

# Model Railroad Hobbyist magazine™

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EMBEDDED  
Edition

The model-trains-video.com mediaZine

Sep/Oct 2010

## Lessons in Passenger Car Modeling

Creating special passenger equipment

Visit Dave Clune's On3  
Cascade County Narrow Gauge layout

**ZIP texturing - resurrected!**

**IN DEPTH: Kitbashing a U18B - part 2**

**Modeling 22 floors up!**

**And much more ... *inside!***







**Front Cover:** Matt Snell presents insights he's learned to better model passenger cars. This issue Matt models a Conrail business car and describes his overall techniques on video. Next issue, Matt does two more cars and we give 3D click-n-spins of all 3 cars as a recap.

ISSN 2152-7423

#### Editorial Staff

Joe D. Fugate, Publisher  
Charlie Comstock, Layouts and media editor

#### Columnists

Ryan Andersen, New media  
Richard Bale, News and events  
John Drye, N scale  
Lew Matt, Narrow gauge and shortlines  
Marty McGuirk, Prototype modeling  
Les Halmos, Modular railroading  
Tim Warris, Trackwork

#### Special Correspondents

Jim Duncan, Layouts and operations  
Byron Henderson, Layouts and track planning

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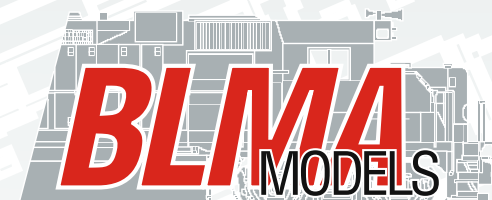


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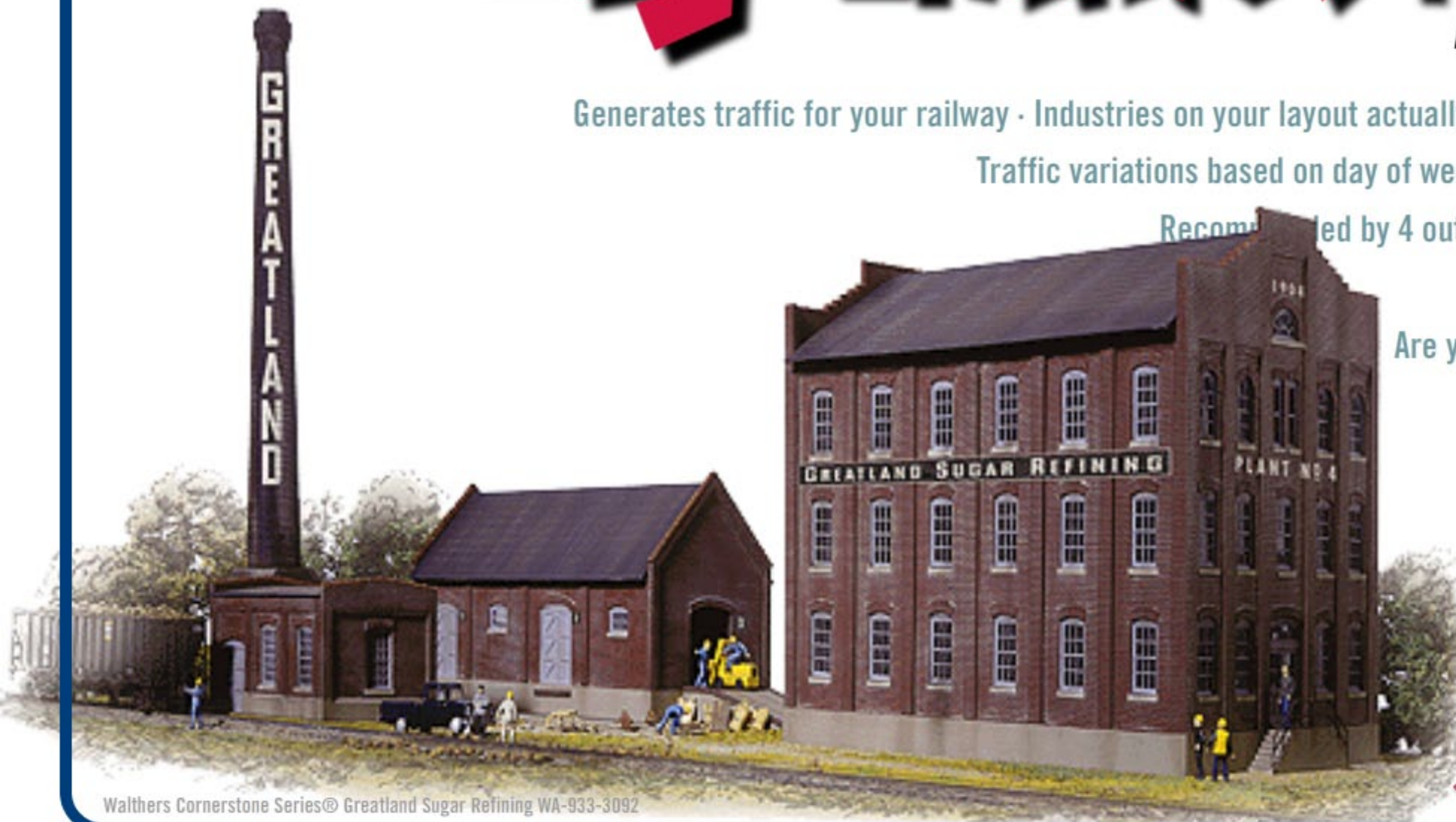
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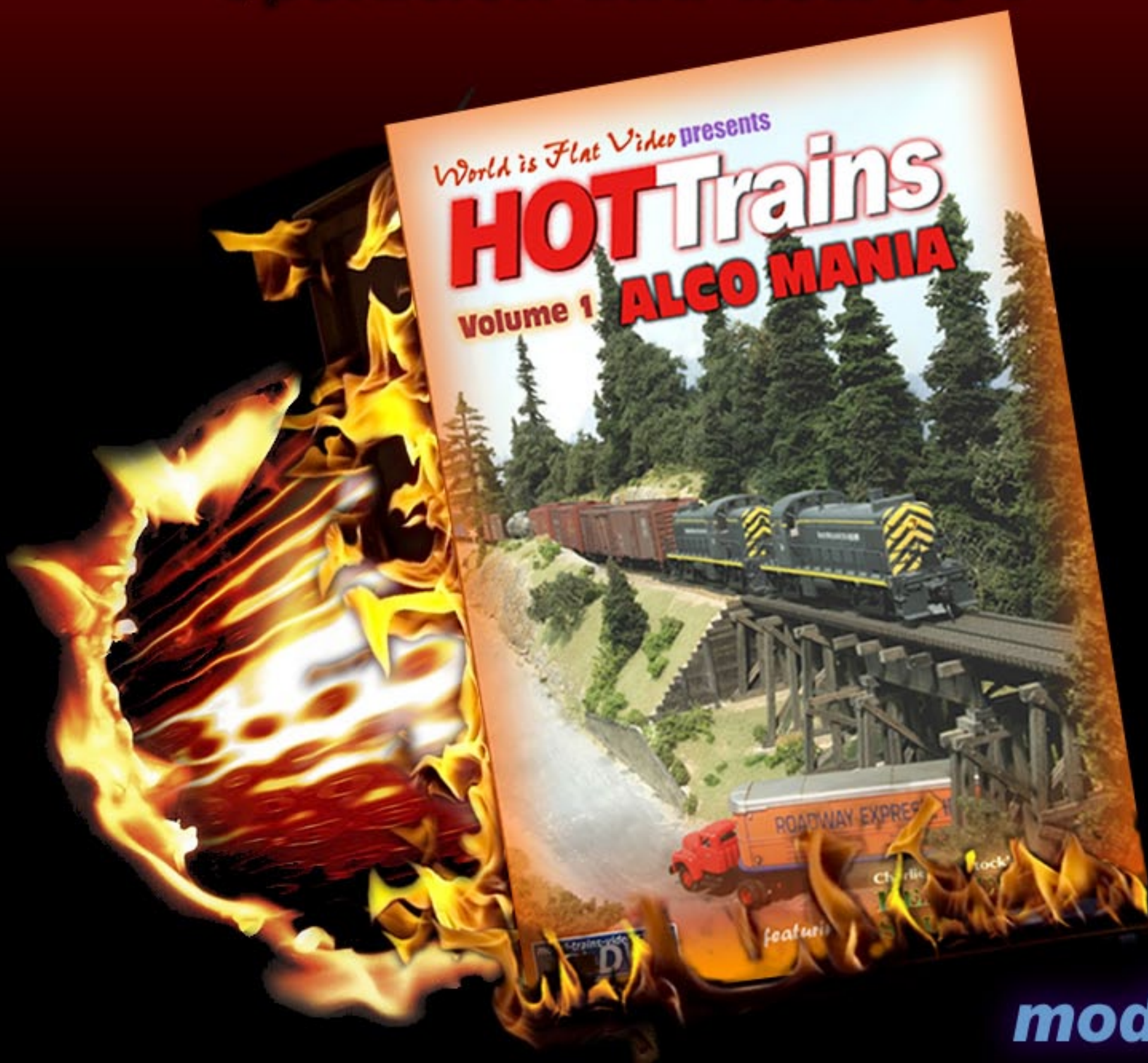
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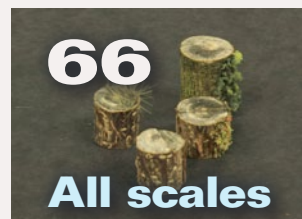
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## About the Publisher



**Joe Fugate** is the featured expert in many [Model-Trains-Video.com](#) videos, and he's also the founder and publisher of **Model Railroad Hobbyist Magazine**.

To learn more about Joe, [click here](#).

## PUBLISHER'S EDITORIAL: The new MRH Podcast

### Musings from the MRH founder



### Modelers plugging in and connecting – and not just with a throttle bus ...

**H**ere at Model Railroad Hobbyist, our passion is to give you, our fellow model railroaders, lots of useful free model railroading media via the internet. Our new podcast is one more example of this passion.

### A Podcast?

The MRH podcast is a free “internet radio program” for model railroading. Most people use iTunes and download the audio podcast onto a mobile i-device like an iPod, iPhone, or iPad. The name “podcast” suggests you need an iPod to listen to it – but that’s not so.

Anything that can play .mp3 audio files will work – any MP3 player or even your computer that you use to read MRH can also download and play a podcast.

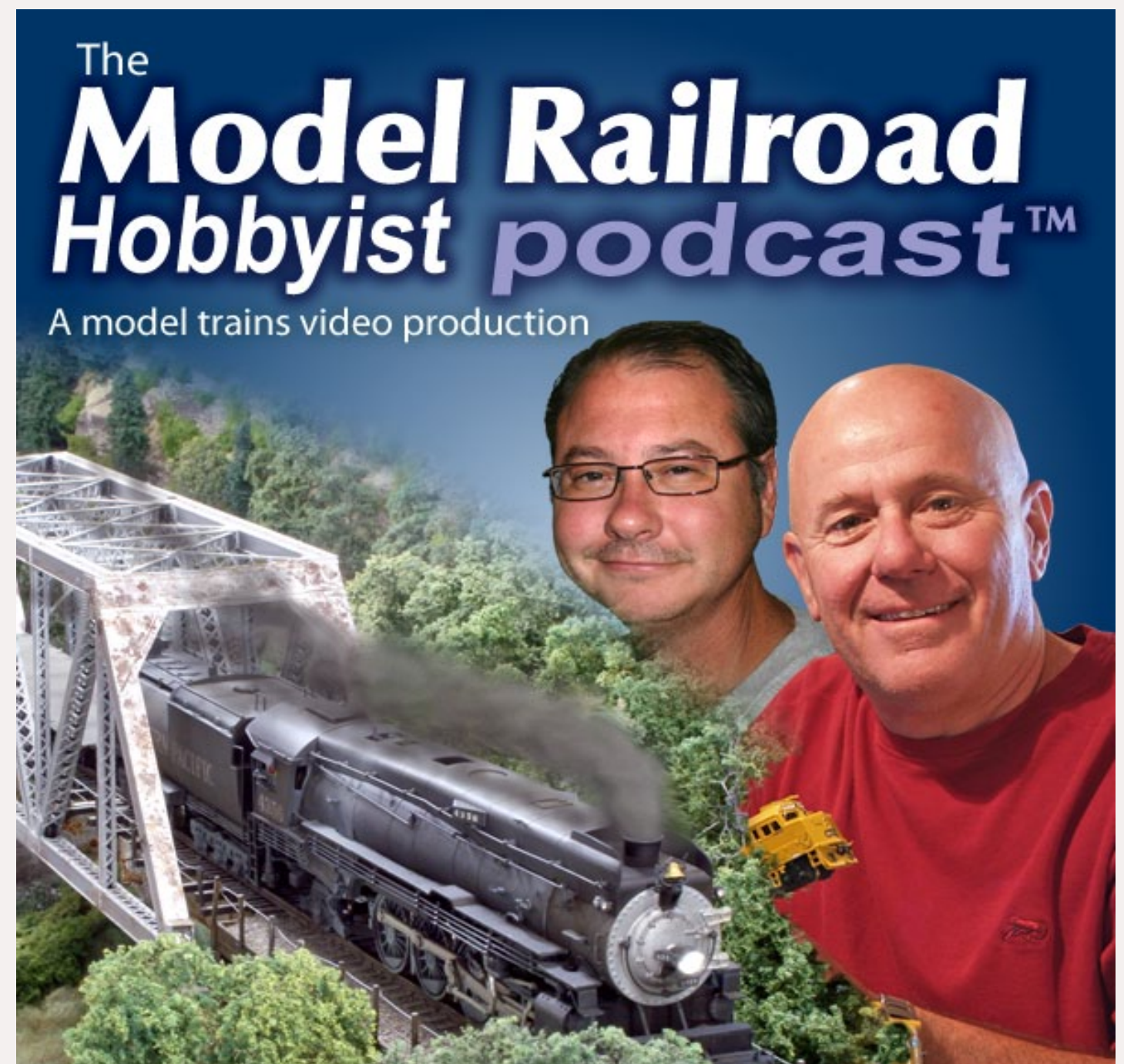
Podcasting veteran Ryan Andersen has teamed up with model railroader Paul Gillette and the two co-host the

MRH podcast that’s associated with each issue of MRH.

### Our Show Format

We coordinate each MRH podcast to come out shortly after an issue of the magazine is released, and we aim to have guests on the show that enhance and expand on what’s in that issue of the eZine.

Most typically, we’re doing a 30 minute interview with the modeler who is our cover story for the issue, delving into more details on what they’re doing. As Model Railroad Hobbyist, it’s our belief that the “stuff” of the hobby by itself does not represent the complete story. We feel the most interesting part of the hobby is what the modeler is doing with the “stuff”.





So the podcast delves more into our cover story modeler's hobby activities in addition to their cover story. More of the back story about that modeler and their specific approach to the hobby, if you will. We learn more about the person and we hope also pick up some new insights about how to do the hobby, either in approach or in specific tips and techniques.

We also introduce you to one of our sponsoring advertisers and their product line, using a talk-show format. We expect our listeners/readers will expand their knowledge of what's possible in the hobby by leaps and bounds because of this segment.

And finally, we introduce you to one of the MRH staff by digging more into their history in the hobby and learning more about their hobby passions. You get to see the MRH staff as real live modelers who have a passion for doing the hobby, not as staff who have a job writing about the hobby.

## iTunes

By far the largest source of Podcast media, iTunes is Apple Computer's free media distribution and playback application – and it works on both PCs and Macs. The invention and promotion of portable digital media via iTunes has revolutionized both the music and the computer media industry. In many ways, iTunes is as groundbreaking as the invention of video tapes or CDs.

We recommend you download and install iTunes on your PC or Mac if you

want to become a regular subscriber to our free podcast. You can [download iTunes from here](#).

If you want to learn more about iTunes, we recommend [this series of how-to videos on the web](#).

## MP3 Players and Smart Phones

You can also copy our Podcast to many non-Apple MP3 players and Smart Phones. For more on this, see these links:

- Getting Podcasts onto non-Apple MP3 Players: [PC options](#) or [Mac options](#)
- Getting Podcasts onto [non-Apple Smart Phones](#) (e.g., [Android](#), [Blackberry](#))

## Our Podcast RSS Feed

If you have an aversion to iTunes, you can also access our [Podcast RSS feed here](#). If you watch our [RSS Feeds for Model Railroaders video](#) (7 minutes long), you will have what you need to subscribe directly to our Podcast RSS feed and automatically get updated any time we release a new podcast.

## Tell us what you think!

So go check out our new MRH Podcast and use the comment button on this article to tell us what you think!

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## Notes from the MRH Staff

**New stuff, in this issue,  
layout lookout, bonus  
downloads, and more ...**



**Reader  
Feedback**  
(click here)



**S**ep/Oct 2010 continues our streak of bimonthly magazine production. But starting with January 2011, we're planning to go *monthly*. Now you'll only need to wait one month for your next MRH injection! How are we going to do this without killing ourselves?

To start with, each issue will have about 60% of the content of our bi-monthly issues. This may seem like we're planning to short you on content, but actually you'll get about 20% more content every two months.

We'll continue our first Monday release date for each new issue, but now every month!

## New stuff

We're happy to bring you the first article from a new author, but one that those of you who frequent the MRH forum will readily recognize. Thomas Garbelotti, also known as

Scarpia, writes about having an insanely short period of time to move his modeling environment halfway around the world to a location that is, to put it mildly, hobby shop challenged. Check out [Model Railroading 22 stories up!](#)

## In this issue

The lead story in this issue is [Lessons in Passenger Car Modeling](#) by Matt Snell. Matt has authored a number of articles for MRH and we think you'll like this one too.

## MRH online expansion

MRH has been building additional presence in several popular areas of the internet – our goal is to become your *One Stop Source* for online train information! If you've not already done so, check us out on Facebook, Twitter, iTunes, and YouTube.

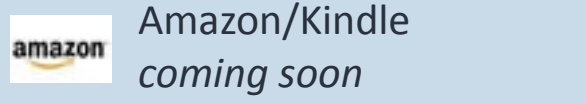
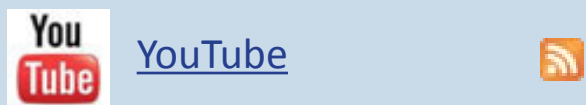
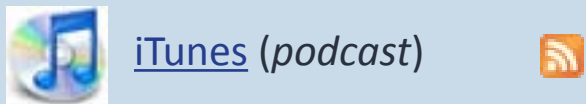
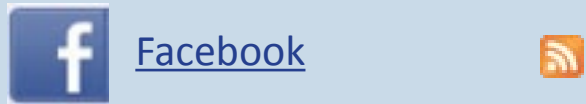
## Forever Free?

In case you're wondering, let us reiterate that Model Railroad Hobbyist is committed to staying free to our readers forever. We see a much larger income potential from an unbounded circulation over the internet than any gain we would expect from charging a cover price.

But being free to readers is only part of the formula. We must also produce content that our fellow modelers



MRH has a new presence on these well known web sites:



And yes, we want to provide these hobby answers for us all via this Forever Free vehicle we call *Model Railroad Hobbyist* magazine!

## Article Submission

Recently we've had a number of exchanges with potential authors that have involved a lot of what we call "partial submissions". What happens is something like this:

1. Potential author sends in a query asking if we would be interested in an article on a specific topic (good)
2. Then the author sends in a few pictures and a bit of text saying they can send in more if we would like (not so good).

Piecemeal submissions like this prolong the submission and approval process. Once you've sent in a brief query asking if we're interested and we say yes, please send us *everything* you have.

Otherwise, we're left guessing. If we don't have the complete package, we need to do a lot of back-and-forth to establish the complete package. We ask if you have "X" - and you say yes you do - and then we say okay please send it in as well - then we ask what about "Y" ... It doesn't take many exchanges like this and your submission ends up in a pile to be looked at later, if ever.

really need to do the hobby as well. Free junk won't attract modelers to read MRH!

To that end, what's your greatest need? Where do you experience the "most pain" in trying to do the hobby? What solutions, if you had them, would raise your enjoyment of the hobby to new heights?

Tell us about it - we want to fill that need, eliminate "hobby pain", and be your number one solution provider for taking the hobby of model railroading to new heights of fun.

Our number one passion is to help you, our fellow modelers, get the very most from the hobby.

## Issue 9 Premium Extras!

Free for the first 30 days after issue release  
(After October 5, 2010, these extras will no longer be available)

- New **UPDATED** Hot Trains series preview
- DVD-quality versions of this issue's videos
- Special money-saving advertiser coupon codes



**Click here to access**

Send us a **complete package** and then we can quickly decide yes or no.

Also, it's surprising how many authors fail to submit the entire package as per the instructions in the Authors/contribute section of our web site: [model-railroad-hobbyist.com/contribute](http://model-railroad-hobbyist.com/contribute)

If you package your submission per our guidelines, you immediately *rise to the top of the pack* because it's clear you care enough to make our job as easy as possible.

One last note - *include your name, e-mail address, and phone number on all submissions* in multiple places

- many submissions fail to include ANY author identification. We have articles in our dead file that we'd love to publish, but we don't know who sent them because there was no name or e-mail address on the submission!

## Bonus downloads

Make sure you check out the bonus downloads for this issue. The goodies include:

- DVD quality video of the videos in this issue.
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Note that the bonus downloads are only good for the first 30 days after an issue release. We provide the bonus materials to encourage early downloading of each issue. If you wait too long to download an issue, you'll miss out – so don't procrastinate!

## Write for us

We're bimonthly and headed for monthly. Our appetite for articles will become voracious as we head into next year. Articles need to come from somewhere since we can't write all of them ourselves.

Please remember, acceptance is not guaranteed. The most common

reasons for rejecting a submission are poor photography or the article isn't a topic we want to cover in the manner the author has approached it.

To increase your odds that we'll accept your article, first send us a proposal [via this link on our web site](#).

We will respond within two or three weeks and let you know if your idea is something of interest to MRH. We'll often also provide some guidelines as to approaching an article.

You've already written an article? The following is a checklist to keep in mind when submitting it:

- Include your *full name and e-mail address* in the article text.

- Include captions for all photos, diagrams, drawings, tables, and videos.
- Include a version of your document that has the images and diagrams in-line in the text if you like, but also give us a text-only version of your article.
- Write a short bio about yourself and your hobby interests. Include a recent photo of yourself.

We prefer Microsoft Word format for documents, but we also accept Open Office format. For images, send 2-3 megapixel jpegs around 1800 x 1200 pixels.

If you don't have a copy of Microsoft Word or Office, you can [download a free copy of Open Office here](#). Open

Office reads and writes Microsoft Office formatted files.

For drawings or diagrams, contact us and we'll give you some guidance of how to produce them for publication with us.

## One Evening Projects

Never written before? Don't have time to create a War and Peace length article? No problem! Try writing for our series of *One Evening Project* articles. Currently, we have *The Scenery Scene* and *The Tool Shed*. However, we're looking to expand into other areas too, such as track work, electronics, or any other project that takes an evening or afternoon to complete.



## First Looks

First Looks are not reviews – we’re not trying to tell you the good, bad, or ugly about a product. Face it, why would anyone trust a review of an advertiser’s product in a completely advertising-supported magazine?

Instead *First Looks* are a show and tell about something nifty and new often with some prototype background.

If you’re a vendor and have new stuff you’d like featured in a MRH First Look article, [contact MRH with what you have in mind](#).

## Meet the MRH Staff

MRH staff will be attending these shows in force in 2010:

- [National Narrow Gauge Convention](#)  
(St. Louis, MO) - Sept. 1-4, 2010
- [PNR Regional Convention](#)  
(Lynwood, WA) - Sept. 16-18, 2010
- [Craftsman Structure Show](#)  
(Mansfield, MA) - Nov. 10-13, 2010

## Promoting MRH

There are too many shows for MRH staff to attend them all in force! We’re looking for volunteers to help promote MRH at shows.


We’re looking for modelers willing to do any (or all) of the following:

- Put flyers and CDs out on the free handouts table.

- Help staff a table.
- Help us get flyers and CDs in the registrant bags (if the event has such a thing)

If you’re willing to help staff a table, we’ll pay for the table and pay the entry fee for you and any other reliable volunteers you can get to help you at the table.

We’ll also give you an official MRH shirt to wear at the event (yours to keep), and send you promotional materials with guidelines on how to best use them.

Just click here if you’re [interested in helping out at a show!](#) 

# Derailements

humor (allegedly)



Paul Mack photo

A prototype modeler’s worst nightmare!

Why do ducks have flat feet?

From stomping out burning forest fires.

Well then, why do elephants have flat feet?

From stomping out burning ducks.

Why do train men have flat feet?

Actually it’s a different part of their anatomy that gets flat...

How do you know when a conductor is concerned about his weight?

When he puts “lite” markers on his caboose.

Got a good bit of humor? If you’re the first to [submit it](#) and we use it, it’s worth \$10!



# The **Model Railcast Show**

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Ryan & Tim at Hartford 2009

**(Show hosts)**

## Model Railroad Hobbyist *magazine*™

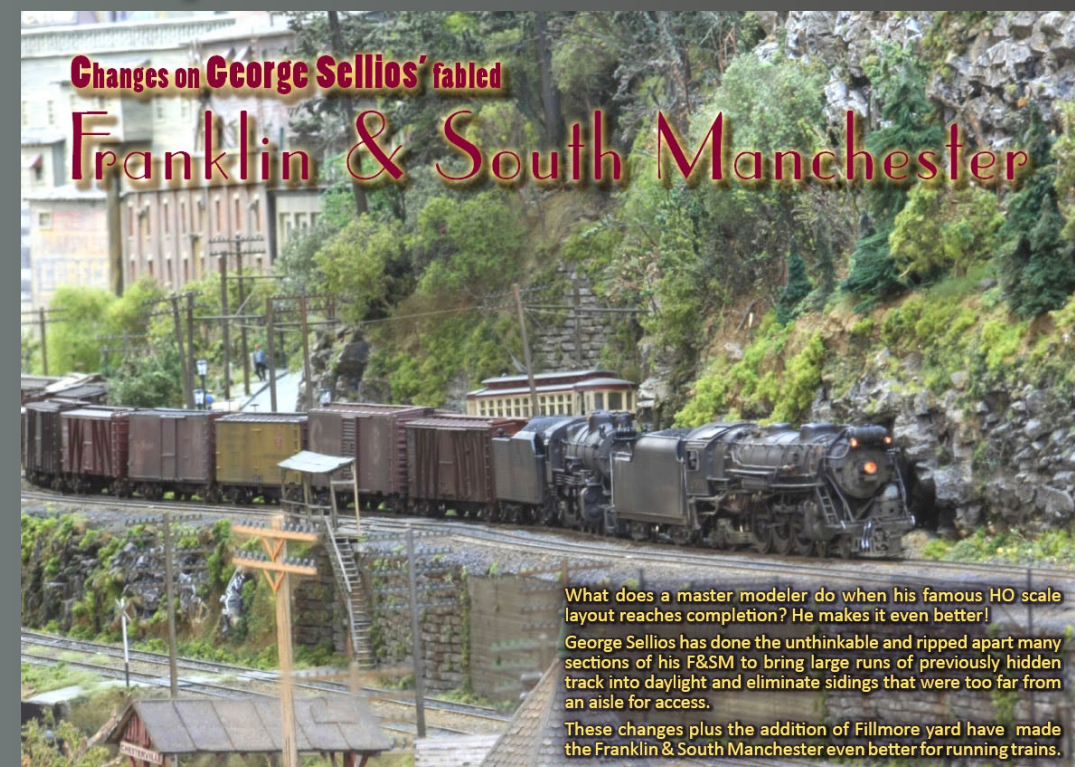
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Do you remember this article?



Changes on George Sellios' fabled

**Franklin & South Manchester**

What does a master modeler do when his famous HO scale layout reaches completion? He makes it even better!

George Sellios has done the unthinkable and ripped apart many sections of his F&SM to bring large runs of previously hidden track into daylight and eliminate sidings that were too far from an aisle for access.

These changes plus the addition of Fillmore yard have made the Franklin & South Manchester even better for running trains.



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# Model Railroad Hobbyist newsletter™

September 2010



**Reader  
Feedback**  
(click here)



*The Old  
Yardmaster*



**The latest model railroad  
products news and events**

**H**ere's a look at the pilot model of an **O scale** EMD FL-9 dual-power electric-diesel locomotive to be imported by **3rd Rail Division of Sunset Models Inc.** ([www.3rdrail.com](http://www.3rdrail.com)). While in service on the New Haven between Manhattan and Boston, the prototype used a 3rd rail electrical pickup until out of the Park Avenue tunnel. It then switched to its 1800 hp 16-cylinder diesel power plant on the fly. Pricing of the FL-9 is pending.



**A**merican Limited Models ([www.americanlimitedmodels.com](http://www.americanlimitedmodels.com)) has diaphragms for upgrading Rapido's Super Continental **HO scale** passenger cars. ALM says their diaphragms are specially engineered to stay together on curves. They are available in either gray or black at \$5 a pair or in a six-car set at \$24.

**T**he latest **HO scale** releases from **Accurail** ([www.accurail.com](http://www.accurail.com)) include a Central of Georgia 41-foot steel gondola, a Colorado & Southern 40-foot wood refrigerator car (mineral red and yellow with black and white graphics), a New York Central 50-ton offset-side twin hopper, a Western Pacific 40-foot steel double-door boxcar (oxide red with yellow graphics), a Montana Rail Link 50-foot exterior-post steel boxcar (blue with new logo and red and white graphics), and a classic USRA 55-ton twin-bay hopper decorated for DL&W (black with white graphics). Accurail also has released a limited-run 3-number set of Great Northern 50-ton offset-side twin hopper cars.





**The Anthracite Railroads Historical Society** – a composite group that focuses on several railroads that served the anthracite coal mining region of eastern Pennsylvania – has released a progress photo of a project to create **HO scale** body shell kits for the unique Central of New Jersey Baldwin-built DR-4-4-1500 Babyface diesels. The shells are designed to fit a Proto2000 FA2 mechanism to be supplied by the modeler. Kits for both A and B units are expected to be ready by the end of the year. To keep the project moving forward, ARHS is now soliciting reservations and down payments. The cost is \$110.00 for either an A or B unit kit. For more information visit [www.anthracerailroads.org](http://www.anthracerailroads.org) or contact Steve Peck, P.O. Box 519, Lansdale, PA 19446-0519.

**Athearn** ([www.athearn.com](http://www.athearn.com)) has completed new tooling for an **HO scale** F89F 89-foot TOFC car. The new Genesis model reflects prototype Trailer Train Company cars with TTX reporting marks indicating a car equipped with a pair of ACF-2 collapsible hitches. The cars could handle a pair of 40-foot trailers or one longer trailer with the No. 2 hitch collapsed. Athearn's initial production run will cover three paint schemes including TTX (yellow), Trailer Train (oxide) and Trailer Train (yellow). The model has a heavy die-cast metal frame that rides on 70-ton roller-bearing trucks with rotating bearing-caps and metal wheels with a .110-inch tread. The cars have an MSRP of \$39.95 each. Delivery is planned for March.

Also coming in March are new road names for Athearn's upgraded SD45 diesel locomotive. The run will include Santa Fe (Kodachrome scheme), Buffalo & Pittsburgh, FXE Ferromex and Montana Rail Link. All are DCC-ready and feature road-specific details. Additional DCC-ready motive power scheduled

for delivery in March include a GP40X decorated for Santa Fe (yellow bonnet), BNSF, Southern Pacific (bloody nose) and a high-nosed Norfolk Southern. Athearn GP38-2 diesels for Canadian National, Indiana Harbor Belt, Ontario Northland and Santa Fe (yellow bonnet) are also expected in March.

Athearn has scheduled a quartet of **HO scale** Pennsylvania 40-foot boxcars with Youngstown doors to arrive in February. Priced at \$17.98, the RTR group includes PRR with "Don't Stand Me Still" slogan, PRR Merchandise Service (bold silver stripe), PRR Merchandise Service (white stripe) and PRR (oxide red with a shadow keystone). A February arrival is also planned for an **HO scale** 26-foot Tite Bottom ore car decorated for Conrail, FXE, PRR and UP/CMO. They will be available as singles and in three separate 6-packs – all with different car numbers.



In addition to the Napierville car pictured here, **Atlas-O** ([www.atlaso.com](http://www.atlaso.com)) also has the 70-ton AC&F 1958 cubic-foot two-bay covered hopper decorated for Ann Arbor, Great Northern, Soo, Mathieson and UP. The **O scale** model is also available undecorated with either open or closed sides.

### SCALE COLOR KEY:

**Z scale news**

**S scale news**

**N scale news**

**O scale news**

**HO scale news**

**G scale news**



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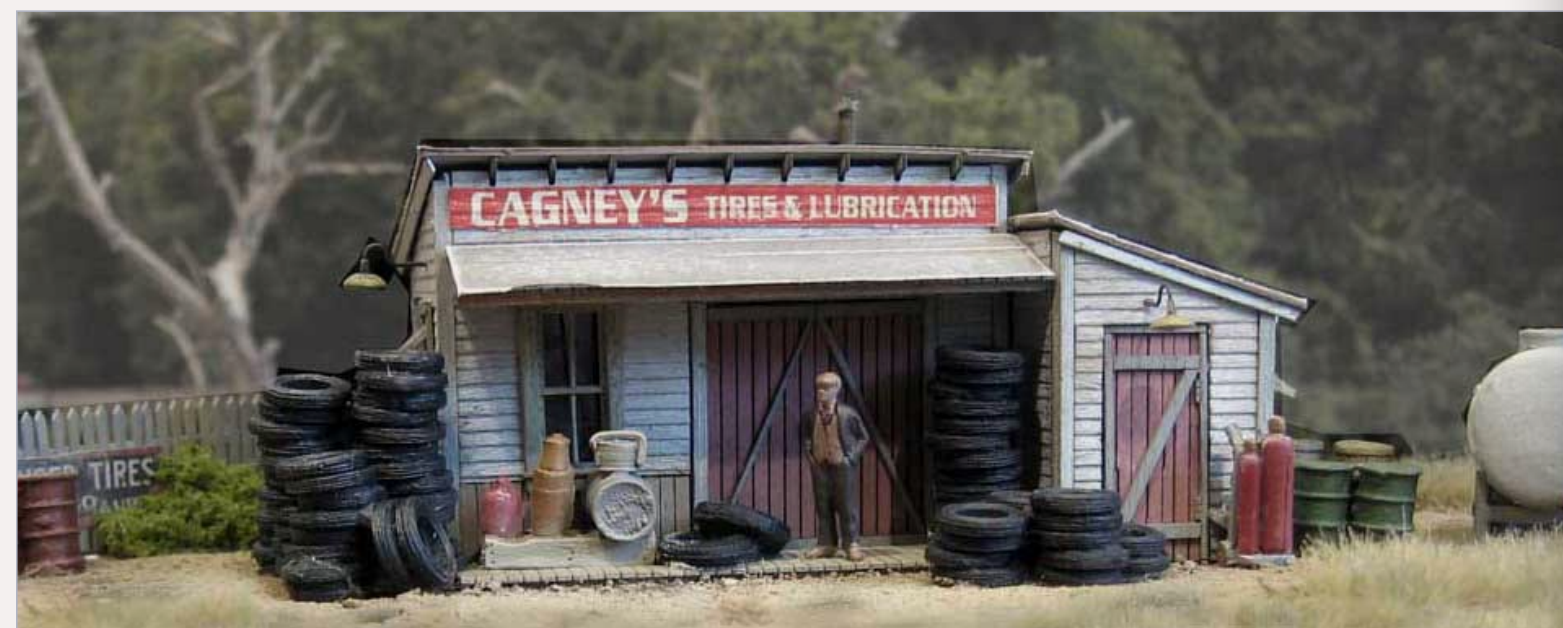
A new run of **Atlas-O's** Pullman-Standard 40-foot Hycube boxcar is due in November decorated for Burlington, Burlington Northern and C&NW. In addition to the new schemes mentioned, the previously released Santa Fe version shown above will be reissued with new car numbers.

**Bachmann Trains** ([www.bachmanntrains.com](http://www.bachmanntrains.com)) has announced a new **HO scale** model of a full-dome passenger car based on an 89-foot Colorado Railcar prototype that is said to be the largest passenger car ever built. Bachmann's recently-tooled ready-to-run car features colorful paint schemes and interior lighting. The model is available decorated for McKinley Explorer "Chena" #1052 and "Nenana" #1055. Availability is pending.

**Williams by Bachmann** has introduced an **O scale** Peter Witt street car decorated for Chicago Surface Lines, Brooklyn & Queens Transit, Baltimore Transit, Toronto Transit, Los Angeles Railway, St Louis Railways, and Cleveland Transit. Designed in the 1930s by Cleveland's street railway commissioner, Peter Witt, the all-steel, single-operator streetcar featured an exit-only center door. Passengers paid the motorman as they boarded through the enter-only front door. The arrangement cut labor costs, reduced stop times and improved schedules. The design found success throughout the world and are still in use in some cities' historic lines. The model has a suggested price of \$229.95.

**Backwoods Miniatures** ([www.backwoodsminiatures.com](http://www.backwoodsminiatures.com))

introduced a resin kit for an **O scale** Coaling Crane at the National Narrow Gauge Convention. Although it is identified for coaling, the nicely detailed crane can readily be adapted to a number of applications including logging, waterfront, fixed industrial applications or mounted on a truck as shown here (truck not included).



**Bar Mills** ([www.barmillsmodels.com](http://www.barmillsmodels.com)) latest **HO scale** kit is Cagney's Tire & Lube. Priced at \$37.95, the simple-to-assemble laser-cut structure occupies a footprint of approximately 4x8 inches.

**B.T.S.** is taking reservations for several composite (pewter/urethane/brass) locomotive kits being produced in New Zealand. The selection of **S scale** standard gauge models include Baldwin-built locomotives for East Broad Top 0-6-0 locomotive #6 as well as Ma & Pa 2-8-0 Consolidation #41, #42 and #43. **Sn3 scale** models will be available for EBT 2-6-2 #11 and #12. An **On3 scale** kit for EBT 2-8-2 #12 will also be produced. To make a reservation or for additional details contact Bill Wade at [wadepub@ix.netcom.com](mailto:wadepub@ix.netcom.com).

**Dave Frary** has a new DVD titled "Easy Scenery" that helps simplify all phases of scenery building such as creating mountains, making rocks, growing ground cover and weeds, developing realistic waterways, making dirt roads and ballasting track. Dave describes various techniques including the use of plaster and foam. Chapters by experts Doug Foscale and Hal Reynolds show



how to carve plaster rocks and make bottle-brush trees. The 103-minute DVD sells for \$29.95 plus \$4.95 shipping and can be ordered from Dave's web site [www.mrscenery.com](http://www.mrscenery.com).

**E**astern Seaboard Models ([www.esmc.com](http://www.esmc.com)) has released several **N scale** versions of the boldly-decorated Magor/AC&F 40-foot class XIH insulated plug-door boxcar that became known as State of Maine cars. Available now are Bangor & Aroostook and New Haven "State of Maine" cars in their 1953 as-built schemes. Also a Bangor & Aroostook car with a 1968-era red body and large B&A herald. The final car in this first release is a New York New Haven & Hartford car as repainted in 1968 in oxide red with a large NH block-letter herald. The next batch of XIH cars is due in October and will include "State of Maine" cars decorated for B&A (in both 1950 and 1969 schemes), a Penn Central car with 1972-era green body, and a similar 1979-era Conrail car sans roofwalk.



**E**xactRail ([www.exactrail.com](http://www.exactrail.com)) has released this **HO scale** Evolution series PC&F 6033 Hy-Cube boxcar in the distinctive SP yellow door scheme in 12 car numbers. New paint schemes for NP, CGW, Soo, Cargill and Producers are now available on ExactRail's **HO scale** Platinum series PS-2CD 4427 covered hopper. The company also released a Southern Railway version of its Pullman-Standard 50-foot 5277 cubic-foot Waffle boxcar. The **HO scale** Signature series model is available in 12 car numbers.

In a departure from its usual business plan, ExactRail is soliciting advance reservations for **HO** and **N scale** models of a Trinity-built 64-foot TrinCool™ refrigerated car as operated by the Union Pacific Railroad. Although no specific date has been mentioned, delivery is expected before the end of this year.

The Platinum series **HO scale** edition will have factory installed Kadee® #58 couplers, equalized 100-ton trucks, separate door tracks, close-to-scale draft gear, drop-down brake rigging, air lines, coupler cut levers, and air hoses. It will be offered in 24 road numbers at \$32.95 each.

The **N scale** version is to be priced at \$24.95 each and will feature machined-metal wheel sets and several finely etched metal detail parts. A welcome upgrade are body-mounted knuckle couplers rather than the Talgo-type ExactRail has used on previous N scale models.

Speculation is that ExactRail may have had this product in their pipeline for some time but planned to follow their usual method of delaying the introductory announcement until finished goods are in their Utah warehouse. ExactRail's decision to pre-book may have been prompted in July when BLMA announced the same HO and N scale models at the National Train Show.

**FOS Limited** ([www.foslimited.com](http://www.foslimited.com)) has launched a new series of DVDs featuring the artistry of some of the hobby's most-talented master modelers. The series is off to a good start with the initial release featuring John Elwood's inspiring "Olympic & Puget Sound Railway." The DVDs are available through hobby dealers or direct at \$29.95 plus shipping.

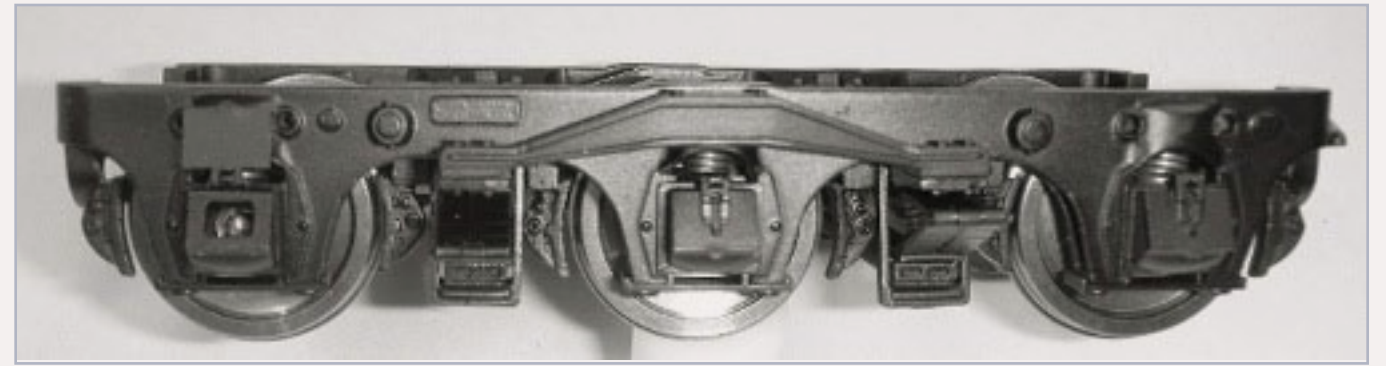
**N**ew releases expected from **InterMountain Railway** (<http://irailway.qwestoffice.net/>) this month include Red Caboose **N scale** 42-foot fish-belly flat cars and Evans coil-cars in both **HO** and **N scale**. A new production run of four popular Red Caboose **HO scale** general service drop-bottom gondolas has been scheduled for delivery next spring. Pending receipt of advance reservations, the future run will include SP and NP cars with steel sides, D&RGW versions with composite sides, and an SP composite-side car with board extensions for beet service. All will be available in six car numbers except the beet car which will be available in 12 numbers. In other news, IMRC has delayed setting a firm production date for its **Z scale** cylindrical hopper pending sufficient reservations from dealers.

**T**his Bettendorf-type T-section caboose truck is the latest addition to **Kadee's** ([www.kadee.com](http://www.kadee.com)) growing selection of self-centering HGC two-piece equalized **HO scale** trucks. The new trucks come with 33-inch ribbed-back RP-25 non-magnetic metal wheels. Other caboose trucks currently available in the HGC series include





Bettendorf-type AAR and Barber-Bettendorf-type with roller bearings. Both have smooth-back wheels. Freight car trucks recently added to the HGC series include Bettendorf-type 50-ton and A.S.F. Ride Control 50-ton trucks with either smooth or ribbed-back wheels. Both friction bearing and roller bearing versions of Barber S-2-B 70-ton freight car trucks are available only with 33-inch smooth-back wheels. Arch bar trucks with ribbed-back wheels are also available in Kadee's HGC series.



**P**rotocraft ([www.protocraft.com](http://www.protocraft.com)) is offering this 1/4-inch finescale Pullman 242 six-wheel heavyweight passenger truck at \$129.95 pair. Built to AAR prototype standards, the highly detailed model was made in Korea by OCS Casting using Pullman drawings supplied by Protocraft. The trucks are fully equalized, run on ball bearings and have operable journal box covers in order to oil the axle bearings. Journal box retainers are removable, allowing the wheelsets to drop out like the prototype. The insulated wheel sets are machined from mild steel and have the correct backside contour. If desired, wipers for electrical pickup (not included) can be mounted by the modeler. The ready-to-run trucks come with prototype bolsters made according to the Pullman drawings as well as adaptor bolsters to mount the truck under the PSC heavyweight cars. A type 2410 truck is expected to be available soon.

**F**ebruary 2011 is the availability date **Kato** ([www.katousa.com](http://www.katousa.com)) is quoting for an **N scale** GE P42 locomotive and Intercity Amfleet II train set. The five-car set will include an Amtrak Phase IV baggage car, an Amfleet II Coach, an Amfleet II Coach/Café shown above, and two Viewliner Phase IV cars.

**M**icroscale Industries ([www.microscale.com](http://www.microscale.com)) has released an **HO scale** decal set for a Southern Pacific 40-foot composite Beet Rack gondola. Other new sets available now include passenger car decals for CB&Q (both heavyweight and streamline from 1940-1970) and Baltimore & Ohio. Also decals for diesel locomotives including Norfolk Southern (2002 plus), CB&Q (hood units in black/gray and red/gray), Southern Pacific (tiger-stripe switchers 1948-1958), Penn Central (1968-1976), and Elgin Joliet & Eastern (1970-1991). The next product release is expected to include Union Pacific steam locomotive indicator numbers, BNFE/WFCX insulated and mechanical reefers, CSX New Image containers and UP F-units and turbines.

**M**icro-Trains ([www.micro-trains.com](http://www.micro-trains.com)) is selling this **N scale** 30-foot log car with load for \$31.65. Features include brass tie-down chains, a Peacock brakewheel and blackened arch bar trucks.



**T**his Speeder Shed is available from **Monroe Models** ([www.monroemodels.us](http://www.monroemodels.us)) as a laser-cut tab & slot kit. The **HO scale** kit includes laser-cut bass wood, fiber board, peel & stick windows plus printed signs and plastic detail parts. Instructions show how to build and paint the model for either a new or old weathered appearance. The 3 by 3.25-inch model can be built for a flat ground surface or with a trestle underneath for construction on a slope. Price is \$24.95.





**Morgan Hill Models** ([www.morganhillmodels.com](http://www.morganhillmodels.com)) is taking reservations for a limited edition of an **On30 scale** Diamond & Caldor open-top block car. The prototype car was used to transport scrap blocks of wood from the saw mill back to the logging camps for cooking and heating. The basic body kit features laser-cut and individual board construction using Mount Albert basswood and detailed component parts from Grandt Line and Tichy. A step-up version of the basic kit adds Foothill Models MacLeod Western arch bar trucks. And finally, a deluxe Silver series kit includes all of the above plus finescale wheelsets, a brake beam assembly, both Kadee #26 and Foothill Models link & pin couplers, a scrap log debris load, a set of logging tools and a selection of Bragdon weathering powders.

**Mount Vernon Shops** ([www.mountvernonshops.com](http://www.mountvernonshops.com)) has decals for **HO scale** Pennsylvania Railroad wood cabin cars. The carefully-researched decal sheet includes enough material to letter four PRR cabin cars including four class ND, two class NDa, two class N6a and four class N6b cars in their pre-1954 scheme before they were repainted with a PRR shadow keystone monogram. Set #HO-PNW sells for \$15. Also available are decals sheets for PRR class W120 wreck-derrick. Decal set #HO-PWD is priced at \$9, set #N-PWD is priced at \$5.

**M.T.H. Electric Trains** ([www.mthtrains.com](http://www.mthtrains.com)) has released a DCC-ready **HO scale** SD70ACe diesel locomotive with a suggested retail price of \$189.95. Electro-Motive Diesel designed the 4300 horsepower prototype to meet the Environmental Protection Agency's Tier-2 emissions requirements that took effect on January 1, 2005. EMD also had an eye toward replacing the nation's aging fleet of SD70MACs. "Ace" operating crews are happy with the improved visibility of SD70ACe and its roomy cab equipped with digital screens



that provide a range of information on what is happening both inside and outside the locomotive. The M.T.H. models are equipped with a new NMRA DCC-compliant board that provides compatibility with any DCC decoder with a standard 8-pin NMRA connection. In addition to UP (D&RGW Tribute) unit seen above, the release will include UP (flag scheme), MP, WP, SP, NS, FEC, CSX, KCS, BNSF, Katy, Chicago Northwestern, George H. Bush, Electro-Motive Division, Canadian National, and Montana Rail Link. UP and BNSF models are available with a comfort cab.

**Traction specialist MTS Imports Inc.** has **HO scale** brass models of the Light Rail Vehicles currently in operation in San Diego. The bright red factory-painted SD-100 LRV is priced at \$745.00 each including shipping. For additional details contact Joel at 845-342-5623 or send an e-mail to [mtsimp85@yahoo.com](mailto:mtsimp85@yahoo.com).

**N.J. International, Inc.** ([www.njinternational.com](http://www.njinternational.com)) has introduced a set of **HO scale** harbor boats. The kit of injection molded pre-colored boats sells for \$14.99 and includes two sail boats, two motor launches, and four rowboats with oars.

