information and describes how different layout

owners adapt it to their operating sessions. OPSIG boasts two official publications, *19 East*, *Copy Three* and *A Compendium of Model Railroad Operations*. *19 East* is a thorough treatment of timetable-and-train-order methods. The compendium includes chapters covering topics from designing layouts with operation in mind to freight, passenger, and yard opera-



Model Railroader contributing editor Tony Koester (back left) and other operators join in the amusement as Jim Schweitzer (front) and Ted Pamperin chuckle over their cornfield meet during an operating session on Tony's HO scale Nickel Plate layout. David Ramos photo

tion to signaling and hosting an operating session.

The OPSIG site has a bibliography of more than 300 articles that have appeared in various model railroad publications. Its drop-down menu lists links to various online resources. There's a directory of more than 40,000 industries served by rail with the commodities they shipped and received, invaluable to those who enjoy super-detailing their operations with waybills and switch lists.

No matter how much you study, as my friend pointed out, you need to get behind the wheel. You don't need to own a car; it's easy to get started on someone else's layout. Many solid operators began this way.

Callboard is an OPSIG feature that lists more than 180 layouts whose owners are open to visits. Many of them also accept guest operators, even those with little or no experience, at op sessions. Courtesy demands a call

ahead to ask to be invited; there might not be room. Callboard is a benefit of OPSIG membership, as low as \$10 per year.

There's another, very human dimension to all this: the crew. Layout owners host an operating session, just as they invite friends to a party. Just as it is at the office, there's plenty of socializing while the work gets done. This includes good-natured ribbing when someone suffers a lapse, as shown in the photo above. Cover-ups are a special skill that many railroaders enjoy, but these two didn't get away with this one. Their broad smiles prove that model railroading is fun!

I doubt I'll ever paint a superb backdrop or develop a new smartphone app, but you never know; I just might befriend someone who discovers hidden talents within me. Meanwhile, find friends with whom to operate. Check out OPSIG's Callboard for layouts near you. Try it. You might like it. 



THERE'S NO BETTER PLACE TO OBTAIN A DRIVER'S PERMIT THAN THE OPERATIONS SPECIAL INTEREST GROUP (OPSIG). ITS FOCUS IS REALISTIC PROTOTYPE OPERATION.
— JERRY

Central Vermont 2-8-0 Consolidation no. 461 stops at the coal tower in New London [Conn.] Yard to fuel up for the day's work. John Paganoni of Manassas, Va., detailed the HO scale New England Rail Supply brass import locomotive by adding storm curtains, tender chains, and other details, as well as a Digital Command Control decoder. He also scratchbuilt the coal tower based on prototype measurements. Mat Thompson photo









A Seaboard Air Line run-through freight led by a pair of Electro-Motive Division GP7 diesels passes the depot at Ferguson Wharf. The action takes place on the HO scale layout built by Bob Warren of Dunfries, Va. Bob's Winchester, Fredricksburg & Potomac is a freelanced Class 1 railroad running from the Appalachians to the Virginia tidewater. Paul Dolkos photo

Southern Pacific 2-10-2 no. 3690 leaves Ellis on point of train X3690. Paul Doggett of Bury, Lancashire, U.K., models the SP in the early 1950s in HO scale. Paul detailed, renumbered, and weathered the HO scale Sunset brass locomotive. He also took the photo.

Sometimes, a railroad has to improvise. A steam excursion is on its way, so the Deutsche Bundesbahn (German Federal Ry.) has stationed a crew with an excavator crane and a gondola of coal along a passing track for refueling. Thorsten Ströver of Detmold, Germany, built the 1:45 (near O scale) models and photographed the scene. The Lenz gondola and the Wespe excavator are weathered with various PanPastel colors.



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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.

Send your submissions to: *Model Railroader* — Classifieds 21027 Crossroads Circle, P.O. Box 1612 Waukesha, WI 53187-1612 Toll-free (888) 558-1544 Ext. 440 Fax: 1-262-796-0126 E-mail: onlineclassads@kalmbach.com