**QConnection**, a specialty internet outlet focusing on products for Burlington modelers, has a limited run of CB&Q (and one C&S) class HC-1 70-ton ACF two-bay 1958 cubic-foot hopper cars. The **HO scale** kits are based on a custom-decorated Bowser model with all Bowser components plus Kadee® #158 Whisker® couplers. Three decorating schemes are available including a 1958 CB&Q version with mineral red car body and black roof, a C&S version painted mineral red and a 1961 CB&Q in light gray with red lettering and a 3-color Burlington Route herald. For details on multiple road numbers, pricing and ordering information visit [www.qconnection.biz](http://www.qconnection.biz).

**Railroad Books & Publications** ([www.quickpicbooks.com](http://www.quickpicbooks.com)) has a handy 44-page book titled "Lighting Vehicles Using LEDs" that covers the



installations of conventional and surface-mounted LEDs to model vehicles ranging from automobiles to motorcycle, busses, and trucks. The illustrated 8.5 by 5.5-inch spiral-bound book sells for \$20 plus shipping.



Although originally planned for delivery in late 2011, **Rapido Trains** ([www.rapidotrains.com](http://www.rapidotrains.com)) has accelerated the production schedule for four road names on its **HO scale** Super Continental Line of post-war 6-4-6 sleepers. Arriving late this year are sleepers decorated for Wabash, L&N, Canadian National 1954 era, and Canadian National 1954 USA Pullman service as seen here. The cars come with Rapido's battery-powered "Easy-Peasy" lighting system. The reservation deadline for dealers is October 1, 2010.

Rapido is also taking dealer reservations for the second run of its acclaimed **HO scale** Wide-Vision caboose that will include the CB&Q car shown here as well as Conrail, D&RGW (yellow with gray cupola), Essex Terminal,

Missouri-Kansas-Texas, EP Engineering Services, New Brunswick Southern, and Delaware & Hudson. Features include full underbody detail with separate brake pipes, multi-color interior detail with constant interior lighting and operating marker lights that can be turned on and off at either end with a magnetic wand. The cabooses are priced



at \$59.95 each and are available singly as well as in packs of two or three with different car numbers.



Rapido has scheduled a second run of its **HO scale** Osgood Bradley 10-Window lightweight coaches for arrival early next year. In addition to this Long Island Railroad (Dashing Dan) version, other new paint schemes include Bangor & Aroostook (gray and blue with no skirts), Long Island (white and blue MTA with no skirts), and Penn Central (green with no skirts).

**Signature Press** is expected to soon release a new book by Robert Pecotich titled *"Southern Pacific's Sacramento Shops: Incubator of Innovation"*. The illustrated hard-back book will provide an in-depth look at the Sacramento General Shops where an army of workers built, as well as maintained, an amazing range of equipment.

**Tangent Scale Models** ([www.tangentscalemodels.com](http://www.tangentscalemodels.com)) has released its **HO scale** ACF 52-6 welded 70-ton drop-end gondola in six new paint schemes including Delaware Lackawanna & Western (1951 black scheme with ACF-applied "Road of Anthracite" logo), Penn Central (green scheme), Pennsylvania Railroad G31B (simplified 1960s keystone scheme in freight car red – in 12 car numbers), Pennsylvania Railroad G31B (1951 scheme in freight car red), Southern Pacific G-70-12 (1953 scheme in freight car red) and Wabash (1951 black scheme black – in 3 car numbers). Each road name is available in six numbers except as noted. An assembled undecorated car in primer gray is also available. All versions are \$29.95.

**Trainworx** ([www.train-worx.com](http://www.train-worx.com)) is taking reservations for February delivery of an **N scale** all-steel drop-bottom GS gondola decorated for Illinois Central Gulf, Missouri Pacific, Minneapolis & St. Louis and Utah Coal Route. The ready-to-run cars have a styrene body and a die-cast metal underframe.



**W**althers ([www.walthers.com](http://www.walthers.com)) has announced new road names for its **HO scale** Proto2000 EMD SW8/900 locomotive including Canadian National, Rock Island, Conrail, and Lehigh Valley. The models are scheduled for arrival in March 2011, and will be available in standard DC or with sound and DCC.



**W**esterfield ([www.westerfieldmodels.com](http://www.westerfieldmodels.com)) is selling three versions of this 42-foot Milwaukee Road Bettendorf design, double-sheathed boxcar. **HO scale** resin kits are available for the original 1912-13 CM&StP car, also as rebuilt in the 1930s with a timber door-stop to replace the original small metal one, and finally as modernized in the 1940s with steel bands on the sides as seen here. Westerfield kits include correct decals and all body components less trucks and couplers. Detailed instructions include a complete history of the prototype.

**T**his Los Angeles Transit Lines motor coach is just one of a series of **N scale** busses available from Wheels Of Time ([www.wheelsotime.com](http://www.wheelsotime.com)). Suitable for the 1950s through 1970s, the ready-to-run models feature window glazing,



detailed interior, rubber tires,, and changeable destination signs. Additional paint schemes currently available include Boston MTA (orange and cream), Chicago Transit Authority (green and white), San Francisco Municipal Railway (green with cream wings), Greyhound Lines (single door, blue and white), Milwaukee & Suburban Transport (orange and off-white), Toronto Transit Commission (red and cream), New York City Transit Authority (two-toned green), Denver Tramway (orange and cream), Alameda-Contra Costa Transit District (aqua green, gray, orange and white, and undecorated).

## INDUSTRY NEWS

**Fullerton, California:** BLMA Models ([www.blmamodels.com](http://www.blmamodels.com)) has moved to 302 District Court, Fullerton, CA 92832. The new location is conveniently adjacent to the Fullerton Train Station (ex-Santa Fe Depot) – a popular spot for Southern California railfans no doubt attracted by BNSF's exceptionally busy triple-track mainline.

**Waukesha, Wisconsin:** Kalmbach Publishing has agreed to buy DISCOVER, a science and technology magazine with circulation of 700,000 and annual revenue of \$14 million. Kalmbach's current family of 16 magazines total about 1 million in circulation. They include TRAINS, FINESCALE MODELER, ASTRONOMY, BIRDER'S WORLD, THE WRITER, BEAD & BUTTON, and MODEL RAILROADER, the largest among them with circulation at 140,000. The company employs 275 people and has annual revenue of about \$50 million. The DISCOVER staff of approximately 20 editors and designers will continue to be headquartered in New York. They will report to Kevin P. Keefe, Kalmbach's Vice President-Editorial who told Milwaukee's Journal Sentinel that DISCOVER should fit well with his company's other niche magazines. *"Our advertising is down but our circulation remains pretty strong. Like everybody in the print media, we've had to work harder to hold our own."* The acquisition includes the website DiscoverMagazine.com, one of the top science destinations on the Internet, with more than 2 million monthly visitors. This is Kalmbach's second magazine acquisition in the past year, following the September 2009 purchase of CABIN LIFE magazine.



## Briefly noted at press time...

... Bowser's HO scale VO-1000 diesel should hit dealer shelves in early September.

... Grandt Line is preparing a limited quantity of kits for its HOn3 scale C&S/RGS plastic-body, steel-frame boxcar for sale exclusively at the National Narrow Gauge Convention in St Louis.

... InterMountain will soon announce four new paint schemes for a second run of its HO scale Procor pressure-flow hopper car. Meanwhile, fans of this unique car can look forward to another run in a few months that will repeat the paint schemes of the initial release which sold old rapidly.

... Sergent Engineering ([www.sergentengineering.com](http://www.sergentengineering.com)) is offering its best-selling HO scale #EC87 coupler in bulk quantity at greatly reduced prices.

... WrightTRAK will introduce new HO scale resin kits for PRR and SAL prototypes at the Naperville Meet in late October.

... Late last month, ExactRail announced that it was developing an HO scale Southern Pacific class C-50-7 steel bay-window caboose in its high-end Signature series.

Southern Pacific owned 50 of the prototype cabooses (numbers 4600-4649) with the first 24 being delivered in 1978 by Pacific Car & Foundry with the SP and road-number in gothic (sans-serif). The balance had roman (serif) lettering.

ExactRail is offering six car numbers in gothic and three cars lettered in serif font. No delivery date has been announced but the Utah-based company says it will accept advance reservations through October 31. The MSRP is \$59.95.

### DISCLAIMER

The opinions expressed in this column are those of the writer and do not necessarily reflect the opinion of *Model Railroad Hobbyist* or its sponsors. Every effort is made to provide our readers with accurate and responsible news and information, however, neither *Model Railroad Hobbyist* or the writer of this column can be held responsible for any inaccuracies or typographical errors that may inadvertently appear in this column.



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## About our news and events editor



**Richard Bale** writes our news column under the byline of *The Old Yardmaster*. He has been writing about the model railroad trade for various hobby publications since the 1960s.

He enjoys building models, particularly structures, some of which appeared in the June 2006 issue of **Model Railroader** magazine.



## Selected Events

### September 2010

CALIFORNIA, SAN DIEGO, Sept 15-19, NMRA Pacific Southwest Region Annual Convention, Handlery Hotel, Hotel Circle North. Info at [www.sandiegodivision.org](http://www.sandiegodivision.org).

IDAHO, CALDWELL, Sept 10-12, Treasure Valley Train Expo, O'Connor Field House. Info at [www.treasureval-](http://www.treasurevalleytrainexpo.com)

[leytrainexpo.com](http://www.treasurevalleytrainexpo.com).

INDIANA, INDIANAPOLIS, Sept 10-11, Hoosier Traction Meet, Info from Roy Benedict 1-773-625-5263 or write 3511 N. Pittsburg Ave. Chicago, IL 60634-2837.

NEW JERSEY, PRINCETON, Sept 30-Oct 3, NMRA Mid-eastern Region Annual Convention, Double Tree Princeton Hotel. Info at [www.mer.nmra.org/MERConv/MERConv.html](http://www.mer.nmra.org/MERConv/MERConv.html).

NORTH CAROLINA, GREENSBORO, Sept 24-25, South Eastern States Annual RPM Meet, REA building (Amtrak Depot) on E. Washington Street. Info at [www.rpmcarolinasgreensboro.org](http://www.rpmcarolinasgreensboro.org).

VERMONT, BURLINGTON, Sept 9-12, NMRA Northeastern Region Convention, Sheraton Burlington Hotel & Conference Center. Info at [www.greenmountainnmra.com/champlainflyer](http://www.greenmountainnmra.com/champlainflyer).

VIRGINIA, DANVILLE, Sept 24-26, 2010 NTRAK National Train Show &



## Selected Events *Continued ...*

Danville Old 97 Rail Days, hosted by the Eastern N Lines Partnership Clubs, HQ at Holiday Inn Express. Info at [trainweb.org/nrmrc/2010show](http://trainweb.org/nrmrc/2010show).

WASHINGTON, LYNNWOOD (SEATTLE AREA), Sept 16-18, Cascade International, Annual Convention of NMRA Pacific Northwest Region, Embassy Suites Hotel, 20610 44th Avenue West. Info at [www.4dpnr.org](http://www.4dpnr.org).

### October 2010

CALIFORNIA, SAN LUIS OBISPO, Oct 7-11, Central Coast Railroad Festival includes self-guided tour of various layouts. Info at [ccrrf.com](http://ccrrf.com) or send email to Bob Chaparro at [thecitrusbelt@yahoo.com](mailto:thecitrusbelt@yahoo.com).

CANADA, ONTARIO, OTTAWA, Oct 16-17, RAILFAIR 2010, Algonquin College, Woodroffe Campus sponsored by British Railway Modelers of North America (BRMNA) and the Ottawa Valley Associated Railroaders. Further details from Dave Venables phone: 613-829-1377 or email: [brmna@ca.inter.net](mailto:brmna@ca.inter.net).

CONNECTICUT, ORANGE (NEW HAVEN), Oct 10, Annual Model Train Show (includes N, HO and G operating layouts), New Haven & Derby Model Railroad Club in affiliation with the Orange Historical Society, High Plains Community Center. Info at [newhaven-derbymodelrailroadclub.org/nhddr\\_show.html](http://newhaven-derbymodelrailroadclub.org/nhddr_show.html).

ILLINOIS, NAPERVILLE, Oct 21-24, Naperville RPM Meet, Holiday Inn Select, 1801 North Naper Blvd. Info at [www.ppw-aline.com/rpm-naperville.htm](http://www.ppw-aline.com/rpm-naperville.htm).

MICHIGAN, LIVONIA, Oct 21-24, NMRA North Central Region Convention, Marriott Hotel. Info at [div6-ncr-nmra.com/NCX2010\\_Main.aspx](http://div6-ncr-nmra.com/NCX2010_Main.aspx).

NEW YORK, NEW PALTZ (POUGHKEEPSIE), Oct 22-23, Fall Mid-Hudson On30 Meet. For additional information send email inquiry to Allen Littlefield at [aklon30@yahoo.com](mailto:aklon30@yahoo.com).

NORTH CAROLINA, PISGAH FOREST (NEAR BREVARD), Oct 8-9, Narrow Trak 2010 (annual narrow gauge / logging convention), Transylvania County Recreation Center, 1078 Ecusta Road. For info email Frank Pearsall at [plans@citcom.net](mailto:plans@citcom.net).

### Future 2010

CANADA, BRITISH COLUMBIA, BURNABY, Nov 13-14, British Columbia RPM Meet in association with TRAINS 2010, Cameron Centre (across from Lougheed Mall), 9523 Cameron Street. For information send email to [ahutchinson](mailto:ahutchinson).

[mudbay@gmail.com](mailto:mudbay@gmail.com). For information about TRAINS 2010 visit [www.bctrains.org](http://www.bctrains.org).

KANSAS, BENTON, Nov 6-7, Mid-Continent Prototype Modelers Meet at Benton Lions Community Center, 150 S. Main Street. Info at [www.midcontinentprototypemodelers.org](http://www.midcontinentprototypemodelers.org).

MASSACHUSETTS, MANSFIELD, Nov 10-14, Craftsman Structure Show, Mansfield Holiday Inn. Info at [www.css2010.com/CSS\\_HOME.html](http://www.css2010.com/CSS_HOME.html).

OHIO, DAYTON, Nov 6-7, NMRA Division 3 Train Show, Hara Arena. Visit [www.daytontrainshow.com](http://www.daytontrainshow.com) for information including map to arena.

PENNSYLVANIA, ALLENTOWN, Nov 13-14, Annual First Frost Train Show, Fairgrounds Agricultural Hall, 302 North 17th St. Info at [www.allentowntrain-meet.com](http://www.allentowntrain-meet.com).

PENNSYLVANIA, MONACA, Nov 21, Beaver County Fall Model Train Show, Center Stage, 1495 Brodhead Road. Info at [bcmrr.railfan.net](http://bcmrr.railfan.net).

WISCONSIN, MILWAUKEE, Nov 13-14, Trainfest, Wisconsin Exposition Center at State Fair Park. Info at [www.trainfest.com](http://www.trainfest.com).

### Future 2011

CALIFORNIA, MONROVIA, Feb 17-19, Sn3 Symposium, Double Tree Hotel, 924 W. Huntington Drive. Info at [www.sn3-2011.com](http://www.sn3-2011.com).

CALIFORNIA, SACRAMENTO, July 3-9, combined conventions of NMRA National and National Association of S Gaugers, Sheraton Grand Hotel. Info at [www.x2011west.org](http://www.x2011west.org).

CALIFORNIA, SACRAMENTO, July 7-9, National Train Show, Sacramento Convention Center. Info at [www.x2011west.org/trainshow.html](http://www.x2011west.org/trainshow.html).

MASSACHUSETTS, AMHERST, Jan 29-30, Amherst Railroad Society Annual Hobby Show, Eastern States Exposition Fairgrounds, West Springfield. Info at [www.railroadhobbyshow.com](http://www.railroadhobbyshow.com).

NORTH CAROLINA, HICKORY, Sep 7-10, National Narrow Gauge Convention.

OHIO, MARION, May 5-8, 2011, 2nd Annual Central Ohio Prototype Modelers Meet, Marion Union Station, Info at [www.facebook.com/pages/manage/#!/pages/Central-Ohio-Prototype-Modelers-Meet/326645470797](http://www.facebook.com/pages/manage/#!/pages/Central-Ohio-Prototype-Modelers-Meet/326645470797). ■



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## Questions, Answers and Tips



### QUESTIONS AND ANSWERS

**Q: I'm going to build my first layout in N-scale. I thought a 4x8 would be good. Is this true?**

**A:** An N scale 4 x 8 layout will almost always look more realistic than an HO layout in the same space, but access and reach issues must be considered. To allow a 2-foot (very tight) access areas around three sides of a 4 x 8 foot layout, the railroad actually occupies a minimum footprint of 8 x 10 feet. An around-the-walls layout in that same space will have better access, a more linear (and longer) mainline, plus the center of the room is available for viewing or other uses.

If you absolutely must build a table layout in N scale, consider 3.5 x 7 feet. It still offers many of the “trains running through big scenery” advantages of N scale but doesn’t take up as much room. For a neat N scale layout this size, see “*N Scale Railroading, An Introduction to the Hobby - 2nd edition*” (Kalmbach Books).

— **Marty McGuirk**

**Q: What is a steam locomotive feedwater heater? Why were they used?**

**A:** On steam locomotives, a device called a feedwater heater used exhaust steam to preheat water from the tender before it was injected into the boiler. There were two basic types of feedwater heaters; open and closed.

In the open type, feedwater was sprayed directly into a mixing chamber containing exhaust steam, condensing the steam and raising the water temperature. Feedwater heaters made by Worthington were of the open type (Figure 1).

In a closed type, heater water was fed through an array of pipes inside a large chamber filled with exhaust steam. The feedwater and steam did not come into direct contact. Both Elesco (Figure 2) and Coffin (Figure 3) manufactured closed feedwater heaters.

Feedwater heaters use the heat in exhaust steam improving efficiency.

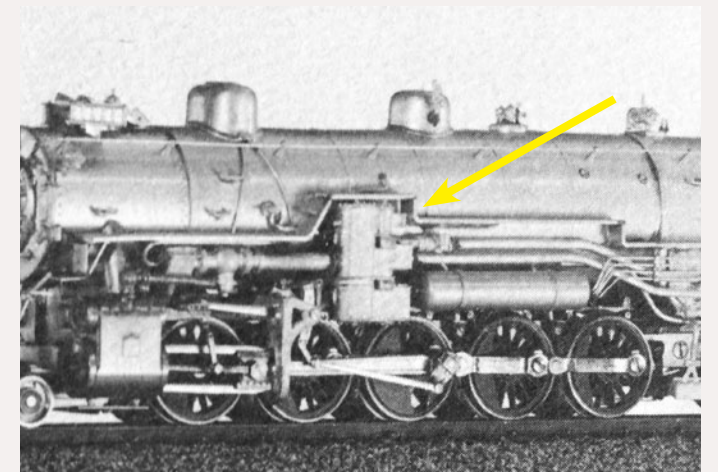
— **Richard Bale**

**Q: What differences are there between first and second generation diesels? When did the second generation come along?**

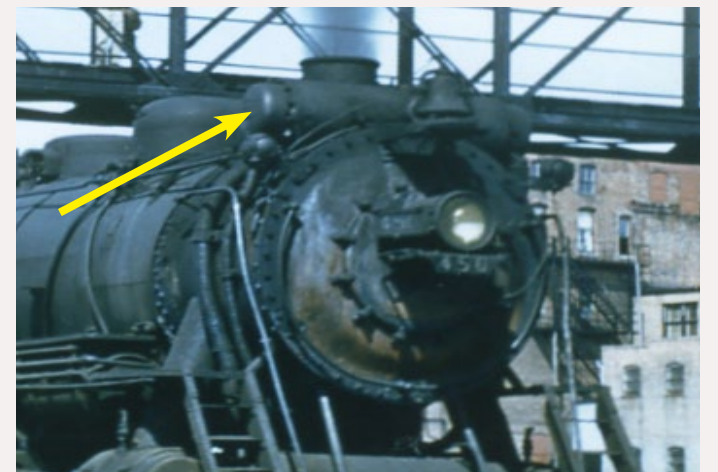
**A:** Second generation diesels are generally considered to be those that started replacing first generation diesels instead of steam engines. They were also the first models commonly equipped with turbochargers and producing 2000 hp or more. The second generation began with the introduction of the EMD GP20 and the GE U25B in 1959 and the GP30 in 1961.

Source: <http://www.american-rails.com/diesel-locomotives.html>.

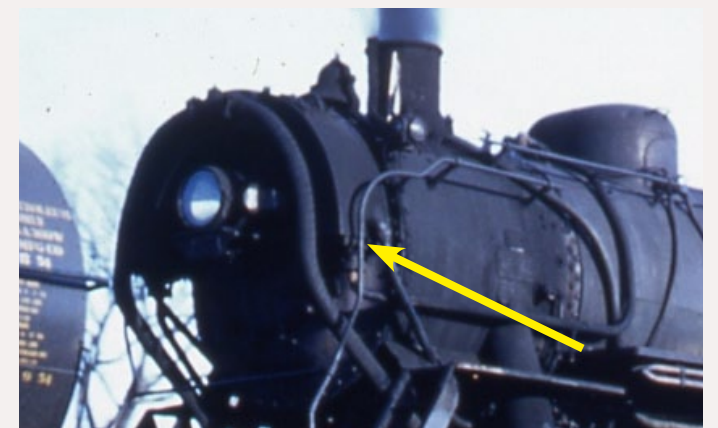
— **Jeff Shultz**



**Figure 1: Worthington feedwater heater on a HO scale KTM model of a SP F-5 class 2-10-2**



**Figure 2: Elesco feedwater heater (courtesy Central Vermont Railway Historical Society)**



**Figure 3: Coffin feedwater heater (courtesy Central Vermont Railway Historical Society)**



**Q: I'm building a layout in my basement. A friend tells me I should install drywall before starting but this seems like a lot of extra work and expense. Do I really need to do this?**

**A:** A clean and 'friendly' environment for model trains is definitely a good thing. From your question it sounds like you have open joists in the ceiling and/or bare concrete (or concrete block) walls. Both of these are a source of dust which is an enemy of model railroads – especially concrete dust which is highly abrasive. An open joist ceiling will tend to rain down dust every time someone walks on the floor above. If you create a 'sealed' train room by covering

walls and ceiling with drywall, you'll eliminate most of this dust (and spiders which love ceiling joists). Drywall also takes paint really well for painting backdrops, and it will eliminate the 'dark hole above' feeling. And as I mentioned before, a drywalled space will seem friendlier – especially after a coat or two of paint. It's not mandatory, but I strongly recommend it.

— **Charlie Comstock**

**Q: What are coved corners?**

**A:** Coving a corner eliminates the sharp intersection of two walls or backdrop panels, covering them with a curved section that flows smoothly from one wall to another. Museum



Figure 4

Figure 4: The coved corner in the center of this photo is hardly visible. In person it's more obvious but not jarring.

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dioramas often use coved corners since they're much less visually jarring than a sharp corner. I use .040" sheet styrene to make coved corners on my BC&SJ (figure 4).

— **Charlie Comstock**

**Q: I want to run trains with 2 of my friends using DCC. Does this mean I need three DCC boosters?**

**A:** No, the primary reason for having multiple boosters on a layout is to allow you to break up the layout into separate power blocks, which should help prevent a situation where you overload the booster with more locomotives than it can handle.

A DCC booster is used to put power and the command signal on a section

(or block) of track. With DCC, you can have multiple locomotives or operators in a single block of track on single booster - provided you don't put enough locomotives in that block to exceed the power rating on the booster.

Breaking a layout into blocks also has the advantage of simplifying short detection, since only the effected block should go down, as opposed to the entire layout. So to run trains with your friends, you're limited by the number of throttles you have, not the number of boosters.

For more information on DCC and how many locomotives you can run on a single booster, see the MRH Theater video "*DCC - good, bad, and*

*ugly*" at [http://model-railroad-hobbyist.com/mrht\\_dcc-good-bad-ugly](http://model-railroad-hobbyist.com/mrht_dcc-good-bad-ugly) and "*Volume 3: Electrical and Control*" of Joe Fugate's Model Train Video series, available at <http://model-trains-video.com/volume3.php>.

— **Jeff Shultz**

**Q: I'm new to the hobby and I'd like to buy some used model trains to get started. Is that a good idea and if so, what's the best source?**

**A:** If you really can't afford new equipment, then buying used equipment may be an option. The problem is, as a newcomer, you likely will have trouble telling junk from treasure. Here's a quick run-down on what to watch for:

When it comes to track say NO to brass rails – you'll want nickel silver.

Brass oxidizes easily and brass oxide is non-conductive so brass track requires nearly continuous cleaning. Plus, nickel silver rail looks more realistic.

Older rail cars often have horn-hook couplers instead of the newer knuckle couplers. Although not a show-stopper, the level of detail on older equipment often is more coarse, for example, chunky stirrup steps. If you're willing to live with these details, or carve off crude details and add new details, then this is an option.

You'll find lots of used equipment at swap meets – if you can test-run a loco before you buy it, do so. Some hobby shops sell older equipment on consignment from estate sales and



the like. Again, test run any locos to make sure they run decently before you buy them.

Then there's eBay. It is possible to find good deals on eBay, but there's lots of junk, too. Unless you know the difference, it's best to take a strong "buyer beware" stance on eBay. Watch out for auctions where the price of an item is low but the seller is charging a steep price for shipping. It helps to know what something is really worth so you don't get caught up in a "bidding frenzy" and win the auction but "pay through the nose" for something.

As a newcomer, you probably don't have a sense of the real value of most used model railroading products, so unless you know an experienced modeler who will advise you, you're probably better off purchasing your trains and equipment new.

For the most part, recent products are better than they've ever been. If you're a lone wolf, it's safest to purchase new stuff until you're more experienced in the hobby and can tell the junk from the good deals.

How does one become experienced? I suggest hanging out with other model railroaders. Or you could buy something that looks like treasure then discover otherwise at home.

— Joe Fugate



## TIPS

### A new kind of roadbed material:

Many modelers have discovered the value of using hardboard (Masonite®) spline for roadbed. Now there's a new product that has all the advantages of spline roadbed but only takes two "strips" to produce full width HO or N scale roadbed: **KerfKore**.

1/4" hardboard spline takes 5-7 strips to make HO roadbed and costs about 25 cents per foot when cut by a cabinet shop. 3/4" KerfKore requires only two strips to make nice, highly curvable, HO roadbed costing about 30 cents per foot when cut by a cabinet shop. In N scale, two strips of 3/8" KerfKore are needed for roadbed.

**Rod Loder** of Salem Oregon gave us some sample strips at the August *Rails by the River* prototype modeler meet. Figures 6 and 7 demonstrate the extreme curvability of KerfKore. The 3/4" thick material easily curved to trolley line radii.

A 4x8 sheet of 3/4" KerfKore cut into 3/4" wide strips yields 44 strips. That's 22 sections of HO roadbed eight feet

Continued on page 37 ...

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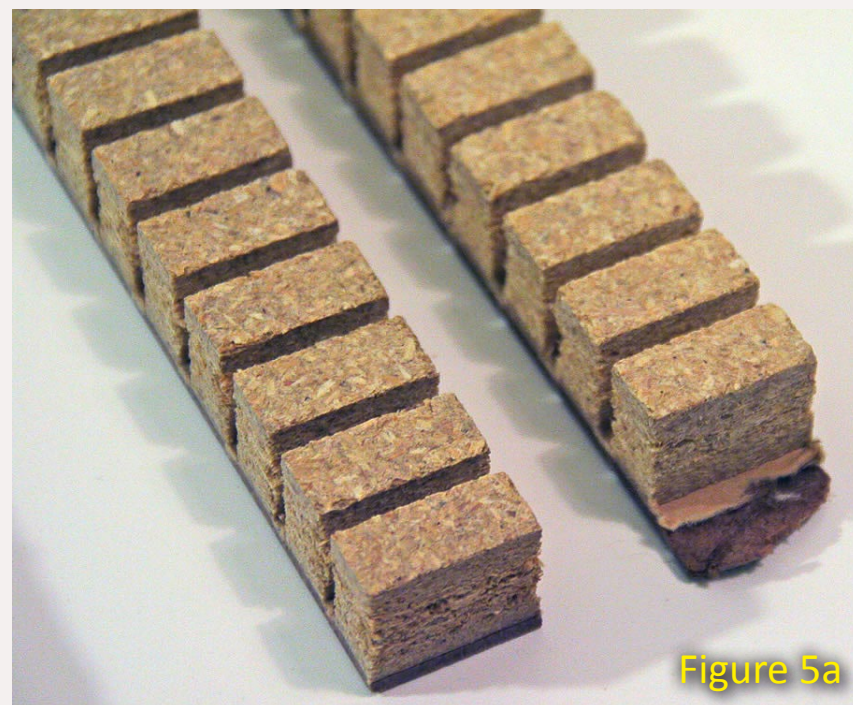


Figure 5a

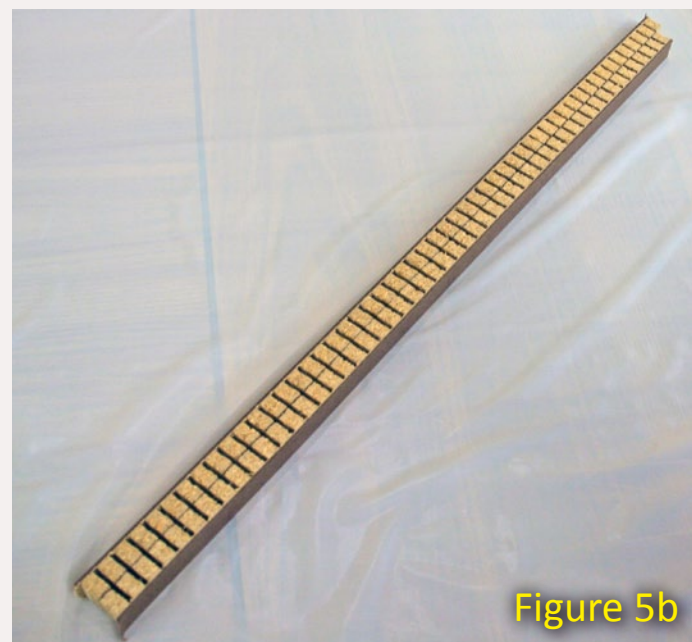


Figure 5b

Figure 5a,b: Strips of 3/4" KerfKore

Figure 6: KerfKore bends easily

Figure 7: We mean it, this stuff REALLY bends!



Figure 6

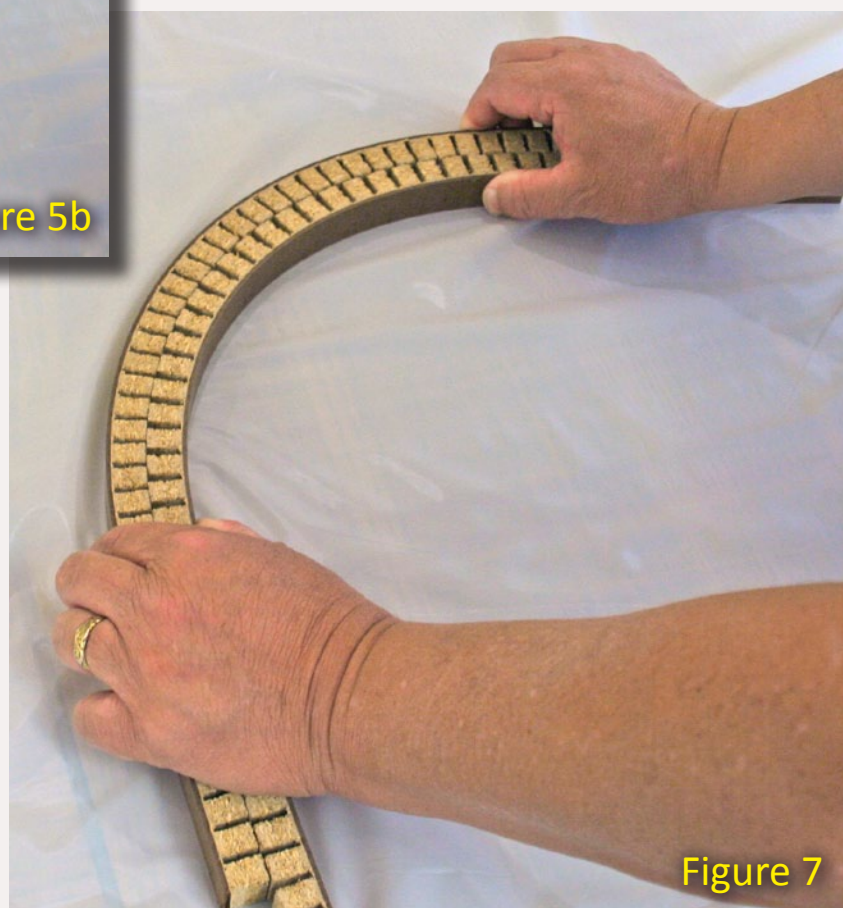


Figure 7

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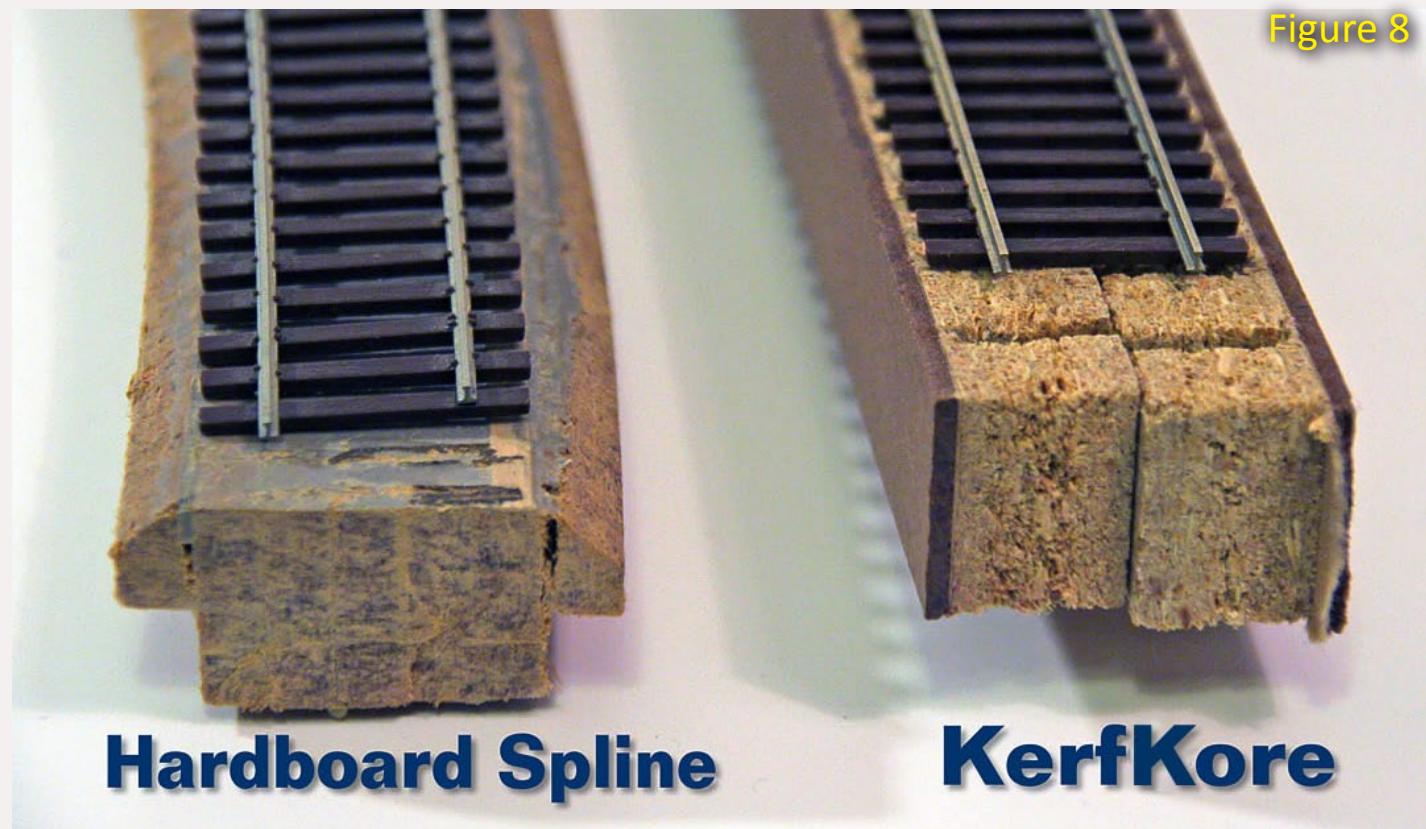
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Figure 8



Hardboard Spline

KerfKore

Continued from page 35 ...

long – or 176 feet of roadbed – with no waste except the saw cuts. Once you have the strips, you apply glue to the two inner faces of the KerfKore and clamp them in place – very similar to gluing hardboard splines.

The slots in the roadbed need to be filled – you can mount cork or hom- abed on top, or you can fill the gaps with a putty knife and plaster or caulk.

You can find **KerfKore** at <http://www.kerfkore.com> – the web site includes a list of distributors in the US, Canada, Mexico, and the Caribbean. The product you want is **EconoKore** and is available in thicknesses of  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{3}{4}$ ".

Since this is usually a wholesale builders' product, several modelers might want to pool their orders with a distributor. — J. Fugate

Figure 8: Two different spline roadbed construction methods compared.



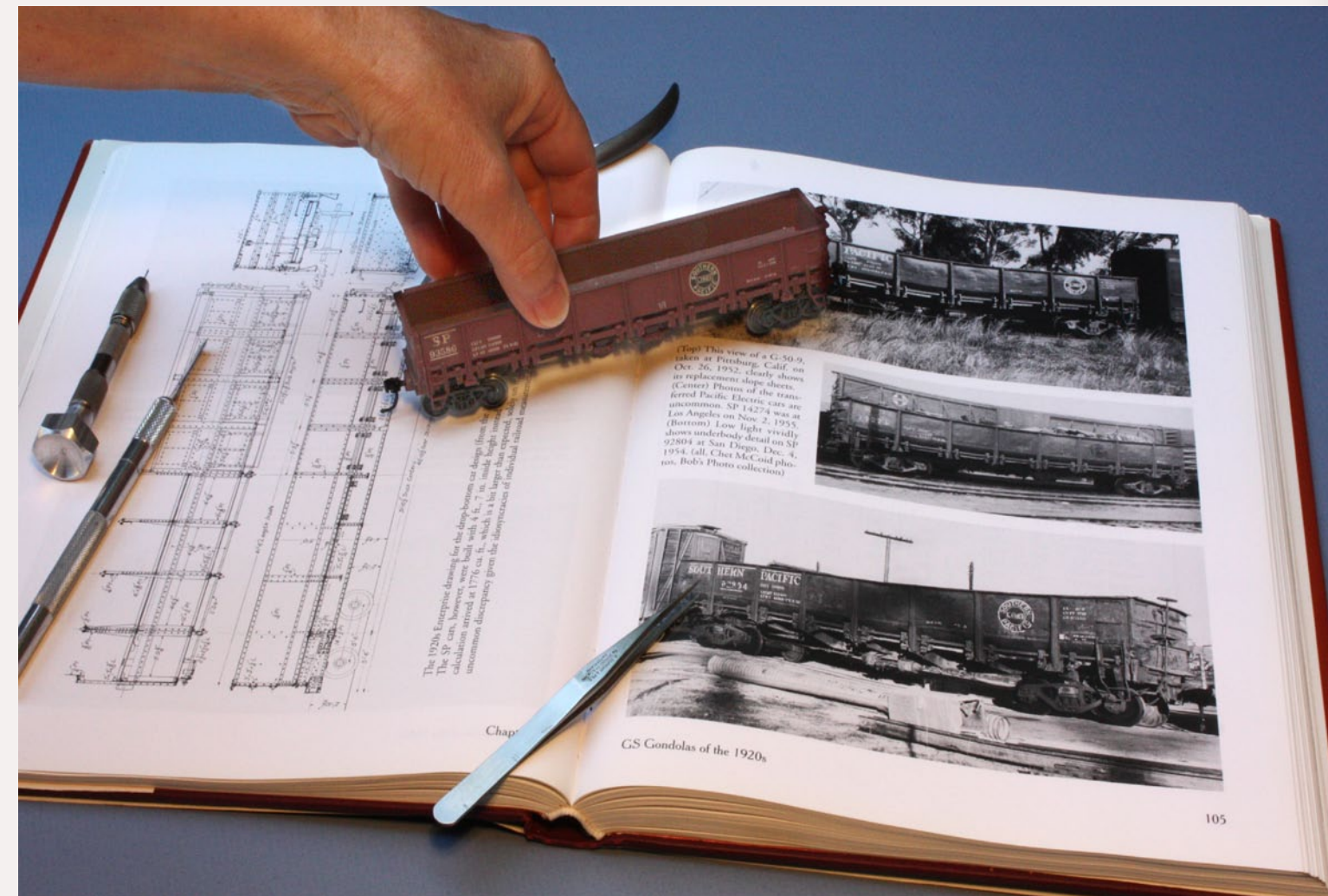
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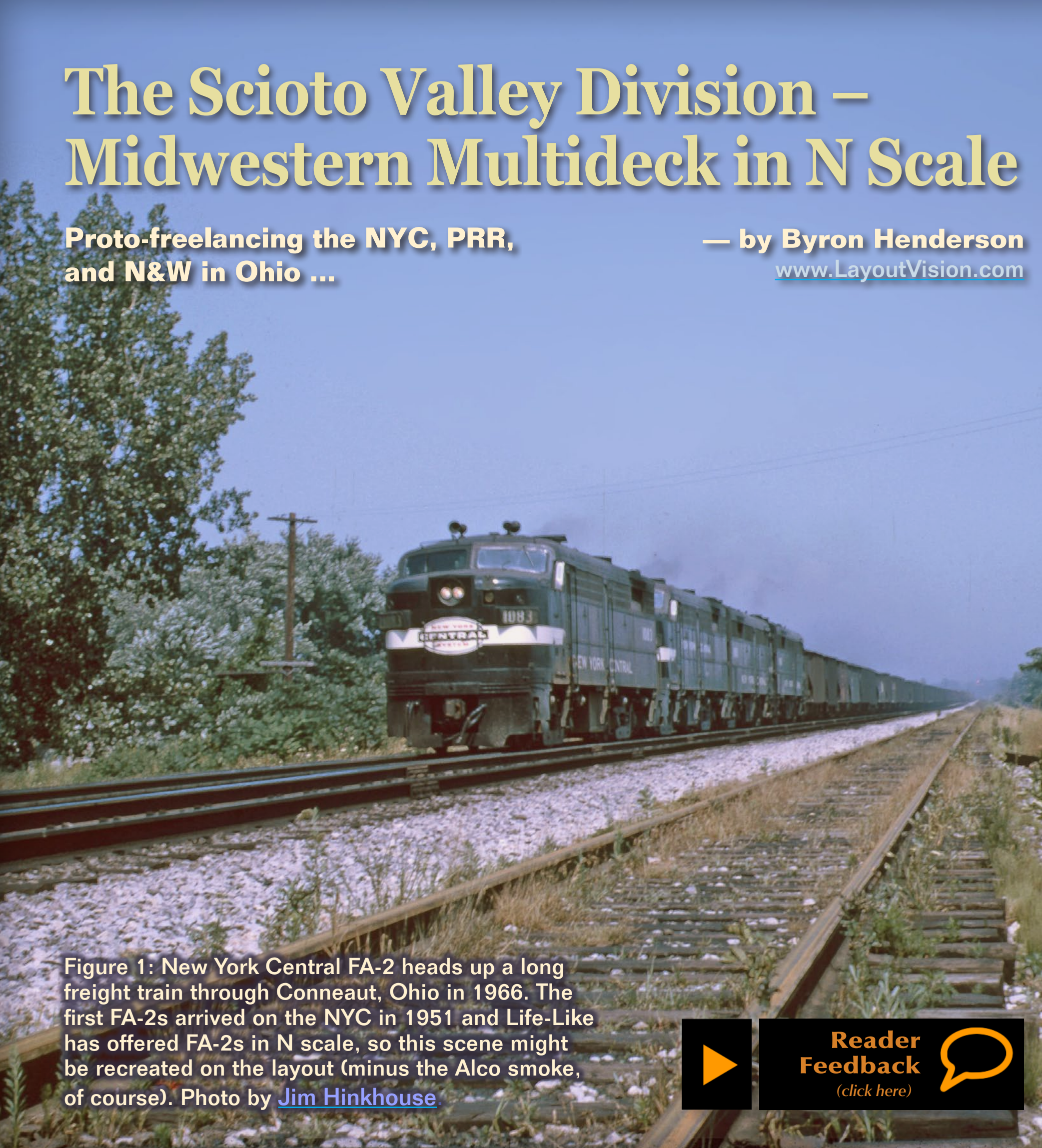




# The Scioto Valley Division – Midwestern Multideck in N Scale

**Proto-freelancing the NYC, PRR,  
and N&W in Ohio ...**

— by **Byron Henderson**  
[www.LayoutVision.com](http://www.LayoutVision.com)



**Figure 1:** New York Central FA-2 heads up a long freight train through Conneaut, Ohio in 1966. The first FA-2s arrived on the NYC in 1951 and Life-Like has offered FA-2s in N scale, so this scene might be recreated on the layout (minus the Alco smoke, of course). Photo by [Jim Hinkhouse](#).

**S**o what's a fellow to do when he knows all the elements he'd like to see in layout, but can't find a place in the real world where they all line up? My client was in just this situation: he knew the primary railroad for his transition-era N scale model railroad layout was to be the New York Central, with a supporting appearance by the Norfolk & Western and a third railroad "to be named later."

He also wanted a major port, a steel mill, some coal mining, and was willing to go to multiple decks to achieve all of that in a roughly 200 square foot space (19 square meters, actually; the layout will be built in Europe). A preliminary conceptual sketch located a number of key elements in the room, but what made sense as a real-life location?

## **Proto-freelancing Routes and Connections**

Since my client was willing to accept some proto-freelanced adjustments to history, I suggested that the main yard and river port area might be patterned a bit after the Portsmouth, Ohio area on the Ohio River. In real life, the Norfolk and Western (N&W) was the primary occupant of this facility, but in my client's proto-freelanced world, the New York Central (NYC) is the main owner. And adjusting reality is helpful for another reason here: the real-life Portsmouth was (and is) huge and far beyond modelable scope for the space we had available.

From Portsmouth, the NYC is imagined to connect to Columbus, Ohio through Scioto Furnace, Lucasville, and Piketon (on the visible layout). In real life, this was a joint N&W and Chesapeake and Ohio line. Although the place names are real, the modeled versions don't reflect the real locales.



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Figure 2: A Pennsy freight like this one might be seen passing through Bremen on the way to interchange at Portsmouth Yard on the layout. [Jim Hinkhouse](#) caught this mixed diesel consist led by PRR FP-7 4344 in Bexley, Ohio in 1967.

In the other direction from Portsmouth, the NYC is imagined to connect to Cleveland, Ohio, and points east, represented by hidden staging.

Despite evicting it from Portsmouth, we're not ignoring the N&W entirely. Remnants of a severed N&W branch on the upper deck serve a number of coal mines and interchange with the NYC at Piketon via trackage rights on the NYC.

And the railroad to be named later? Since my client is partial to subdued, darker liveries, the Pennsylvania Railroad (PRR) (which was nearby in real life) is recruited to serve the town of Bremen, OH, and then interchange with the NYC in Portsmouth.

## Making Multidecks More Manageable

Clearly, a single deck model railroad track plan couldn't encompass all the desired features, even in N scale. But multiple decks bring their own set of trade-offs and compromises. Nevertheless, I resigned myself to creating a multideck plan (Figure 4 and 5 next two pages).

*Continued on Page 44 ...*



To accommodate the layout owner's operating desires (and structure kit inventory!), Scioto Furnace is the site of a large steel mill, while Lucasville and Piketon are smaller and more rural communities.

Figure 3: Although much reduced in size compared to the real thing, the steel mill on the layout allocates space and trackage to suggest prototype scenes and support specialized equipment (such as these ingot buggies) as seen in this photo of the Cleveland District Steel Plant, Republic Steel Corporation. Library of Congress, Prints and Photographs Division, Historic American Engineering Record, Reproduction Number HAER OHIO,18-CLEV,34-54.



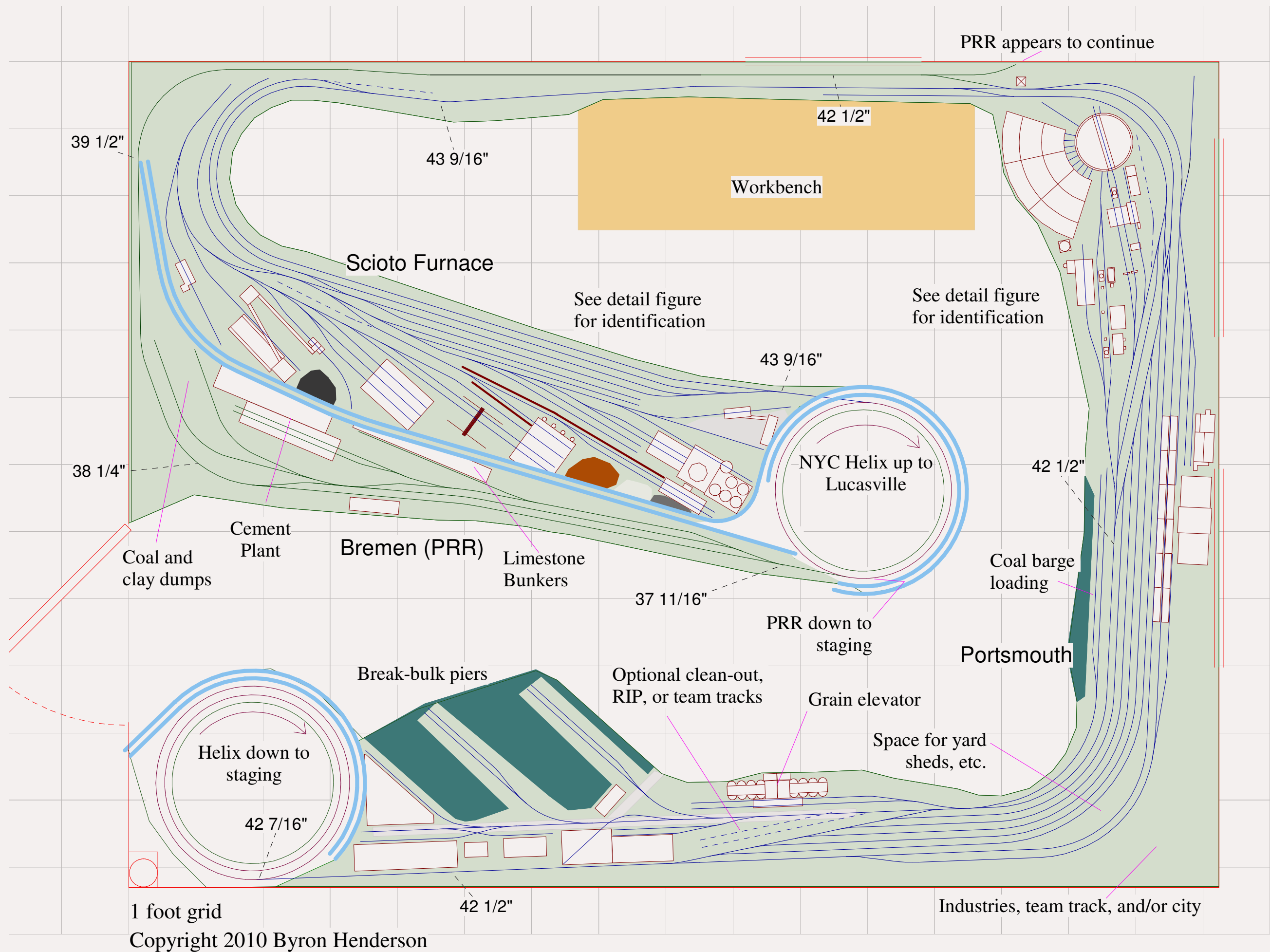


Figure 4: (lower deck) A multideck design was needed to incorporate all the desired elements of the client's vision for a layout featuring coal and steel, but also general freight and passenger operations. See the upper deck on the next page.



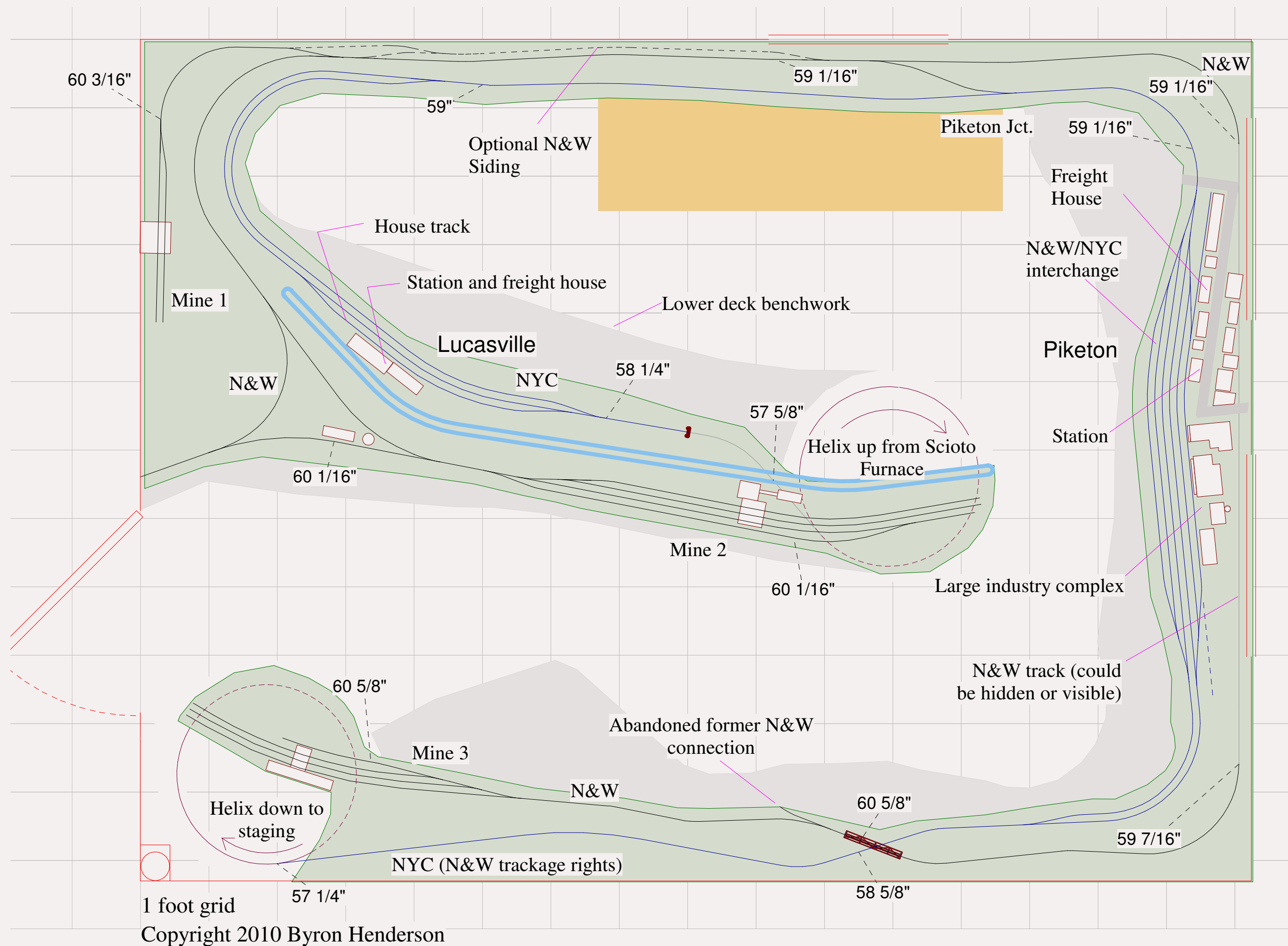


Figure 5: Upper deck.

NYC Scioto Valley Division

Scale: N

Size: 12' 3" X 16' 3" (3.8m X 5m) overall

Era: 1950-1960

Locale: Southern Ohio

Min radius: 15 3/4" (40cm) on main

Turnouts: NMRA #6 (FastTracks)

Max. grade: 2.5%

Style: Multi-deck with helixes



... *continued from page 41*

The first challenge is moving trains from deck to deck, since my client wanted a long mainline run. I settled on the old standby of multi-turn helixes, but tried to make them do at least partial double-duty to better earn their keep.

The helix at the lower left is double-tracked, those two tracks serving to connect the lower deck and upper deck each to a combined loop and through-staging yard staging below Portsmouth (more on the staging arrangement below). Minimum radius is 40 cm (just under 16"), so grades will be manageable.

I often try to stack all the helixes for the different decks; however that wasn't going to work this time around. But I was able to place the curving connection down to PRR staging beneath the helix at the end of the peninsula by adjusting the grades out of Portsmouth: the NYC main track to Scioto Valley is rising while the PRR descends to Bremen. By splitting the grade in this way, the PRR can easily tuck under the peninsula helix.

## **Avoiding a Sprint With a Back Side Bonus**

One of the challenges in using a helix mid-run (as I do between Scioto Valley and Lucasville) is avoiding the ol' peninsula end-around play. By doubling-back through the helix and placing Lucasville on the same side as Scioto Valley, the

operator avoids a sprint back around the helix to catch up with a train.

The cost here is a loss of directional consistency: west is to the left leaving Portsmouth, but to the right upon exiting the helix at Lucasville. My client and I decided this was a worthwhile trade-off if we made good use of the "back side" of the peninsula.

In this case, we have two branch-like lines to place in the space on the opposite side of the backdrop from Scioto Valley and Lucasville. On the lower deck, the PRR station of Bremen nicely fits the bill, and an expansive mining and wye scene on the N&W branch works well on the upper deck.

The operators of these branches must still walk around the end of the peninsula, but we avoid it for the major portion of the traffic on the layout.

## **Modulation in All Things (Especially Aisle Width)**

In a mid-sized space such as this with a lot of railroad to place, I find it really helps to vary the aisle widths. A few tight spots are OK, as long as there is a wider "people passing zone" nearby. While the drawings show a workbench sharing the aisle with the railroad, this will likely be built-in under the layout benchwork, so the aisles will be a bit more open as built.

Even so, I tried to keep the aisles a little wider where operators will typically be standing for a while near the yard ladders and other busy locations. Modulat-

ing the aisle width in this way helps us work in a bit more railroad without too much of a squeeze for the operators.

## **One-way Staging**

When the situation permits, I like to include a combination of loop and through staging. This allows open top loads to always circulate in the same direction, if desired, while out-and-back traffic such as local passenger runs can also be accommodated. This also permits the re-use of some consists without any additional action on the operators' part.

Sometimes, this can be combined with one-way staging so every train can follow the same path through staging, whatever its origin and destination.

The Scioto Valley staging plan (Figure 6) is a good example: trains arriving from either the upper or lower deck can take the double crossover to be routed to the "Inbound" track. A train on the inbound track loops beneath the engine terminal and enters the staging yard proper, where it can be stored in any available track.

Similarly, any train leaving the staging yard on the "outbound" track can be routed through the double crossover to either the lower or upper deck. Every staged train is pointed in one direction ("out") with no hassle.

(This is one of the benefits of DCC on an operating layout. With hands-off automatic reverse loop operation, a

"loop" route in staging is just as easy to use as a "through" route.)


The only downside to this arrangement is that a single inbound and single outbound route creates a possible bottleneck. But in even moderately busy operating schemes, this creates only a momentary delay.

## **A Variety of Operating Roles**

Many different types of freight trains and operating roles may be supported on the layout: local and yard crews working out of Portsmouth Yard, through trains (many making pick-ups and set-outs), dedicated haulers between Portsmouth and Scioto Furnace, and the in-plant steel mill railroad. The N&W and PRR trains also need crews to work local industries and perform interchange switching.

There's also a decent amount of passenger train operation, head end and express switching, and sleeper set-outs and pick-ups possible.

Each operator should have the chance to fill a number of different roles in a session, and session could be further varied by splitting an operating "day" into multiple shifts (or "tricks" as they were often called on real-life railroads.)

Although the railroad will be built in Europe, far from its inspiration, proto-freelancing the real-life railroads and industries should offer a great mix of modeling challenge and operating enjoyment. 



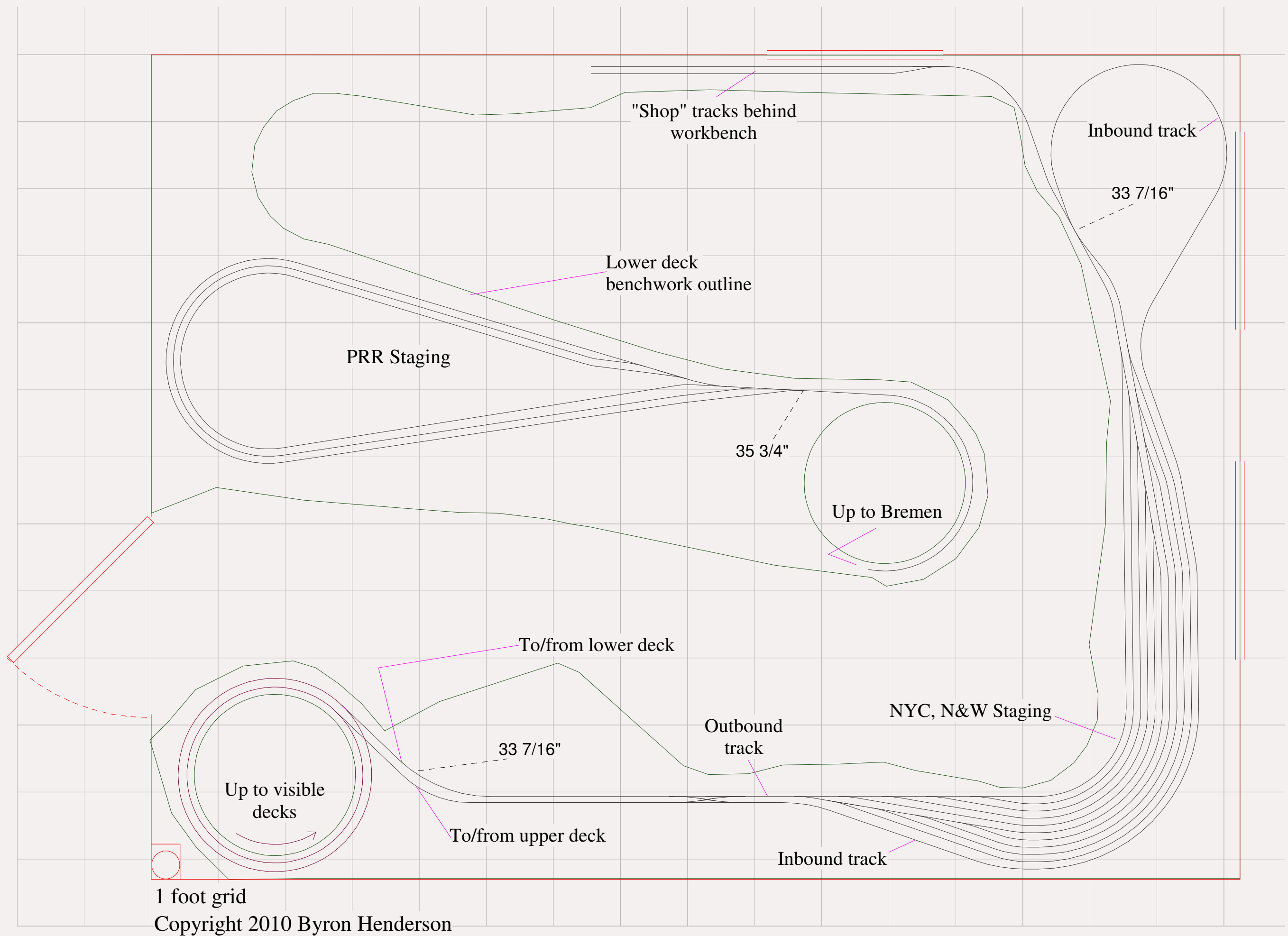


Figure 6: There's enough room for once to allow staging to be both "loop" and "through", along with a one-way traffic pattern that is easy for operators and the reset crew.



## Flexibility at Portsmouth Yard

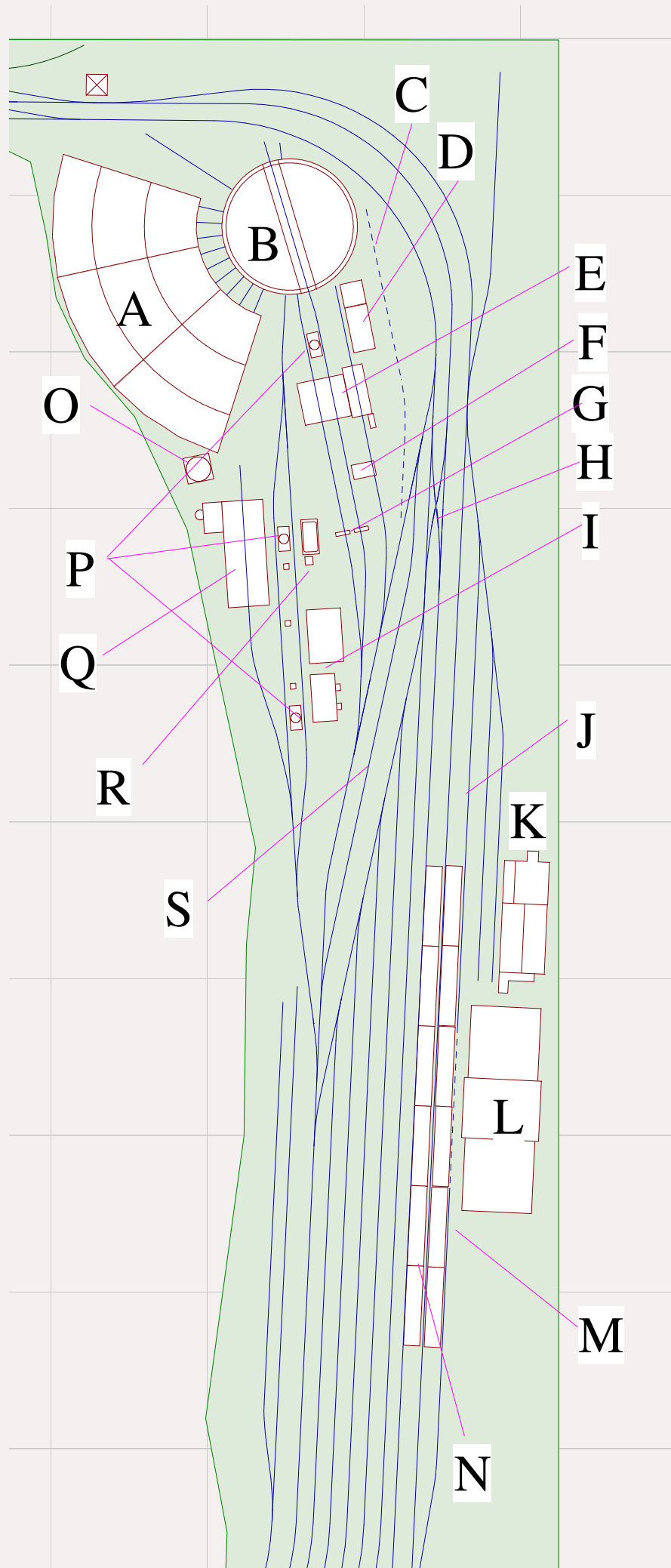
Portsmouth Yard has a full engine service facility and sufficient trackage to serve as a division point yard for the NYC, if desired. In this case, most or all trains would originate, terminate, or at least change engines here.

But it may prove more interesting for operations for the yard to be used primarily as an interchange yard and for originating and terminating some local trains, along with a bit of passenger switching for variety. In addition, there is substantial local industry switching in the Portsmouth area itself. This would reduce the operations overhead in Portsmouth and shift more emphasis to industry switching in Portsmouth and elsewhere on the layout. ■

### Key to Portsmouth Yard Elements (Figure 3)

- A Nine-stall roundhouse
- B 130' turntable
- C Optional maintenance of way or alternate sand track
- D Sand house and shed
- E Coaling tower
- F Cinder conveyer
- G Water standpipes
- H #8 double crossover
- I Yard office and shed
- J Passenger track for business cars and westbound sleeper set-out (optional)
- K Express shipment tracks
- L Union passenger station
- M Eastbound sleeper set out (optional)
- N Passenger platforms
- O Water tank
- P Sanding towers
- Q Machine shop used as diesel house
- R Diesel service (tank, pumphouse, standpipes)
- S Caboose track

Figure 7: A variety of Walthers kits makes for a fairly complete engine service and passenger facility, and N scale helps it fit in a reasonable space within arm's reach.





## Steelmaking at Scioto Furnace

In real life, Scioto Furnace was an early (1826) iron-making location. In our imagined history, the site has transitioned to a full-fledged steel mill. Limestone from Bremen (interchanged at Portsmouth), coal from the upper deck via Piketon and Portsmouth (or from western Ohio and Pennsylvania entering Portsmouth from east staging), and iron ore from the Great Lakes (entering from staging via the upper deck) are processed into steel in a full integrated mill.

Up to two dedicated crews may work the “iron” and “steel” sides of the mill (Figure 8). The A lead handles primarily the “iron” side and the interchange and yard tracks, while The B lead handles mainly the “steel” side of the layout and the Coke plant. There is a crossover that is intended to let cars be exchanged between the leads.

Note that there are no run-arounds required for the steel mill plant switchers. This is intentional to make the area flow as smoothly as possible, since there is so little room to spare.

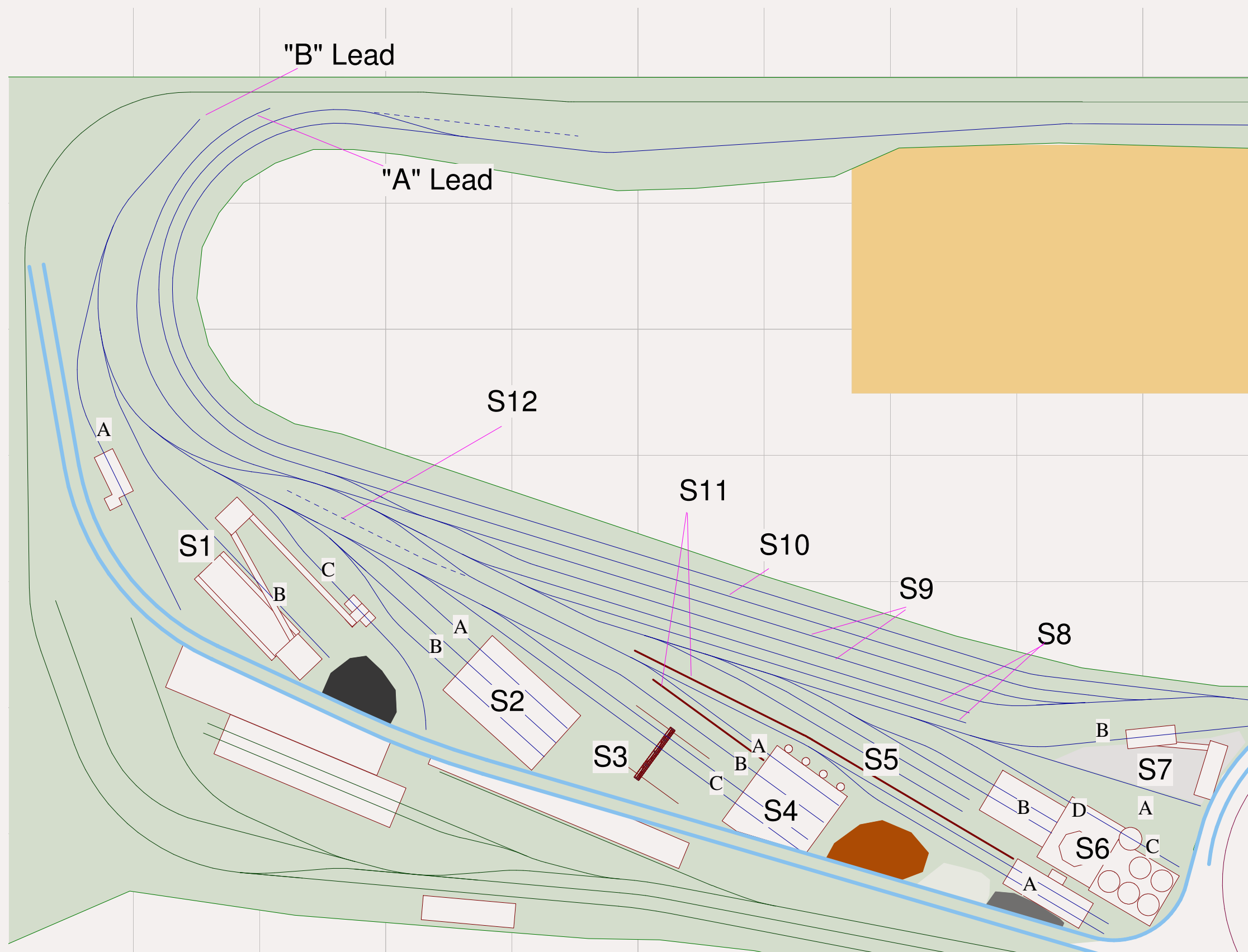


Figure 8: Angling structures and tracks accommodates longer spurs to the various working sections of the steel mill buildings and allows some prototypical variations in elevation.



## Steelmaking at Scioto Continued ...

Unlike many published model plans that only vaguely relate to real-life steel-mill operations, the steel mill area actually allocates space for most of the in-plant switching, including allowing for sufficient switching leads. The plan also at least suggests some of the real-life elevation differences in the plant, such as the blast furnace high line and open hearth furnace charging track. Note that the structures are placed at a bit of an angle to the main tracks and to the backdrop to ease the angle of the tracks serving the structures (increasing usable length) and to help conserve some space.

Most of the models here are based on the Walthers kits, which the client already had on hand. Where significant modifications to the kits have been made, they are noted in the discussion below.

### S1 Coking Plant

Coke, an important ingredient of the steel-making process, is created by heating coal to very high temperatures. Track B here handles the loaded coke cars, hot from the oven, which are quenched with water on Track A. Track C is the coal dump and a large pile of coal could be against the backdrop.

My client has already reworked this area a bit to add space for a coke by-products plant, a nice additional traffic source that is common in real life.

### S2 Rolling Mill

Track A would be ingots of steel in,

the two tracks labeled B would be for finished products shipping out.

### S3 Optional Stripper Yard

Here the ingot molds are removed ("stripped") from the ingots after they have cooled. This area would usually be under a roof and incorporate the soaking pit (where ingots are reheated) on the prototype.

What's shown in the track plan is a significant compromise, because the stripper yard is located on the tracks leading into the open hearth, but it suggests an important step on the prototype that most modelers (and commercial structure kit manufacturers) ignore.

### S4 Open Hearth (converted from Walthers Electric Mill)

An open hearth furnace is probably more appropriate for the imagined steel plant than the electric furnace, but a passable model can be suggested by adding stacks to the Walthers Electric Furnace kit as suggested in Dean Freytag's *The History, Making and Modeling of Steel* (Wm. K. Walthers, Inc., 1995). Here we place part of the building against the backdrop to save space.

Track A is the "charging track" for hot metal cars coming in from the blast furnace, Track B is slag out, the two tracks labeled C would be loaded ingot mold cars out. As on the prototype, Track A should be a bit higher than the other two, although we can't achieve the full prototype elevation difference in our limited space.

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### S5 Storage/Repair Yard

Two track storage/repair yard for steel mill cars – coincidentally a good place to show off and store models of this unique equipment. The roster might include ingot buggies, hot metal cars, coke cars, slag hoppers, etc. All of these are available from specialty suppliers in N scale.

### S6 Blast Furnace

This is where iron ore, coke, and limestone are converted to iron. A is the highline for delivery of raw ingredients, with piles of these materials stacked up against the backdrop. B is for hot metal cars out to the open hearth, D is for slag cars, C is a dust collection bin that would fill an occasional gondola.

### S7 Slag Pit

This small area suggests the slag pit, and important feature of real-life steel mills. Slag cars from the blast furnace and the open hearth would be brought to track A. A kitbashed crusher (perhaps from Walthers' Glacier Gravel kit or similar parts) crushes slag that is loaded into hoppers for shipment out on track B.

### S8 Steel Mill Interchange/ Classification tracks

These tracks provide a means of transferring cars between the two leads and also a bit of room for the steel mill switch crews to sort incoming and outgoing cars.

### S9 Interchange (set out and pick up) tracks

Primary tracks for interchange with NYC trains.

### S10 Passing siding

### S11 Retaining walls

Because the lead to the highline and the open hearth charging track is climbing, a retaining wall is needed and could be a nice scenic element.

### S12 Engine service (optional)

The connection would be a little tricky (from a sloping wye turnout), but there's a nice up-front area for some simple engine service, if desired. Engine service could also very logically be in the small storage yard at S5. ■



Byron Henderson is a custom model railroad layout designer from San Jose, CA. Byron is a member of the [Layout Design SIG](#) and [Operations SIG](#), and is a past editor of the *LDSIG's Layout Design Journal*.





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Dave Clune's On3

# CASCADE COUNTY NARROW GAUGE

By Joe Brugger and Charlie Comstock



Orders in hand and with a full head of steam, Cascade County Narrow Gauge Number 7 waits to depart from Wolf Creek.



Dave Clune knew he wanted a narrow gauge layout, but he was also looking for something beyond Colorado. He was interested in the Nevada County Narrow Gauge, but lived in Oregon. His solution? Move the NCNG to Oregon and dub it the Cascade County Narrow Gauge.



By Josef Brugger and Charlie Comstock

**M**odel Railroad Hobbyist had the opportunity to visit the On3 Cascade County Narrow Gauge in May 2010 and interview Dave Clune. Dave got his first issue of Model Railroader in 1949 and has been modeling ever since.

**Charlie:** Dave, thank you very much for having us. You've got a wonderful layout here.

## Why the NCNG?

**Charlie:** The Nevada County Narrow Gauge is not modeled very often. What led you to model this railroad?

**Dave:** Charlie Best had a book out called the "Nevada County Narrow Gauge." It contained everything I wanted in the concept and execution of the layout, so I used the book as a basis for my modeling. It had mining,

it had common carrier status, it was short – 21 miles – and it contained some nice-looking locomotives.

**Charlie:** Was there something that attracted you to a narrow gauge rather than a standard gauge layout?

**Dave:** Yes, narrow gauge is the most personable of all the railroads, I think. It's small, intimate and fit well in a model railroad.

**Charlie:** Some people don't know what a narrow gauge is.

**Dave:** Narrow gauge is anything less than 4 feet, 8 ½ inches (standard

gauge), in my case it's three feet between the rails. It's a gauge that was adopted in the 1870s to penetrate rough country cheaply. You get tighter radii and often steep grades, but the cost of construction and equipping the railroad was considerably cheaper.

## Layout Concept

**Charlie:** What gave you the idea for moving a railroad from the California Sierras to the Cascades in Oregon?

**Dave:** The concept I set down early on. Then I looked for a railroad that filled it. The concept, is a short line,



Figure 2

**Figure 2:** The appeal of small narrow gauge locomotives and detailed west coast mountain scenery drew Dave Clune to model the Nevada County Narrow Gauge – but with a twist. Instead of being based in Colfax, California, Dave moved his railroad to the fictitious Cascade County in Oregon.

Number 6 poses near the turntable at Hardscrabble on the CCNG – C. Comstock photo





Figure 3

western-style narrow gauge that had interesting track features and structures and cars and locomotives, and the Nevada County Narrow Gauge filled the bill. I moved it to southwestern Oregon, running out of Wolf Creek, Oregon, into the Galice country changing the name from Nevada County to Cascade County.

**Charlie:** There isn't really a Cascade County?

**Dave:** There is no Cascade County in Oregon so it's freelanced using prototype practices. It was just simply using

the prototype for your standards in cars, and locomotives and structures and so on and so forth to model from. That way you're keeping faith with the prototype but at the same time you're modeling what you want to model. The concept is that you're trying to duplicate a small narrow-gauge railroad that fits what you want to model.

**Charlie:** Did you have help with the trackplan, or in the layout here?

**Dave:** Actually, the basic trackplan was drawn by a friend of mine. I had

become so frustrated this room almost became a mother-in-law's room . . .

**Charlie:** . . . heaven forbid . . .

**Dave:** [laughs] . . . well, a friend of mine drew the basic plan and I simply filled in the yards, sidings and so on and so forth. The concept of how that played out now was Bill Zelany's idea. I had drawn several plans that were more ambitious and I wanted a more relaxed plan that I could either operate by myself or with a couple of other people. Since then it's grown in

**Figure 3: Wolf Creek is the main yard on the Cascade County Narrow Gauge – J. Brugger photo**

the operating area. It takes two hours to run a train up to Hardscrabble from Wolf Creek and back, under the old trackplan.

**Charlie:** Wolf Creek is at one end of the railroad and it was the main yard?

**Dave:** It was at one time the engine terminal and the main yard. Since 2001 I've extended the track around to a



fiddle yard at Murphy and Cascade – the same fiddle yard except whatever direction you come, you have to reverse direction and come back out. We do not operate through.

## Research

**Charlie:** When you started building this there was a limited amount of information available. How did you go about modeling the railroad more prototypically?

**Dave:** Of course, the book, by Gerald Best, “Nevada County Narrow Gauge,” and then I ran into, or met, Herman Darr, who was a historian on the Nevada County Narrow Gauge, and Russ Simpson and a few others who provided some pictures and information. So I felt that I had enough information to get started. Since then I’ve learned quite a bit more about it.

**Charlie:** It would seem one of the advantages of modeling a less-known railroad is that you can get away with more than most people.

**Dave:** I’ve tried to keep the rolling stock pretty close to what the Nevada County Narrow Gauge ran, but there are cars on this layout that never did run on the NCNG. The passenger cars are from the Elkhorn and Missouri River Valley in the Black Hills [South Dakota]. They are accurate models of those cars, but they never ran on the Nevada County Narrow Gauge. Neither did the private car and some of the boxcars.

And the fact that they never had any log cars and they didn’t have any ore

cars, as such. But the rest of the cars are based on western prototype, the Eureka Nevada and several other small railroads here in the west.

## Loco Tuning

**Charlie:** I’ve noticed that your engines run remarkably smoothly. My experience with brass engines has been that they don’t. So, what happened here?

**Dave:** Well, a lot of work. A lot of work. Three of the locomotives are Kemtron – they’ve had new drivers, gearing and motor systems installed along with the electronics. You just have to work at it until you get it really smoothed out.

One little locomotive, number 3 (figure 3), is a brass import from 1958 and has a motor in the tender and is driven under the floorboards. It runs remarkably well for an engine that’s over 50 years old. Some of the other locos were bought as Nevada County Narrow Gauge engines. Number 8 and Number 5 are both commercial products. So there are some commercially models for the Nevada County.

**Charlie:** Do you have a favorite part of the hobby, Dave? Scenery, structures, rolling stock, locomotives, wiring, operations?

**Dave:** I kind of enjoy all of it. I enjoy the head work involved in designing, constructing, building, finishing, any of it. Obviously, scenery is part of it – I probably enjoy the scenic portion of it the most, which is non-dimensional. There is no dimension in scenery.



Figure 4

Figure 4: The CCNG Hardscrabble Depot – J. Brugger photo

Figure 5: The Stanley Mines Co. in Hardscrabble – J. Brugger photo



Figure 5





Figure 6

**Charlie:** No dimensions in scenery? I don't know what you mean.

**Dave:** You can't measure a rock. They come in all sizes. It's more of what looks good and it's kind of fun. It's non-dimensional – you're not measuring anything, you're simply creating, painting, sculpturing ... If it doesn't look good you tear it out and do it over.

For instance, painting on the backdrop was very relaxing to me. For other people it might be a real chore to draw, but I enjoy doing that.

I also enjoy sitting down and constructing a car using exact dimensions. I enjoy all facets of the hobby, though the least-enjoyable is the under-the-layout work: wiring, putting in switch machines, things like that. But that's something that has to be done to make it into a whole.

## Scratchbuilding

**Charlie:** You've got a lot of scratch built rolling stock here. Tell me about that?

**Dave:** The plans primarily came from Herman Darr and I did try to stick to the boxcars, flat cars and tank cars on the NCNG and build them accurately. I did use stripwood to construct the wood cars with styrene to make the metal parts. And then, everything is weathered, of course.

**Figure 6: The level of scenic detail extends to the numerous bridges on the layout**

– C. Comstock photo

**Charlie:** Where did all the lettering come from?

**Dave:** The lettering actually came from the Nevada County Narrow Gauge decals that were sold by Coronado Scale Models several years ago. I cut 'em up and use them as my herald. The lettering on the sides of the cars are the same style, I just substituted an extra "C" instead of an "N".

**Charlie:** I was thinking they might be the Charlie Comstock Narrow Gauge.

**Dave:** [Laughs] No, no. Most of the cars came from Simpson wood kits. Back in the '80s he sold a wood kit that made up into a box car. I bought a couple and then cut my own wood for the rest of them.

**Charlie:** Now, when you say kit, you're talking a bit different than opening up a box of injection molded castings . . .

**Dave:** Well, there's stripwood and sheetwood in it there. It's flat and you build it up from there using a jig and plans.

**Charlie:** What do you use for trucks?

**Dave:** They're primarily a plastic truck made by McLeod – they are correct for the Nevada County Narrow Gauge. Recently I've purchased more in the way of a metal truck and metal wheels, as the plastic, I found out, doesn't last forever.

## Weathering

**Charlie:** I see your cars are nicely weathered (Figure 7). How do you achieve that?





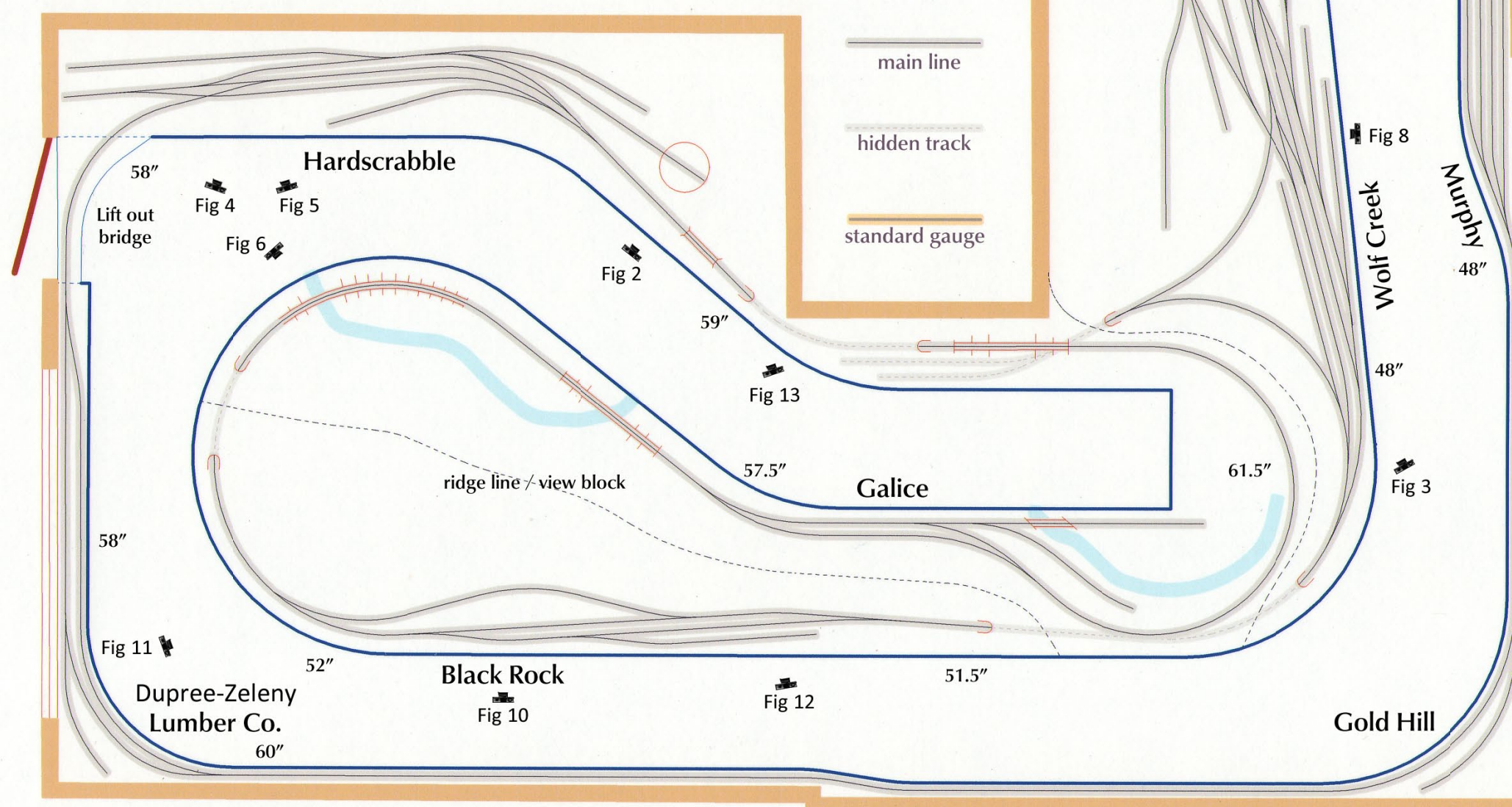
**D**ave Clune lives in the central Willamette valley in Oregon, with his wife.

Dave started modeling in the days when if you weren't scratch building, you didn't build much. He was bitten by the narrow gauge bug in the early sixties and has been narrow-minded ever since then.

One of Dave's kids has gone on to attain modeling fame of his own - Chris Clune of ExactRail.

Dave Clune's On3

# CASCADE COUNTY NARROW GAUGE



## Layout Statistics

Era: 1925 to 1931  
Locale: Oregon Cascades  
Style: Proto-freelanced  
Scale: On3

Trackplan: Point to point with staging connection  
Size: Aprox 22' x 18'  
Min. Radius: 36"

Track: Handlaid  
Turnouts: Handlaid  
Control: DCC - Lenz  
Built: 1986-present



**Dave:** Instead of painting the wood I stain the individual pieces before assembly. Variations in the way each piece takes stain bring out extra detail

When I'm done with the car I usually use chalks and alcohol to weather them.

**Charlie:** Chalks and alcohol together?

**Dave:** Yes. I put the chalk on, and then I add alcohol to dissolve the chalk into the paint. That keeps it from being rubbed off when it's handled.

**Charlie:** Does that work better than spraying with Dullcote? I tried that and the chalk just disappeared.

**Dave:** When you spray it with Dullcote you blow away all the chalk. Using the alcohol you can control it a lot better.

## Operation

**Charlie:** I see racks of car cards here. Does this layout gets operated?

**Dave:** We operate about once a month. The operation is based on this railroad, not the prototype, because the prototype only ran one or two trains a day and had pretty limited switching. We do duplicate the switching at each station.

It takes approximately two and a half to three hours to run a schedule, when we have a local freight come out of the main yard, make a circuit of the layout and then come back.

**Charlie:** How big is your crew?

**Dave:** Oh, about seven or eight – half are engineers and half are conductors.

**Charlie:** How many trains run at once?



Figure 7

**Dave:** I usually have about three trains running at once – usually one passenger train, one freight train, a local each direction and then we set up meets with train order and timetable.

**Charlie:** I don't see any signals out there.

**Dave:** That's correct. It's all train order and timetable operation.

**Charlie:** Is there a particular year that you're modeling?

**Dave:** We bracket 1925 to 1931.

**Charlie:** So even CTC would have been in its infancy at that point and narrow gauge would never have seen that.

**Dave:** Well, narrow gauge never did use anything other than train orders and timetables, in the vast majority. There were exceptions, but on this layout

and this railroad and on the prototype NCNG, they never used anything other than timetables and train orders.

**Charlie:** How do the crews tell time?

**Dave:** Well, we have fast clocks. There's one placed here at Wolf Creek and there's one at the far end of the room and you can see them from all over.

**Charlie:** How fast are they?

**Dave:** They are 4:1; in other words, it's every 15 minutes is an hour.

**Charlie:** When I set up the operating scheme on my layout, I measured how much real time elapsed to do each task, whether it was running from one place to another or doing switching. I set up the train lineup to accommodate that and then I worked backward to what the fast clock times would be.

**Figure 7: The results of Dave's board by board staining with chalk, and alcohol weathering—J. Brugger photo**

**Dave:** [Nods] Exactly. You measure the amount of time it actually takes to do something, then you compute that into your schedule. The passenger train runs on a schedule, all others run extra so there's no reason to have a real tight schedule.

The locomotives have working class lamps on the front. If the class lamps are off, then they're a scheduled train. Only extras need classification lamps.

## Hobby Beginnings

**Charlie:** How long have you been in the hobby?



**Figure 8:** This view of Wolf Creek shows the overall weathering on buildings and how the foreground and backdrop blend together – C. Comstock photo

**Dave:** Probably about 50-60 years. I got my first train at about 8, which was a Lionel, and I switched over to scale modeling around 1952 and went to narrow gauge about 1960-63. Been in it ever since.

**Charlie:** What's the first issue of Model Railroader that you remember?

**Dave:** About 1949 somewhere. I don't remember the month.

**Charlie:** I feel like a whippersnapper now. Where has your journey into trains led you? You said you went into narrow gauge in '62. It's a lot of time between '62 and when you started this layout in '86.

**Dave:** Well, I did modeling in On3 and of course, I was in a different house, and so a test layout, tested curves and switches and so forth. And then I did build a layout in the garage, started one, never finished it. Then we moved over to this house in 1973 and I built a layout here – originally, from parts of the old layout which is not a good idea because you can't get it to fit the space, anyway, after 1985 I realized it wasn't going to work so I took it down and CCNG was the result. I started this on August 26, 1986.

**Dave:** It hasn't reached its 25th birthday yet, which is next year. So it's been a lot of fun. I felt I've learned a lot



Figure 8

and I've met a great bunch of people through the journey.

## Influences

**Charlie:** You said you'd met a lot of people. Who were the biggest influences for this layout?

**Dave:** Well, being a young kid, I'd say John Allen was one of the bigger ones.

**Charlie:** You told me you visited his layout, the Gorre & Daphetid, a few times?

**Dave:** I saw it a couple or three times and it was as impressive in person as it was in pictures. It was very very nice, and of course it was fairly complete scenically, a complete layout, whereas there were a lot of layouts at that time that were not – bare plywood and low construction standards.

I visited the Gorre & Daphetid several times: in 1961, 1964 and in 1967.

**Charlie:** Any other influences?

**Dave:** Well, probably the magazines, *Model Railroader*, various others. Particularly when the *Gazette* came out. The *Narrow Gauge & Shortline Gazette*. I think that kind of influenced me in some of my modeling.

**Charlie:** You got some plans for your buildings from the *Gazette*, didn't you?

**Dave:** For some of the buildings, yes and I got some from *Model Railroader*. The Stanley Mine (figure 5) was from





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Harry Brunk's series about "Up Clear Creek" in the Gazette.

**Charlie:** "Up Clear Creek on the Narrow Gauge." That's a great series.

**Dave:** Yes. Some of the buildings are freelanced. But for instance, the Wolf Creek station is a copy of the Nevada County Narrow Gauge depot at Nevada City.

Wolf Creek yard is almost the exact size of the Nevada City yard, except it's a hundred feet, scale, shorter than the real yard but the track layout is very similar. That's about as close to the prototype I could get with the space available.

### Changes in the Hobby

**Charlie:** In your years in the hobby you've obviously seen a lot of changes.

**Dave:** Probably the most dynamic and the most audible is the sound and the control, DCC.

**Charlie:** You started off with DC on this layout with TAT IV throttles but now you're running DCC.

**Dave:** Yes. Lenz DCC with Soundtraxx sound, that's probably the biggest change I've seen in the years that I've been in the hobby. That and the fact that you no longer have to produce everything that you model. You can go down and buy complete cars.

**Charlie:** You mean like ExactRail?

**Dave:** Exactly, plug, plug (Owner Chris Clune is Dave's son). I think another substantial change was the layout design type. It went from the spaghetti bowl to a linear design.

Then of course the sound systems available with DCC – nobody in the '60s could have imagined what we have today.

**Charlie:** Did you ever consider using PFM sound on this layout?



Figure 9

Figure 9: Modeling interior wall bracing in the future engine house – J. Brugger photo

Figure 10: The ore concentrator shipped gold in boxcars – J. Brugger photo

Figure 11: (next page) The Black Rock ore concentrator complex features full-operational-interior detail including lighting and sound – J. Brugger photo



Figure 10





Figure 11





Figure 12: This stiff leg derrick near the ore concentrator shows more of Dave's idea of 'typical' detail – J. Brugger photo

**Dave:** Yes, I did, and PFM sound is excellent, even today, but it's a fixed location type of sound system – you can't carry it around with you.

**Charlie:** What about sound in buildings?

**Dave:** Well, I do have sound in one building. The stamp mill has sound and lights (Figure 11 - it also has a fully operational and detailed interior).

**Charlie:** So, if you had the money and some time and some ambition, what would you do differently now?

**Dave:** I'd probably make it more of a switching layout than I would four towns. I would make it just one or two towns and relax the operating system to where the tracks would be a little bit longer, the spurs would be a little bit longer, more places to stick cars,

things like that. The card system would be good – it would work. If I had this room to start over again, I would probably keep it fairly small and not more than 28 inches deep at any place.

**Charlie:** So you think this room is the ideal size for you, or would you like something bigger?

**Dave:** No, for me this is plenty. I've had my big railroad, I've had my fancy stuff and I'd like to go a little bit smaller. But, not any time soon.

**Charlie:** Would you leave narrow gauge?

**Dave:** I would stay with the equipment I have and reconfigure the layout and probably add in a working wye or something of that nature. I don't know. I've got a plan in my hip pocket all the time. Whether I'll act on it or not I don't know.

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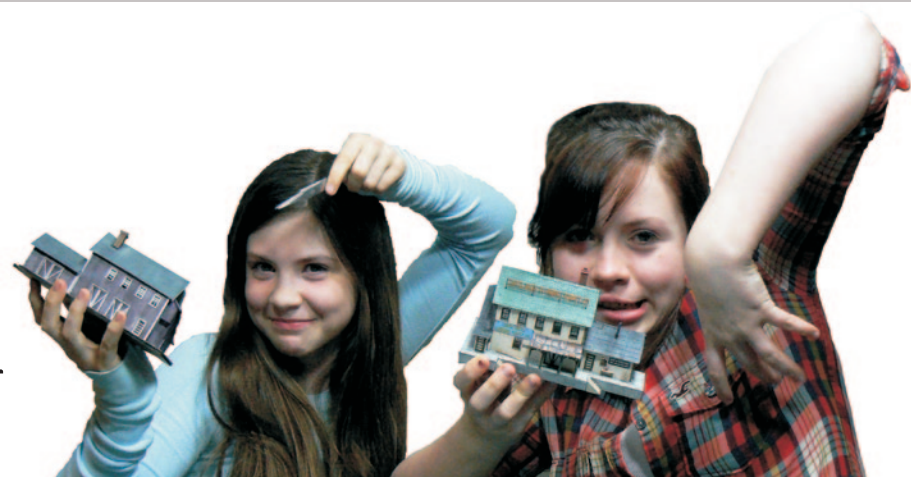
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**Charlie:** I've heard it would be dangerous to your health if you were to tear it down and start building something else.

**Dave:** I understand that some people don't like it, my wife being among the first. She thinks it's good therapy. So anyway, this is going to keep me occupied for a few years yet to come. We'll see how that goes.

**Charlie:** Do you believe that there's such a thing as a completed layout?

**Dave:** I don't. I think there's always something to do – a person can get a big challenge out of a semi-completed layout the same as from a layout that's under construction. If nothing more, you could take the trees off and refinish the scenery. New techniques, new ideas. We're not done by a long way.

**Charlie:** If you had advice for newcomers to the hobby, what would that be?

**Dave:** You don't need a gymnasium. A lot of people think they have to have a lot of room. It depends on the level of detail you want to go to. If you want to just operate trains with no scenery then, yeah, you could probably fill up a gymnasium. But if you want to operate trains realistically, in a realistic setting, it's gonna take time. John Armstrong said a square foot of benchwork takes an hour to build, but a square foot of scenery needs ten. So figure your square footage, multiply by ten and that will give you an estimate of building decent scenery, if you build it to an acceptable level.