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

Schedule of Events

- AR, JACKSONVILLE:** Train Show, Jacksonville Community Center, Municipal Drive. August 24-25, 10:00am - 4:00pm. Vendors, Layouts, Contests. Admission \$7.00, 12 and under free w/adult. Contact RAIL & SPRUE Hobbies, 1200 John Harden Drive, Jacksonville, AR, 72076. 501-982-6836, or railandsprue@aol.com
- CA, SAN CARLOS:** European Train Enthusiasts (<http://www.ete.org>) EUROWEST at Hiller Aviation Museum, San Carlos Airport, 601 Skyway Road, Zip: 94070. July 27-28, 2019, Saturday 10:00am-5:00pm and Sunday 10:00am-4:00pm. Layouts, clinics, vendors, raffle. Admission (<http://www.hiller.org>) includes Air Museum, free parking. Contact Dave Cowl: eurowest@ete.org
- FL, PINELLAS PARK:** Regal Railways Presents a Toy Train, Collectible and Hobby Show/Sale. Lopez Hall, 7177 58th St. North, Saturday, August 24, 2019. 9:00am-2:00pm. Adults \$5.00. Vendors, videos & operating layout. Serving lunch items. Contact Joe: 727-244-1341 or visit www.regal-railways.com for more information.
- GA, ATLANTA:** 57th ATLANTA MODEL TRAIN & RAILROADIANA SHOW. Infinite Energy Center, 6400 Sugarloaf Parkway, Duluth, GA 30097. Saturday, August 24, 2019. 9:00am-4:00pm. Adults: \$9.00, under 12 free. Operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954 or email: rrshows@aol.com
- IN, FORT WAYNE:** Garrett Model Railroad Club & RxR Mania - Model Train & Toy Show and Sale at 2000 N. Wells Street, Zip 46808. (Old YWCA) Saturday October 19, 2019, 9:00am-3:00pm. Adults \$5.00, under 12 free. \$20.00 per table, 5+ tables \$15.00 each. Info: www.RxRMania.com or 260-715-2519.
- KS, KANSAS CITY AREA:** Turkey Creek Division Train Show/Swap Meet. SM North HS cafeteria, 7401 Johnson Dr. Overland Park, Zip 66202. Saturday, July 27, 2019, 8:00am-3:00pm. Layout tours 3:30pm-8:30pm. Vendors registrants contact Larry Diehl 816-804-0152, ldiehl066@gmail.com or www.tcnmra.org

- MS, GULFPORT:** 615 Pass Road, Zip: 39507. November 9-10, 2019. Saturday 9:00am-5:00pm, Sunday 10:00am-5:00pm. 2 Days with 20,000 sq. ft. Indoor Display Space, 20,000 sq. ft. of Outdoor Trains. www.MCMRCM.org, 228-284-5731.
- OH, FOSTORIA:** 18th Fostoria Rail Festival, 1001 Park Avenue, Zip 44830. Saturday, September 28, 2019, 10:00am-4:00pm. Admission: \$4.00, children 10 and under free w/adult. Information: Fostoria Rail Preservation Society, 419-435-1781, EllenGatrell@gmail.com, www.FostorialronTriangle.com, Fostoria Rail Park Facebook
- OH, GALION:** Friends Of The Big 4 Depot Train Show & Swap Meet. August 24, 2019, 10:00am-4:00pm. St. Joseph Activity Center, 115 N. Liberty St. Admission \$5.00, 12 and under FREE. Vendor tables, Videos, Model Train Parts, Swap Meet & Flea Market. Contact Dave Moore 419-462-5035.
- OH, PAINESVILLE:** Railroad Memorabilia Show, Painesville Railroad Museum (Painesville Depot), 475 Railroad Street, Zip Code: 44077. Sunday, August 25, 2019, 10:00am-5:00pm. 216-470-5780 Email: prrm@att.net: www.painesvillerrailroadmuseum.org
- PA, LANCASTER:** Brass Expo & Customer Craftsman Models 2019. Wyndham Lancaster Resort & Convention Center (Lancaster Host), 2300 Lincoln Hwy. E (Route 30), Lancaster, PA. November 23-24, 2019. www.brassexpo.com/ 724-285-3090
- WA, CHEHALIS:** Lewis County Model Railroad Club, Annual Fall Model Railroad Swap Meet and Show. Southwest Washington Fair Grounds, Blue Pavilion Building, 2555 N. National Ave. October 12-13, 2019. Saturday, 10:00am-4:00pm and Sunday, 10:00am-3:00pm. Admission \$5.00. Free parking Contact information: Ted 360-985-7788 or TedsTrains@LewisCounty.com
- WA, PORT ANGELES:** North Olympic Peninsula Railroaders' 20th Train Show & Swap Meet. Clallam County Fair Grounds. September 21-22, 2019. Saturday 10:00am-5:00pm, Sunday 10:00am-4:00pm. FREE Admission & Parking. Several operating layouts. Scales Z to G & beyond welcome. Tables \$20.00 Contact stevenstripp@juno.com