**Charlie:** Thank you very much for having us, Dave. It's been a real treat looking at this layout, it really shows off your superb craftsmanship.

**Dave:** Thank you very much for coming by. 

Figure 13: Scenery at the east end of Hardscrabble – C. Comstock photo



Figure 13



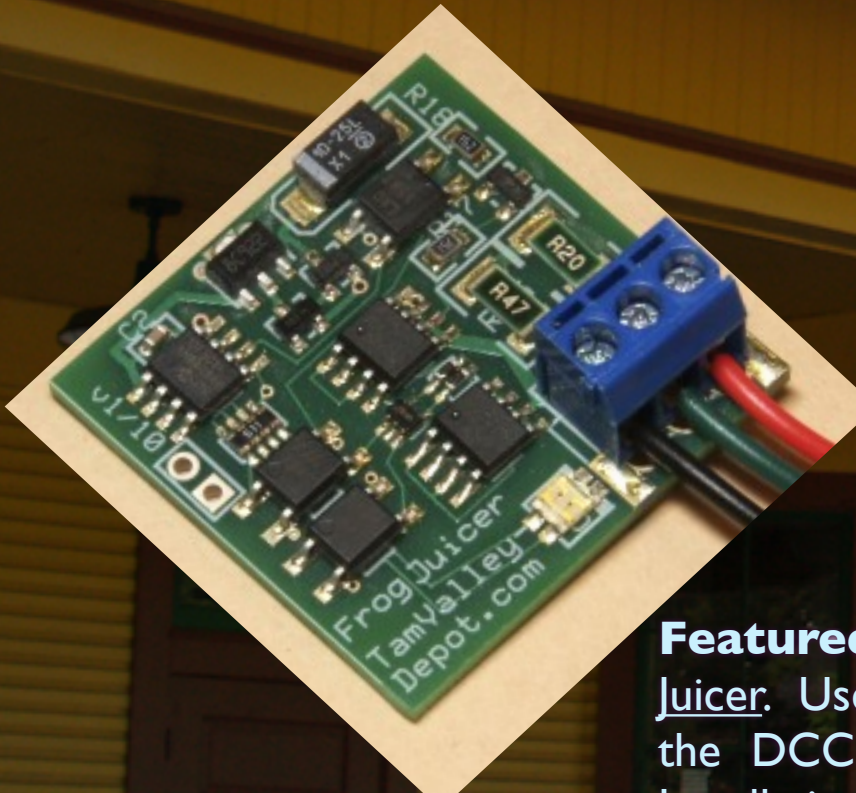
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## The Scenery Scene

### Quick and Easy Stumps ...

#### Got loggers?

by Charlie Comstock



I model the early '50s in the Oregon Cascades and that means lots of forest product industry.

### Ex-trees

If you have logging on your layout, you'll most likely need stumps. Lots of 'em. I needed a plethora or two for the Oregon Cascades layout and I had neither money to buy them nor time to make masters and cast them.

The great outdoors came to my rescue. A short walk netted branches from a filbert tree (Figure 4). Since I model in HO, I needed branches  $\frac{1}{8}$ " to  $\frac{5}{8}$ " diameter.

I saw them to length (Figure 5) – a band saw can speed up this step. I use two cuts for the top of the stumps, one from

each side. I make sure they didn't quite meet in the middle, then I snap the stump off of the branch leaving a 'crest' (Figure 1). Chain-sawn stumps have a bevel cut in them while hand-sawn stumps generally have flat tops because it's harder to cut going up (Figure 6).

### Planting Stumps

I cut the bottoms of stumps for level ground straight across. I cut stumps for slopes diagonally, eyeball-estimating the angle of the slope.

Figure 1: This Douglas fir stump is about 30" in diameter. Note the sloped cut on the right – this tree was cut with a chain saw.

Figure 2: The loggers cut the pie shaped piece out to insert a hydraulic jack to force the tree to fall in the desired direction. I elected not to model this detail.

Figure 3: Stumps from twigs in my yard. Static grass and weeds hides their lack of roots.



Figure 1



Figure 2



Figure 3





Figure 4



Figure 5



Figure 6



Figure 7



Figure 8

Figure 4: Filbert branches

Figure 5: Cutting stumps

Figure 6: Hand-sawn (left) and chain-sawn (right) stumps. I cut these in a minute or two.

Figure 7: New and old stumps.

Figure 8: With moss and debris.

I plant stumps by dipping them in a small puddle of full strength white glue, then press them in place. For really steep terrain where stumps won't stay put, I hot-glue them in place. Hot-gluing goes fast but leaves behind enough monster spider webs to make it look like Shelob – the giant spider from *Lord of the Rings* – lives nearby. I prefer white glue for that reason.

If I'm modeling very recent logging, I'm done. But for older stumps I dribble an India ink and alcohol mixture on them (a few drops of ink in a tablespoon of alcohol). Figure 7 shows the difference.

For a little extra detail, paint one side of each stump with white glue, then sprinkle with fine ground foam to simulate moss which tends to grow on one side of a tree (Figure 7).

The best time to plant stumps is after applying an initial layer of static grass. The grass hides any small cracks where the stump and terrain meet.

I add more static grass and weeds around the stumps after they're planted to hide the lack of roots and simulate bark debris using cedar shavings run through a blender.

Presto, now there are stumps! ☒



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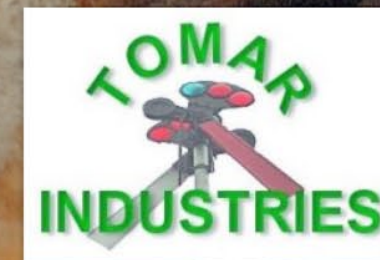
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# Zip Texturing Resurrected



Figure 1: Even though this scene on my HO Siskiyou Line doesn't have ballast, grass or vegetation, it looks surprisingly good in this unfinished state, thanks to zip texturing. True to its name, zip texturing goes down in record time and provides an excellent base of dirt texture on which to build the rest of your scenery.

— by **Joe Fugate**  
photos by the author



**In the April 1965 issue of *Model Railroader*, editor Linn Westcott introduced scenery zip texturing to the hobby. With the advent of ground foam a decade later, zip texturing faded from use. It's time to introduce newly updated zip texturing methods as a powerful alternative to the “ground-foam-for-everything” approach to modeling scenery.**

Linn Westcott called his new scenery approach “zip texturing” because of how fast it could be used to transform bare plaster into a finished-looking scene. Remember, this was in the day when most modelers still used dyed sawdust to represent grass and dirt, and no one had even heard of using ground foam to model grass and dirt.

Even though zip texturing eventually got replaced by ground foam as the leading scenery texturing medium, I continued to use and refine zip texturing in my own modeling.

I've found zip texturing, with some much-needed refinements to Linn's now dated methods, remains a useful modern scenery technique, especially for modeling the base dirt layer of your scenery.

In addition, zip texturing also inspired me to explore using colored plaster powders as a way to weather and blend scenery elements into a more realistic, cohesive scene. We'll explore the weather powder aspect of scenery modeling in the next issue.

## What is zip texturing?

Put simply, zip texturing is just colored plaster. You tint the plaster to the color you want with dry powdered pigments. To apply the zip texturing, you dust the colored plaster onto damp scenery and let it set up.

There can be a lot more to it, but in its essence, zip texturing is as simple and “zippy” as it sounds.

I really like zip texturing for a several reasons – first, I can make my “dirt” any color I need. Second, having plaster as the primary ingredient means zip texturing automatically has its own binder. All it needs



is water to activate the binder and voila – it gets fixed in place “automagically”.

And if you’re budget-minded like me, it’s hard to beat the inexpensive price of zip texturing. I’ve probably applied over 100 pounds of zip texturing to the 1100 square feet of my HO Siskiyou Line, and I would bet I’ve done it for less than \$150.

## How to use zip texturing

Primarily, you use zip texturing as the bottom layer - the “dirt base” for your scenery.

When building scenery, you typically do it in layers from the base plaster terrain as follows:

- Paint the bare plaster a basic dirt color.
- Apply any rock textures using molds, carving, and rock talus.
- Apply dirt texture. ← **zip texturing in all areas**
- Apply grass texture. ← **zip texturing in background areas**, static grass elsewhere.
- Add bushes and ground cover.
- Add trees.
- Add structures and details. ← **zip texture weathering powders for blending and weathering**

I’ve marked which of the layers can involve zip texturing in **red bold**. Zip



## Color and Texture with Zip Texturing

If you want your model railroading scenery to be more realistic, then you need to pay close attention to scenery color and texture.

Zip texturing helps you get that dusty, dirty look to the bare dirt areas of your scenery. While this “dirt” texture generally needs to be rather fine for the indoor modeling scales, the “powdery” texture is still there. Zip texturing, as a fine dry-powdered application technique, automatically gets the right dirt texture with minimal effort.

The real trick is getting the color just right.

Modelers sometimes swear “there’s nothing better than real dirt for

modeling dirt” – and for the texture part, I agree wholeheartedly. That’s essentially what you’re doing with zip texturing – you’re making your own dirt and then applying it to your layout.

Where I disagree with the “real dirt” proponents is on color. Indoor layout lighting is a lot less intense than outdoor lighting and it’s typically more orange in color.

The real dirt proponents will often talk about how they got dirt from the real location and used it on their layout, suggesting that’s the ultimate in realism.

Indoor lighting is much less intense and more orange therefore dirt that’s a light tan outside will be a medium brown

when brought inside to the layout room.

Real dirt from the prototype location isn’t helping the layout lighting be more intense or less orange – the dirt color’s all wrong for your indoor lighting!

So how do you get the right dirt color, so that your indoor layout looks like it’s outdoors?

You mix up your own dirt color matched to outdoor photos, that’s how! The beauty of zip texturing is it allows you to make *any color of dirt* you want. You can’t easily do that with ground foam.

To get the right color of zip texturing dirt, take an outdoor photograph with the dirt color you want, go under your layout lighting, and match that photo’s dirt color with a small test batch of zip texturing you mix up. Test your color by applying it to a scrap of plaster you’ve dampened with water and let the zip texturing set up.

If the “dried” color of your zip texturing is wrong then adjust it and do another test. Once your dried zip texturing matches your photo, you’re all set. Now you can make all the dirt you need for your layout, and your layout’s dirt areas will look right because you matched it to an outdoor photograph when viewed under your indoor layout’s lighting.

If you want to do a better job modeling the proper color and texture for your scenery, model from photographs as much as possible. ■



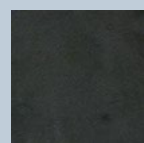
## Finding dry powder pigments



Any good art supply or craft store should have dry powdered pigments available for purchase. The colors you want are black, brown, blue and yellow.

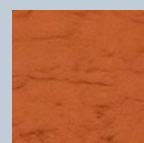
You can also find dry powdered pigments (sometimes called tempera paint) on the internet. One good source I've found is Dick Blick's art supply ([dickblick.com](http://dickblick.com)), and the pigment brand is Rich Art Fresco Dry Tempera.

For more discussion about sources of dry powder pigments, also [see this thread on the MRH web site](#). ■



### Black

Black is black – there's not a lot of variation: "lamp black"



### Brown

A rust-colored red-brown: "burnt sienna"



### Blue

A strong cool blue color: "ultramarine blue"



### Yellow

A light yellow color: "cadmium yellow light"

texturing works great for the dirt texture layer anywhere on your layout, and you can use zip texturing for grass in background areas where the lack of proper filament texture for grass isn't a problem.

Also note zip texture colored plaster powders can be used to weather structures and to blend the scene together.

Applying a dusty coat of your same dirt color zip texturing to tunnel portals, bridges, trackwork, roads, and structures blends everything together and gives your model scenes a subtle "rightness" that can significantly improve the realism.

Using zip texturing in this way is one of my "expert tricks" I've discovered that takes my scenery realism to that "next level."

## Creating your dirt mixture

Since zip texturing forms the initial dirt layer of your scenery, mixing the right dirt color(s) then becomes a key technique you need to learn.

To get good-looking model scenery you need to know how to match full-size scenery's color and texture. This is relatively easy to master with some simple guidance: see the sidebar *Color and texture with Zip Texturing*.

To create your color-matched dirt mixtures, you need to get black, brown, yellow and blue dry powdered



**Figure 2: I have four basic dirt mixtures that I've developed as starting points for matching the dirt colors in my prototype area of southwestern Oregon: gray dirt, brown dirt, tan dirt, and red dirt. I purchased some large plastic dry goods storage jars and I've put a label on each jar with the formula to make it easy to re-create the mixture when I run out.**

pigments, and some plaster of paris. For more insight on the precise dry powdered pigment colors you want and their sources, see the sidebar: *Finding dry powder pigments*.

With these four dry pigment colors plus white plaster, you can create almost any dirt color on planet earth.

The general rule is to make sure you put *at least* as much plaster into the mix as you do pigment. For example, if you create a mix of 1 part black, 1 part brown, and 1 part yellow, then you need at least 3 parts plaster as well to act as a binder to fix the mixture in place once you moisten it with water.

I generally start with 8 parts plaster to 1 part color for my zip texturing dirt mixtures.

When creating a dirt mixture that matches to a reference photo, I start with one of 4 basic dirt mixtures that's closest to the photo. I then vary the amount of plaster in the mix to darken or lighten it and get the right shade. The match only needs to be close, it doesn't need to be precise.

Here's my basic dirt mixture formulas:

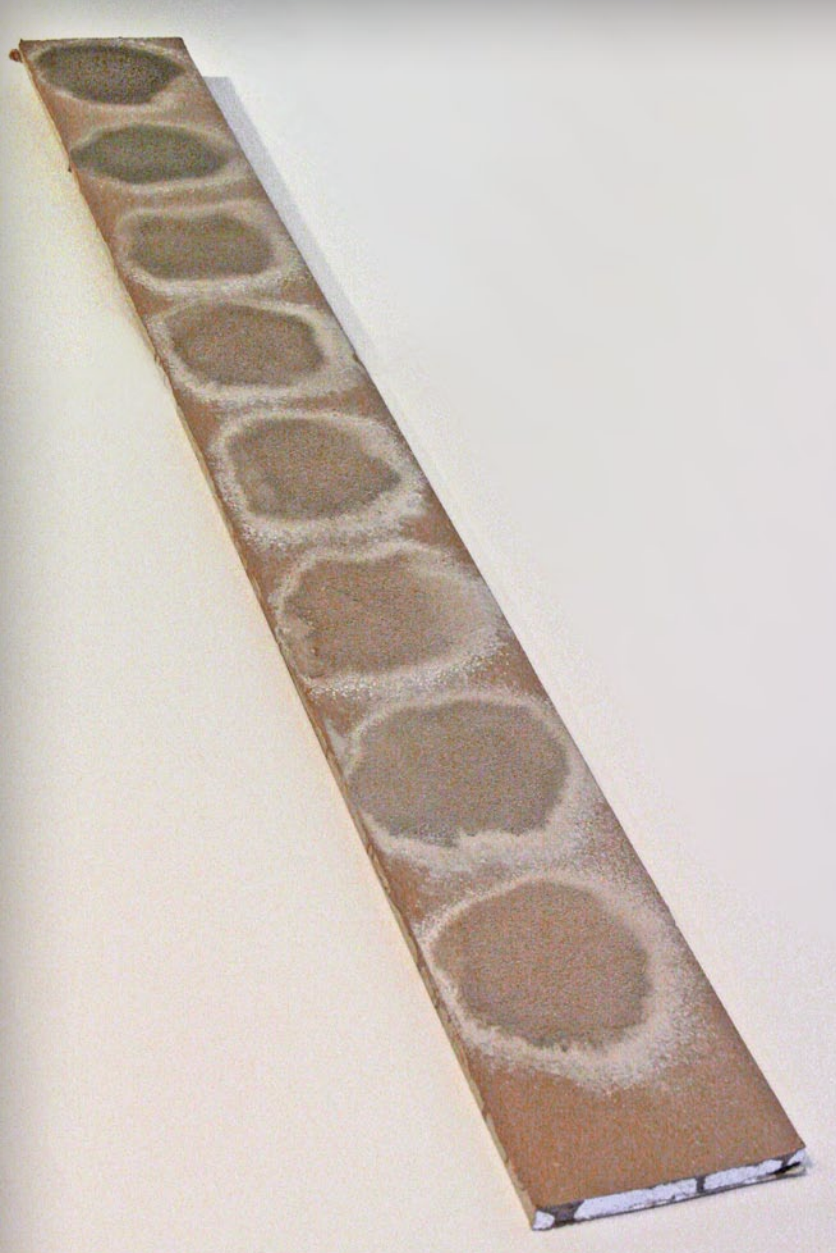
### Gray dirt

- 2 parts black
- 1 part brown
- 24 parts plaster

### Brown dirt

- 1 part black
- 3 parts brown
- 1 part yellow
- 24 parts plaster





**Figure 3: When I'm matching a zip texturing mixture to a photo, I test mixtures with varying amounts of plaster to find the closest matching shade. As shown here, I started with my brown dirt mix and then doubled the amounts of plaster: 24 parts plaster on the first test spot, then 48 parts plaster on the second test spot, 72 parts plaster on the third test spot, and so on. I did 8 test mixtures in all. By applying the mixtures to a test board and then letting them dry, I can get an reasonably accurate photo match to any color I'm trying to create.**

### Tan dirt

- 1 part black
- 1 part brown
- 1 part yellow
- 24 parts plaster

### Red dirt

- 1 parts black
- 1 part brown
- 20 parts plaster

When doing a test mix, use a small measurement like 1/8 of a teaspoon (or 1 gram) for each part. This gives you just enough mix you can test with it without much leftover waste.

First, I test the basic dirt formula starting mix by getting a scrap of plaster wall board, misting it with some water, and sprinkling on a bit of the mix. Before I evaluate the color, I let it dry completely, and then compare the result to my reference photo.

If the mix is too dark (which it often is), then I create 4-8 more small test batch mixes, doubling the amount of plaster in each mix.

In other words, 8 part in the first mix, 16 in the second, 32 in the third, and so on.

I apply each mix to a test board, and let it dry completely. I pick the closest match - or try again with a different combination of plaster and color until I get a very close match to my photo.

## Understanding color variation in the applied zip texturing

The color of a zip texturing mixture is generally lighter than the final applied color after it has set up, so it's best to do any photo matching to the final applied zip texturing once completely set, not to the initial dry mix in the jar.

Once dry, applied zip texturing also tends to have some natural color variation, which actually helps it look more realistic – real dirt in its natural setting often has a similar variation in its coloring, so zip texturing gives you this extra realism for free!

These color swatches here show you the initial mixture and the applied zip texturing after it has dried. In all cases, the applied mixture dries a shade or two darker than the dry mixture. You can best tell the final mixture color range by testing it first. ■

**mixture**

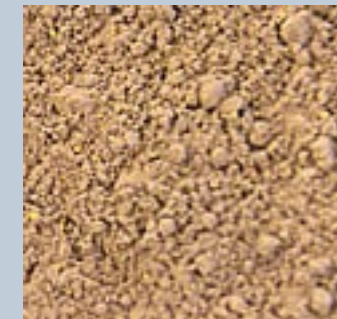


**applied**



**Gray dirt**

**mixture**

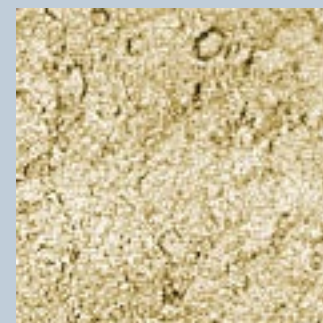


**applied**



**Brown dirt**

**mixture**

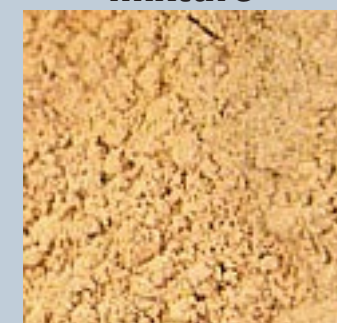


**applied**



**Tan dirt**

**mixture**



**applied**



**Red dirt**





## Zip texturing tools

Working with zip texturing involves a few simple tools:

**Measuring cup:** Get a good measuring cup to aid in measuring out the zip texturing dirt mixtures. Pictured is a 2 cup capacity Pyrex cup, dedicated to scenery work and stored with my other scenery supplies.

**Measuring spoons:** I find a set of measuring spoons from 1/8 of a teaspoon to 1 tablespoon to ensure accurate measurements of the pigment and plaster parts in the dirt formulas.

**“Plant mister” spray bottle:** A nice plant and garden misting spray bottle that’s adjustable helps give me the control I need for applying just the right amount of moisture to my zip texturing. I make sure the adjustable tip gives me a very fine mist and I fill the bottle with “wet water” – made by gently mixing a couple drops of liquid soap into the water.

**Tea strainer:** I use an ordinary 3” tea strainer to apply the zip texturing powders when I want to cover a large area quickly. Otherwise, I use the soft paint brush, below.

**3/4” soft paint brush:** I buy cheap 3/4” soft bristled paint brushes and use them to apply zip texturing when I need more precise control of where the dirt powder goes, or when I just want to apply a thin layer of powder. ■



Figure 4: Dampen a space on your bare scenery about 12” square with wet water. Then apply the zip texturing as a thin layer onto the moist scenery by gently tapping on a tea strainer containing some of your dirt formula mix. And *zipity zip* – the plaster in your “dirt mix” automatically binds your dirt layer in place once dry, with no glue required!

## Applying your dirt mixture

Traditionally, to apply zip texturing, Linn used a tea strainer. The process goes like this:

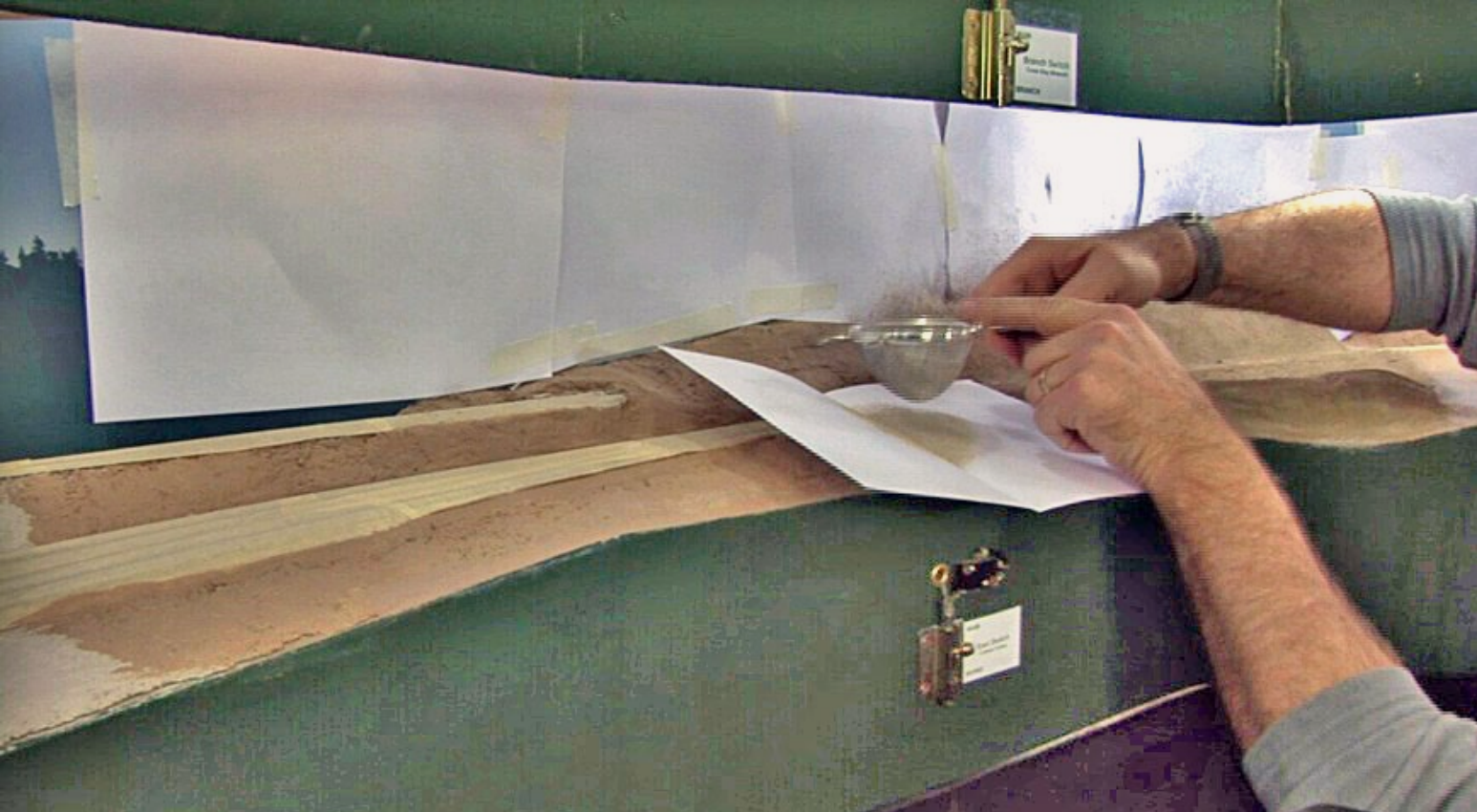
- Mist an area of scenery with some wet water
- Put a teaspoon full of zip texturing mix into a tea strainer
- Tap gently on the tea strainer to dust on the zip texturing powder until it covers the area as desired.
- Optionally, lightly mist the area again to add moisture to the mix to make sure it sets up hard and does not remain loose.

Be careful not to apply the zip texturing layer too thickly or it will not set up correctly.

Loose zip texturing quickly becomes a dusty mess – not something you want! Because the zip texturing layer darkens when moist, make sure you apply a thin enough layer it remains dark from the moisture, then it should set up properly.

You want the final dry zip texturing to be hard and dust free (see the video clip) yet still look like loose dirt. The way you achieve this result is to make sure the zip texturing layer is damp all the way through.





**Figure 5:** To apply zip texturing to vertical surfaces, I dust a bit of powder into a folded piece of paper and then gently blow the powder onto the dampened vertical surface.

### Applying with a brush

Linn never discussed using a brush to apply zip texturing, but I've used it and I find it gives me better control over the thickness and precise placement of the zip texturing layer. In fact, I'm finding I'm opting to use a brush more and more often to apply zip texturing in my scenery work.

The level of control I get when using a brush to apply the zip texturing has a lot of advantages. The one major advantage of using a tea strainer is the dirt falls "naturally" onto the terrain, whereas with a brush, the dirt can look "brushed on" which isn't as natural.

But I tend to use dabbing strokes instead of back-and-forth brushing strokes when applying zip texturing with a brush. I often overload the brush

with powder and almost let it fall off the end of my brush onto the scenery.

When I use a brush, I apply the zip texturing dry in a much thinner layer and then lightly mist the area using a spray bottle filled with wet water.

### Dealing with vertical surfaces

While I can use a brush to apply zip texturing to vertical surfaces, I like another trick as well: a piece of folded paper.

I fold the paper into a V shape and put a small amount of zip texturing dirt powder into the V. I mist the vertical area with water like usual, and then I gently blow the powder onto the surface.

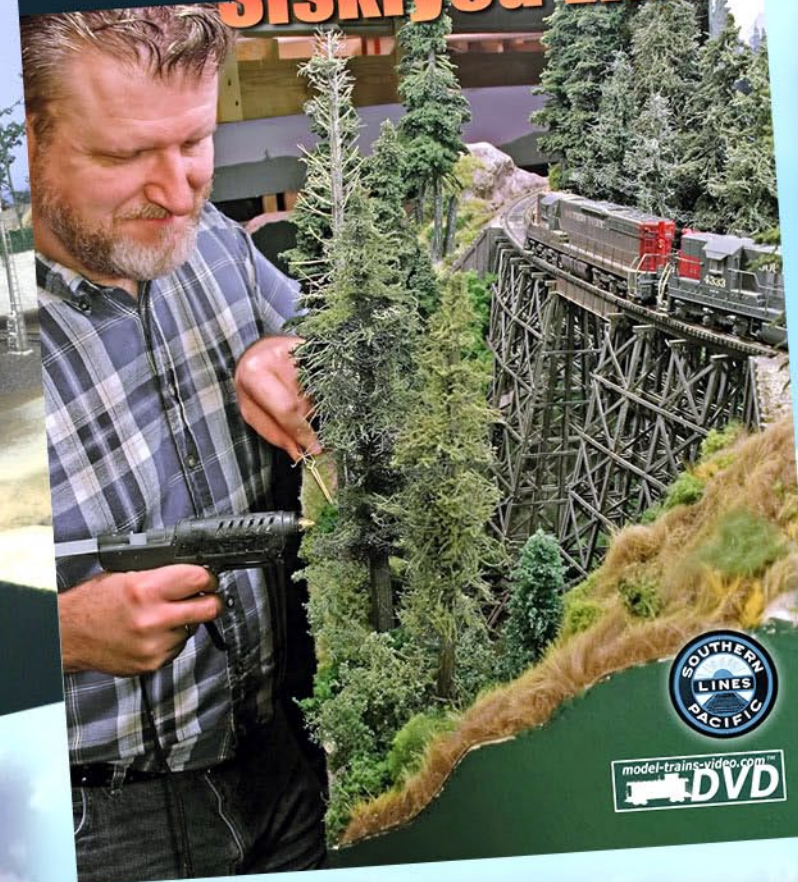
The technique works quite effectively – see the video that goes with this article for a demonstration.

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### Other zip texturing techniques

**More precise color control:** Because zip texturing dirt powders set up darker than the original mix, sometimes the color isn't exactly what I expected. Plus the natural color variation once it has set may not be what I wanted.

To solve these problems, I've learned I can use a weathering powder mix to shift the color of the dirt one way or the other (for more on weather powders, see part 2 of this article in the next issue).

I simply dust on the weather powder color or colors with a brush and mist the area lightly with wet water to set it.

I sometimes will use this weather powder trick repeatedly in several layers until I get just the coloration effect I want for the dirt layer.

**Blending scenery:** Years ago when I was first using zip texturing, I accidentally stumbled upon using zip texturing to blend and tie scenery elements together.

I had noticed the structures I added to my scene looked "plopped down". They didn't seem to tie into the scene somehow.

I tried dusting the walls, and especially the foundation area of the structures with my zip texturing dirt and then misting the structure.

This dramatically transformed the structures into looking like they belonged in the scene and had been there for years.

I now regularly use a combination of zip texturing and weathering powders to blend and tie all my buildings, bridges and other details into the scene.

I'll even use this technique on the trees and grass sometimes!

Don't let the simplicity of this technique fool you – the results can be dramatically realistic.

**Dusting rocks:** If you observe real prototype rocks, you'll notice they're generally quite dull and dirty looking.

I've found I can duplicate this look easily by dusting the rocks with some zip texturing and/or weathering powder using the brush method.

If I want a really strong application of dirt or dust, I mist the rocks first with wet water, and then brush the powder onto the wet surface, transforming the dry mixture into watery colored paint.

What I'm doing here with the rocks is actually the blending scenery technique, but adapted especially for rocks.

Most modeled rocks look stark and stand apart too much in a modeled scene. Dusting the rocks with zip texturing and weathering powders blends them into the scenery and really makes them look like they've been there forever.

I do this to almost all my rocks and I find the improvement in realism to be nothing short of startling (see Figures 6a/6b).

*Continued on page 77 ...*





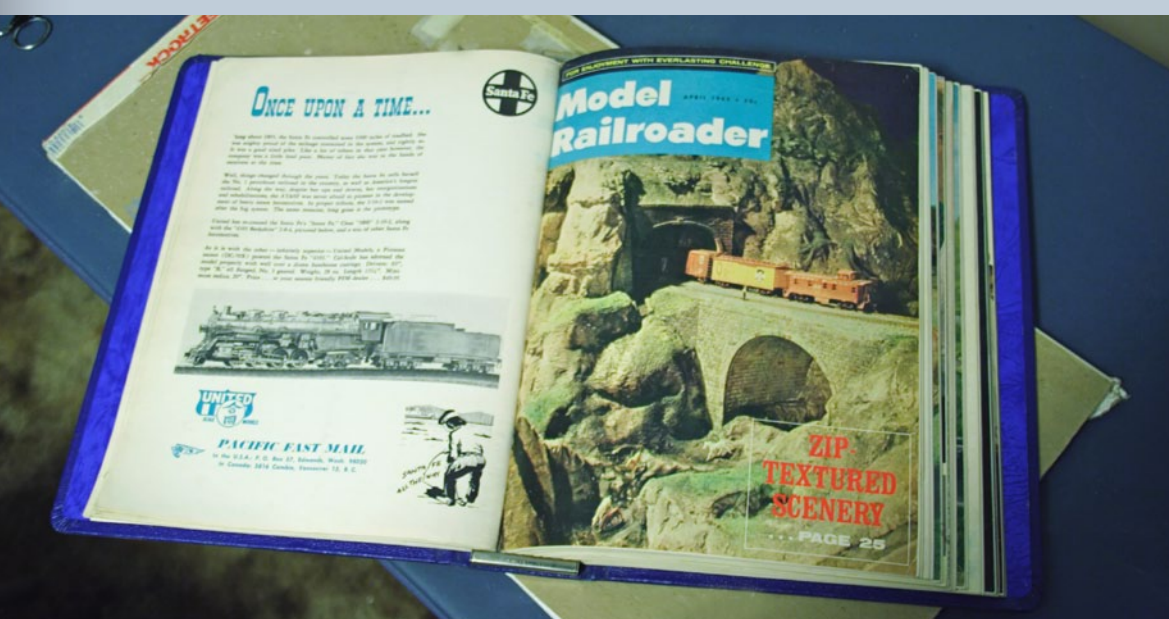
**6a Before blending ...**

Figures 6a and 6b: Here's before and after photos of a rock face on my layout to illustrate using zip texturing (and it's cousin weathering powders) to blend and add realism to rocks. Notice how the before



**6b After blending with zip texturing**

rocks have nice color variation but the rock face appears rather stark. Zip texture blending and dusting in the after photo adds a dramatic level of realism to the rock face – it now look like it's been there forever.



## Zip texturing: Contrasting the classic and the new-improved techniques

But there have been a lot of new developments to scenery making since the 1960s, rendering some of Linn's zip texturing techniques obsolete.

For example, Linn's original article advo-

In Linn Westcott's original Zip Texturing article, he provided a number of dirt and grass formulas and he touted the speed and ease of this new technique.

To a hobby using mostly dyed sawdust for dirt and grass, zip texturing was a welcome technological leap forward.

cated using zip texturing for grass. Today's static grass and Silflor materials do a superior job of modeling the filament texture of grass.

Zip texturing still works well for modeling distant grass along the backdrop where *not modeling* the grass texture

actually enhances the sense of distance. Zip texturing also works quite well for modeling moss or algae growth on foreground rocks.

Linn used a tea strainer almost exclusively for applying zip texturing. Linn liked how sifting on the powder in this manner caused it to naturally cling to nooks and crannies of scenery contours and not fall on vertical surfaces.

While using a tea strainer still works for covering larger areas quickly, it's too easy to apply an excess thickness of a zip texturing if you're not careful.

As a result, the zip texturing won't harden completely and you get a crusty, dirty mess.

I've found applying zip texturing using a brush *instead* of the tea strainer gives me much more control.

With the brush, I can apply my dirt texture very precisely using a dabbing motion, and I can apply a much thinner coat of powder. I'm using the brush a lot more than the tea strainer these days.

I've also updated Linn's original approach by specifying the use of more commonly available tempera paint as opposed to Linn's recommended commercial contractor plaster pigments.

With these updates, I find Linn's clever zip texturing methods to be a handy and economical addition to my scenery modeling bag of tricks. ■



... continued from page 74.

**Mud and rain runoff:** Because the zip texturing process relies on water, it's possible to take advantage of this and deliberately create the look of mud or rain runoff.

If you soak zip texturing thoroughly with water, it will become a mud-like sludge. If you allow it to set up like that, in it's hardened state it still will look like damp mud.

If mud's what you're after, then this is a handy trick to keep in mind.

When doing slopped faces with zip texturing, you can flush the area with water (make sure you have a pail handy to catch the runoff) and create the look of dirty runoff or erosion rivulets in your scene.

It's difficult to beat the natural-looking realism of this approach, since that's also how it happens in nature!

## Typical problems and their solutions

Sometimes things just don't work like you would expect with zip texturing. Here's some of the common problems and their solutions.

**Layer too thick:** If you apply the zip texturing in too thick of a layer, the moisture will not permeate it and the middle will remain loose powder. When that happens, you quickly end up with a crusty, dirty mess that falls all apart.

When done right, zip texturing forms a nice tough layer of hard plaster that still looks like loose dirt but doesn't

leave anything on your finger when you rub it.

The answer is to put down several thinner layers and make sure each layer gets thoroughly dampened by the wet water.

Allow each layer to thoroughly dry and set up before adding the next layer.

**Not enough moisture:** If you don't dampen the area you're applying the zip texturing well with wet water, your zip texturing will not set up properly and will remain loose.

Moisten the area thoroughly where you intend to apply the zip texturing and don't try to do too large an area at a time.

I find about 1 square foot at a time is about right. I can cover that much space before the water begins to evaporate.


If you're not certain you've used enough moisture, lightly mist the zip textured area from above with the wet water sprayer until you are certain all the plaster powder has been dampened.

If you have any doubt, after the area has set up, soak the area well with a fresh spray of wet water. Since it's set up (at least on the surface), you can really let it have it the second time around and not disturb the "loose dirt" look.

**Too much moisture:** If you use too much moisture, the zip texturing will

look like mud instead of loose dirt. Try a lighter misting of water next time.

For the area that looks like mud, add a fresh layer of zip texturing using less moisture to restore the loose dirt look to the area.

Next issue, we take a look at zip texturing's handy new cousin: weathering powders. 



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Joe Fugate models the 1980s Southern Pacific Siskiyou Line in southwestern Oregon and has documented his layout in a series of 5 videos available from [Model Trains Video](#).

Besides being the publisher of *Model Railroad Hobbyist* magazine, Joe has been published a number of times in the hobby press and has done video work under contract for *Model Railroader*.



# Lessons in Passenger Car Modeling – Part 1

## Conrail's Research Cars

– by M. R. Snell

Photos by the author



### Clever passenger car modeling tricks that will save you time and money



**M**odeling accurate passenger equipment has often posed a problem for model railroaders, given the many variations of as-built equipment and the subsequent modifications made by individual railroads. Such was the case when I set out to model Conrail's Track Geometry Train comprised of former

passenger equipment converted to research service by the freight railroad.

After searching through the models presently on the market I realized that while some were close, assembling a prototypical consist would require either scratchbuilding or kitbashing.

One school of thought involves cutting and splicing pieces of multiple cars to achieve prototypical models and I set out to find a faster, easier, and more cost effective way to construct accurate models.

Even though I was constructing only three specific cars, the methods I used to construct and detail these cars are

applicable to modeling almost any passenger car, especially those that may have been modernized. I'll share how I modeled this interesting consist from top to bottom using different methods including kitbashing RTR cars, using passenger car core kits, and modifying details while also taking advantage of the ease of use and minimal cost of laser cut sides.

Conrail's Track Geometry Train consists of 3 cars – Conrail 21: a Track Geometry Car, Conrail 22: a Rail Analyzer Car, and Conrail 24: a support car. Typical of many passenger cars, the Conrail research cars have a storied past dating back to the early 20th century.

### Modeling Conrail 22

Conrail 22 was built by Pullman Standard in 1939 as the "American Milemaster", served the Southern Pacific as SP 400 and SP 9500, then wore EMD's colors as Test Car ET-800, used for locomotive testing. In 1985 it was purchased by Conrail and converted into a Rail Analyzer Car, used for measuring track condition by the Engineering Dept. (see Figures 2-3 next page).

The introduction of the Walther's passenger car line has brought about a renaissance in passenger modeling and the Walther's ready-to-run P-S coach provided a natural starting





Figure 2: Photo by Chip Syme – M. Snell collection.



Figure 3: The model of the prototype.

point for this car as it has the correct basic carbody and roof. Typical of many prototype cars it had been modified over the years and modeling this car would require major changes

in the car sides to achieve the correct window configurations in addition to squaring off both the end and roof of the rear of the car.

## STEP 1: Disassemble the Walther's Car

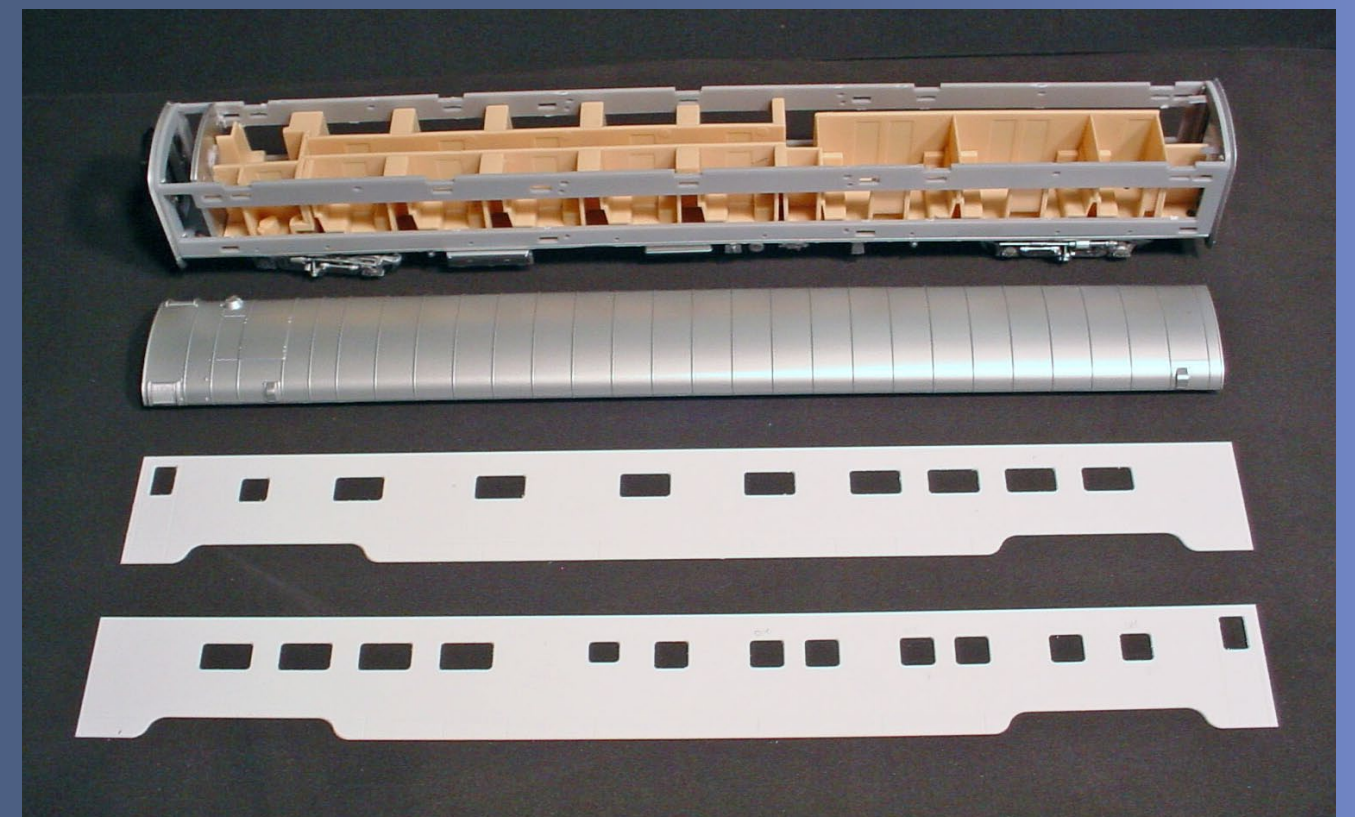


Figure 4.

I began by disassembling the car. Unlike many models of the past, the Walthers model uses an innovative modular design featuring a structural cage that uses pressure clips to hold the sides, ends, and roof together. This form of construction allows both easy disassembly and manufacture of multiple configurations of each body style by simply interchanging parts (Figure 4).



## STEP 2: Rework the Roof



Figure 5.



Figure 6.

Once the car was disassembled, I could begin reworking the car beginning with the roof, changing the arched end to a sloping end similar to one found on an observation car. I laminated several pieces of .060 sheet styrene together until I achieved the desired thickness.

Then I filed the edges to a slope contour using various files, graduating from rough to fine (Figure 5). I made a cut in the rear (non-vestibule) end of the Walthers roof to allow cementing this new section to the original roof while still achieving the correct roof length. Then I removed the stock roof details with a #17 X-Acto chisel blade, leaving only the vestibule vents. I filled the resulting holes as well as the joint of the new roof section with contour putty. After the putty dried, I sanded the roof smooth, removing the ribbing and leaving only the vestibule vents and roof hatch intact (Figure 6).

## STEP 3: Modify the Tail End of the Car

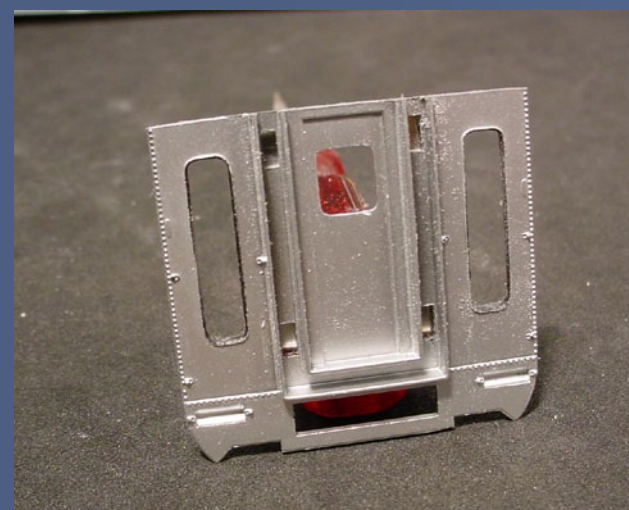


Figure 7.

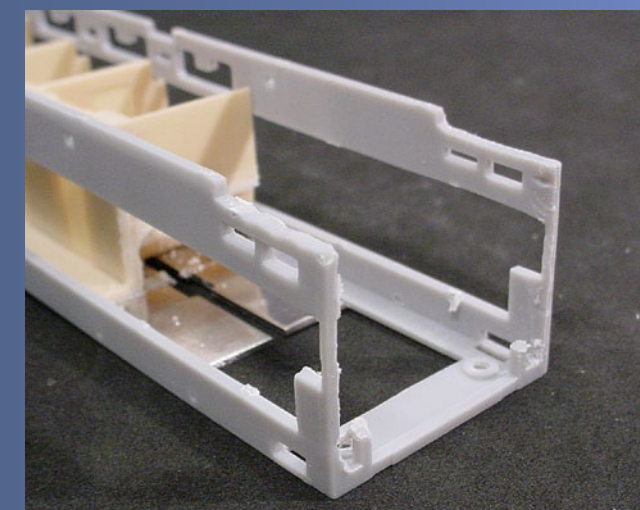


Figure 8.

Modifying the roof also meant modifying the end of the car to accommodate this new roof section. The car end was squared off using a razor saw. I cut the unique end windows into the styrene end using an age old method for adding windows. I drilled at the four corners of the window then connected the drill marks using an X-Acto #11 blade. Once I had made this rough cut I cleaned up the edges of the cut with both wide and fine files, leaving straight and smooth edges (Figure 7).

The inner support cage of the car also required two modifications: removal of the upper arched section to accommodate the new flat roof section, as well as trimming the vertical uprights on the end to accommodate the new end windows.

I found removing the upper arched end of the cage to be simple using cutting pliers, but shaving away the upright portions was a little trickier. I used a Dremel tool with a cutting wheel, doing slow repeated passes across the upright sections, removing thin layers until all that remained were the cage sides, leaving the area of the end windows open (Figure 8).



## STEP 4: Modify the Vestibule End of the Car

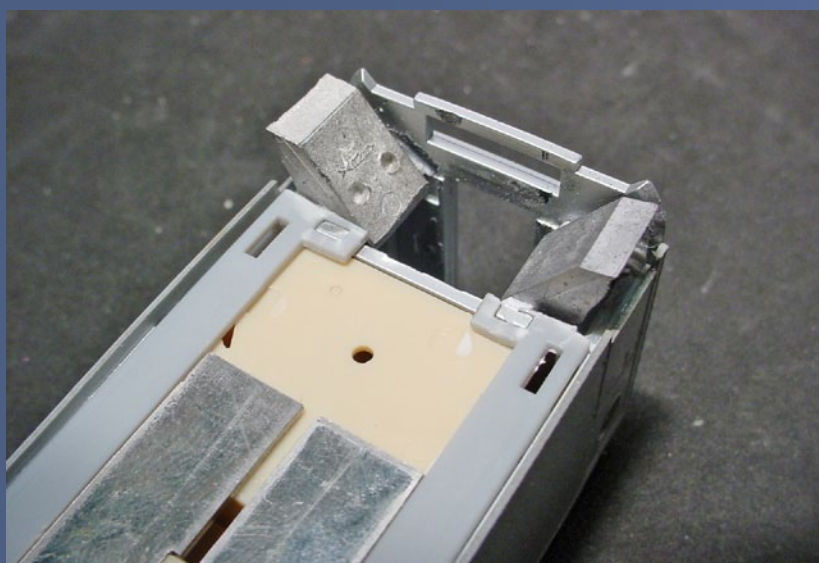


Figure 9.



Figure 10.

With the tail end of the car now complete, work could begin on the vestibule end beginning with the addition of extended steps. The Walthers car is designed to show a car in transit with recessed steps that are not visible. Adding extended steps (in the open position) requires cutting away another portion of the cage to add a set of Bethlehem Car Works steps. In addition to the cage, I notched the flat underframe to allow for the step installation. Then I cemented a rectangular section of styrene sheet to the top side of the underframe, forming a vestibule floor even with the top of the steps (Figures 9-10).

## STEP 5: Doing the Car Sides

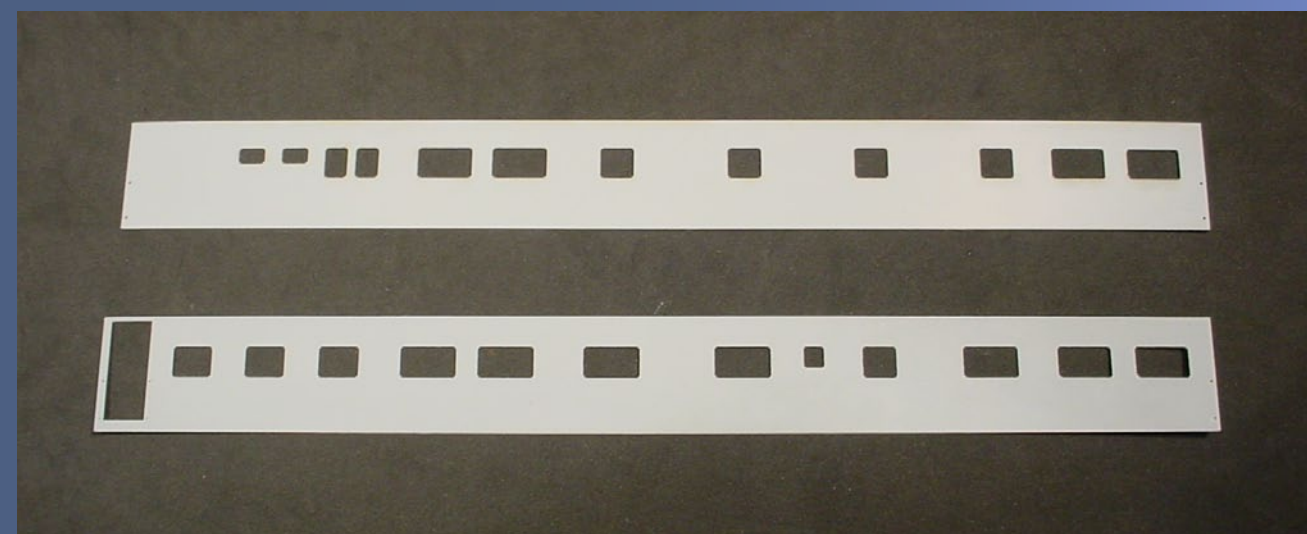


Figure 11.

Now that I've completed the modifications to the car's roof and end, it's time to focus on the car sides. Rather than cut and splice the car sides to get the correct window configurations, I used a new approach – I made completely new sides from laser cut styrene. Thanks to modern laser cutting technology, laser cut wood structures have become common - but you can also get laser cut styrene from several sources. Laser cut styrene car sides can save us both valuable modeling time as well as the cost of purchasing multiple cars just to cut them up. Working with Laser Horizons, I had laser cut styrene car sides specific to Conrail 22 manufactured for less than 30 dollars, a value well worth the money given the time saved and the ease of installation (Figure 11).



## STEP 5: Doing the Car Sides *Continued* ...

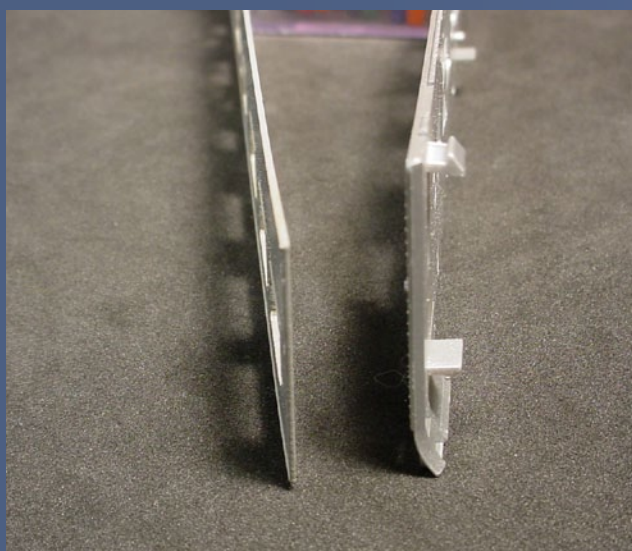


Figure 12.

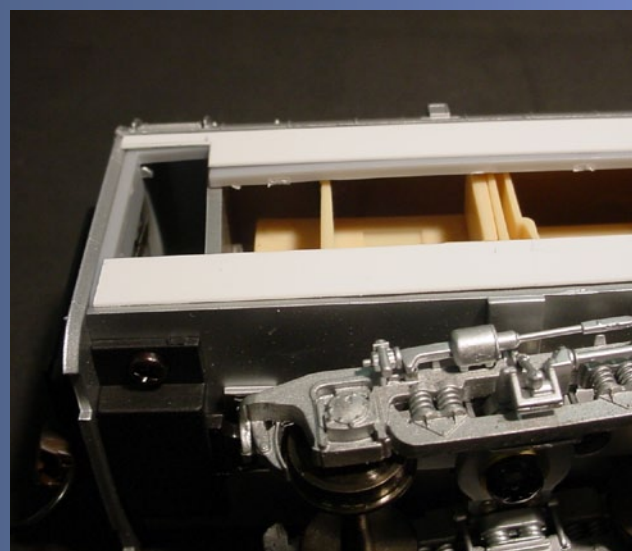


Figure 13.

The custom laser cut sides are substantially thinner than the original Walther's sides, so prior to installation I shimmed them outwards to keep them in line with the outer edges of the car ends. I cemented shims of .020 x.250 styrene strip to the upper and lower edges of the cage, allowing the sides to achieve the correct 'thickness' once on the car. I replaced the roof temporarily and carefully cemented the new styrene sides over the shims using Zap +, taking care to keep the alignment square to both the roof and ends (Figures 12-13).

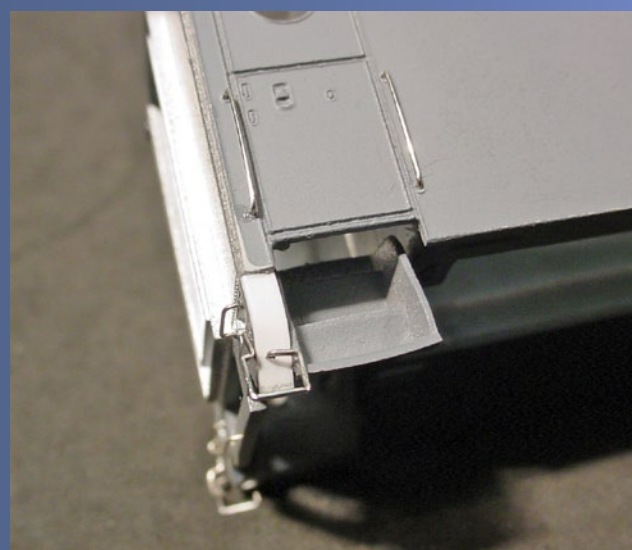


Figure 14.

Since I did not use the original sides, a void was now left along the lower beveled edge of the front wall, the area where the original sides met the front wall. I bent a filler of styrene strip to shape then cemented it into the beveled 'drop down' portions of the front wall. Once the joint was dry I sanded it smooth, and moved on to detailing the vestibule end of the car (Figure 14).

## STEP 6: Installing Grab Irons and Marker Lights

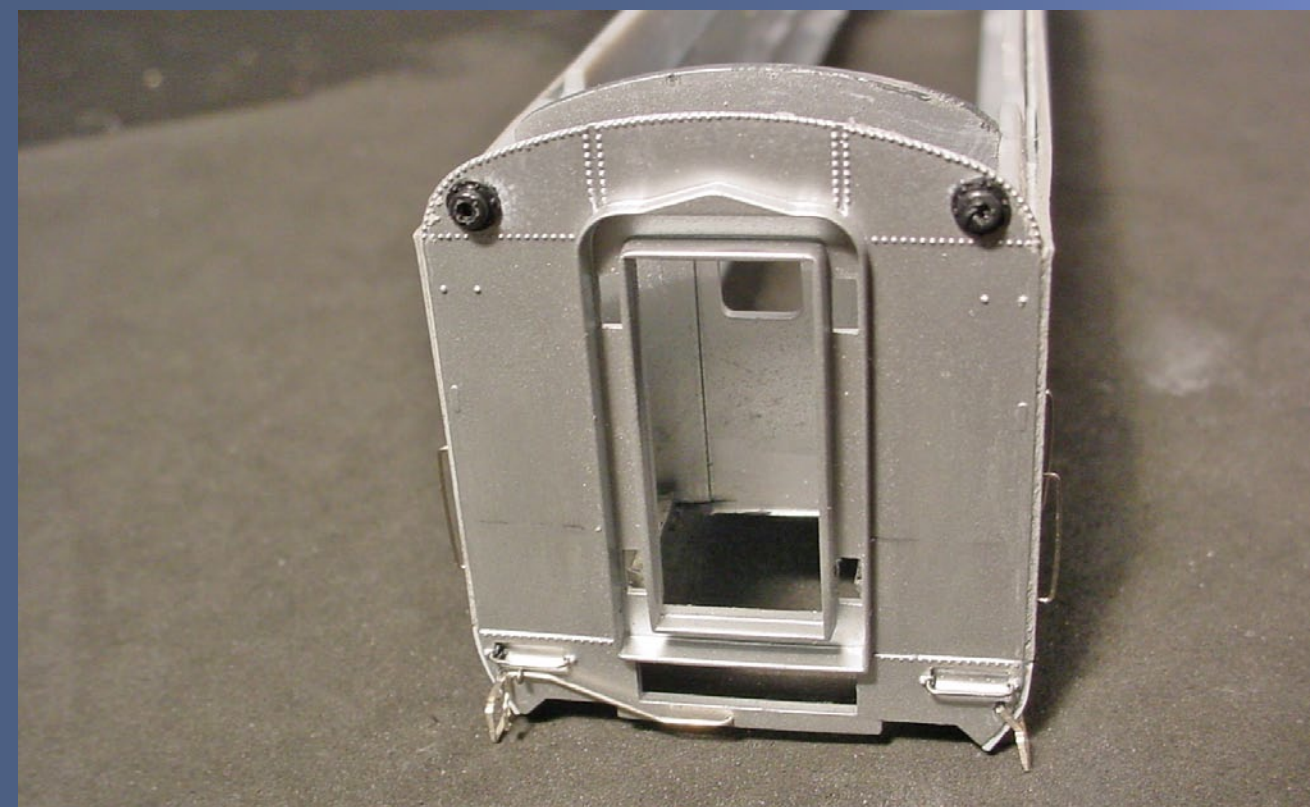


Figure 15.

The replacement laser cut sides are already drilled for grab irons, allowing me to easily install Detail Associates # 6602 grab irons adjacent to each door. Moving to the front vestibule wall, I installed the step grabs and stirrup steps provided by Walther's, a Detail Associates #6615 cut bar, and Train Station Products (TSP) #488 markers on the vestibule end outer wall. The TSP marker kit includes both square and round hollow markers, providing the correct marker and making it possible to install milled LEDs, fiber optics, or MV Lenses – a bonus for those who choose to light their marker lights (Figure 15).



## STEP 7: Completing the Rear End Wall



Figure 16.

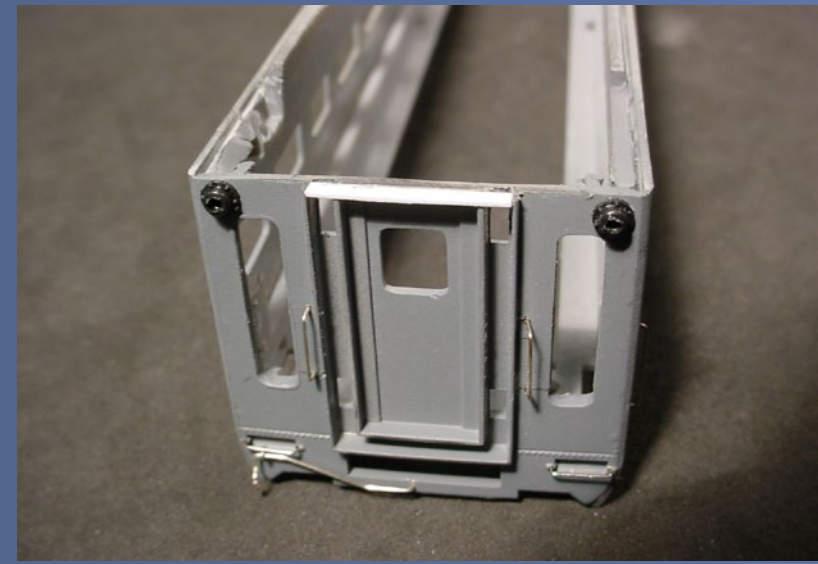


Figure 18.



Figure 17.



Figure 19.

With the front of the carbody complete it became time to turn my attention to the rear of the car, beginning with cementing the rear end wall to the car sides. One unique feature of this car are its rounded ends, formed by the joint between the sides and ends. I rounded these joints by sanding across them at a 45 degree angle, allowing the sanding stick to arc between the side and end until the joints no longer had square angles (Figures 16-17).

I now detailed the rear end of the car, starting with reconstructing the top of the door frame from strip styrene. I added the step grabs included with the Walthers car, Train Station Products markers, a Detail Associates #6615 cut bar, finished off with #6602 grabs to complete the detailing of the rear of the car (Figures 18-19).



## STEP 8: Roof Detailing

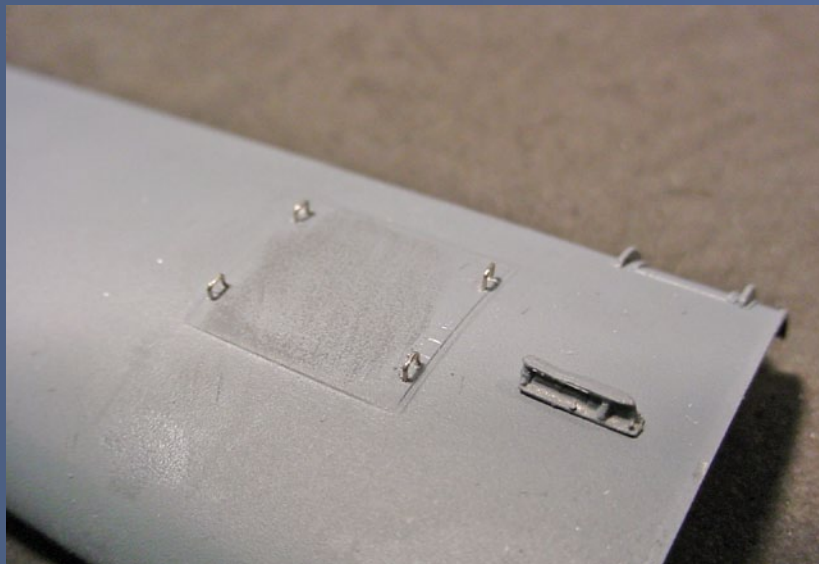


Figure 20.



Figure 21.

With the carbody complete, I began detailing the roof. The roof is very simple as it has few details and can be finished quickly by mounting Details West Sinclair antennas at each end, cementing a Custom Finishing #291 vent to the roof, and adding the lift rings included with the car to the roof hatch (Figures 20-21).

## STEP 9: Underbody Details



Figure 22.



Figure 23.

Detailing the underbody requires substantially more work as most of the original underbody fittings have been modified or replaced with newer ones that are HEP (Head End Power) compatible. Compounding this dilemma is an abundance of older style replacement castings on the market while modernized parts are not readily available.

While this complicates things a little, some creative thinking allows new underbody details to be fabricated fairly easily. I recycled otherwise unusable detail castings by kitbashing them into what I needed.

The large air conditioner unit found on both sides of the car is a perfect example. Rather than scratchbuild this air conditioner from styrene I kitbashed a good stand in by turning a Bethlehem Car Works #370 tool box backwards then added wire screening and some .010 x .030 strip styrene to form the edges and center divider (Figure 22).

Another detail I kitbashed is the holding tank. The large water tank taken from a Walthers passenger car works as a good starting point. I drilled a hole into the tank, then enlarged the hole into a square opening, and inserted a Detail Associates #1901 round air vent into the recess of the square opening, representing the cap. Then I simply cement a small piece of sheet styrene into the rear of the opening to add the vent – and within minutes the ‘correct’ tank has been fabricated (Figure 23)!



## STEP 9: Underbody Details *Continued ...*



Figure 24.



Figure 25.

A third detail I kitbashed is the open generator box, which I made from an equipment box provided with the Walther's P-S car. I removed the rounded face portion and then turned the box backwards, leaving a rectangular open box into which I could insert the generator casting, quickly creating an open generator box (Figure 24).

The fourth kitbashed detail I did is the open box containing three large round plugs. To form this, I turned a battery box casting so the open side faces the front, then cut a piece of styrene sheet to the inner dimensions of the box, and inserted Bethlehem Car Works #35 lavatory vents into the sheet. I can then install the sheet with the plugs in the box, and cement it in place so the front edges of the plugs are even with the front edge of the battery box casting (Figure 25).

Finally, I kitbashed the screened box located near the rear of the car. Eastern Car Works manufactures an underbody detail set containing several sizes of underbody boxes with screening. I modified a large generator screen to fit

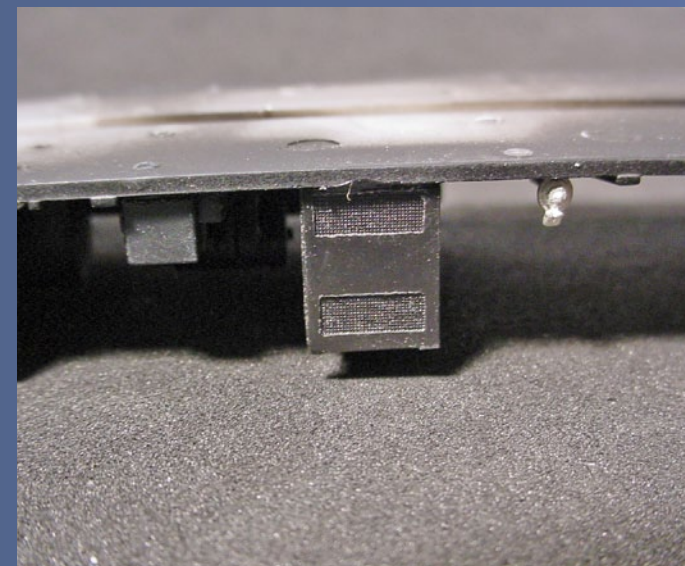


Figure 26.

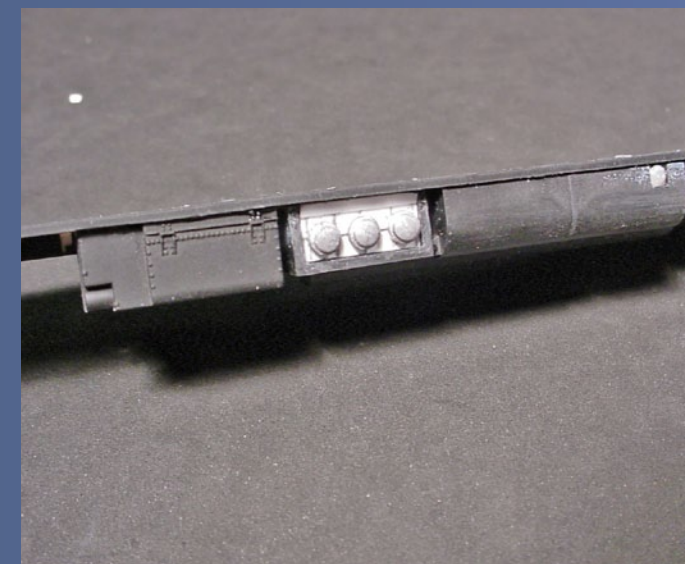


Figure 27.

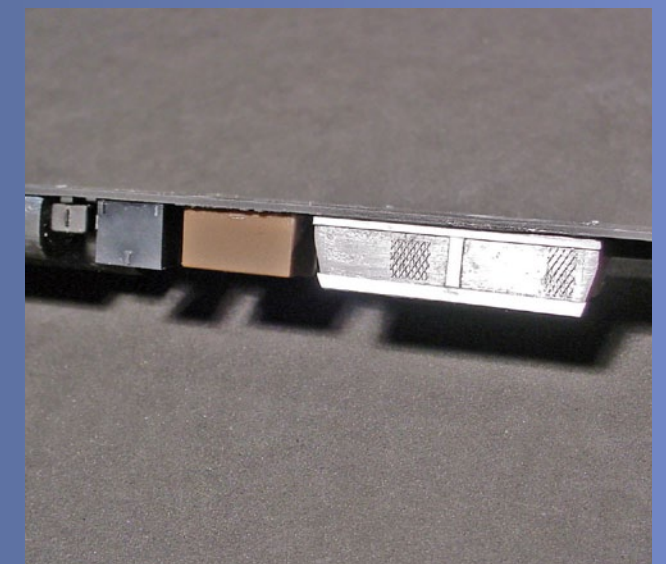


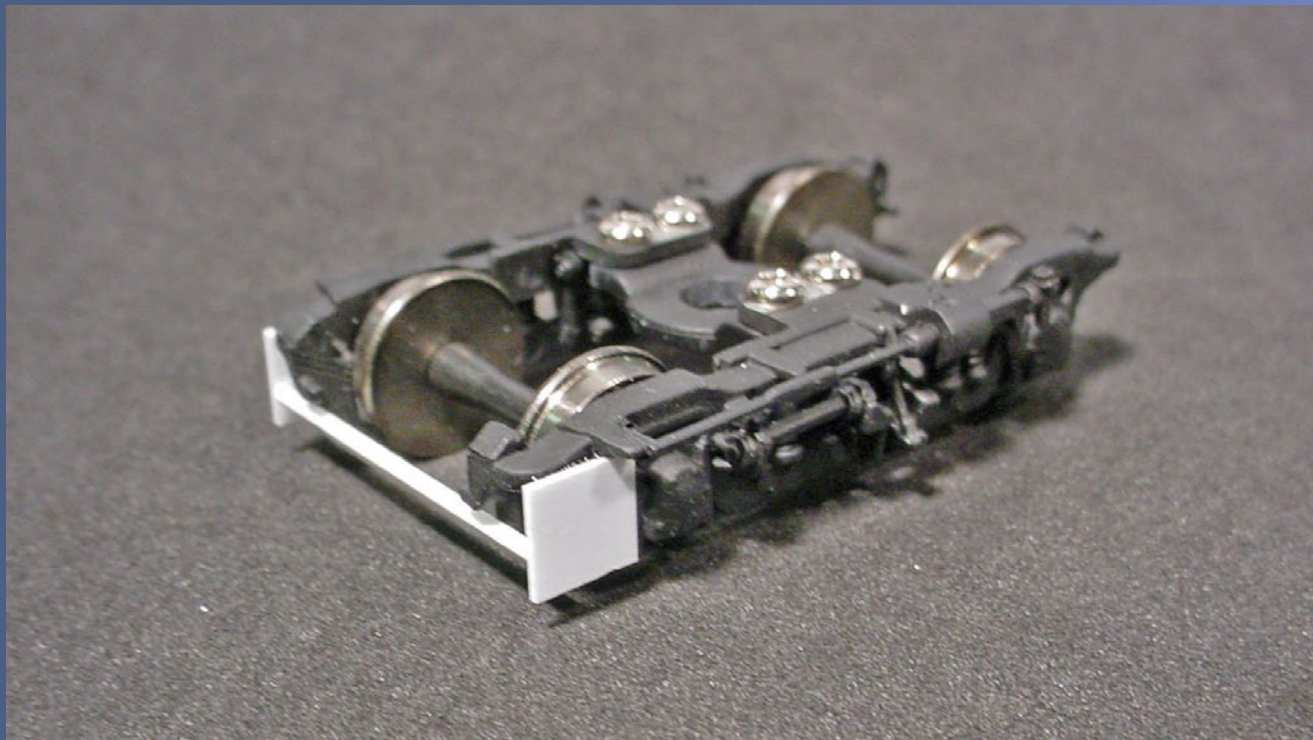
Figure 28.

a smaller box to get an appropriately sized screened box in a matter of minutes, with nothing more than a little 'plastic surgery' (Figure 26).

I acquired the remaining details required for the underbody from several sources including a Train Station Products #468 Waukesha Ice air conditioner and #477 control box castings. I salvaged battery boxes from Walther's older style Pullman cars, and for the small control boxes I recycled boxes from the Walther's P-S car (Figure 27-28).



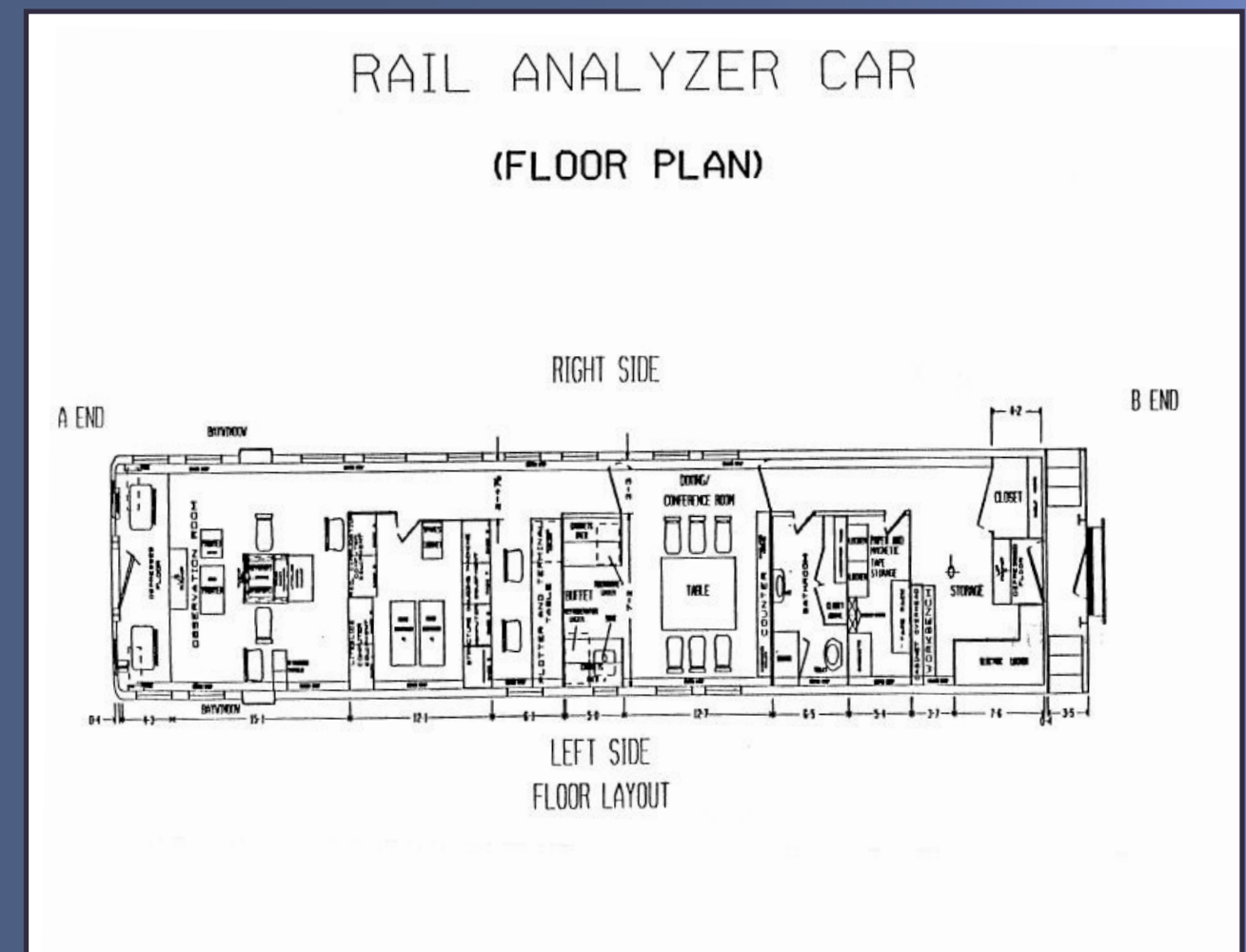
## STEP 10: Truck Detailing



**Figure 29.**

One unique feature of research cars is the equipment that measures track conditions, such as the laser equipment mounted on the trucks of Conrail 22. For the most part, all that can be seen of this delicate equipment are the large square plates on the leading edges of the rear truck. I added these easily by cutting .020 styrene sheet into two squares then cementing them directly to the truck sideframes. To reinforce this addition, I cemented an .040 x .040 styrene strip extending between the two to provide additional stability should the car encounter a derailment or the plates strike a lineside obstruction (Figure 29).

## STEP 11: Interior Detailing



**Figure 30: Rail Analyzer car plan - [Click plan to enlarge.](#)**

So now that I've completed the carbody, underframe, and roof – what about the interior? Prototype diagrams show an interior substantially different than the one supplied with the car, complete with a raised floor and ramp extending downwards to the rear door of the car. Like many hobbyists, I don't feel the need for a fully detailed interior. However adding an interior prevents the car from becoming 'see through' and I find you can selectively detail the areas of the most interest while hiding the rest with window shades (Figure 30).



## STEP 11: Interior Detailing *Continued ...*



Figure 31.

To construct the raised floor, I cut two .020 thick styrene strips to the interior length of the car and cemented them to the inner edges of the cage floor, forming a sub floor. I cut a new floor from sheet styrene with cuts made in the rear end allowing the center to be bent down to form the entry ramp. Once I inserted the floor into the car I left it removable for painting as well as to allow for final detailing once I had completed the car's construction (Figure 31).

I constructed interior walls matching the prototype blueprint from .030 plain styrene sheet, cut so the wall height would not interfere when mounting the roof. I cemented the main walls to the floor then added the partition walls, separating each room in the car. I constructed the kitchenette cabinetry using Plastruct rectangular and square tubing for the counters and overhead bins – then it was off to the paint shop with this car (Figures 32-33).

This article will be continued in the next issue of Model Railroad Hobbyist. 

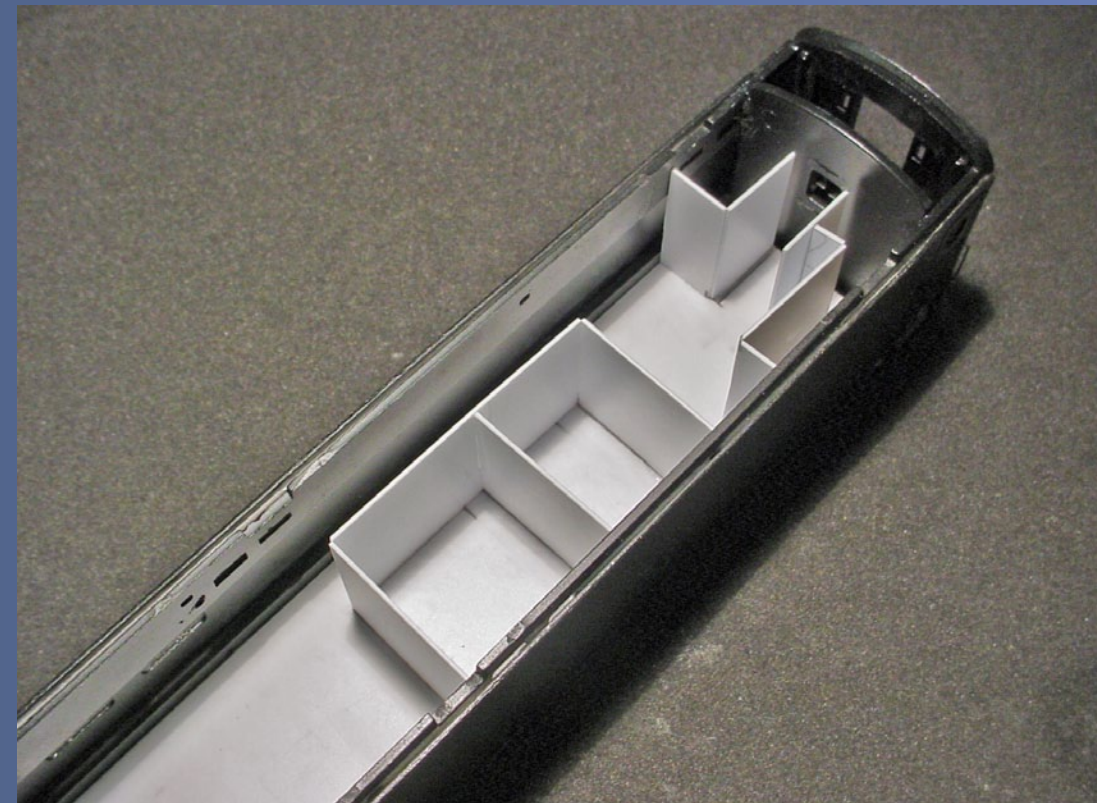


Figure 32.

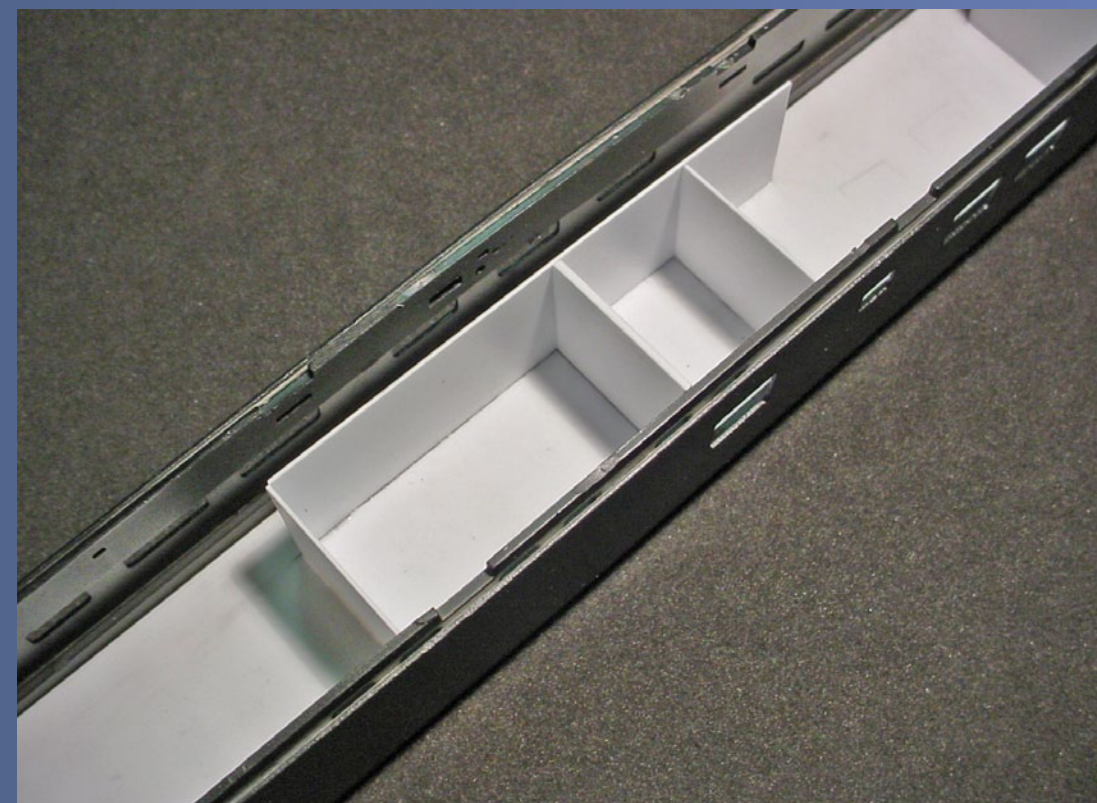


Figure 33.





M.R. (Matt) Snell has been a model railroader and railfan for 30 years. His interest began while growing up in New Jersey surrounded by freight and passenger rail lines.

Presently residing in Ohio, Matt and his wife Debbie share the hobby, modeling north-central Jersey.

Their "Conrail New Jersey Division" layout has been featured in *Great Model Railroads*, *RailModel Journal*, and in the Allen Keller *Great Model Railroads* DVD series. Matt has had articles in *Railroad Model Craftsman*, *RailModel Journal*, *Scale Rails* and *Model Railroader*, as well as online at [www.railroad.net](http://www.railroad.net).



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# Model Railroad Hobbyist magazine™

**Nov/Dec 2010 Issue Sneak Peek ...**

STEP 14: Painting and Finishing the Cars



Figure 94.

Conrail 21 features Venetian style blinds which I easily added to the model using Plano #300 Venetian blinds. Etched in thin metal, I found these easy to cut, which makes it easy to install closed or open blinds, or any variation in between. Prior to installing, I painted the blinds white then held each blind in place on the car while I applied superglue to the upper corners with a toothpick. Areas of the car where I wanted to concealed the interior, I made the blinds closed while areas of the car where I wanted to draw attention I left the blinds open, with just a few of the slats visible in the top of the window (Figures 94-95).



Figure 95.

**Lessons in Passenger Car Modeling, part 2!**

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# Kitbashing a U-18B: GTI 404 – Part 2

– by *Mike Rose*

Photos by the author



**L**ast issue we did all the “heavy lifting” to create a somewhat unique Maine Central U18B. Now it’s time for the final payoff of painting, lettering and weathering to create the finished locomotive.



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## STEP 12: Painting and Finishing the Chassis

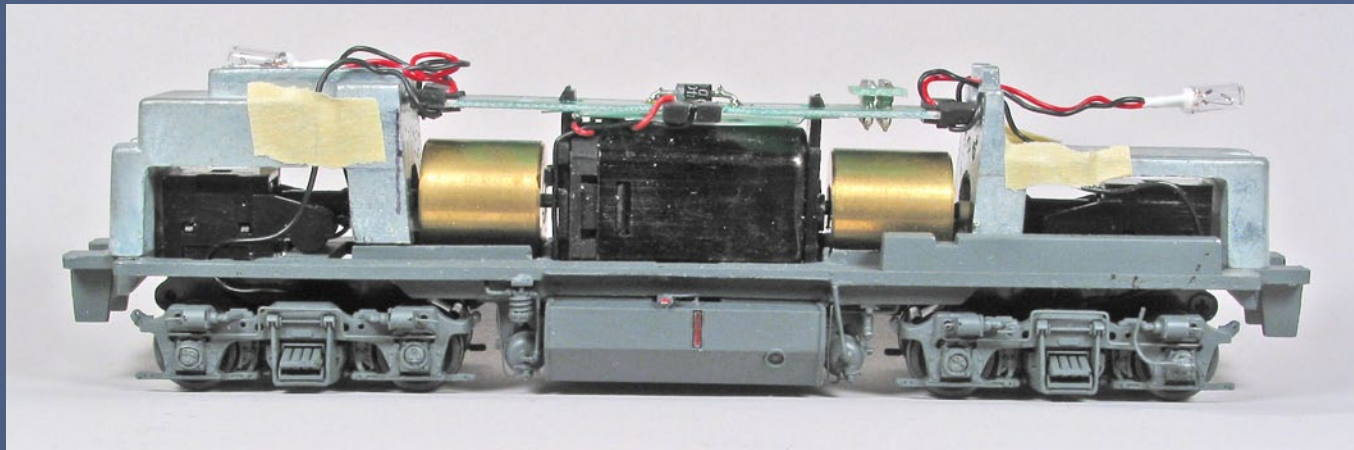


Figure 73

Since I had done so much to the truck sideframes, no way did I want to keep assembling and dis-assembling these truck. I decided to go ahead and paint the sideframes and the metal super-detailed underframe first.

Dragging out my old trusty airbrush, I painted all of the chassis parts individually, including the entire detailed underframe and the truck sideframes. I had been looking forward to this, because having a painted chassis would let me assemble the entire loco and track test it (Figure 73).

Reassembly went very easily. This was the first time I'd actually installed the cut-down weights, and I was relieved to see that they fit perfectly. I was even more relieved when, upon track testing, the chassis ran beautifully.

Using the factory light board setup enables me to easily use DCC in this loco. I simply install the decoder into the dummy plug right above the light board, and I'm good to go.

While I'm sure this loco is not as heavy as my friend Jim Six's U18B (mentioned in part 1), my U18B is plenty heavy and pulls proportionate to its size and horsepower, which is perfect for my needs.

After painting the chassis I highlighted the fuel gauge and filler with caboose red paint. The fuel gauge and filler accent are crucial to making the monotone of the gray underframe come to life. To get the Guilford gray, I used Badger Model Flex Grimy Black.

While I had the airbrush out, I hit the entire body shell with the Model Flex Grimy Black. This was an anxious moment, since I've found it's hard

to judge how good a job I did on all the shell surgery until I put the first coat of paint on the model (see figures 74 and 75 – I have not yet weathered the loco in these photos). To my relief, it came out looking like one consistent hood from nose to rear, which of course was the desired effect!

Once the paint had dried (just barely ten minutes because Modelflex dries so fast), I gave the model two coats of Testor's Glosscote to provide a good base for decals.

Though I've heard some say they can decal right over flat paint and get away with it, I can't. I get excellent results by always decaling onto a glossy surface. I let the Glosscote dry for several hours, and used the time to collect and begin cutting up my decals.



Figure 74



Figure 75



## STEP 13: Decal Work



Figure 76

Microscale's 87-951 is the only set I'm aware of that offers the more modern Guilford Rail System decals. Unfortunately, I was not at all satisfied with the stripes that came with the set. They looked way too gold to me – ironically, almost MEC gold.

I also had some Herald King decals, but those stripes looked too red. The red-orange may have been correct for earlier paint jobs, but the late GRS paint scheme definitely had an orange stripe, not red-orange or gold.

Searching around, I found some Microscale Trim Film in SP Daylight Orange (Microscale part # TF10). I judged this color to be close enough, and I cut all my stripes out of it with a sharp razor blade and steel ruler.

I first put the "MEC" and "404" on the cab side and then let it sit overnight, since I wanted these to be completely dry before doing the stripes on the cab (Figure 76).



Mike Rose has been an active model railroad builder and kit-basher since his early teens. Even back then he was interested in weathering. His first attempt involved blowing shaved chalk dust onto the pilot of a freshly Dullcoted Penn Central GP35. His first articles appeared in *Railroad Modeler* magazine when he was 16, and since then Mike has more than 70 articles published in the major model railroad magazines.

In addition, he has contributed photos and articles to a number of prototype and modeling books. He owns Mike Rose Hobbies ([www.mrhobby.com](http://www.mrhobby.com)), an Internet hobby shop catering to the needs of prototype modelers.

A regular at Railroad Prototype Modelers meets all over the country, Mike regularly gives clinics on a variety of model railroading topics. This is his first article for *Model Railroad Hobbyist*.



## STEP 13: Decal Work *Continued...*



**Figure 76a**

Next I applied the big “G” (Figure 76a) using my standard method of applying MicroSet (in the blue bottle). I slid the decal off the paper onto the wet spot and moved it into final position, then allowed it to settle down for a while.

Once it had a “relaxed” look to it, I applied MicroSol (red bottle), which softens the decal so it snugs down over all the body details. I used this same method for all the decaling.

Once the big G had set, I applied the first horizontal orange stripe, followed by the GRS words right above it. The entire decaling process for this loco took several sessions. Each session, I allowed the decals to set completely. If I found any air bubbles, I used a pin to pop them and then reapplied the MicroSol.

The next day I applied the orange stripe to the short hood. I found this to be a tad tricky since hood angles back a bit. I made a nice ninety degree corner and kept the stripe straight all along on top of the front walkway box up to the cab, fitting it neatly under the class lights. Using the MicroSol allowed the stripe to settle into place properly despite the compound angle.

I also added the four cab stripes, one at a time, being careful to align them so they were exactly in line with the body stripes.

I used a magnifying glass to find small safety decals and words like “Fuel Filler” and “Engine Lube Oil Drain” on various Microscale decal sheets. My eyes aren’t what they used to be, and tiny white letters on a light blue paper are less than ideal.

I finished the other side of the body in the same manner.

Once all decals were in place, snugged down properly and had time to dry completely, I gave the loco three coats of Testor’s Dullcote.

After this was dry, I did a fourth coat of Dullcoat with the engine shell upside down. This way I can hit areas I might not have reached when it’s right side up. The upside down trick is an old habit of mine.

Despite having the brass handrails in place, I found them to be no more than a minor hindrance in all of the above. Plus they are rock solid, something you do not get with any kind of plastic handrails!

Once the Dullcote had completely set, I installed the remaining details I had left to make decaling easier. This included the brake wheel, cab front grab, short hood corner grab, and all the rear grabs.

I touched up these details with Modelflex Grimy Black and Floquil Reefer Orange where the stripe was. I installed the class lights and number boards, and then reassembled the engine.



## STEP 14: Pilots and Final Details



Figure 77

Proper positioning of the plow is critical to avoid operation problems. I basically ignore the diagram that comes with the DW PL120 because I've had too many low plows get hung up when running the loco. I mount the plow so that it is just a smidgen below the bottom of the pilot.

I trimmed the girders on the back of the plow so the brackets sit flush against the pilot itself. Prior to mounting the plow, I drilled holes for the two straight grabs on the top of the plow. I fabricated the grabs out of .015 left-over handrail wire. I secured the grabs with Cypox, then trimmed and filed the ends flush underneath the top curve of the plow blade.

What followed next was a "painting promenade" where I went back and forth between various colors to paint all of the details prior to installation. See Figures 77-78, and 79-80 next page.

I applied at least 3 coats of Floquil Reefer Orange to the plow, necessary because of the routinely poor coverage of all orange paints. I had expected painting over a "silver" metal plow would have been easier, but it took just as many coats as over black, such as the Atlas draft gear boxes.

I used the Details West MU295 4-hose clusters for this model. Before installing, I painted the hoses with Pollyscales Grimy Black. It's a bit darker than the Modelflex Grimy Black on the loco body.

I then noticed that the loco I'm modeling had only certain hoses in place, so I trimmed off the ones that needed to be missing. With this all



Figure 78

accomplished, I installed the hoses onto the loco pilot. I left the metal parts of the hoses the "natural" color of the metal casting – they will only get a slight weathering wash.

I find these hoses to be a bit long. If mounted at the "proper" height and allowed to hang straight down, the rear hoses end up (below the pilot bottom) even when a curve is put into them.

On the front, I need that length to allow the hoses to flow naturally through the openings in the plow. I also made sure to leave room above the hoses, because the cut lever needs to clear them while fitting below the end walkway.

I placed an AH268 trainline air hose just to the right of the coupler pocket on the front pilot – this casting has the extension needed for the plow. I used an AH267 on the rear. I mounted all hoses with Cypox.

I painted the brackets where the hoses attach to the pilot a few times with the orange. I did not have the heart to replicate the orange paint on the hose itself that showed in the prototype photo! It simply would have looked too "fake", despite being correct.



## STEP 14: Pilots and Final Details *Continued...*



Figure 79

Next, I angled out the hoses, threaded them through the plow doors, and cemented the plow in place. I trimmed all the pins flush on the inside and filed them flat. On my loco, I had neglected to do this, realizing it only when the body would no longer fit on the chassis!

Next I tackled the cut levers. For this loco I used OMI 9151 levers that I had in stock. I cleaned up the bends on these, including angling the top portion out quite a bit more.

I don't know about you, but installing cut levers is something I still consider a pain. Leaving aside the three coats of orange they needed, plus the Pactra Sprint White on the ends, it's still a juggling act to hold the completed shell between my knees upright while attempting to use tweezers to get the four eyebolts into the holes.

What I've found makes it easier is to have two different lengths on each side, so I can insert first pin, and then the other. It's still a pain though! Glue is applied from the rear.

The last couple of things I did were to install the coupler box and put the shell back on the chassis. That's when I realized I needed to trim and file the pins from the cut levers! I also discovered that I could not use my now standard Kadee #58 on the front of this engine. It's simply too short. (Kadee, please bring out the other shank lengths with the 58 head!)

I ended up using the now gigantic-looking #26 long shank coupler, with the intention to swap it out as soon as something better is available.



Figure 80

Lastly, I used Details West DL228 ditch lights, which I heavily modified in terms of their shape. Basically, I used rail nippers to round off the square corners, finishing up with a file. Yes, it's not easy to file something that small, and when using pliers to hold it they kept popping out and wanting to take a trip somewhere across the room!

It was during this process I realized that at an age of nearly 48, I can no longer see close-up the way I used to. Jim's probably laughing right now – he warned me about this, of course. Yes, I've already made the appointment with the eye doctor ...

After I mentioned my ditch light adventures on the U18B Yahoo Group, they quickly pointed out to me that the DW DL301 ditch lights sure look like the ones I wanted. I had laboriously the DL228's to get them to look like the DL301's! How the heck did I miss that originally? I have no idea!

I prepainted the ditch light housings everywhere but the bottom, including around the rim of the lens area, but not the inside of that.

I scraped off some paint to bare plastic on the walkway and bonded the ditch lights in place with Cytopox. I then glued the plastic lenses in place with a little Microscale Krystal Kleer on a piece of wire, rimmed around the inside of the lens area. It worked great, although I found the plastic lenses impossibly small to see, hold and trim. Must be that eye thing again – but this only got worse when I started working on the front truck brake chain (see the sidebar: Heart Surgery on Mice).



## STEP 15. The Cab Strobe



Figure 81



Figure 82



Figure 83

After scratchbuilding a white plastic strobe, which at least gave me a good feel for the proper size, I decided to make one the proper color. This was based also on good feedback regarding what it should look like from at least two or three U18 Yahoo List members.

Finding a good overhead shot of what this strobe should look like proved to be amazingly difficult, and I had to settle for some more distant views. I think I've been spoiled by my Conrail modeling and the many close-up shots I was able to take overhead at the Selkirk engine terminal!

I decided to create the strobe out of clear plastic rod. I had some clear sprue leftover from class light blanks or maybe class lights themselves. The material is not even quite round, but it looked like it would fill the requirements. See Figures 81 and 82.

I trimmed off the gates, then chucked it into one of my cordless drills. I like using the cordless drill because it spins at a steady rpm without being too fast, and without me having to monkey with a variable speed trigger. I didn't want to melt any plastic here.

Using a razor blade, I roughly turned the rod down to the basic size I needed, which was the inside diameter of the Plastruct TBFS4 1/8" styrene tubing that I used to make the base.

(Incidentally, I found it impossible to slice the Plastuct tubing straight with a knife blade, and had to resort to the fine razor saw and a little sanding to get it right.)

I fine-tuned the strobe turning with a small flat mill file, then I polished it up with some fine cloth-backed sandpaper I have on hand. I confess I don't know the grit. It's years old, so the words are worn off the back, but it was originally sold with some compound to polish scratches off clear plastic windows in a kit. ([MRH Sponsor Micro-Mark](#) sells a polishing kit that has grits from 2000 – 12000, which should do the job nicely. - Ed.)