Classifieds

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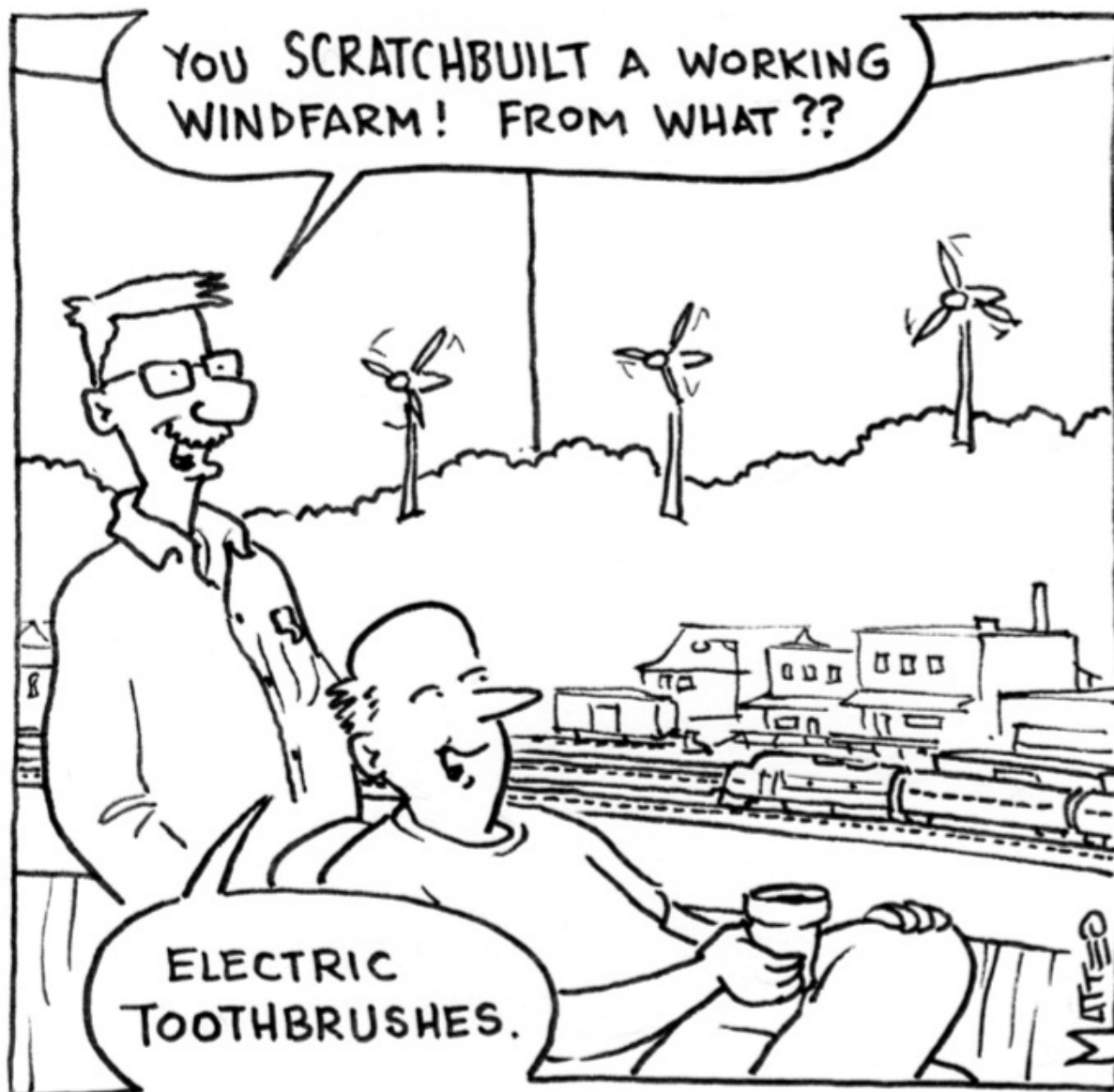
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'The fishing rod, not the fish'

Singer and composer Yanni (Yiannis Chrysomallis) once said he doesn't want problems solved for him; rather, "I want the fishing rod, not the fish." That brings to mind the concerns about ready-to-run or ready-built vs. kits and scratchbuilding.

I can't take sides in this debate, as I remain an avid structure scratchbuilder or kitbasher, as the occasion demands. But I also like to be able to trade money for time by buying today's exquisitely detailed locomotives and rolling stock.

Structures vs. rolling stock: That's where I draw the line. It's on either side of that line that realism is gained or lost.

Look at it this way: Most types of locomotives and freight and passenger cars served in some capacity on many railroads. Freight cars roamed the continent, as did some passenger cars, especially Pullmans. United States Railroad Administration steam locomotive designs found homes on myriad railroads, and diesel models are ubiquitous, save for some relatively minor details.

To be sure, plunking a Union Pacific 4-8-8-4 Big Boy down in Appalachia is going to raise eyebrows, but not so for its not-so-little brother, the 4-6-6-4 Challenger, which saw yeoman service on the Clinchfield.