I now had a very smooth but still somewhat cloudy looking cylinder. Dennis Lippert suggested that Glosscote it would likely restore its clarity, and he was completely correct on that score. Clear enough, anyway – I didn't want it too clear, since it would show the lack of "innards".

The final result is shown in Figure 83.



## STEP 16: Weathering



Figure 84

At long last, after what has to be a bit of a marathon (albeit a pleasant one), I had reached the stage where it all comes together! I knew the weathering needed to be right to make all my work worthwhile so far.

The key here was to represent an in-service loco, yet one that was fairly clean with a recent paint job. No “over the top” weathering for this prototype! See Figures 84 and 85.

I started by using a diluted Badger Modelflex Burnt Umber on the trucks, pretty much everywhere, and also the fuel tank areas. I like to mix up some of this color and let some pigment settle to the bottom of the mixing container (I use old plastic film canisters - thanks Brian Everett!). This allows me, in real time, to have a choice of density for my weathering solution. If I put the brush all the way to the bottom I get more pigment, and if I gently swish it around at the bottom I get even more.

This also works for things like Rust-All that go out of suspension, by the way. When I apply it, it can initially seem like too much. I then clean off the brush and use the thinner mixture at the top to rinse some of the pigment away from the model and let it flow and settle down around details and in nooks and crannies.

This is very similar to what I do with oil paints. Since we’re talking solvent-based paints here, I have working time to let things flow and run naturally



Figure 85

like I do with oils and mineral spirits. The paint dries dead flat, which is what I want.

The last thing I do (and this is a genuine Brian Banna trick that he passed along to me) is to use my airbrush with no paint in it to set the wash. This dries it sooner, but more importantly gives me the ability to blow any wet stuff into places where it should be going, or away from areas it should not be in. The first time I tried this, I liked it!

After the wash had dried, I took a very small pointed brush, and used alternate amounts of Polyscale Sand and Earth to put tiny dots of color on the plow front, bottom, and sides. I also hit the front edge of the spring hanger on the truck. I applied a bit around the front bearing guides and put some on the front air tank and fuel tank edge, as per the prototype photo.

I consulted the original prototype photo for reference. I also used various oil colors to highlight rust effects around the truck leaf springs, and the brake components. I used Testor’s Raw Umber to create the streak on the tank from spilled fuel, since on this loco it’s not the usual oily black streak.

The main idea here was to replicate what I saw on the prototype photo and to resist the temptation to freelance the weathering. For example, there was no evidence of corrosion under the battery box lids, so I kept that area clean.



## STEP 16: Weathering *Continued...*



Figure 86

The only prototype photo I owned of this unit in this paint scheme showed the right side of the unit, from the ground. Throughout the kitbash I relied on Diesel Era photos (mostly black and white as I recall) for the detailing plus photos of other Guilford units.

However, there's no question that the roof and left side are freelanced weathering, designed to compliment what I did on the right side. See Figures 86 and 87.


I've really enjoyed doing this loco, and it has gotten me away from freight cars and back into loco modeling with a vengeance! This is not to say I've given up on freight cars, only that I hope to achieve a better balance from here on. 



Figure 87

### Heart Surgery on Mice

Jim Six and I went back and forth on the front truck brake chain detail – he originally did not want to put one on the model because he hadn't found any chain he liked. But when he saw photos of the walkway chain I used, he begged me for a hunk of it to try out! See Figure 83.

When I tried to add this detail to the hooks I'd put in the brake cylinder and body, it quickly became evident that there was no way for these tiny links to fit over the wire I had used.

Rummaging around in my wire bin, I found some really tiny stuff. It has to be less than .005". I could tie a knot in it! But it was exactly what I needed. I used a bit of it to make a new hook for the brake cylinder, and another hunk of it I twisted around the end link, which I then Cypoxed behind the brake chain "pipe" cast onto the shell.

With that all done, all I had to do was take my tiny pointed tweezers and hook the other end of the chain onto the hook I'd made. Piece of cake, if only I could see properly (which explains the title of this sidebar).

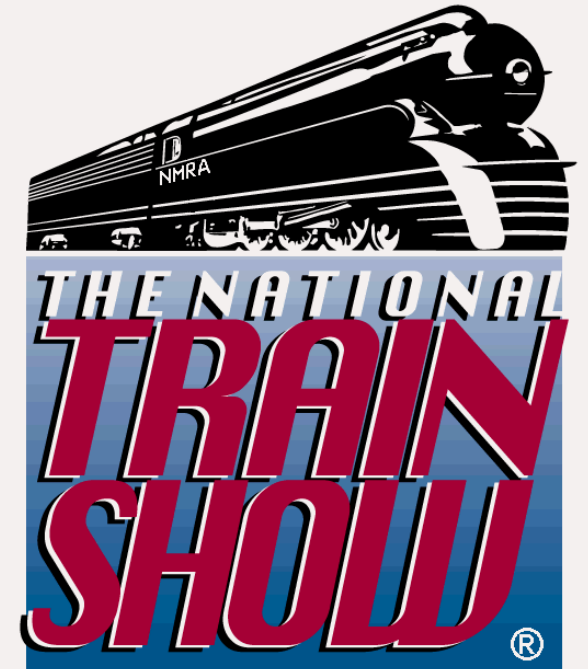
It was worth it, though. I think the loose chain, which matches the location in the photographed unit I'm using, looks just right...you be the judge. ■







# Milwaukee Show Report



by Joe Fugate and Charlie Comstock

**M**odel Railroad Hobbyist attended the NMRA 75th Annual National Convention in Milwaukee, Wisconsin this last July. Here's a good 3D click-n-spin collection of cool products we saw at the show.

If you've never attended a National Model Railroading Convention, you owe it to yourself to at least attend one and see what it's like. You can believe us when we say you will be so pumped about the hobby that you can go 6 months on the enthusiasm you pick up!

We hope these 3D click-n-spins give you some sense of being there ...



Figure 1: Atlas O scale ( 3-rail ) Milwaukee Road SW-9 Switcher, \$399.95





Figure 2: Walther's HO scale North American Ethanol NAEX Trinity 6351 4-Bay Covered Hopper, \$34.98





Figure 3: Walthers HO scale GM&O Pullman-Standard 52-Seat Coach, \$49.98





Figure 4: Bachmann Spectrum HO scale 70 ton 3-truck Climax, with DCC and sound, \$495.00; DCC only, \$350 (ships in September)





Figure 5: True Line Trains HO scale Canadian National 4-8-4 with DCC and sound, \$1,199.99





Figure 6: Bachmann Spectrum HO scale Southern Railway Baldwin 4-4-0 with DCC/sound, \$445.00; DCC only, \$300.00 (ships in October)





Figure 7: John Drozdak's HO scale Rock Island #1094 MOW Crew Car, scratchbuilt





Figure 8: Bachmann Spectrum On30 ET&WNC Baldwin 4-6-0 with DCC, \$365.00





Figure 9: Bachmann Spectrum HO scale Peter Witt Streetcar with DCC and lights, \$150.00 (ships in November)





Figure 10: Bachmann Spectrum HO scale single-truck Birney Safety Streetcar with DCC and lights, \$160.00 (ships in November)





Figure 11: Bachmann N scale Baldwin 4-6-0 Ten-Wheeler with DCC, \$150.00 (ships in November)





Figure 12: Bar Mills HO scale American Seltzer Company, limited-run kit only available direct, \$144.95





Figure 13: Bachmann HO scale Union Pacific EMD GP9 with DCC, \$89.00 (shipping in October)





Figure 14: Atlas HO scale National Steel Car 42' Coil Car, preproduction model





Figure 15: Bachmann HO scale Alco RS-3 with DCC, \$99.00 (shipping in November)





Figure 16: Rapido HO scale Canadian National FP9A, \$169.95; with DCC and sound, \$299.95 (ships in 2011)



# Model Railroading 22 stories up!

Preparing for apartment living on the other side of the world . . .



by Thomas Garbelotti



Figure 1: A temporary layout is a good vehicle for building modeling skills, but in the end, it's still meant to meet the dumpster (or chainsaw). My layout looked good but all good things come to an end.



Imagine finally acquiring a property with an 800 square foot empty space (figure 1). Perfect for that ultimate layout. Dry, but cold, a problem quickly fixed with a localized heater. As a couple of years pass, you spend your hobby time working up test layouts, trying to develop the skills necessary to create the image in your head with the reality your hands produce. With satisfaction, the second chainsaw (a chainsaw is a name coined by Joe Fugate for a temporary layout - see Reverse Running in MRH Issue #1) has served its purpose, and now it's time to start filling all that glorious empty space.

## Then everything changes

Employment, location, and housing all changed on me within a few weeks

time. Instead of a large empty space, I'm looking at having nothing more than an around-the-walls layout in the second bedroom of a two bedroom flat on the 20th floor of a high-rise. A total of 10x12 feet, and the center space in the room must remain open. OK, this isn't too bad. It's as much if not more than many others have to work with. Relax, we should be fine (figures 3 and 4).

Then I remember that this housing will be temporary, and in four years I'll be moving again to an unknown location. Anything I build will have to be nothing more than another chainsaw of sorts. Deep breaths. Plenty of people move on a regular basis. Certainly this is another concern we can handle.

After visiting the new location, I realize there are no hobby shops that cater to model railroaders. Well, that's not



Figure 3

Figure 2: the old space under preparation for the railroad.

Figure 3: Chainsaw II in the space just prior to removal.

Figure 4: and the new space...

Figure 5: when you don't have a tape measure, you measure by the *foot* ...



Figure 2



Figure 4



Figure 5



much different than my old place – where I was 2 hours from any hobby shop worth the visit. But there is no two-hour drive to a hobby shop, and the new location is literally half way around the world, making mail an unknown. Uh oh...

Welcome to my transition into apartment railroading! This is a real scenario, with the challenge of how to continue to participate and advance in the hobby despite these obstacles in my path.

The plan of attack is just that – planning. Having lived overseas before, including a military move, I had the benefit of experience, and we began categorizing what can go, and what needs to stay. With a household goods shipment just a few weeks away, time began to shrink rapidly. This shipment should contain things I can't get over there, or things we want to take with us, which means hobby supplies to me! Now to make sure I have everything in hand...

**Designing a Track Plan**

My first step was to whip out the track plan software, and start plugging away. After a few iterations, I realized that I don't have the luxury of time to do this alone, nor could I afford a major failure in design that I wouldn't discover until it was way too late. The solution? Hire a professional.

There is a train of thought among some folks that using a professional layout designer in some way makes them less

of a hobbyist, or indicates a major failing in their own decision making. It may harken back to the fantasy of rugged independence that a lot of people maintain, or it may be simply frugality on their part. I can't deny that I had these thoughts before my situation changed, and with it, my decision-making matrix.

I contacted [Byron Henderson of Layoutvision](#), and we began our consultation. I had some factors that I was going to stick with, no matter what – staying in HO scale, hand-laying my track, and continuing to model the Central Vermont Railway in the early 1950's. Discussion with Byron immediately resulted in consideration of other locations than my original idea (White River Jct., Vt.) and one of them ultimately became the locale for the final plan – Montpelier Junction to Barre Vt.

With Byron's help, awkward track design was removed, and improvements suggested for operation. The suggestions were not exotic, just the kind of things most people are aware of, but overlook easily, especially when in a rush!

I have found forum feedback to be a fantastic resource which should not be discounted, yet I found in my situation that the focused attention of someone who knew their business to be invaluable. Based on my experience, I think having professional

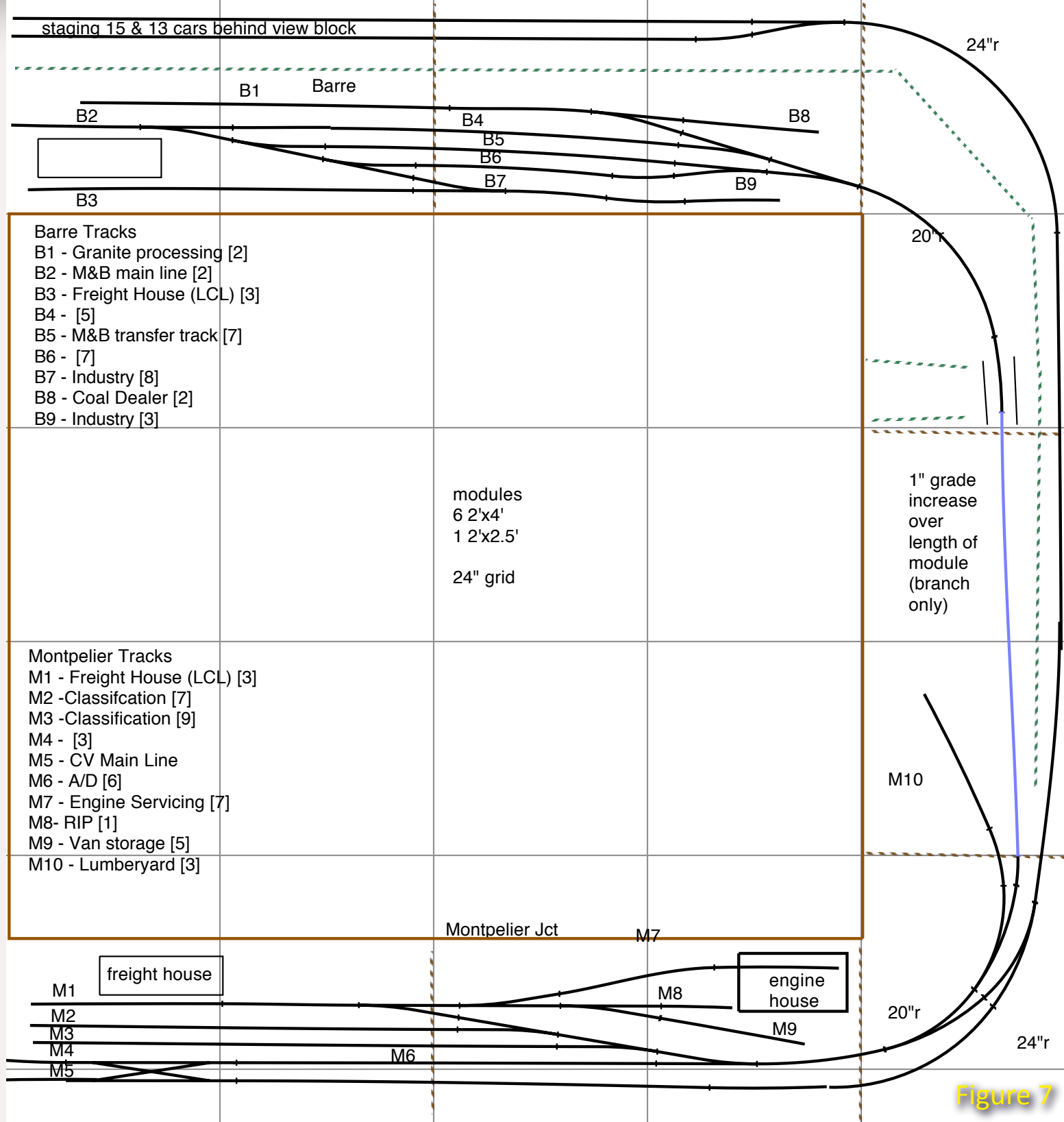


Figure 7: Final apartment trackplan

assistance will ultimately prove less expensive in the long run.

**Picking a DCC System**

I purchased a CVP Easy DCC system as a "final" DCC control purchase prior to learning about my move. The scalability of the CVP system was

a big appeal for my big layout. But was it suitable for an 'alien' environment? Complexity was an issue – especially as my basic set consisted of the head unit, a dual Zonemaster, a throttle bus extender (each with its own power supply), and a wired walk-around throttle. A lot more gear than I wanted to pack and take.



	Qty Needed	Qty per pack	Packs needed	Price	Total
<b>Non-Weathered Rail</b>					
Code 55 (36')	5	3	2	\$5.02	\$10.04
Code 70 (36')	9	3	3	\$6.36	\$19.08
Code 83 (36')	7	3	2	\$6.81	\$13.62
<b>Weathered Rail</b>					
Code 55 (36')	17	3	6	\$5.45	\$32.70
Code 70 (36')	33	3	11	\$6.83	\$75.13
Code 83 (36')	37	3	12	\$7.33	\$87.96
<b>Cork Roadbed</b>					
Yard Pad 5x36"	20	1	20	\$4.19	\$83.80
Strip (36')	18	5	4	\$7.98	\$31.92
<b>Ties</b>					
Wood Crosstie	4676	1000	5	\$16.95	\$84.75
Wood Turnout	560	250	2	\$16.65	\$33.30
PC Crosstie	935	200	5	\$18.00	\$90.00
PC turnout	200	100	2	\$12.00	\$24.00
<b>Rail Joiners</b>					
Code 55	100	50	2	\$8.05	\$16.10
Code 70	100	50	2	\$8.05	\$16.10
Code 83	199	50	2	\$8.05	\$16.10
Code 70-55	8	8	1	\$3.85	\$3.85
Code 83-70	8	8	1	\$3.85	\$3.85
<b>Spikes</b>					
	4000	1000	2	\$9.40	\$18.80
<b>Turnout Throws</b>					
Bullfrogs	20	1	20	\$6.00	\$120.00
control rod kit	20	1	20	\$3.29	\$65.80
				<b>Total</b>	<b>\$846.90</b>

**Table 1: Track plan parts list with component costs**

More than I needed as it turned out. A call to [Litchfield Station](#) saw a new NCE PowerCab and USB interface enroute to my house. With just two wires, one power supply, and enough power to run a couple of locomotives, this beginner set fit my new requirements perfectly with its ability to program decoders (even Tsunamis) and add a second operator if/when needed. Did I mention it’s compact?

**Construction**

With the plan hammered out to 90% certainty (I may still add another industry in Montpelier Jct.), I worked to develop a construction materials list.

Vendor	Items
Caboose Hobbies	Loose rail, paint markers
Dallas Model Works	ME joiners, spikes, cork roadbed, wood ties, Branchline building kits
Fast Tracks	Bullfrogs, controls, PC ties, solder, tie strips
Litchfield Station	NCE PowerCab, USB adapter
Micro-Mark	Tools

**Table 2: List of Vendors**

This is not as easy as you might think, especially given the fact that I really needed to get it right the first time.

100’ of Code 83 rail , 100’ of code 70, 50’ of code 55. 4,676 wooden cross ties, (not including turnouts), rail joiners, cork roadbed, thousands of spikes,

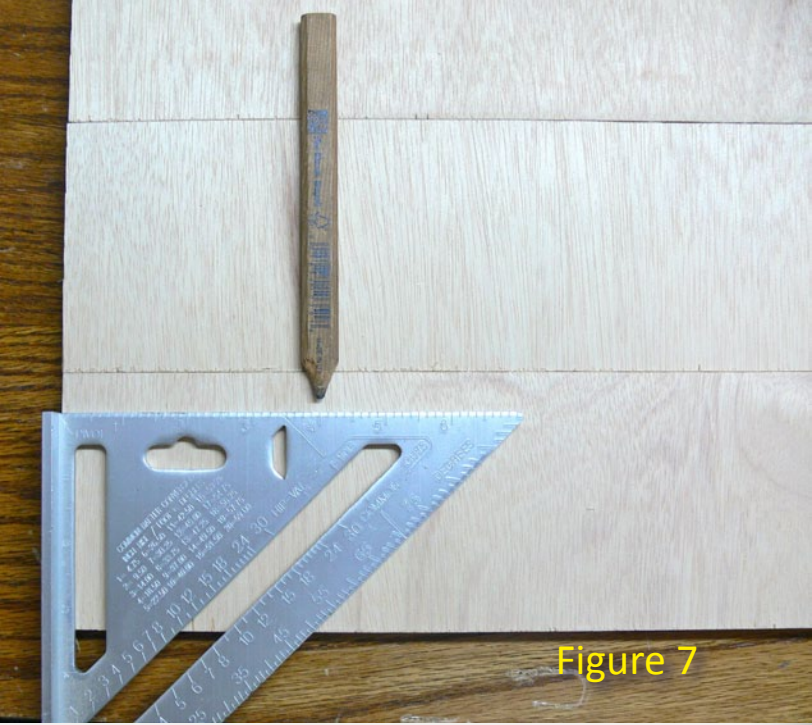


Figure 7

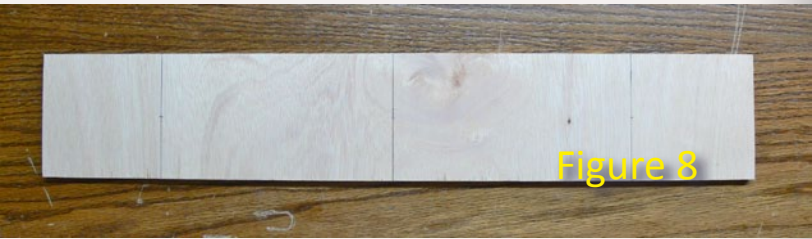


Figure 8



Figure 9

Figures 7, 8, 9, 10: a,b,c,d: laying out modular benchwork components.



Figure 10





Figure 11



Figure 12



Figure 13

**Figures 11 and 12 : A completed unit on its side.**

**Figure 13: A completed unit from above.**

everything needed to be measured off the plan, and then estimated with a 20% overage, just in case. And let's not forget wire, caulk, glue and the like. I'm forced to spend the lot up front, instead of spreading the costs over time. We often complain about the cost of the hobby, so it was interesting to see what the expense will actually be for this layout.

Once the list was created (table 1), I checked it against my current stock, and was pleased to find that I had some things on hand, reducing the monetary outlay required.

With the track work needs sorted out, I began looking at benchwork. The plan called for six 2x4' and one 2'x30" "modules" that will connect in a C shape around three walls. The modules will be topped with 1/2" sanded plywood, with pink foam insulation in some locations. The modules will rest on book cases or storage shelving that will be purchased locally.

Looking to the future, modular construction will make moving the layout easier at the next relocation a few years down the road – at least the option of moving the layout will be available.

Commercial bench work, especially *Sievers*, came immediately to mind, but with time running out, I was

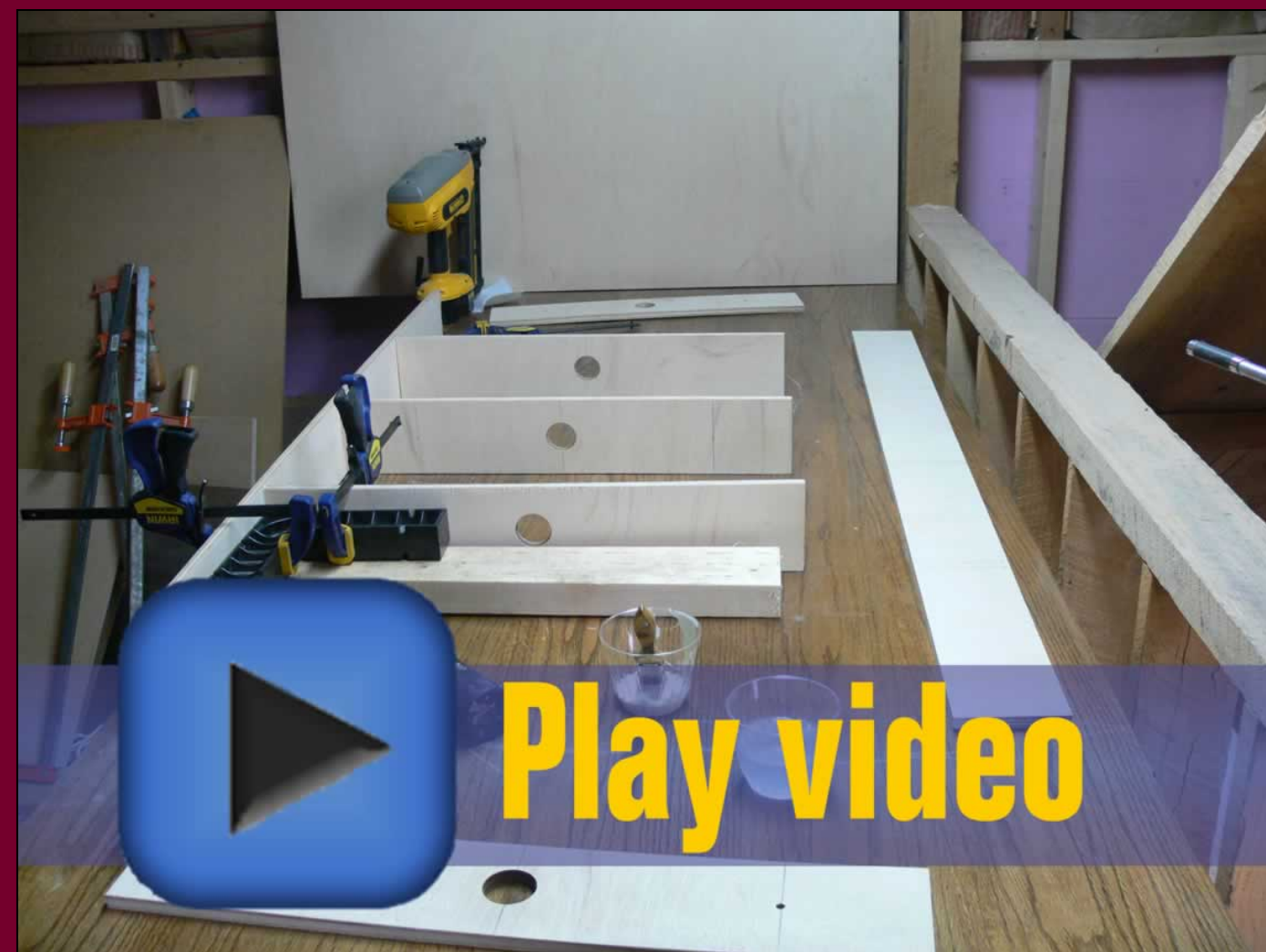
concerned about delivery times, and decided to construct it myself instead.

I made a trip to the local home supply store returning with three sheets of 1/2" sanded plywood. I decided to use plywood exclusively for construction for these reasons:

- These will be shipped via container across the world, encountering hot and humid conditions until they're delivered. I'm hoping the manufactured wood product will hold up better than dimensional lumber.
- Until I build the layout on them, they will be occupying part of our living space – I wanted a clean,

furniture look to them. The future layout will share its room with another person, and it needs to be visually appealing to her as well. The modules can also be used as an additional clean work surface until track is installed.

I had each piece of plywood cut into three 24" wide sections, with one narrower piece left over. Accurate 24"x48" sections were set aside for the module tops; the other pieces I ripped down into 4" widths on my table saw. With those cut, I made 48" lengths of the 4" strips for the sides, before cutting the rest into ribs and ends.



**Video clip - assembling a unit** **PLAYBACK PROBLEMS?** [Click here ...](#)





Figure 14

**Figure 14: I found it easier to cut the parts for a few units at once, then assemble them in a batch process. Here, are the side and cross pieces for three units.**

**Figure 15: All that's left to do is add a terminal strip at each end.**



Figure 15

Since I'm using 1/2" thick ply, I cut the ribs to 23" inch lengths for an over all assembled width of 24". Each 2'x4' module has two ends and three center ribs, for a total of five 23" pieces, set at 12" intervals. I then touched the edges of each piece with a palm sander to remove any burrs or splinters.

The only difference between the ends and ribs are the bolt holes – all pieces get the wiring hole, but only the ends receive holes for bolts. I spaced the bolt holes at 4" in on each side, and centered vertically. After measuring, I took four end pieces, clamped them together, and drilled the bolt holes on a drill press. The bolt holes will be used to connect the modules so it's important that they line up on adjacent pieces.

I used a 1 1/2" hole saw to cut the wiring holes in the middle of each piece – if the alignment is off a touch, it won't impede pulling wire through.

I assembled the modules with 2" finish nails and carpenter's glue; I've had good luck with this method holding up under bad conditions; the nail-gun driven finish nails hold it together until the glue dries. After the glue dried, I sanded the entire module lightly.

## Not Show Modules

These modules are not intended for the train show circuit.

Constant portability was not my goal. Therefore, weight was not a major concern. I used sanded plywood for the reasons given although other materials might have been lighter weight.


I didn't feel the need to go overboard on these to facilitate constant assembly and disassembly. I had planned to pre-wire each module with Molex connectors on both ends, but I realized a simple terminal strip, one per module, would suit my purposes nicely.

You could build modules like these to match your skill level; there is no reason metal angle brackets couldn't be used, or for that matter a biscuit joiner and solid cherry.

I was initially very concerned about getting all the bolt holes on the ends lined up perfectly, but then thought why? If the holes don't line up with a smooth and level top surface, then a clamp or two and a few wood screws would solve that problem. There is plenty of material to repeat this process more than a few times if needed – these simply won't see constant assembly and disassembly.

## Time to Move

With the plan fixed, parts ordered, and the modules assembled, it's time to wait for the movers ...

Now, what did I forget. I hope there are no unpleasant surprises once I'm half-way around the world. 



**T**homas Garbelotti is a frequent poster on the MRH Forum under the name 'Scarpia'. A native of Vermont, he returned to model railroading after a long hiatus. His chief interest is the Central Vermont railroad, especially the Roxbury Northern Division.

Thomas recently relocated from New England to Abu Dhabi, in the United Arab Emirates where he works for New York University helping to establish a new four-year undergraduate school.



## About our Modular columnist



**Les Halmos** has been a model railroader since 1979. He's been involved with setting modular standards for the NMRA since 1981. In 2001, he founded the Free-Modu-Rail Group and has been active in promoting Free-mo module standards.

[Click here](#) to learn more about Les.

Photos and illustrations by the author unless otherwise credited.

# MY MODULAR ADVENTURE: Having fun a module at a time

## The ongoing story...



**With the machine shop extension done, Les gets started on the roundhouse itself ...**

### Introduction

In my previous column, MRH issue #8 July/August, I built the machine shop extension and now I will build the roundhouse itself, but first, there are a few things that I must do. The floor of the roundhouse has to be prepped before I make a final assembly.

I am modeling this roundhouse as it probably looked in the late '60s and early '70s, as far as I could tell from the information I have. Therefore I am adding cracks in the concrete, yellow safety lines around the pits, stairs, concrete footings for the trusses and some overall weathering to make it look right.

Most of the models of roundhouses that I have seen have been representations of old and nearly decrepit buildings on their way to extinction.

This particular one was built in 1911 and I am modeling it in the transition era as a vibrant, well-maintained structure which in its heyday serviced steam locos and has been adapted to service a large diesel fleet and what is left of the steam engines that are still in service.

Even though I have no pictures of the Trenton roundhouse as it stood in the '70s I am using some artistic license and building it based on a similar structure that exists today – the Joffre Roundhouse in Charny, Quebec, just like I mentioned in my last column.



Figure 1

**Figure 1:** This is what the interior of the Joffre Roundhouse looks like today; it's a lot dirtier than I plan to make mine.



## STEP 1: Building the stall trusses

I disassembled the machine shop walls from the roundhouse floor and then I proceeded with the first step. This was one of the most time consuming parts of the whole assembly.

Luckily, when I planned this roundhouse, I did think of making jigs for the trusses, which really helped during assembly. I had grooves routed out for the I-beams and channels I would use.

As I mentioned in my last column, the only drawback to the jigs is they are made of styrene that requires very careful use of MEK so as not to bond everything together. I used a small brush to apply it and made sure to check each joint.

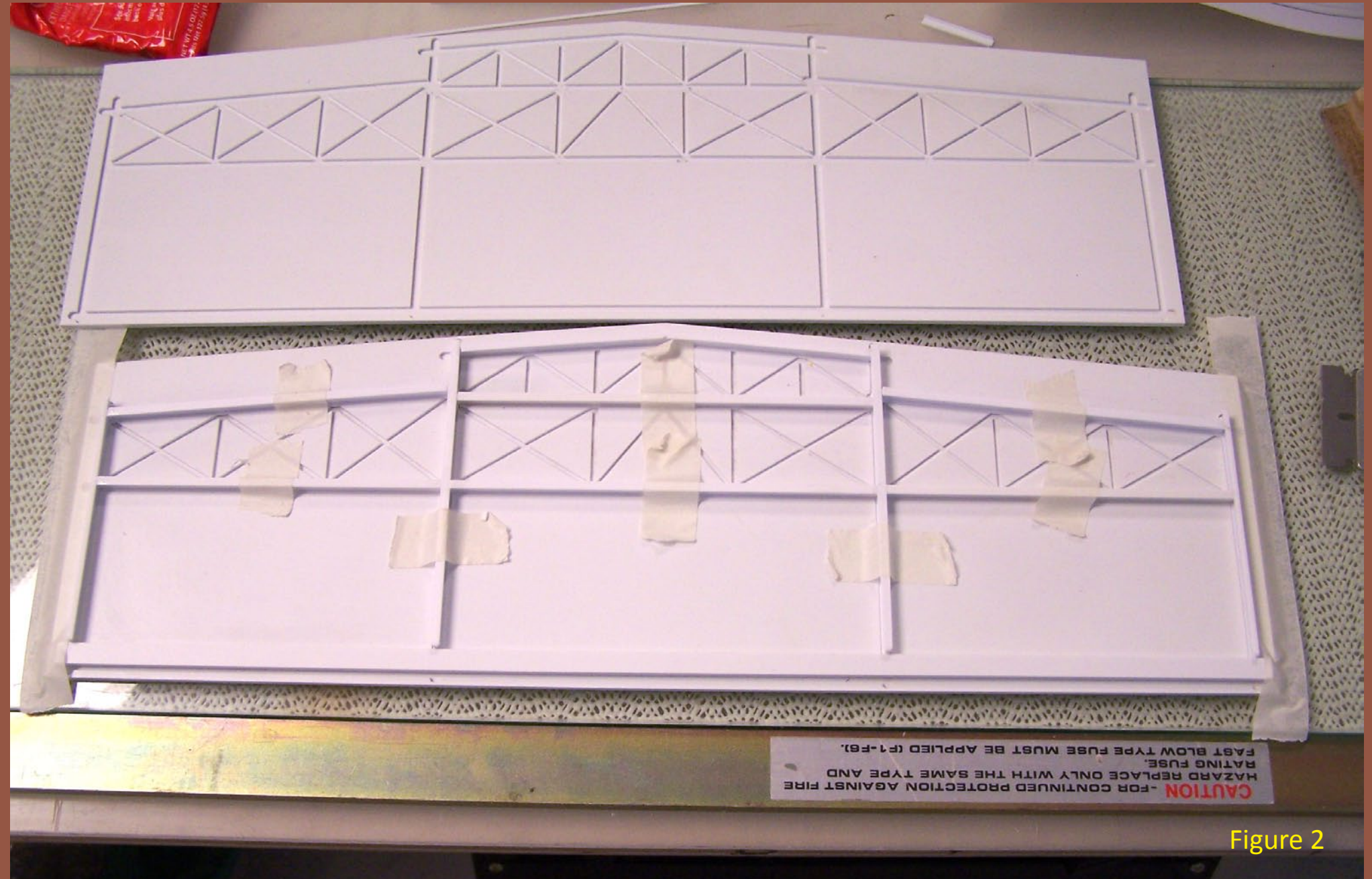


Figure 2: I-beams glued together in jig.



## STEP 1: Building the stall trusses *Continued ...*

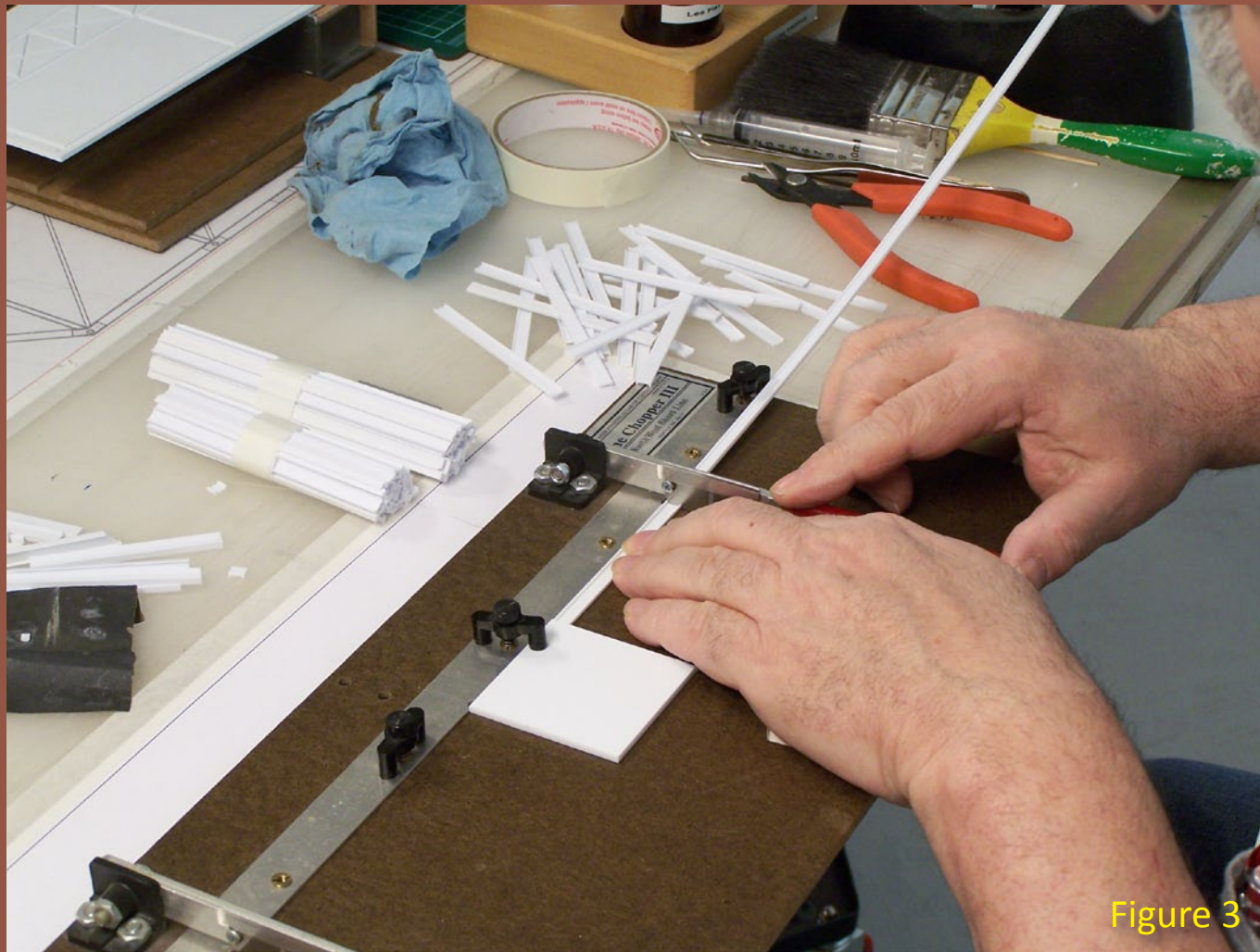


Figure 3

Figure 3: Before starting assembly I measured and cut each I-beam and channel about 1/8" longer than needed to allow for final fitting on assembly.



Figure 4

Figure 4: Thank goodness for "Plano" plastic boxes (found in the hunting and fishing section of Walmart or other stores). I filled two of them with all of the pre-cut and numbered pieces.



## STEP 1: Building the stall trusses *Continued ...*

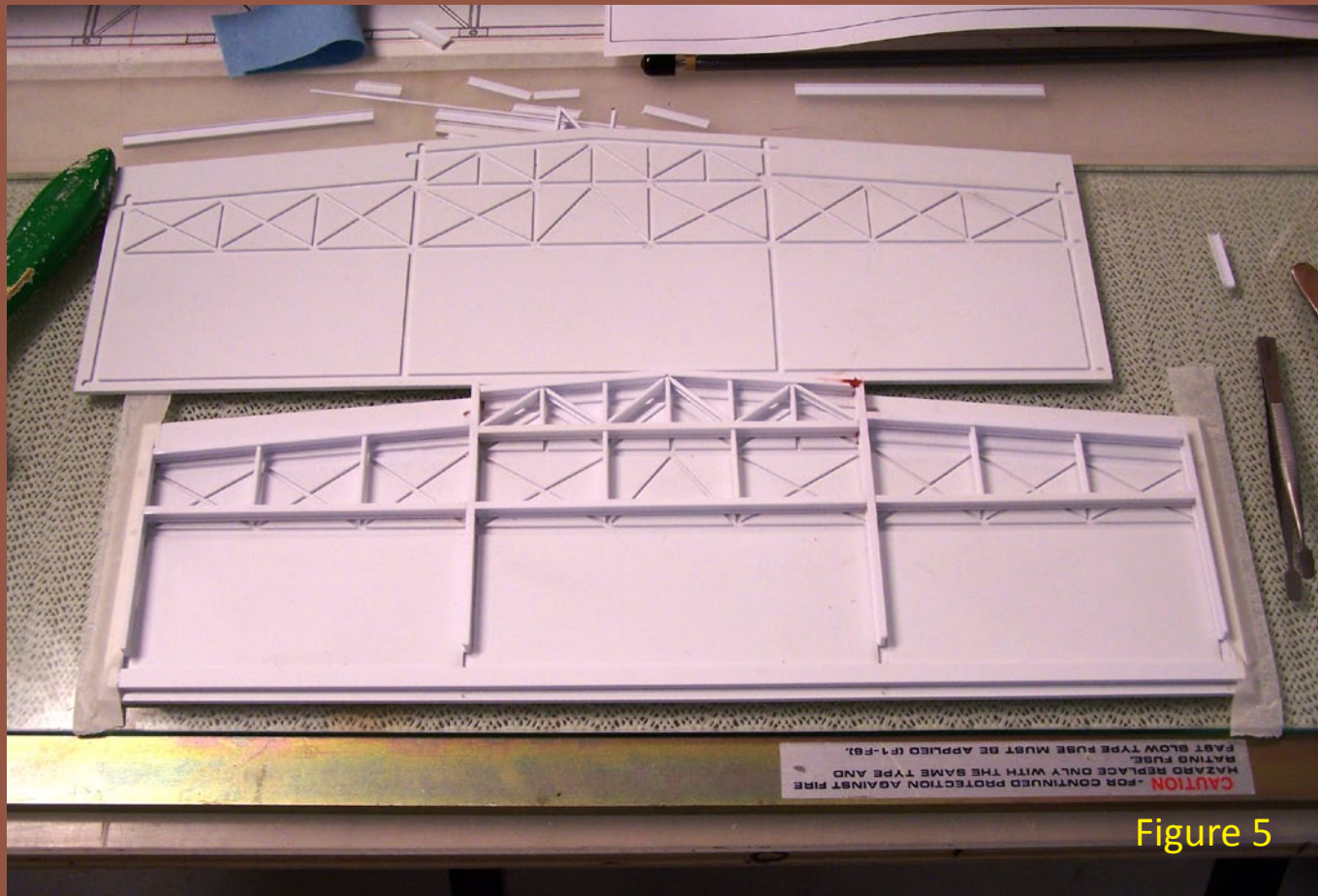


Figure 5

Figure 5: I started by assembling the I-beams, carefully measured and sanded each piece to fit. Once that was completed I did the same with the channels.

Figure 6: Measuring and sanding.

Figure 7: Carefully fitting and gluing.

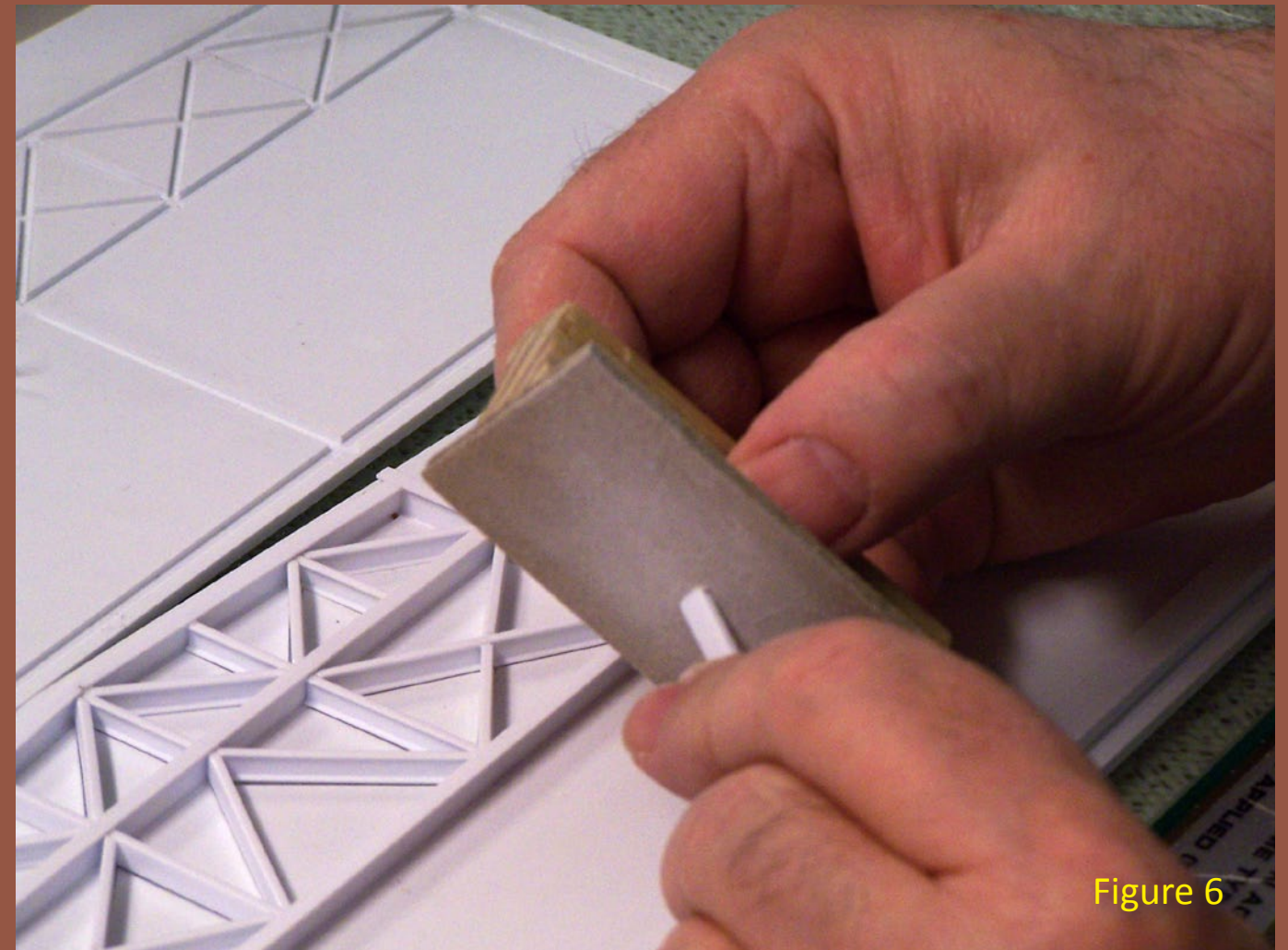


Figure 6

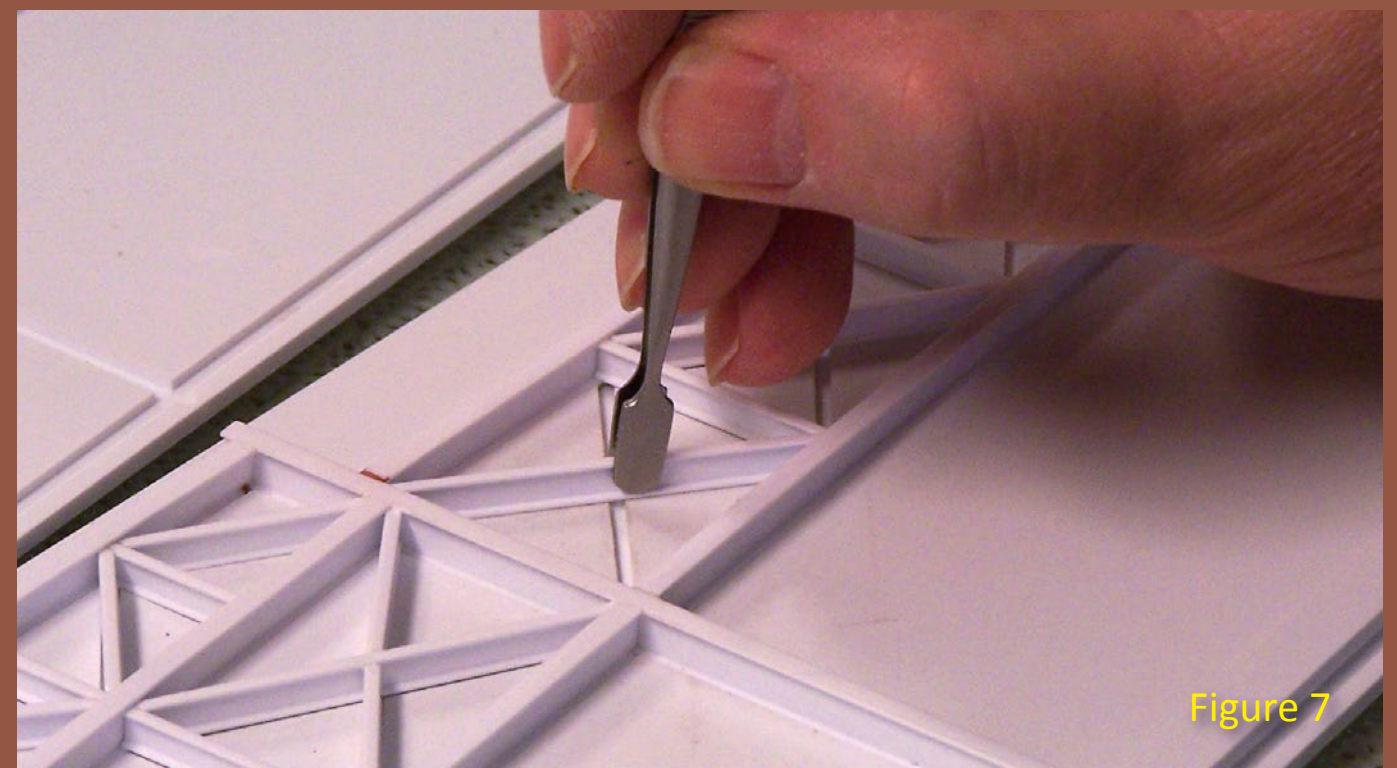


Figure 7



## STEP 1: Building the stall trusses *Continued ...*

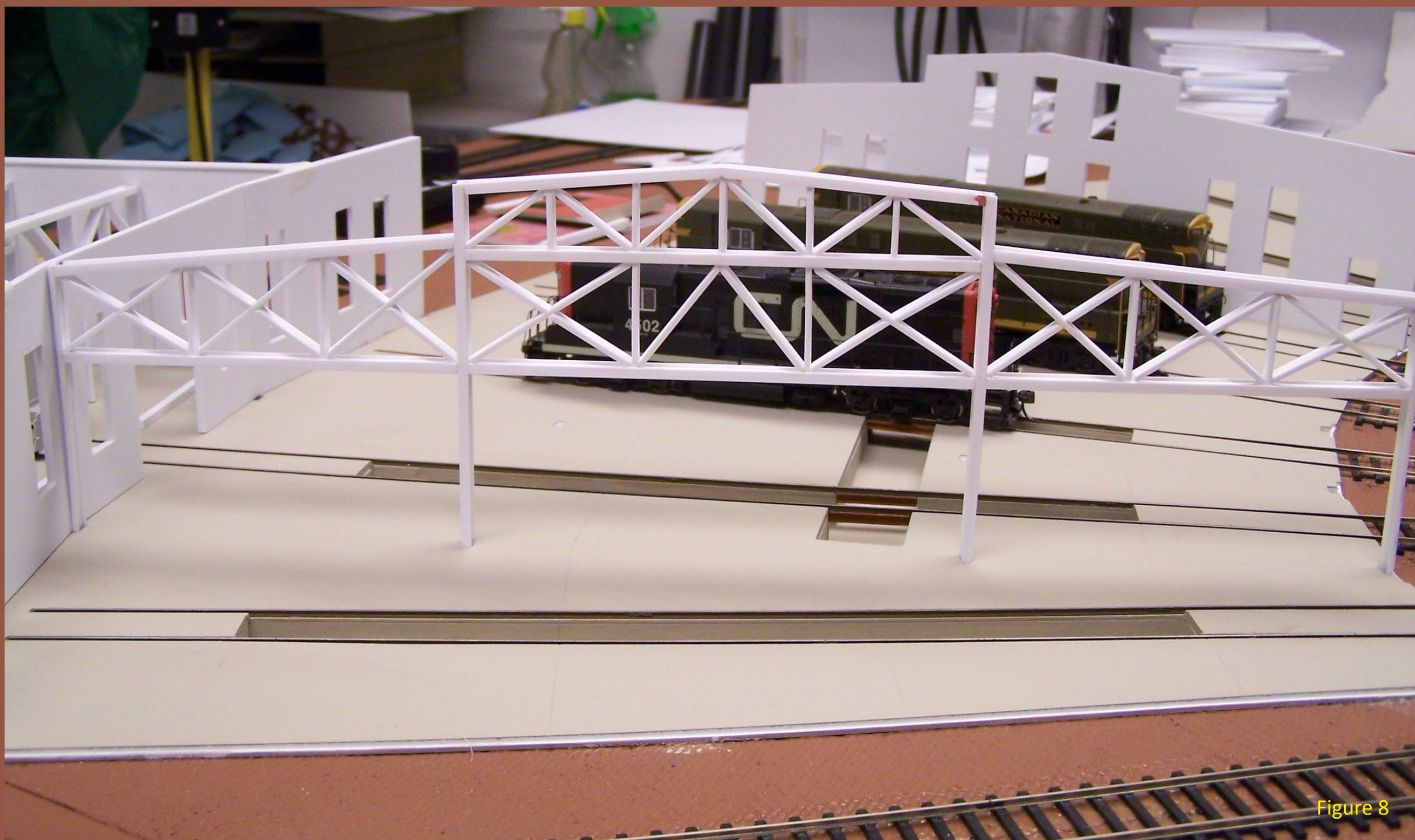


Figure 8

Figure 8: Finished truss, only 11 more to go!



## STEP 2: Yellow Safety Stripes

The next step required some thought. How could I paint the safety lines on the roundhouse floor without messing things up?

I went back to the drawing board as they would say, or in this case the computer and my trusty CAD program, where I already had the drawing of the floor, and drew in the lines as per the prototype.

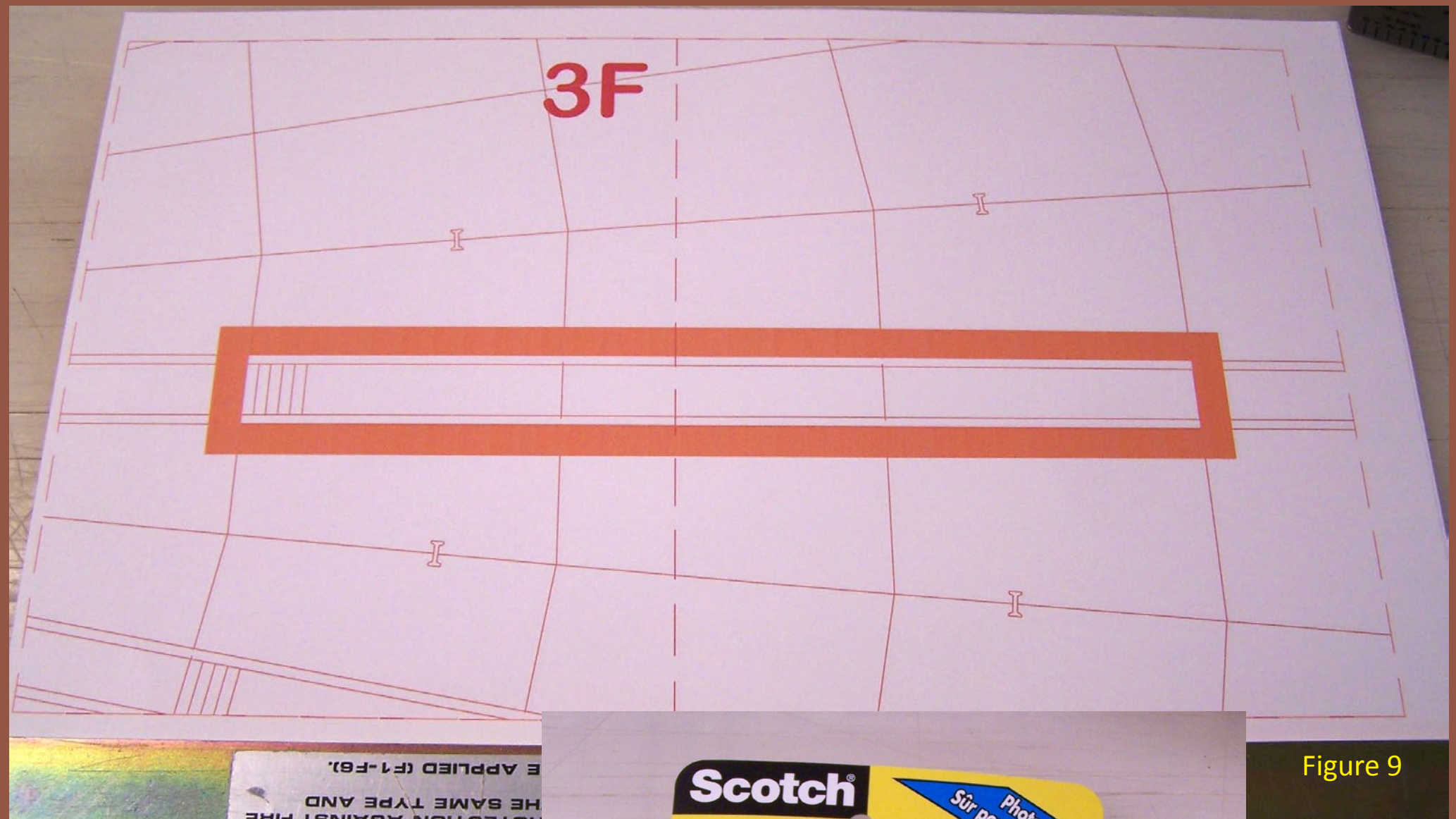


Figure 9

Figure 9: I printed out a full size drawing of the lines around the pit.

Figure 10: I covered the back of the drawing at the safety lines area with 3M removable double-coated tape



Figure 10



## STEP 2: Yellow Safety Stripes *Continued ...*

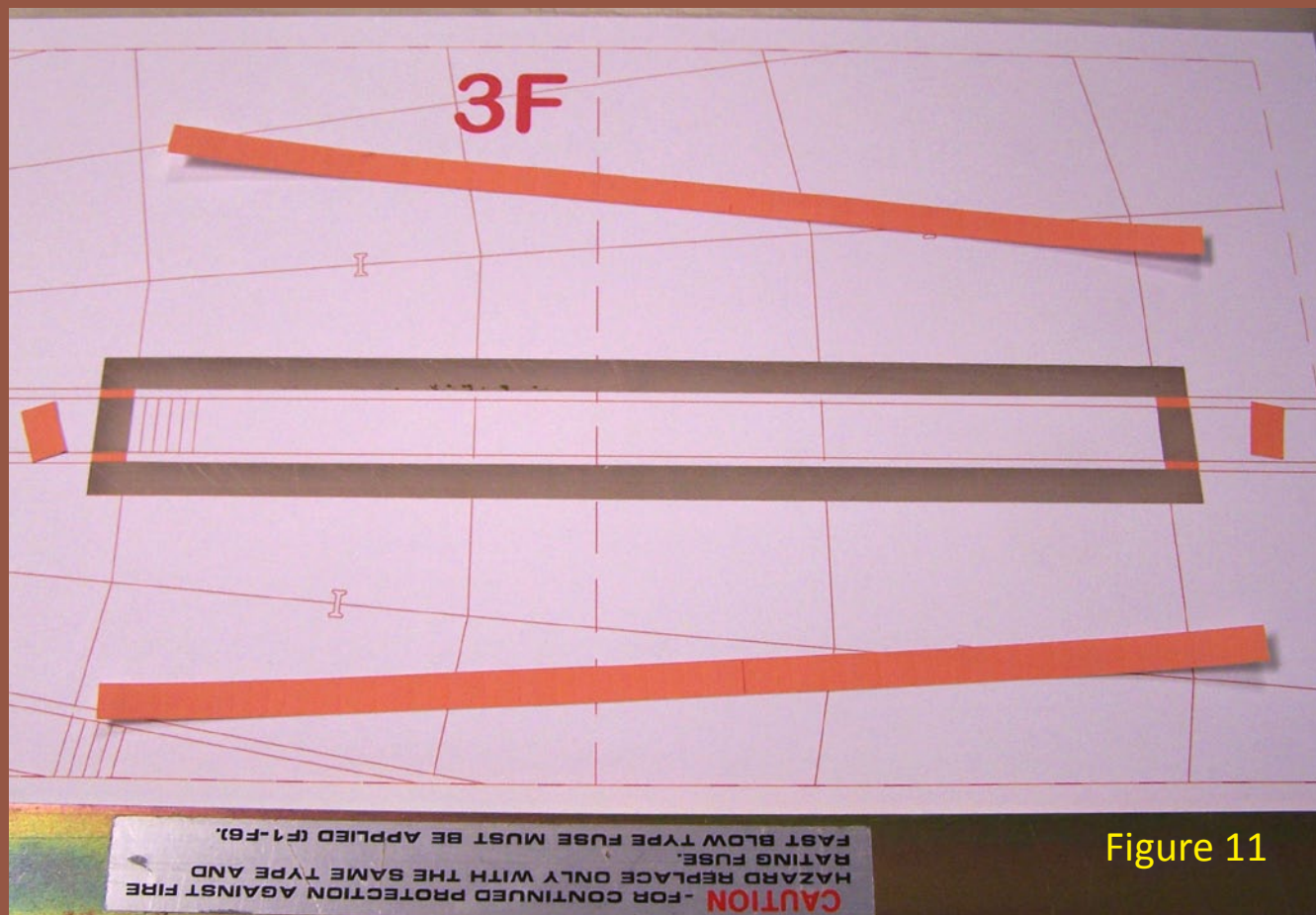


Figure 11

Figure 11: I made stencils by cutting away the paper where the yellow safety stripe paint will go, leaving 'bridges' to cover the rails (and locate the pit).

Figure 12: I trimmed and stuck the stencils to the roundhouse floor with double-sticky tape on their backs. They snuggled in place quite well. It's important that the stencils do not flop around. This way I had the rails already masked, saving me a lot of time cleaning yellow paint off the rails.

Figure 13: I completed masking off the rest of the module and airbrushed Floquil (F110254 CN Yellow #12) using my newly acquired iwata airbrush. It took several coats to achieve the look I was after. The double action, gravity feed with color cup airbrush is great for these kinds of small jobs. If you haven't tried a double action air brush, you won't believe the control you get, and the paint cup makes working in small batches easy.

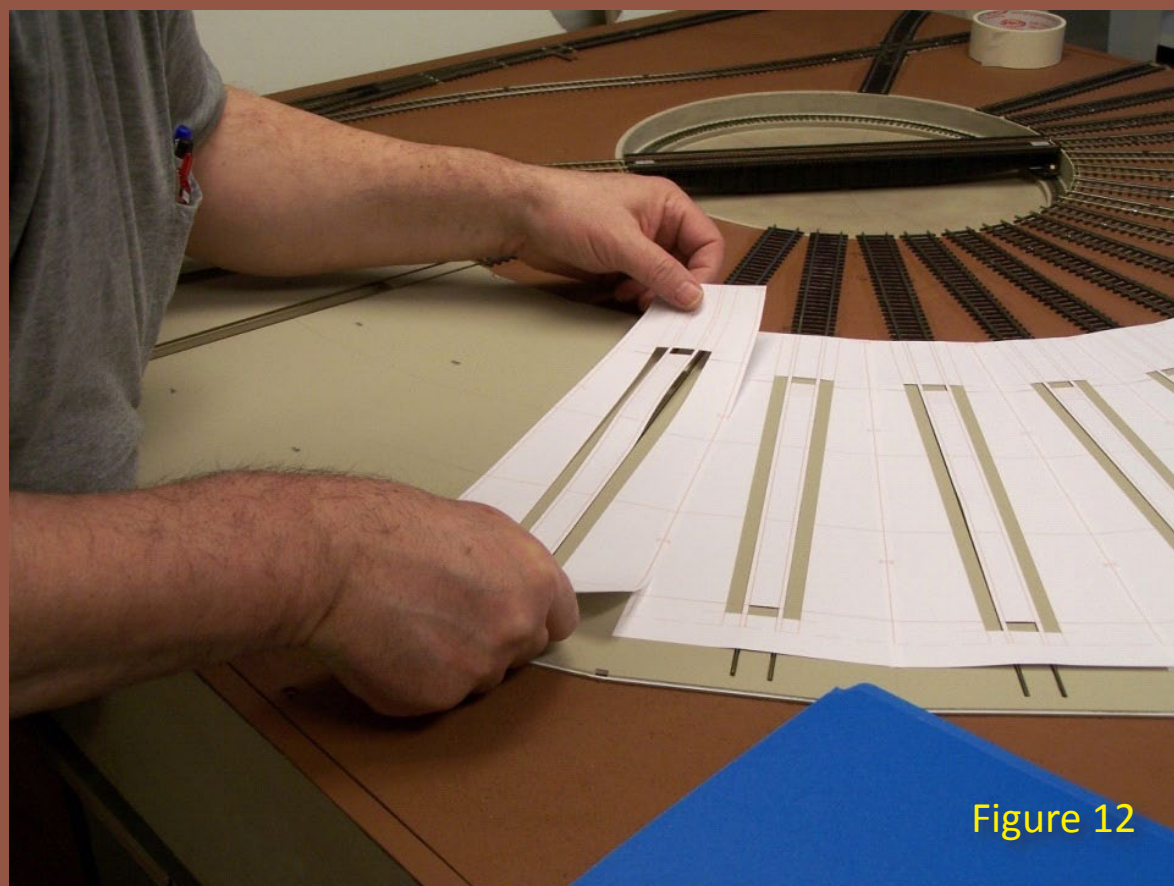


Figure 12

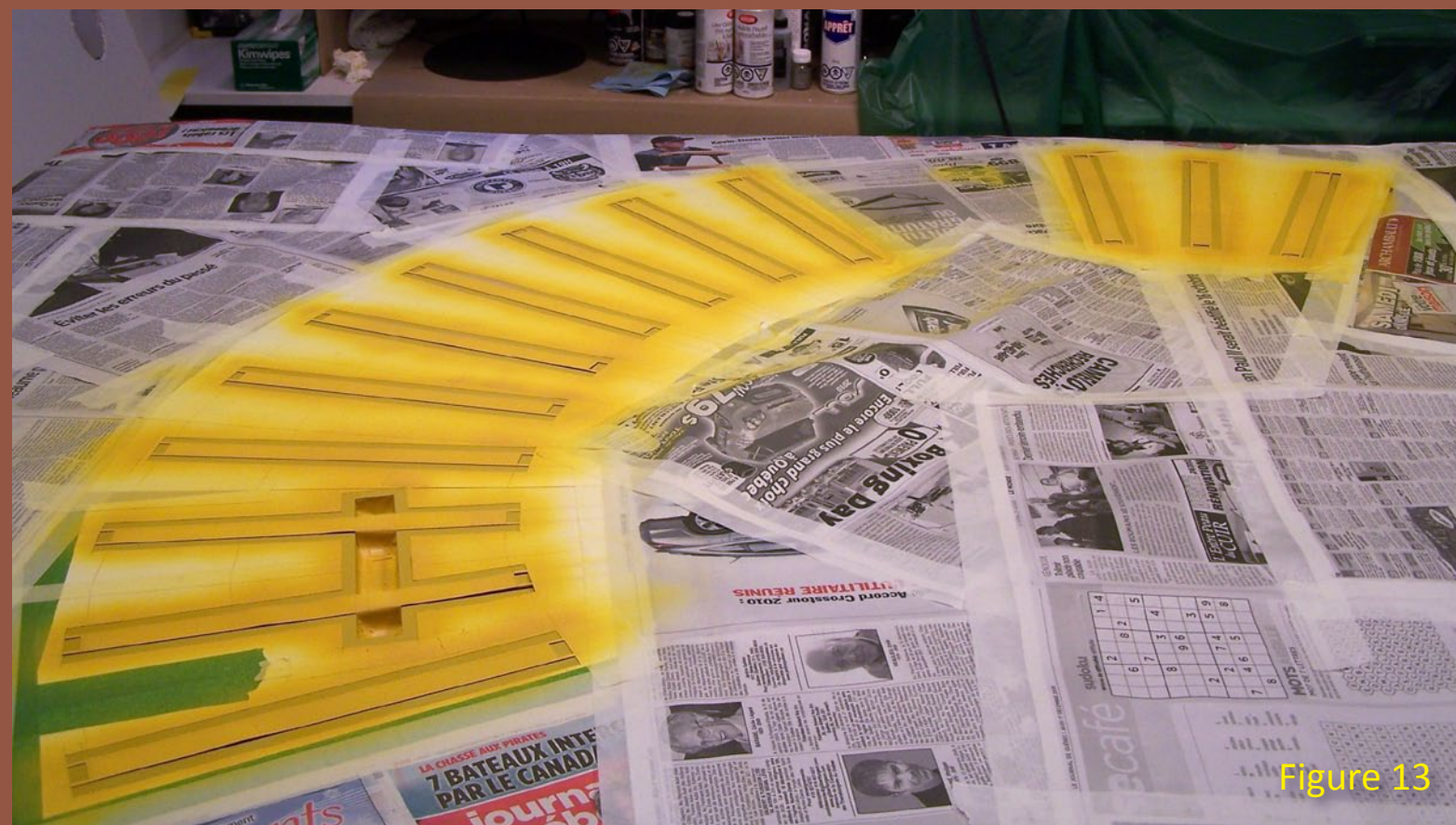


Figure 13



## STEP 2: Yellow Safety Stripes *Continued ...*



**Figure 14: I removed the stencils and masking and found the safety lines turned out well. The 3M tape worked great – no bleed through like I would have expected with masking or painter's clean cut edge tape.**



## STEP 2: Yellow Safety Stripes *Continued ...*

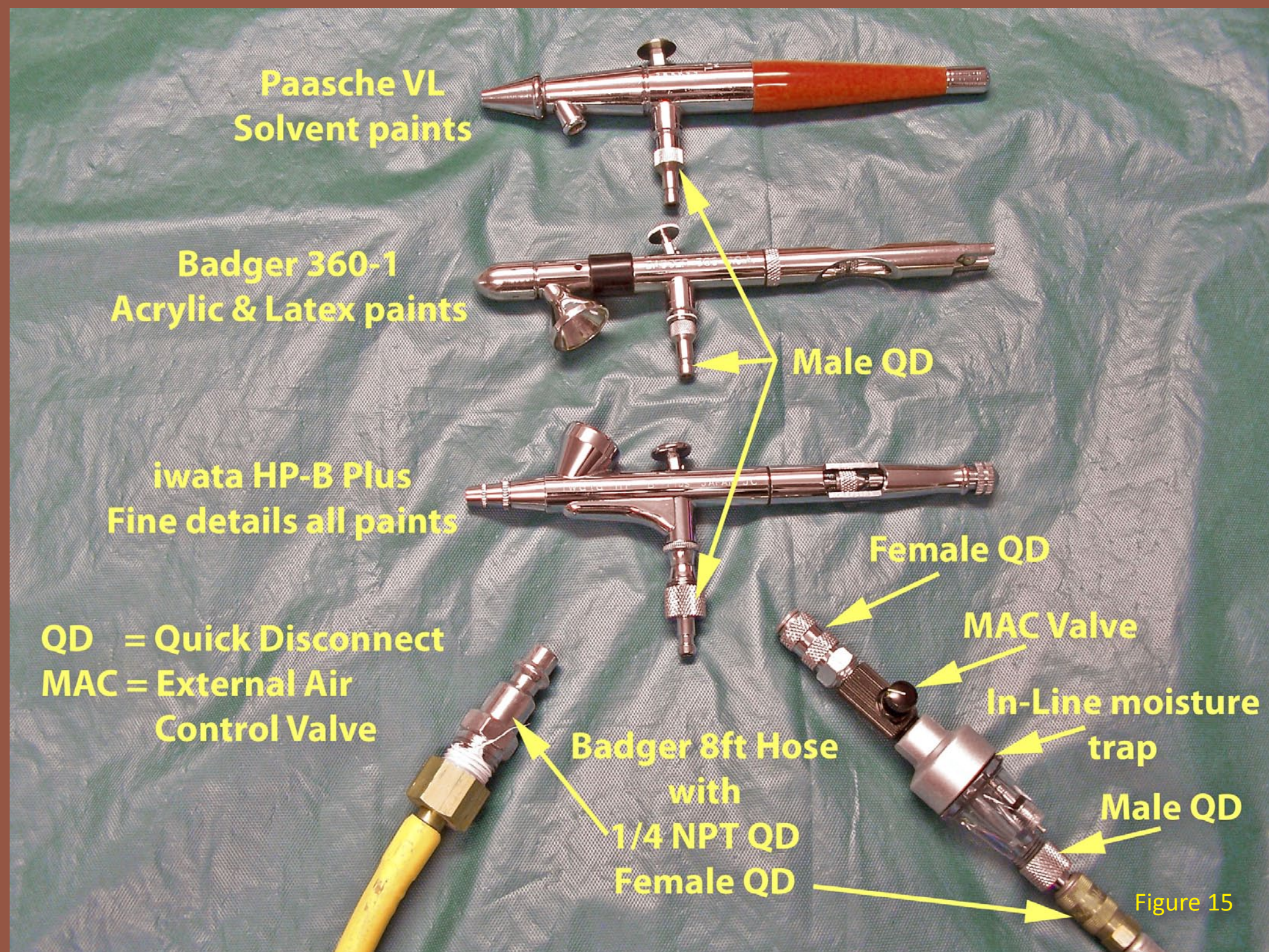


Figure 15: Before painting I installed the iwata MAC valve and the in-line moisture trap directly on my air hose with a quick disconnect (QD) adapter. I put matching quick disconnects on all my airbrushes. This way I can conveniently switch among my airbrushes – a really handy feature when I’m using different paints.

Each of my airbrushes is set up for different paint types with appropriate needles and jets. It sure is handy not needing to change needles as I’m changing paint types.

This way I can quickly disconnect and reconnect my airbrushes, thus speeding up the painting process.

Airbrush clean-up is a real time consumer. iwata sells a [cleaning station](#) which makes acrylic or thinned latex clean-up a breeze – instead of taking an airbrush apart to clean it, I add some cleaning fluid and spray into the cleaning station.



Note: Iwata-Medea is an MRH sponsor. Click on their logo here to learn more ...



### STEP 3: Preparing, painting and weathering detail parts

In this step I assembled and painted track bumpers and stairs for the pits that would be glued to the roundhouse floor.

I'm planning even more detail parts, such as machinery in the machine shop, welding tanks, air compressors, carts and miscellaneous other tools – but they can be added even after the roundhouse walls are installed. I'll leave several roof sections removable to show off these details.

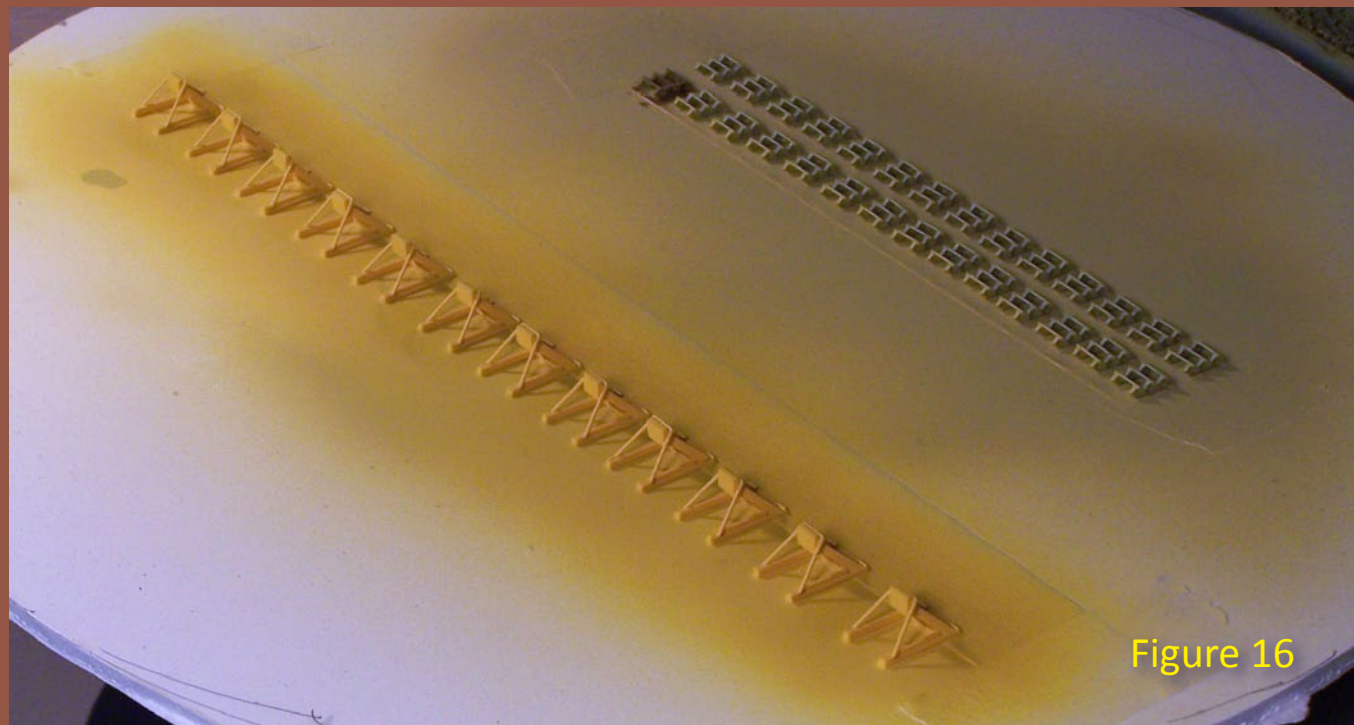


Figure 16

Figure 16: While I had my airbrush loaded with “safety yellow” I also painted the track bumpers I will use at the end of each stall. In the upper right are the steps for the pits with base coat applied.

Figure 17: Walther's bumpers (933-3511) and Central Valley stairs (210- 602 Steps and Ladders) after painting and weathering.

Figure 18: I prefer Floquil paint. I used Floquil Rust and Weathered Black and AIM products Real Rust on the stairs and bumpers. Solvent paints such as these require a system to vent the fumes outside. Similar results can be achieved using acrylic paints without bothersome fumes.



Figure 17



Figure 18



## STEP 4: Applying footings to the roundhouse floor.

While studying my prototype photos I noticed that the columns supporting the roof had concrete footings at their bases. So, while rummaging through my extensive collection of parts, I came upon these previously acquired Hydrocal castings.



Figure 19

Figure 19: These are the nifty castings which I found in Dave Frary's booth at a train show, and picked up for a very reasonable price. I knew one day I would need them – I was right!

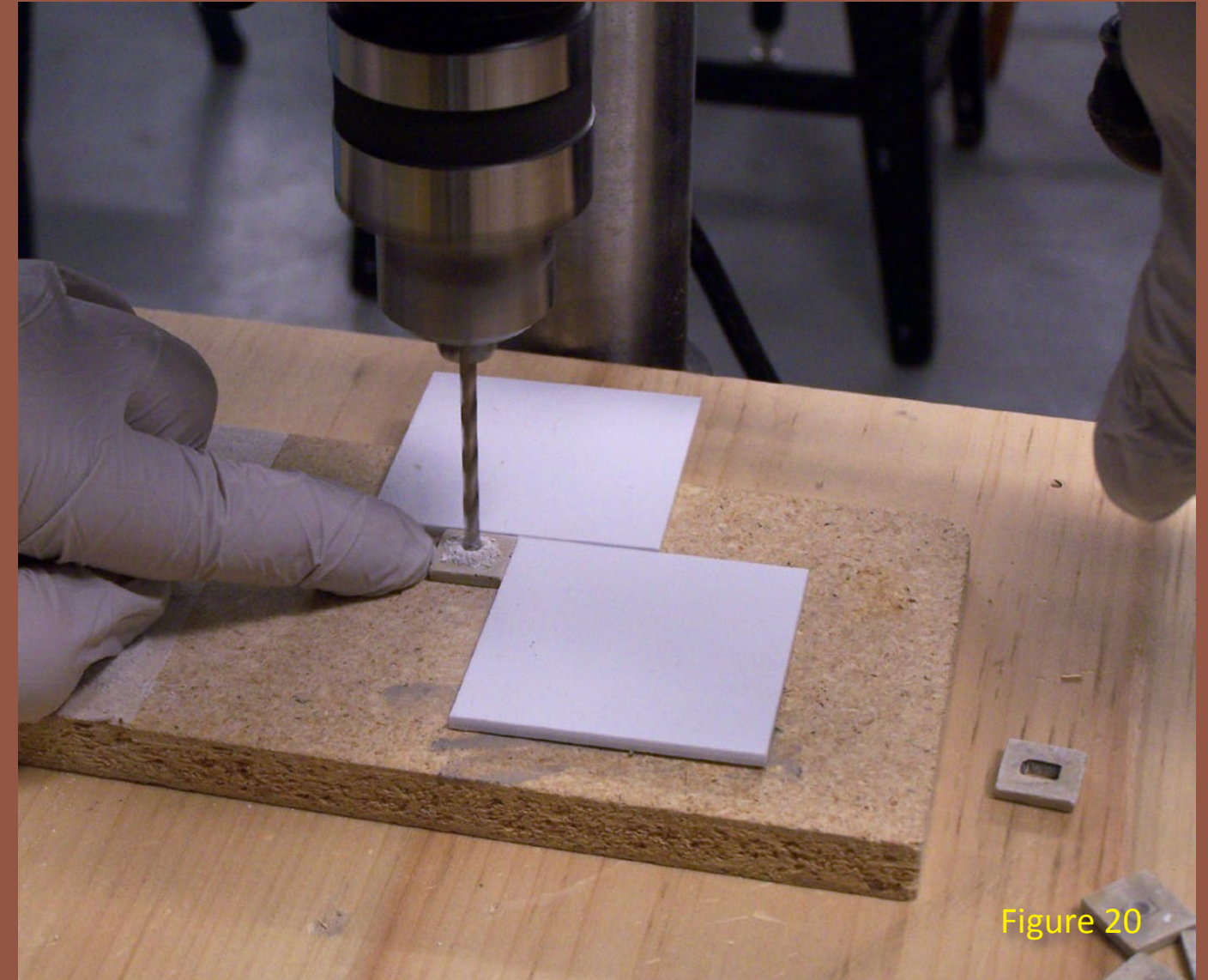


Figure 20

Figure 20: I decided to use these castings as footings for the columns on the roundhouse floor. I drilled and filed them to the correct profile then installed them on the floor. I probably could have cast them myself but having them handy sure saved a lot of time.



#### STEP 4: Applying footings to the roundhouse floor *Continued ...*



Figure 21

Figure 21: Once installed they really enhance the look and make everything look more realistic. I will blend them into the floor when I weather it.



## STEP 5: Preparing the walls and doors.

At this point I had to decide which brick material to use on the walls and also decide on the paint scheme. After several tests I finally decided to go with the Micro Mark textured [red brick paper](#) and True Line Trains (TLT010014 Olive Green #11) for the doors and trim.



Figure 22

Figure 22: This will give you an idea of the final look, although after weathering it might look a bit more “lived in”.



Figure 23

Figure 22: The outside walls will get the same treatment as the machine shop walls, but the prototype had fire barrier walls between each five stalls, on these I will use Micro Mark [textured cinder block paper](#).

The hood of the little Trackmobile at the bottom right of the picture seems to be a bit out of place but during my research I found out that the Trackmobile Company dates back to the late '40s....so it might just be in the right place after all, maybe not that particular model but...well that's another story!

Preparing the walls went pretty much the same way as the machine shop walls did in issue #8 so I won't go into more detail at this point. There is still much to do before I can begin the final assembly.



## STEP 6: Distressing and weathering the turntable pit and roundhouse floor.

I removed all the trusses, walls and details from the base before the next step. Although I have a lot of experience in weathering and adding cracks to concrete and asphalt, this task turned out to be quite an undertaking because of its sheer size. Doing a small street or concrete base on a module is one thing but this...well, how will I add several cracks to this huge concrete floor, and the answer is....one crack at a time! So here goes....

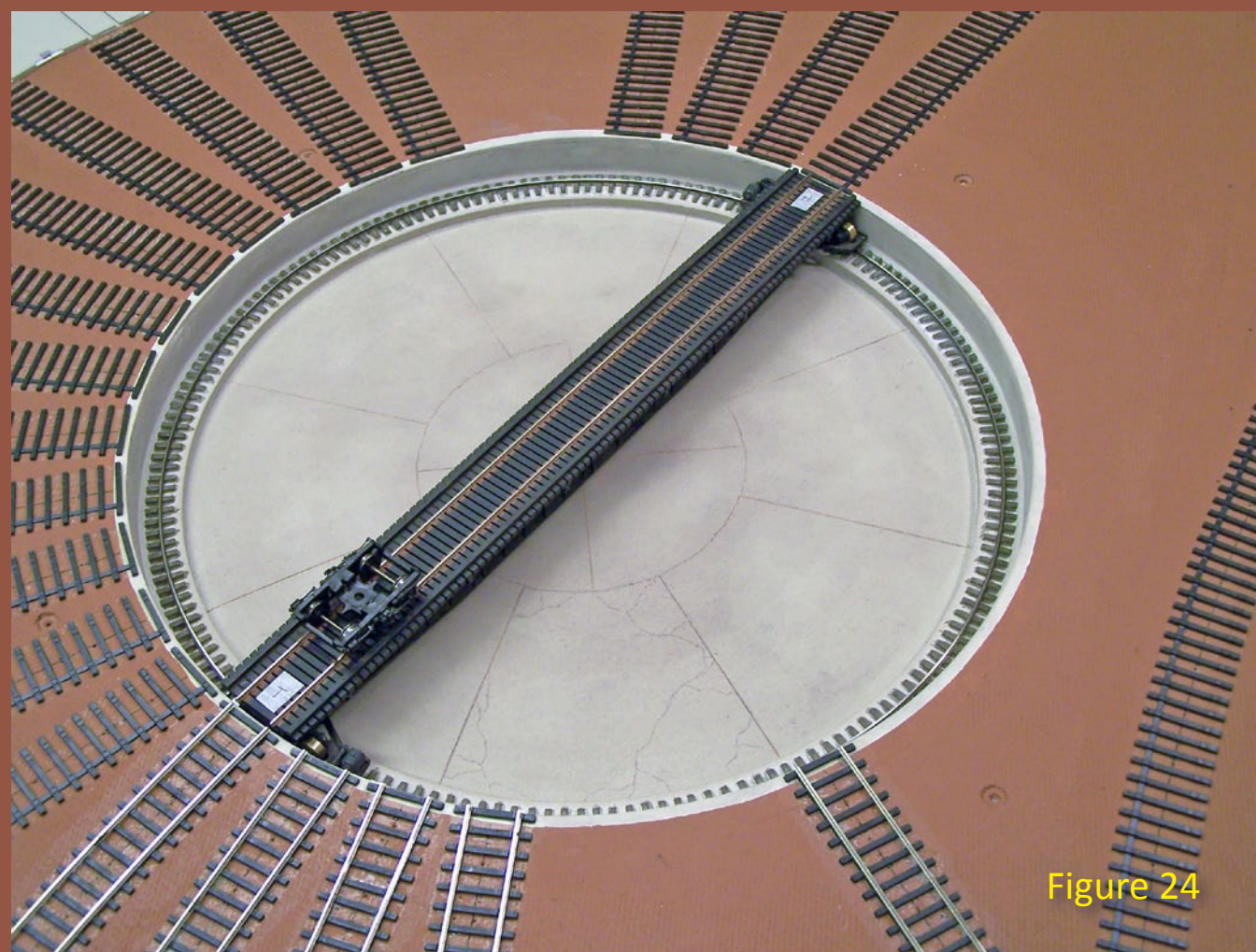


Figure 24: A before picture of the turntable pit.



Figure 25: Using a Micro Mark scribe ( [50299 Tungsten Carbide Scriber](#) ) I scribed cracks in the concrete (MDF) base in the Diamond Scale turntable pit.



## STEP 6: Distressing and weathering the turntable pit and roundhouse floor *Continued ...*



Figure 26

Figure 26: I used an artist's natural ocean sponge and Aim Quick-Age mix to "faux finish" the pit. This really worked well.

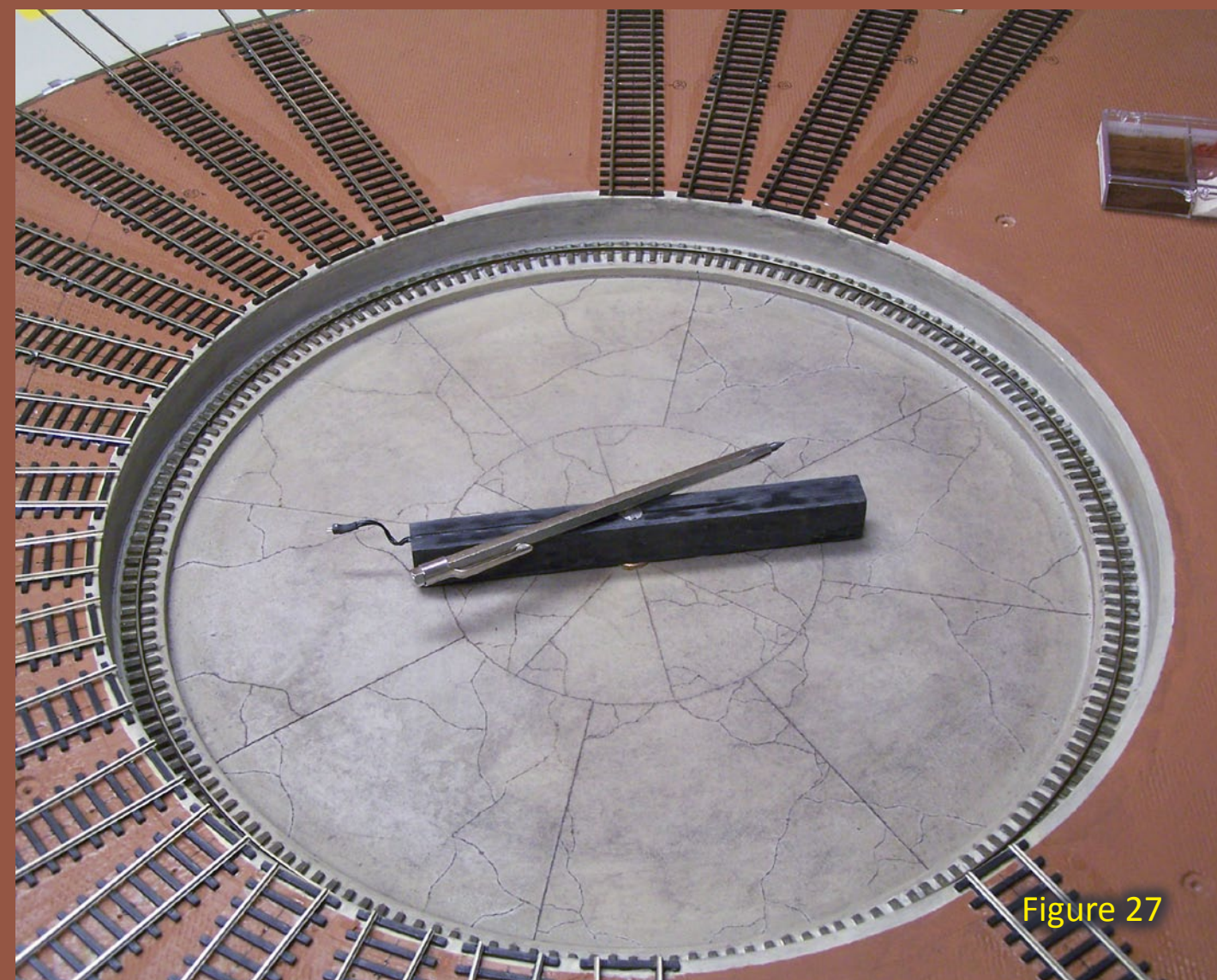


Figure 27

Figure 27: Here is an after picture of the pit. Still a lot more weathering to do. That will come soon.



## STEP 6: Distressing and weathering the turntable pit and roundhouse floor *Continued ...*

Figure 28: I continued using the same process on the roundhouse floor. Here though, I had to be a little more careful because the floor is painted with latex and the alcohol in the Aim Quick-Age mixture can attack the painted surface if I rub too briskly.



Figure 28

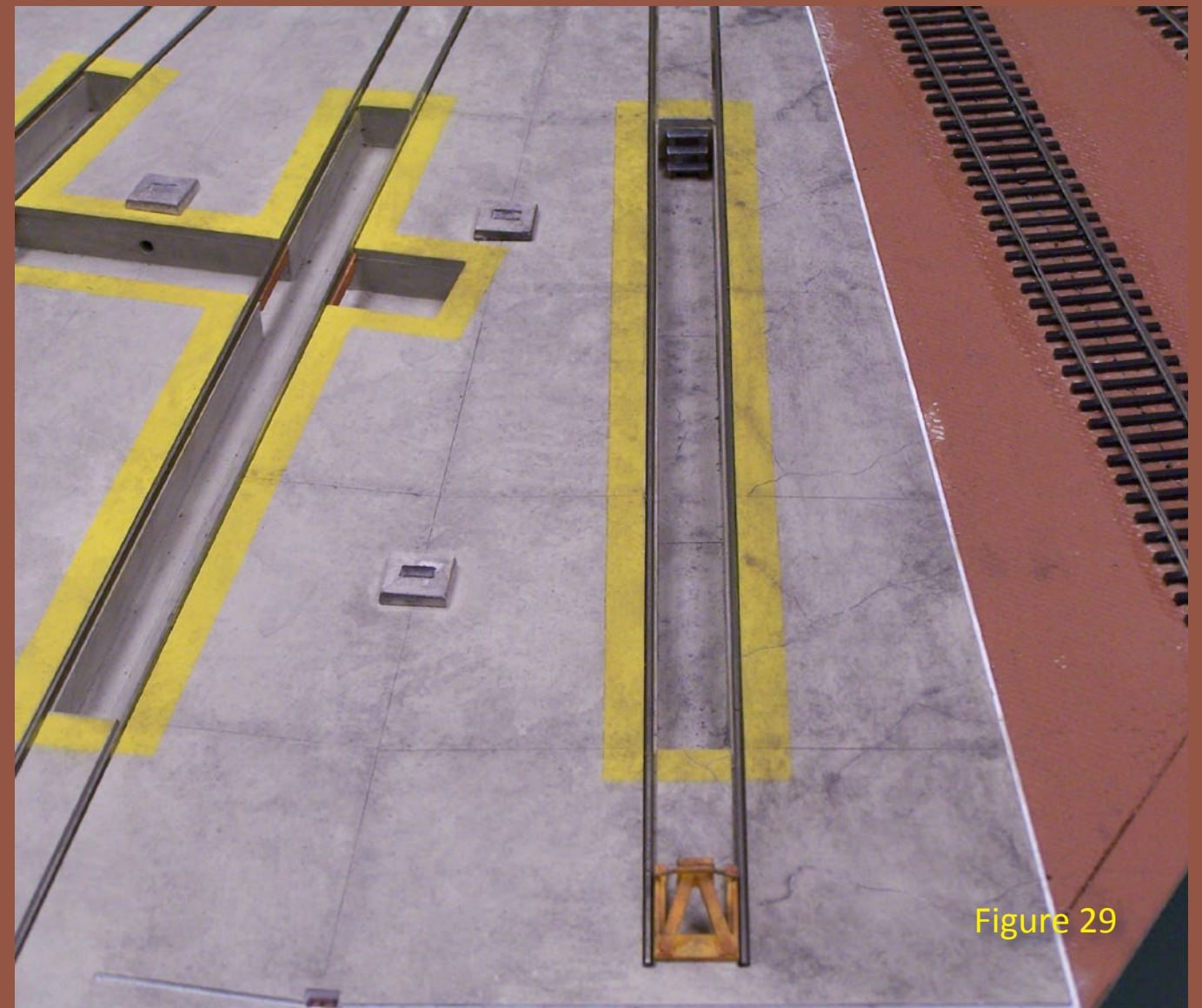


Figure 29

Figure 29: Here is the after picture of a stall. Only 12 more to go. I will add some rust and grease spots here and there and that's going to happen while you wait for the next installment of my column!



## Conclusion:

In conclusion, the detailing and weathering has to be completed before I can begin to assemble the walls. This would have been nearly impossible or very hard to accomplish if all the structural parts were in place.

The painting, weathering and preparation of the turntable pit and roundhouse floor took more time than I had anticipated so the next installment of my column won't be until issue 11 Jan/Feb 2011.

I'll discuss finishing, weathering and detailing the roundhouse floor in the next installment. I'll also cover priming, painting and detailing windows, doors and the walls as well as applying brick paper to the walls.

If you are reading this it means you are still with me and for that I am grateful. Should you have any questions or comments please click on the "[Reader Feedback](#)" button at the beginning of this column. I will try to answer you as soon as possible. Until then, let's get off the computer and go do some modeling. ☑

### TIP: How to prevent static-sensitive powders from sticking to the lid of a plastic container

I discovered the plastic containers supplied by Bragdon take a static charge which attracts the extremely fine powders up onto the cover when disturbed. If you rub the top of the cover with your fingers, things get even worse.

I found that using Novus 1 Plastic Clean and Shine on the container inside and out, before putting the powders in their bins, cleans and removes the static charge that is inherent in these containers.

Figure 30: I will use Bragdon weathering powders for most of the remaining weathering. These powders are ground extremely fine and contain an adhesive that makes them stick better to models than regular powders and chalks – but this makes them cling to their box, too.

Figure 31: None of the powders were drawn up onto the lid after treatment with Novus 1. A great product not only in this application but also to remove static from most, if not all plastics, including styrene.



Figure 30



Figure 31





About our  
narrow gauge and  
branchline columnist



**Lew Matt** is a published writer, photographer, and illustrator whose work has appeared in many model railroad hobby magazines.

[Click here](#) to learn more about Lew.

## THE LITE AND NARROW: Building some Farm Fencing

### Ramblings on Narrow Gauge and Branchline Modeling



This month Lew writes about keeping animals off his narrow gauge right of way and maybe keeping trains off his farms . . .

Railroads were always concerned about defining their right-of-ways. Fencing land was an important part of this as it resolved ownership issues and kept human and animal trespassers off of the tracks. A

different modeling approach to the ubiquitous wire fence is the common split rail fence and post. Frequently found in the heartland of the US, from Maine to Georgia and Missouri to New Jersey, where wood was plentiful and soil wasn't too rocky, this type of fence was used by many land owners and railroads to establish the boundaries of the right-of-way.

**Figure 1: Horse meets iron horse.**

The wood fence has several advantages over barbed wire and "pig" wire (wire fence with 5 inch square openings). First, the wood fence was inexpensive as all the materials could be found directly on the farm. Second, the wood fence would not scratch and scar the animal's hide, so the farmer received higher prices for unblemished hides from the tannery. Third, the





Figure 2a



Figure 2b

**Figures 2 a and b: This is a 4 rail post and rail fence from a National Historic site in Gettysburg, PA. This fence is a reproduction of a similar fence that surrounded this farm in 1860. The two views show the posts from both sides..**

animals were not able to stretch the fence as they could with wire by reaching through to graze on the far side. Fourth, the fence required no metal hardware, and last, the fence could be repaired quickly and easily, when it was breached, with at-hand material.

Built properly, the wood fence was very strong and could last 100 or more years. Fences were constructed with 2, 3 and 4 rails connecting to the posts. Two rails were decorative or light duty fences, used around bridle paths and to define plots of land not supporting large grazers who would be inclined to crawl under the fence. The 3 rail fence was a medium duty fence suitable for milk cows, goats, horses and other docile grazers. The 4 rail fence was a heavy duty fence and could keep the largest grazers, bulls and steers, in check as well as restrain pigs and sheep from wandering out of their assigned areas. The low fourth or bottom rail was placed just above the ground and deterred the animals from crawling underneath. The four rail fence was frequently used around the barnyard and grazing pastures for bulls.