So, using relatively standard models for objects that rode on wheels is fair game. Not so with structures, however.

I've written before about my concerns with building one of Fine Scale Miniature's classic kits for, say, John Allen's two-stall wood enginehouse. It was a handsome structure on the Gorre & Daphetid, and George Sellios' HO



Scratchbuilding and kitbashing ensure uniqueness and authenticity – here a modified Monon Historical Society freight house kit and Frank Hodina's scratchbuilt Nickel Plate-Monon depot at Linden, Ind., on Tony's HO railroad. Tony Koester photo

craftsman kit tribute to John was a quick sellout. I'm sure quite a few scratchbuilt renditions of that structure have also graced model railroads around the world.

Few of us are modeling the Gorre & Daphetid, however. (For newcomers, the G-D Line, pronounced "gory and defeated," harks back to the days when model railroads were often given tongue-in-cheek names. John later said he regretted using the name, but by then it was deeply embedded in the model railroad world's consciousness.) So for the rest of us, using that building immediately marks our efforts as "freelancing." Prototype modelers are therefore unlikely to find a use for that kit. Outright freelancers very well might.

The risks they thus incur are twofold: First, their model-building efforts will inevitably be compared to those of the Master of Monterey, John Allen, or his apt student, George Sellios. The air up there is rarified indeed. Second, upon seeing the structure, the knowledgeable

viewer will think "John Allen [or FSM] enginehouse," not the Danville & South Eastern's enginehouse at Middlebury, Ill. (or wherever your freelanced railroad's engine facilities are located). If your goals are to impress visitors with your modeling prowess, fine; if you're trying to convince them that the D&SE might have existed, you just took a hit.

Which brings us back to Yanni and scratchbuilding.

From what I see and read, scratchbuilding isn't as popular as it once was. I can think of many reasons for that, including 1) better kits and ready-to-use models and 2) less time. Maybe less-steady hands and aging eyes are concerns, too.

We have to play the hand we're dealt, but let's not give up too easily. I just finished

scratchbuilding the most difficult structure I've ever attempted, and – shaky hands and all – I'm happy with the results. This is perhaps the best time in model railroad history to scratchbuild, as we have so many materials and detail parts. Despite some comments I've heard to the contrary, I can tell you that *Model Railroader* welcomes articles on scratchbuilding – not one-off monsters like the one I tackled but those that offer broader lessons and result in models of more general interest.

So, like Yanni, I highly recommend a "fishing trip" in the form of a modest scratchbuilding project, one that results in something unique for your railroad that helps anchor it in time and space. The fishing has never been better. **MR**



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New
Release!

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ES44AC "GEVO" Locomotives Freight's Finest Evolution

New for 2019 - Kato USA is re-releasing the popular N Scale ES44AC "GEVO" locomotive in BNSF, Union Pacific, and Canadian Pacific paint schemes with brand new road numbers! Expand your freight fleets with these reliable runners, now being offered as standard DC (Analog) engines and with **Kato-installed Ready-to-Run DCC and even DCC and Sound via Special Order***!

Looking for some rolling stock? The BNSF ES44AC, shipping in June, is a perfect match for the also-available **Bethgon Protein Gondolas**! These specialized cars are used to run high-priority feed trains on the BNSF lines across the Southwestern United States, and will make an excellent complement to modelers' existing intermodal or freight consists!

* Contact your local hobby shop to reserve your sound unit from Kato USA Directly.



BNSF "Swoosh" Paint
An ideal matchup for Kato's
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Runs feed trains all across the Southwestern
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Item #	Description	MSRP
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#176-8933	N GE ES44AC Union Pacific #5467	\$120
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ES44AC Locomotives also available with Pre-Installed Train Control Systems DCC!

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#176-8932-DCC	N GE ES44AC Union Pacific #5380 w/ DCC	\$190
#176-8933-DCC	N GE ES44AC Union Pacific #5467 w/ DCC	\$190
#176-8934-DCC	N GE ES44AC Canadian Pacific #8700 w/ DCC	\$190
#176-8935-DCC	N GE ES44AC Canadian Pacific #8743 w/ DCC	\$190

Protein Gondolas are a perfect pairing with this new run of ES44AC locomotives!

#106-4650	N Bethgon Protein Gondola BN 8-Car Set #1	\$155
#106-4651	N Bethgon Protein Gondola BN 8-Car Set #2	\$155
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#106-4653	N Bethgon Protein Gondola SBTX 8-Car Set #2	\$155

Kato's Protein Gondolas come eight to a package and have removable covers. The Canvas topper can be swapped out with available coal loads (sold separately) to switch the cars between feed and coal service on your layout as you see fit!