Fence posts were made from trees four to ten inches in diameter, with larger diameters, used for the heavier fencing systems. The two opposing surfaces were flattened for easier drilling of the holes that held the split rails. Posts were flattened on the two opposite sides, then bored and chiseled to create a mortise hole about 3 inches wide by 5 inches tall, that went completely through the post from side to side. Posts were about 6 to 8 feet long with 4 feet installed above ground. Tops of posts were sometimes cut at an angle to shed water and the top rail was inserted about 6 inches below the top of the post. The bottom mortise hole of a four rail fence was 6 inches from the ground.

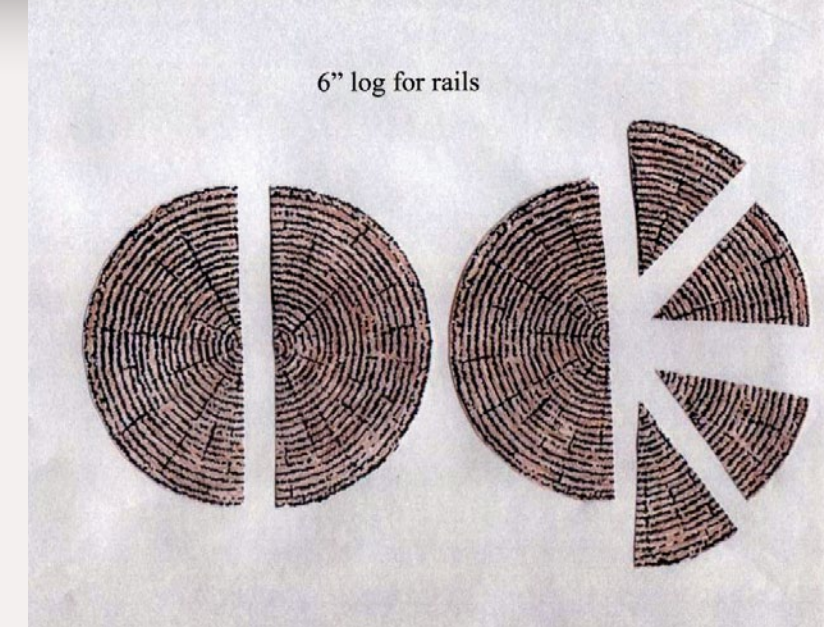
In very hard, rocky ground, posts were sometimes constructed from stacked and mortared field stone. Another method was to lay the split rails on a flat rock on the ground and create the zig-zag pattern of rails on top.

The field spacing between posts was 8'-3" so that every second post represented a rod. Rods were an earlier unit of measurement of acreage. All the farmer had to do to calculate the size of his field was to count posts. Modern field spacing of posts for decorative fences has gone to 10'-6."

Rails are inserted in the posts from the bottom to the top and are added to the posts from one direction, left to right or vice versa, for the length of the fence. The wedge shaped end of the rail fit into the hole in the post, then the next rail to the left or right was added and the wedge shaped ends locked each other in place, filling the mortise.

Logs for rails had diameters of 6 inches to very large trees, and were split while green with the bark removed. The rail was generally of triangle shape, with the thin edge of the triangle installed facing up to shed rain better. The ends were shaped as wedges with an axe and inserted into the post's drilled holes. A 6 inch diameter tree may be split into as few as four quarters while a 30 inch diameter tree may have been split into as many as 50 pieces of rail.

The West Virginia post and rail fence came into popularity after the chestnut blight took hold in 1908. The 8 foot long rails are made from a straight



**Figure 3: This diagram shows how a tree trunk 10 feet long may be split into multiple rails. The old timers used to do this with a few wedges and a sledge hammer. Abraham Lincoln made his living as a rail splitter**

hardwood tree of any specie, 3" to 4" in diameter, and cut into two halves at a saw mill. The ends are tapered into a wedge to insert into the posts just like the split rails, but the bark was not always removed. The saw cut face of the West Virginia rail was installed in the post facing south or east.

The most desirable wood for the post and rail fencing was the hardwood: Chestnut, with White and Red Oak also used. The section of the trunk suitable for making rails had to be straight with no limbs. Branches created knots and cross grain within the tree and resulted in an unsatisfactory splitting action. Since the chestnut blight of 1908 wiped out the chestnut trees, other wood has been used but is not as satisfactory. The most common wood used for the modern day, decorative split rail fence is cedar, with





Figure 4a



Figure 4b

**Figures 4a and 4b: The model fence is constructed the same way as the prototype. Note how the rails fit into the mortises in the post and wedge themselves together. The weathered grain on the post is created by draw filing the post with a small round file. See Figure 17 for the technique.**

black locust for working fences. Black locust is very difficult to split by hand.

My module will require about 100 “O” scale feet of three rail fencing with the posts set on 10 foot centers. The project requires 11 posts and 30 pieces of split rail to model the 3 rail fence. Experiments have shown that commercial 3/16” birch dowel rod makes a good post and 3/32” birch dowel will make a good split rail. However, the Birch dowel rod is fairly expensive and is a very hard wood that is difficult to carve easily. I wound up using free material that has proved to be excellent for carving. Chopsticks, from the local Oriental restaurant, proved to be very suitable for the posts while 12” long bamboo kabob skewers, 3/32” in diameter, make excellent split rails. The bamboo has a decidedly pronounced longitudinal grain that is perfect for the illusion of weathered split rails and is very resistant to breaking.

I used all hand tools (Figure 5) for this construction just to see how difficult it was and found I could easily make 4 posts or 15 rails in about 20 minutes. Using a motor tool for drilling and mortising the post should speed thing up considerably. Painting, staining and weathering the fencing is fairly standard and straight forward. The basic posts and rails were stained a light cherry, allowed to dry thoroughly, then brush painted with a thinned, light gray, acrylic craft paint and weathered with black ink diluted with alcohol.

I poked holes in the Styrofoam base of the diorama with a pencil point exactly



Figure 5

**Figures 5: The tools and material you need to make this fence by hand are shown here. Starting in the upper left: some finished posts and rails, an architects scale rule for measuring, safety reading glasses, 12” bamboo kabob skewers, an unopened pack of 2 chopsticks from the local Japanese restaurant (one unwrapped to show what it looks like. Note: this set of chopsticks is NOT bamboo, but a fine grained white hardwood that is easily carved), a drill the same diameter as the skewers, a round jewelers file – medium cut, pin vise, X-acto knife with #11 blade (or your favorite carving blade) and a marking pencil. You can use a motor tool to drill the holes, it will be faster.**

10 scale feet apart and inserted the post with the bottom smeared with a small amount of white glue. The split rails were slipped into the posts from the bottom up, right to left before the glue dried. A tiny drop of diluted white glue was added with a small paint brush to the post hole after the rail was inserted. Once the glue dries, the fence is almost indestructible.

The drawings and step by step photos clearly show how I made the parts


and constructed this fencing. I chose to install my new fence on a small diorama to demonstrate the assembly and create a finished product so I would have small, permanent display for a clinic on farm fencing at a future train meet. The section of the layout that requires the fencing is still under construction, and with my busy schedule, will not be ready for the fence installation for several more weeks. 





Figure 6

Figure 6: Measuring the fence rails. 12" bamboo skewers are very inexpensive, carve easily, and the bamboo grain looks good.

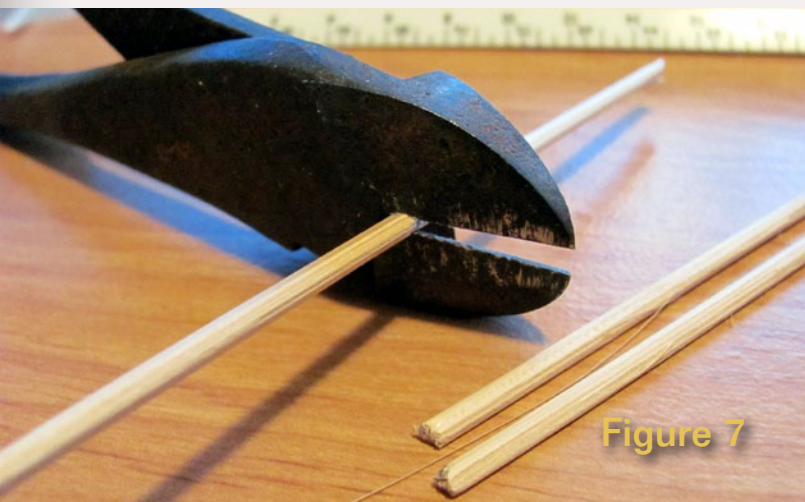


Figure 7

Figure 7: Cut the fence rails with a side cutter or Xuron rail nipper. This leaves a sloped cut that is fine for this project.



Figure 8

Figure 8: Mark each rail about 8 or 10 scale inches from their ends – you don't need to be exact. This is where the rails taper to fit into the posts.



Figure 9

Figure 9: Use a sharp hobby knife to slice off either side of the rail to make an "A" cross section. Allow the third side of the rail to remain rounded as if it were from a tree trunk. Watch out for your fingers!



Figure 10

Figure 10: Taper the ends of the rail out to where you marked in figure 8. The point of the taper should be about as thick as the edge at the top of the "A" edge of the rail.

Figure 11: I cut my posts from wood chopsticks making the cuts perpendicular to the post. I taper the end to be planted.

Figure 12: Thin the post by carving on opposite sides. The chopstick wood is easily cut, and has fine grain. An irregular surface looks more realistic smooth one – fence posts were often split, not sawed.

Figure 13: Mark the location of the three rail holes on the side of a fence post. Measure down from the



Figure 11



Figure 12

top 6 scale inches, then space the holes a scale foot apart. Accuracy isn't important – look at the holes in the fence posts in figure 2a and 2b.

Figure 14: Make a rectangular hole by drilling adjacent holes, then connecting them. The diameter of the drill should be the same diameter as the tapered rail ends. Use a backing board under the drill so you don't drill into your tabletop like I am doing in the picture!

Figure 15: Use a round, medium cut, Jewelers file to slightly enlarge the hole and give it a little taper. It is best to file from both sides.

Figure 16: Once you finish a post, use it as a guide to locate the holes in the remaining posts.

Figure 17: The posts should be nicely carved, with a bit of texture, clean holes, and no splinters. Scrape the posts with a round file to bring out the grain and make the posts seem older.



Figure 13

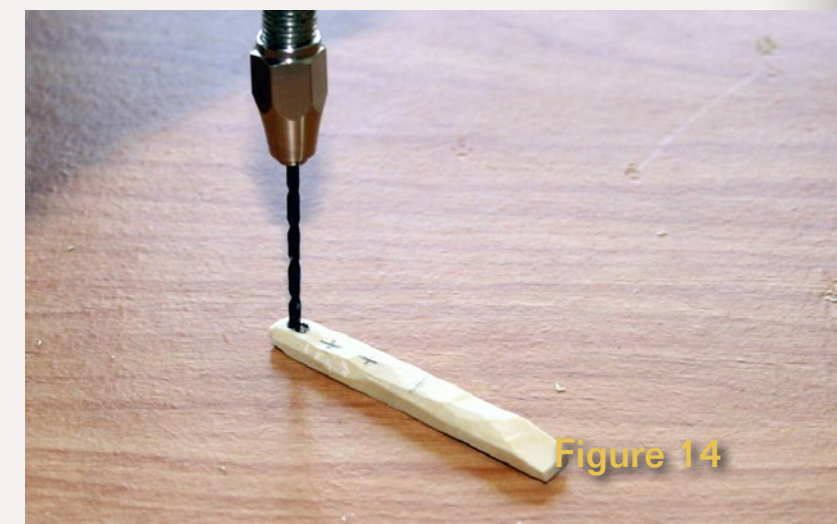


Figure 14



Figure 15



Figure 16

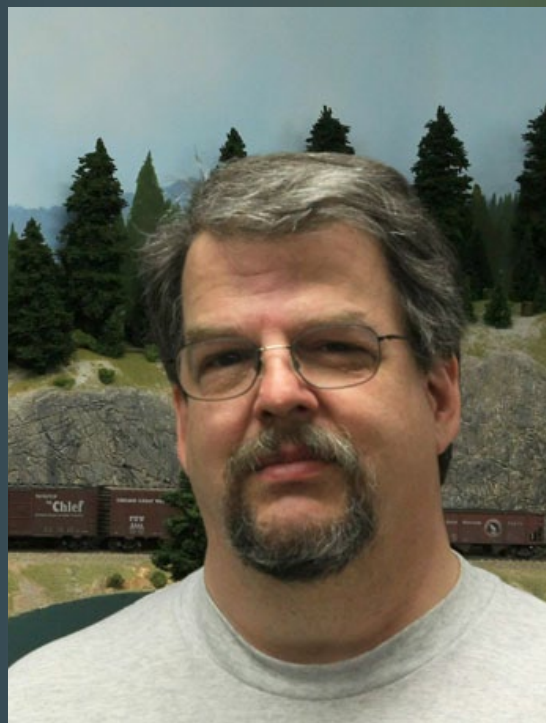


Figure 17





## About our layouts columnist



**Charlie Comstock** is our layouts editor and columnist.

[Click here](#) to learn more about Charlie.

*Charlie Comstock is ...*

## UP THE CREEK: Modeling a Small Creek - part 2

A regular report on the construction of a 1950s-something layout



**Reader Feedback**  
(click here)



Modeling of the Sheffield Creek area continues with concrete culverts, a speeder shed foundation, and smoothing the creek bed and nearby terrain ...



**Figure 1:** Sheffield Creek flows through concrete culverts as it passes under the BC&SJ tracks.

In the previous installment of Up the Creek I described building a timbered grade crossing and king post highway bridge. In this installment I'll talk about adding under-the-track culverts for Sheffield Creek and changing the creek bed and nearby terrain from plywood and pink foam to something a bit smoother.



Oakhill, at the summit of the BC&SJ, is where Sheffield Creek flows from the backdrop toward the aisle, crossing below two sets of tracks and Depot Road. The highway crosses the creek on a king-post bridge but the railroad spanned the creek on fills with concrete culverts provided for the flowing water. The fills and culverts replaced the original low trestles.

## Culverts

The culverts were added where the trestles were previously located. Sheffield Creek is relatively small - not a lot of water flows through it even in the rainy season. The engineering department selected concrete pipe figuring it would be durable.

I decided to model these culverts with white PVC pipe from my local big box store. I picked the 3/4" thin wall version. It has an interior diameter of about 0.7" which in HO scales to a bit over 5'. A couple of bucks got me enough for dozens of culverts.

One problem I faced was that the 'fill' beneath the tracks was actually plywood (Figure 2). I didn't want to bore holes through the plywood and risk wrecking the tracks. I used an alternative - to only model the ends of the culvert pipes (Figure 1).

I laid a straight edge over the tracks extending on both sides, then drew a center line for the culvert pipe on the plywood creek bottom. I cut four pieces of the PVC pipe, laid them in



Figure 2



Figure 3

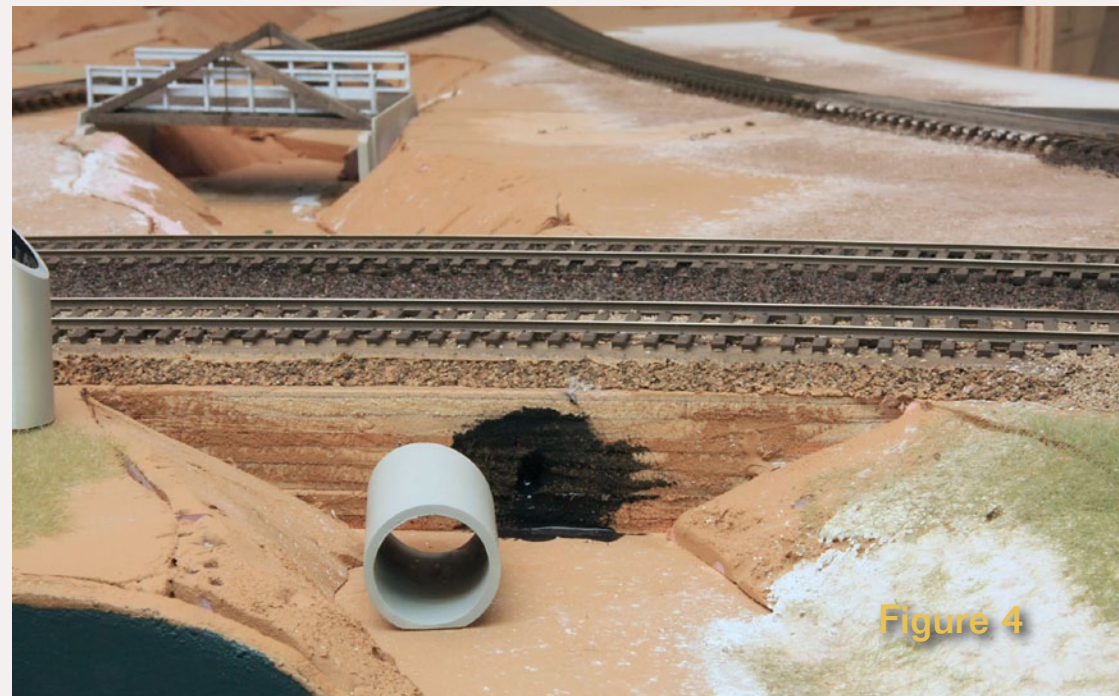


Figure 4



Figure 5

place on the pencilled-in center-lines and marked their ends with the angle they'd need to meet the 'fill'. I used a bandsaw to cut culvert end and sanded a flat spot on their bottom sides so they'd sit closer to the creek bottom (Figures 3-5). It took a couple of tries to get the angles correct.

I spray painted the culvert ends with some cheap gray primer and waited for them to dry before going over them with Polly Scale Concrete and SP Lettering Gray. I painted shadows on

**Figure 2: Sheffield Creek before embarking on culvert construction.**

**Figure 3: Two culverts are needed. But each culvert is modeled only at the ends - I didn't want to bore holes through the plywood under the tracks! Note how I labeled each of the four culvert ends to keep track of them as the angles and lengths are different. Note the bevels letting them fit tightly against the plywood 'fill' beneath the track.**

**Figure 4: I painted the side of the plywood black to keep casual onlookers from seeing plywood instead of the stygian darkness that should be in the culvert. Since onlookers should be able to see all the way through, this is a compromise. Oh well ...**

**Figure 5 : The culvert end painted and set in place. Note the flat on the bottom that lets it sit closer to the creek bottom.**



the inside of the culvert ends. I wanted the inside of these pieces to be dark!

I also painted the side of the plywood fill black where the culverts would be installed (Figures 4-5). When the paint was dry I hot glued the culvert ends in place being careful to keep the pairs of ends in line with each other – I didn't want it to look like these pipes took a bend somewhere in the middle.

## Speeder Shed Foundation

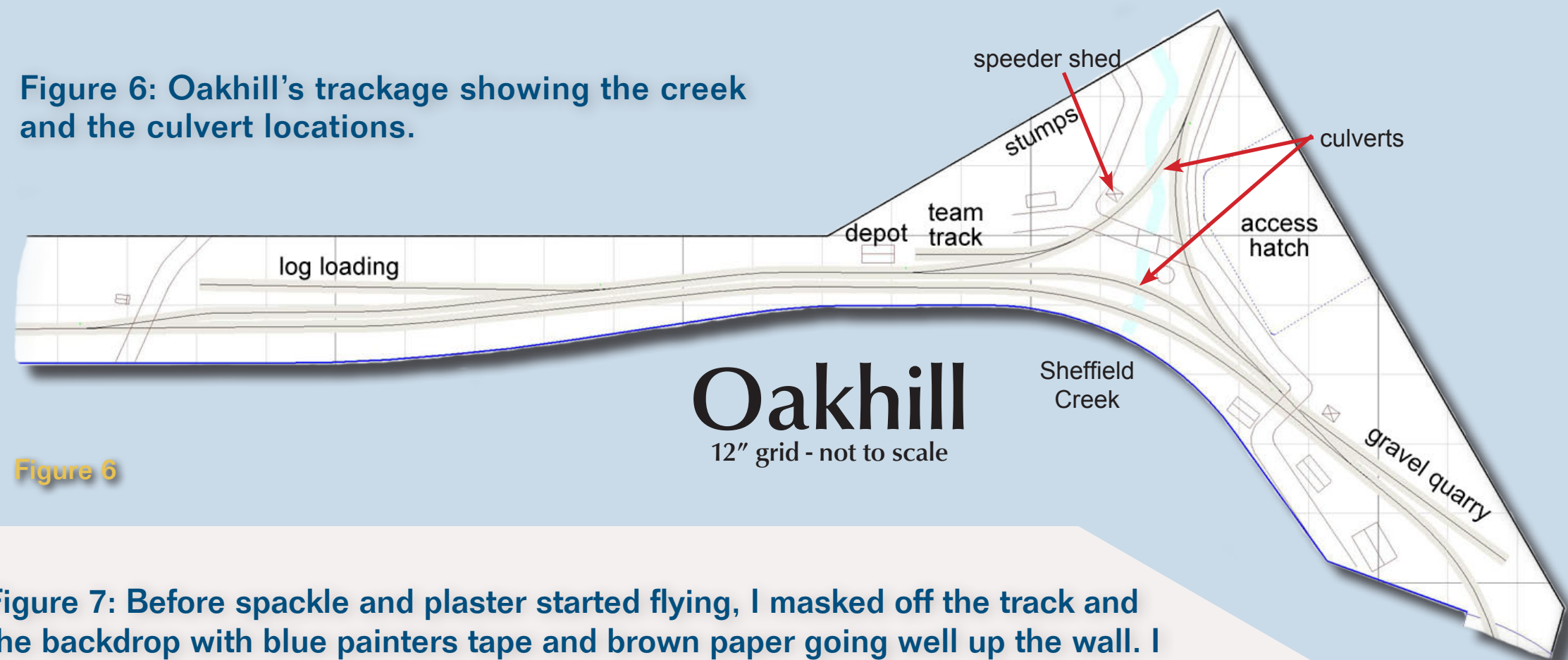
I had assembled a Grandt Line shed that I planned to 'plant' next to the wye in Oakhill. But the tracks were significantly higher than the ground (plywood) next to them. I needed a foundation to raise the floor of the shed to near track level.

I made the foundation from two pieces of .060" styrene laminated together. I traced around the shed on the styrene with a pencil, scribed along the lines with an X-acto blade and straight-edge, then snapped off the pieces. I dressed the edges of the foundation pieces with a file then laminated them together and let it sit for two hours.

The next day I used a sanding block to finish shaping the foundation. I started with 80 grit and ended with 220 grit. Then painted the edges with Polly Scale Concrete.

I double checked its fit and location (Figures 8a and 8b) then ACCed the styrene in place on the layout. The foundation looks kind of weird now, but once I spackle around it, it will blend in nicely.

**Figure 6: Oakhill's trackage showing the creek and the culvert locations.**



**Figure 6**

**Figure 7: Before spackle and plaster started flying, I masked off the track and the backdrop with blue painters tape and brown paper going well up the wall. I didn't want any white splashes on my backdrop's trees, clouds, or sky.**

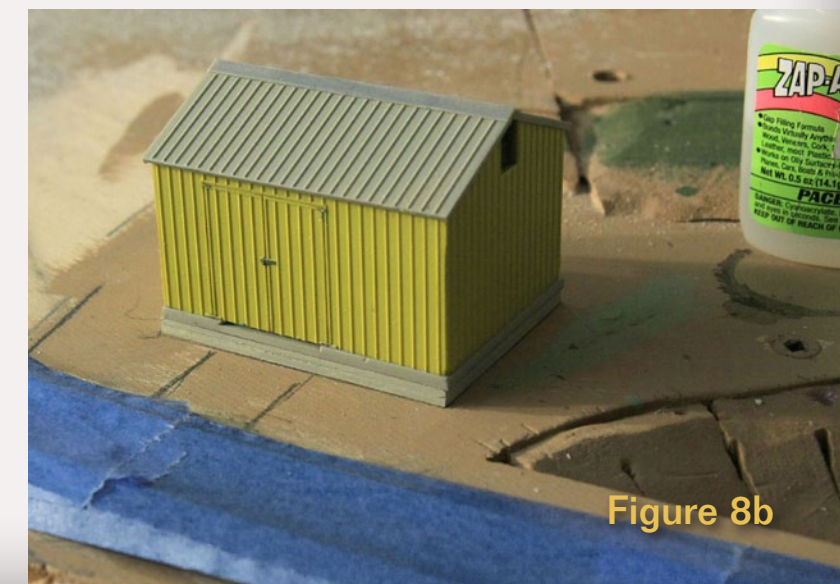
**Figure 8a/b: The speeder shed and its foundation. The foundation puts the floor of the shed at about the same level as the wye track next to it. Later I'll add some rails between the shed and the track. The shed will just sit on this foundation making it easy to remove and less likely to be damaged if an errant sleeve or locomotive catches it.**



**Figure 7**



**Figure 8a**



**Figure 8b**



## Smoothing the Ground

At this point the Sheffield Creek area didn't look very finished. The creek bottom was plywood, the sides of the creek bed were crudely shaped pink foam painted brown with kerf cuts all over, and the ground surrounding the creek was rough and uneven. The transformation to smooth ground contours can get pretty messy so all the masking (Figure 7) is necessary.

**NEVER use regular masking tape on a backdrop! It's too sticky and will pull chunks of paint off your backdrop!**

I like to use spackle for covering the cracks in the pink-foam creek bed, building up roads, and doing minor terrain smoothing. I prefer the pre-mix variety which is available at home improvement stores. I started applying the spackle with a 3" spackle knife, working it into the places where there were nooks and crannies in the scenery. Figure 10 shows me working the spackle into the creek bed and hillside.

After applying a layer of spackle and letting it dry for a while, I dip a finger in water and use it to further smooth the spackle, working it into any cracks still visible (such as those created by kerfing the pink foam (painted brown) in the creek bed).

After the spackle is dry I gently sand it with a sanding sponge (refer to Up the Creek - Roadwork in MRH #7 for

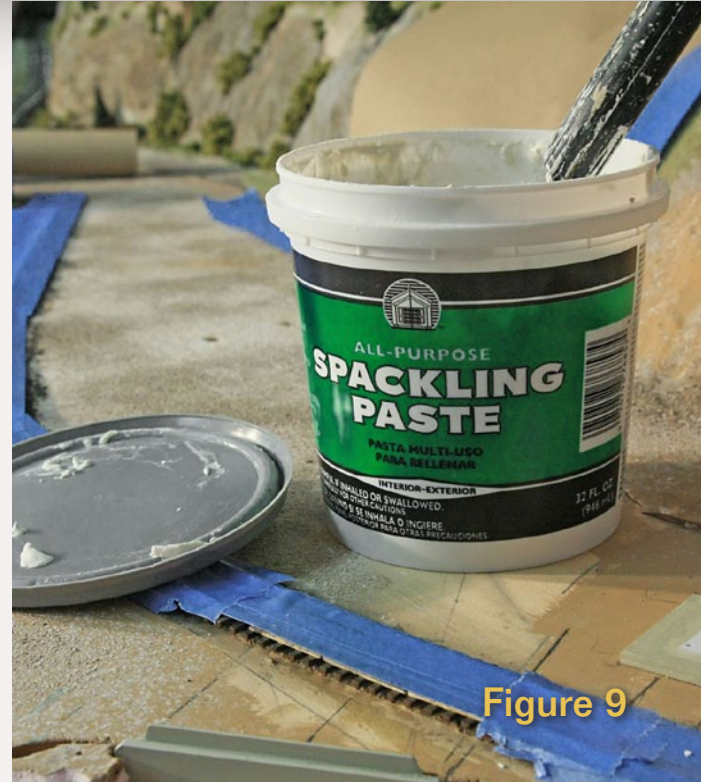


Figure 9: The premixed spackle I use as terrain filler.

Figure 10: Applying spackle to the creekbed and hillside to fill in all the cracks, screw holes, and indentations.

Figure 11: The Sheffield Creek area after the initial spackle application. This will need sanding, sponging, and a second layer spackle before it's ready. Note how the road is built up from spackle to match the tops of the bridge abutments (red arrows).

more details on working with spackle scenery) being careful to vacuum up ALL the spackle dust. I rub down the spackle with a wet sponge to further smooth it. Spackle applied this way works well for a dirt road or a tar and gravel road because its surface is slightly irregular.







Figure 12

**Figure 12: I use a plastic bowl to mix plaster and vermiculite. I sprinkle a 12 oz paper cup of US Gypsum No.1 Casting Plaster on top of about 9 oz of water, then add 12 oz of vermiculite on top of that and a teaspoon of black and another of brown tempera power to avoid a stark white color. I use an metal egg whisk to mix this all together. Working time is around 5 to 10 minutes.**

I also used spackle to build up the terrain around the speeder shed foundation (Figure 15).

## Major Terrain Surgery

When I installed the king-post bridge abutments, I needed to carve away the pink foam creek bed all the way down to the plywood base leaving large holes that needed filling. The edges of the 'fills' on which the tracks crossed the creek were straight up and down

– I needed to create embankments here. These places needed more filling than is practical with spackle:

- A thick application takes forever and a day to dry
- Spackle tends to crack when applied in more than 1/16" thickness

I use a mix of plaster and vermiculite for areas requiring thicker application. Plaster sets instead of drying so drying times aren't a problem and the



Figure 13

**Figure 13: The embankment of the fill under the main and siding tracks is clearly visible in the foreground. Less visible are the filled in areas around the bridge abutments.**

Vermiculite adds bulk, reduces weight, and US Gypsum No. 1 Casting Plaster (my favorite) doesn't shrink when it sets – no cracks.

I elected to use a two pronged approach – spackle for trivial smoothing and patching and the plaster and vermiculite mix for filling in the thicker places.

Plaster can be a messy business, but with some care it need not get out of control. Before starting plaster work, I put a 5 gallon plastic pail in my deep sink and run enough water to fill it

half full. It's important to immediately clean mixing bowls and utensils – if you hope to reuse them!

US Gypsum says to mix plaster by adding plaster to water, not the other way around. I used 12 ounce paper drinking cups to measure the US Gypsum No.1 Casting Plaster and Vermiculite. Through some experimentation, I put a mark on the side of another cup indicating how much water is needed – about 9 ounces. I pour the water into the mixing bowl then sprinkle the plaster onto it, add the vermiculite, and the tempera powder coloring. The





**Figure 14: The areas by the bridge abutments and the embankments of the fills where the track crosses the creek are filled in with plaster and vermiculite (red arrows).**

**The spackled areas will need a little more touch up work (and a bit more spackle) before painting and final TerraForming® can start.**

**Figure 15: I ran spackle up to the foundation of the speeder shed to make it look “planted”.**



**Figure 15**

US Gypsum instructions say to let this stand for a while before stirring – I give it about 30 seconds.

I use an old egg-whisk to mix the plaster. Don’t beat the plaster mix – you’ll make lots of bubbles. Instead stir it continuously for a minute until the mix is a wet slurry.

The slurry is too liquid to use right away so I let it sit for a bit, stirring it occasionally until the first signs of setting appear. Then I use a rubber spatula (the kind used for scraping the bowl when making a cake or cookies) to scoop the mix out of the bowl and it

on the scenery. I just do rough shaping at the this time.

Then it’s time for a mad dash back to the 5 gallon bucket in the sink where I clean up the egg-whisk, the spatula, and the plastic mixing bowl. Then it’s another mad dash back to the layout where I use wet fingers (dipped in water) to smooth the plaster and vermiculite mix, working it into final shape and leaving the surface as smooth as possible. No lumps or bumps in this layer, we’ll add those later.

One batch of plaster and vermiculite was sufficient for the embankments and creek bed repair in this project. If

I’m doing a larger project, such as covering cardboard mesh and masking tape hillside, I can mix, apply, clean up, and smooth a batch in about fifteen or twenty minutes. For really large projects, a two man crew can work twice as fast – one person mixes and cleans, the other spreads and smooths.

Figure 14 shows the result of the spackle and plaster. It looks like it’s been snowing! Indeed, all the folks living nearby on the layout complain about how cold it is and are constantly badgering Hillmovers Construction Co. to hurry and get some real colors on the ground so the weather (and temperature) can return to normal.

## What’s Next?


In part 3 of the Modeling a Creek series I’ll write about casting rocks on the cut next to the highway, and zip texturing the terrain. 





Figure 16

**Figure 16: The speeder shed's foundation looks like it's firmly embedded in the ground thanks to the spackle I used. The shed actually just sits on top of the foundation – I didn't use any glue to hold it in place. This means that if the building gets bumped by an elbow or errant boxcar it's less likely to be destroyed – it should just move. Since both the foundation and the bottom of the shed are flat, there is only a very small crack visible between building and foundation.**

**I embedded the track(let) between the shed and the tracks in the still-damp spackle, pushing it down to the proper height. I spread lots of ballast around this area and decorated it further with static grass.**

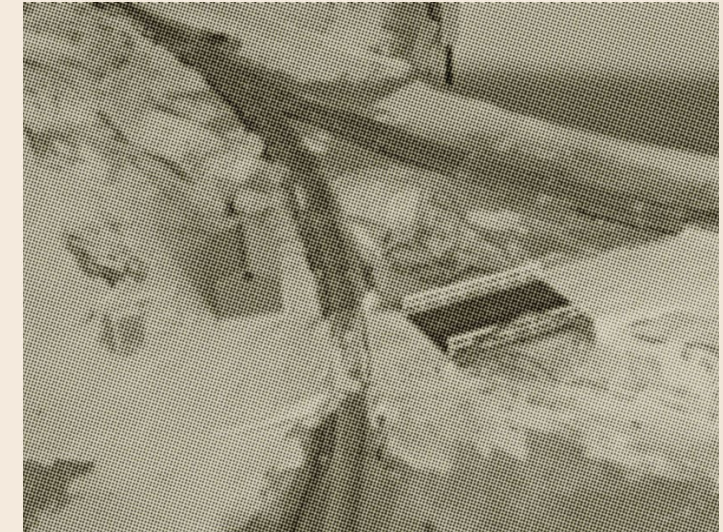
## A clipping from the *South Jackson Gazette* ...

### Unfair Underwear!

Citizens living near the BC&SJ railroad have long been inured to freakish weather. It seems that there's something in the nature of the Terra Forming® process used by Hillmovers Construction that leads to cold temperatures in nearby areas.

Said Horace Fithers, long time resident, "As far back as anyone along the railroad kin remember, we've been having these strange snow-falls. Unlike regular snow which is kinda soft and falls out of the sky, this stuff is hard as rocks and just sorta appears on the ground. Never heard tell of anybody actually seen the stuff fall out of a cloud! We've had some of them meteorolgits claim they could predict when the snow is coming, but so far it seems they're more wrong than right."

Geologists working for Hillmovers explained the white stuff on the ground is a result of the high pressure scenery system. Rocks, dirt, and vegetation are taken to the job site in pressurized containers. When the site is ready for scenery, the contents of the containers are released causing a precipitous pressure drop. The pressure drop causes temperatures to plunge well below freezing causing a thick layer of frost to be deposited. The frost interacts with binding agents in the scenery mix causing it to be hard as rocks. Then as the temperatures gradually return to normal



July Snowfall in Oakhill!

the frost melts and the final scenic colors appear.

The local population has learned over time, that when Hillmovers shows up, it's time to get out the cold weather apparel. Unfortunately, it appears certain merchants have not been above a bit price gouging on red flannel underwear with the prices skyrocketing when Hillmovers Terra Forming team is seen in town.

Police were twice summoned to Long John's Mercantile yesterday where angry mobs of citizens were picketing outside the store, waving signs reading *Prices Unfair on Underwear* and *Long Johns Should be Long Gone*.

This reporter hopes that temperatures and tempers in the area return to normal soon. ❄

\* Enjoy the Gazette? Read more at [bcsjrr.com](http://bcsjrr.com)





## About our N-scale columnist



**John Drye** is our N scale editor and columnist.

[Click here](#) to learn more about John.

# COMME-N-TARY: N-Scale Diesels Part 1 – First Generation Freight Road Locomotives

Modeling in the hobby's most eNgaging scale



## A guide to choosing great first-generation models for your railroad! ...

**T**he first N Scale models of American diesel locomotives were produced almost 50 years ago. Some of these were mediocre at best. They often represented a vague prototype, were poorly painted and ran even worse. It wasn't until the 1980s that N Scale locomotives featured flywheels and smooth-running motors.

Since then, models have steadily improved to the point that N Scale diesels run smoothly, slowly and reliably, with outstanding paint and exceptional detail, often railroad or model specific. Many are DCC-equipped or DCC-ready (with plug-and-play decoders). A few even come with, or are ready for, sound.

This survey will focus on recently-released models of first generation road locomotives and, discuss availability, performance, and appearance

of the current crop of models, and provide a little historical perspective both of the models and prototypes.

One thing that the prototype and models have in common is that a particular unit might not stay in the manufacturer's catalog indefinitely. Just as EMD went through FTs, F3s, F5s, F7s and F9s, including variations, in the 40s and early 50s, today's model manufacturers don't keep a particular offering in production for long.

This column won't try to describe what roadnames are available because such a summary would be out of date almost by the time the information hits the Internet. Manufacturers' reasons behind this marketing approach might warrant another column. So, one bit of universal guidance is that if you see an appealing model in your favorite roadname, don't hesitate.

We'll go by prototype manufacturer, beginning with A for ALCO.

### American Locomotive Company (ALCO)

Before building the first American diesel locomotive in 1924, ALCO built steam locomotives for dozens of railroads such as UP, SP and the NYC, including the UP's famous Big Boy 4-8-8-4. For a while, ALCO was

the preeminent diesel manufacturer, focusing on switch engines (to be covered in a subsequent article). ALCO manufactured many of the diesels considered classics today; the first roadswitcher and the passenger-service PA. The company ceased making locomotives in 1969, well into the second generation, but successors continue to manufacture ALCO-designed diesels today for non-railroad uses.

### RS-1

The prototype RS-1 was introduced in 1941 and is considered the first roadswitcher, combining the visibility of a switching locomotive and the high-speed performance of a road locomotive. The very first units were constructed during WWII and were sent to the Soviet Union. In the US, they were primarily used in local freight operations.

**Atlas RS-1:** Atlas has offered models of the RS-1 since 1988, initially in conjunction with Kato. The RS-1 was one of the first N scale locomotives to feature a flywheel for smooth performance. The model has been upgraded several times, most recently with units released in and after 2003. These include a new motor, white LEDs and knuckle couplers. Typical of all Atlas locomotives, paint is applied sharply and crisply. As of this writing,





**FIGURE 1:** Life Like's older FA1/FB1 models come with Rapido Couplers that can be easily switched to knuckle versions. These Erie units are painted in the road's freight scheme.



**FIGURE 2:** Atlas' most recent RS-11 models are DCC ready or equipped with exceptional paint and details.

these units are not DCC-ready, but can be converted with a small decoder, a little soldering and some expertise.

### **RS-2/RS-3**

The ALCO RS-2, quickly followed by the RS-3, represented ALCO's development of the successful roadswitcher concept, with over 1500 produced between 1946 and 1956. The two locomotives were similar, differing in some details, but essentially the same in overall dimensions. The prototype was used in a variety of roles, including local and mainline freights, helper service as well as commuter and long-distance passenger runs. Several man-

ufacturers have offered this popular (on the prototype) locomotive.

**Atlas (RS-3):** The most recent version of the Atlas RS-3 was released in 2003. This model continues the incremental improvements to the original release, including painted handrails, improved motor, magnetic couplers and full pilots (as opposed to the original "gap-toothed" versions needed for the clunky Rapido® couplers). This version also allows easier conversion to DCC.

**Kato (RS-2):** Kato's roadswitcher represents an RS-2. The model was offered only once, in 1999. They can still be found occasionally on eBay

and at swap meets and they were an exceptional model for the time. The split-frame motor is DCC-ready (one of the first models so-offered) and the model's flywheel allows for smooth running. Unlike more recent Kato releases, the handrails are not painted, but the rest of the lettering is clean and sharp.

**LifeLike/Walthers (RS-2):** LifeLike (now marketed by Walthers) offered the RS-2 in 2007 and 2010. The model is comparable to the Atlas and Kato versions, although the motor is a little louder and DCC installation is trickier. The same decoder as for the Kato drop-in installation is recommended and the slightly larger LifeLike chassis

means that fit is a little more critical. The most recent release features Accumate knuckle couplers and directional headlights. Because they are reliable and tend to be a little less expensive than many models, LifeLike / Walthers diesels are often recommended as a good starter locomotive. They run well enough to stay on the roster if interest expands.

### **RS-11**

The RS-11 was ALCO's replacement for the RS-3 and intended to compete with EMD's GP-9. More than 400 were produced starting in 1956 including almost 100 for N&W. Other buyers included PRR and SP. They were used in both road freight and switching service.

**Atlas RS-11:** Atlas first offered an RS-11 in 1986 and released a much-improved version in 2006. Some of the early Atlas/Kato collaborations took liberties with the prototype by using the same frame for several different locomotives that did not share the same wheelbase. All that has been fixed in recent releases. The current release includes knuckle couplers, a smooth-running, flywheel-equipped motor, and is available DCC-equipped or DCC-ready. The paint and details are up to Atlas' high standards, and the model perfectly captures the characteristic "notch" of ALCO hood units.

### **Six-axle ALCO Road Switchers**

ALCO also produced six-axle versions of their roadswitchers. The most successful of these were the RSD-5



and RSD-12. The C-C wheel arrangement allowed better tractive effort at slow speeds. Many were used in helper service or as heavy-duty yard switchers.

**Atlas RSD-5:** Atlas released an upgraded version of the RSD 5 in 2010. The model is identical to the RS-3 except for the C-C trucks. There are also older models of several six-axle Alcos, but they are not up to the standards of the most recent releases.

## FA1

The FA1 /FB1 was ALCO's entry into the cab unit market and primarily intended for freight service. They shared a number of features with the passenger PA, including aesthetics (good) and prime mover design (not so good). Almost 750 A and B units were built between 1946 and 1950, the most going to GM&O and UP.

**LifeLike/Walthers FA1:** LifeLike released an FA1/FB1 set of these locomotives in 2000. Both units are powered, and feature a split-frame motor, twin flywheels and all-wheel pickup. The headlight is a filament bulb, not an LED and three of the four couplers on the A/B set need to be swapped out to allow compatibility with knuckle couplers (an easy switch with Micro-Trains) These have been offered several times since, and the most recent releases seem to be a bit quieter than the first ones. As with many older L-L/W releases, DCC installation takes some talent and may



**FIGURE 3:** The E-R (now Bachmann) Sharks are a well-detailed model of these unusual units. They can be upgraded to DCC by using one of the smaller non-specific decoders and equipped with knuckle couplers with a little effort.



**FIGURE 4:** The Fairbanks Morse C-liners are offered in AB sets or single A units, allowing flexibility in multiple unit operation.

require some metal removal from the frame. The paint and detail on these units is quite impressive, especially the "bulldog" nose.

## FA2

The FA2/FB2 was introduced in 1950 as an upgraded version of the FA1. The locomotive included a lengthened carbody to allow space for a passenger steam generator and an upgraded 1600hp engine.

The first units went to the B&O, and the NYC purchased 130 of the more than 500 built to bolster their considerable FA1/FB1 roster. Unfortunately, the new prime mover shared the

faults of its predecessor and the FAs eventually lost the cab unit battle to EMD's Fs.

**LifeLike/Walthers FA2:** LifeLike/Walthers released a completely revamped upgrade of their original 1993 FA2/FB2 set in 2002. This set shares the features of the FA1/FB1 described above. As with the FA1/FB1, and unlike the original 1993 set, both the A and B units are powered.

## Baldwin Locomotive Works

Like ALCO, Baldwin was a successful manufacturer of steam locomotives, selling more than 70,000 of all types from 1832 to 1956. They also built electric locomotives for the New

Haven and PRR, and a few steam turbines including the Jawn Henry for the N&W. Baldwin achieved considerable success early in the steam-to-diesel transition by building reliable switch engines. However, their road units were not considered as reliable as their EMD rivals.

## RF-16 Sharknose

160 of these 1600hp B-B freight units were built between 1950 and 1953 and sold to the B&O, NYC, and PRR who used them primarily in mineral train service. Their styling derived from the Raymond Loewy-designed PRR 4-4-4-4 Duplex T-1 built for the PRR. They were especially appreciated



for the ability to haul heavy loads upgrade, even if slowly but steadily.

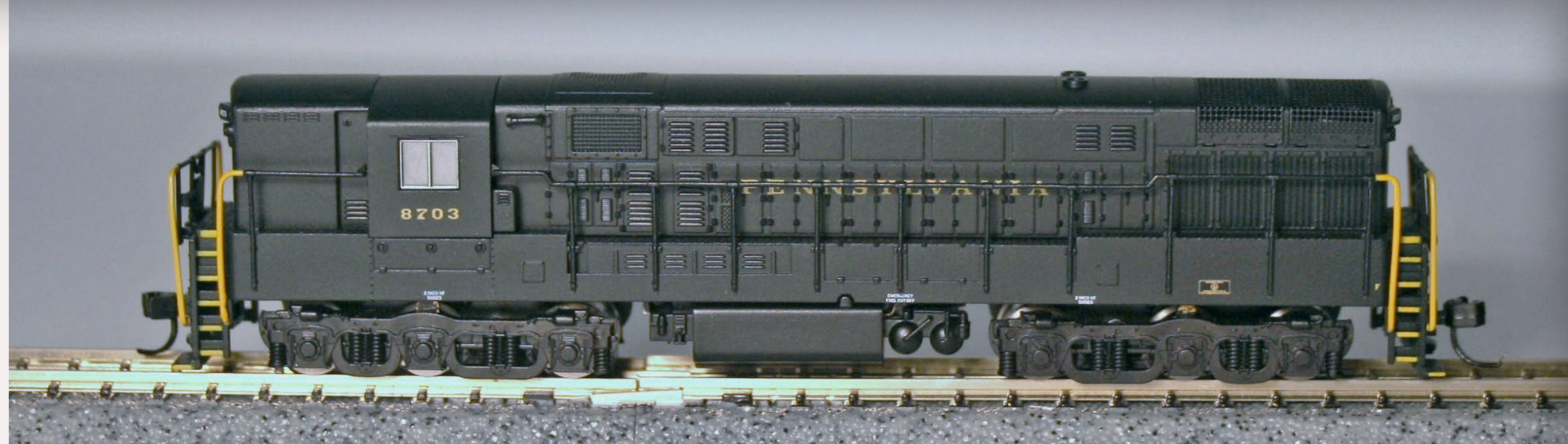
**E-R Models/Bachmann RF-16:** This model is the only Baldwin road locomotive to be offered in plastic RTR form in N Scale. It is nicely detailed and has a split frame flywheel equipped motor. Digitrax offered a drop-in decoder but it is discontinued at the moment. The factory truck-mounted couplers take some effort to modify to knuckle couplers. Ownership of the molds for this model has gone through some changes (E-R Models is out of business), but the models can still be found for a reasonable price. With a little work, these models are a good candidate for that coal drag and add some variety to roster.

### **Fairbanks Morse**

The Fairbanks-Morse Company produced diesel engines for industrial and marine applications before entering the railroad market. Because of World War II restrictions, the company (like others) built only diesel switchers until 1945. After the war, F-M built a number of models including cab units and road switchers but the company was unable to compete with EMD and left the railroad market in 1963.

### **C-Liner**

F-M produced the “Consolidated-Line”, or C-Liner beginning in 1950. The passenger units featured a



**FIGURE 5: The FM Train Master was a large locomotive for its day. The Atlas model features great detail.**

unique B-A1A wheel arrangement while the freight units used a more conventional B-B configuration. Reliability problems plagued the design from the outset and less than 200 units were built for US and Canadian roads, the most going to the CN, Milwaukee and PRR.

**Walthers/LifeLike C-Liner:** LifeLike and Walthers have offered the B-B version of the C-Liner in several versions, most recently in 2006. This most recent release is a significant improvement over the earlier models. The latest version includes knuckle couplers, a smooth flywheel-equipped motor, an LED headlight and is DCC-ready. They are offered in A-B sets, both powered and are well-detailed and nicely painted.

### **FM H-15-44/FM H-16-44**

These two prototypes are similar enough (as are the models) to be treated together. They represent F-M's most successful model. The

1500hp H-15-44 was produced from 1947 to 1949 and was quickly followed by a 100hp increase to match competitor's models, creating the H-16-44. Deliveries of this unit continued through 1963, with minor variations for specific owners. More than 250 units were produced, going to the Virginian, Milwaukee, New Haven, Santa Fe, and to Canada (CP) and Mexico (Chihuahua al Pacifico) and others and was used in everything from local passenger to mine run service.

**Atlas FM H-15-44 / FM H-16-44:** The Atlas model, first offered in 2003 and followed by additional roadnames and paint schemes, represents prototypes built between 1947 and 1952. The models include owner-specific variations including truck sideframe and light position options. The model is well-detailed and painted and comes DCC-equipped or DCC-ready. It features directional lighting, both for the headlight as well as red/green classification lights.

### **FM H-24-66 Train Master**

The 2400hp Train Master was marketed by F-M as “...the most useful locomotive ever built...”. When it was first offered in 1953, the Train Master was the most powerful single unit locomotive available. Although modern diesels dwarf the TM in horsepower, such a powerful unit was ahead of its time and ahead of the imaginations of many railroaders of the day. Nevertheless, the diesels acceleration and pulling power allowed them to be used in passenger, freight, helper and yard service for their owners.

**Atlas Train Master:** The latest versions of this model, released in 2003 and after include LED headlights, a split frame chassis, twin flywheels and knuckle uncouplers. The paint is excellent and the model features great details including etched-brass grills over the hood fans. The model is available DCC-equipped or DCC-ready.



## General Motors Electro-Motive Division (EMD)

EMD is out of alphabetical order, but is saved for last because the manufacturer became the leading producer of first-generation diesels. EMD outlasted all its rivals and produced some of railroading's most iconic locomotives. The company's roots are in the Electro-Motive Engineering Company of Cleveland that built some of the first rail-motor cars (self-propelled, gasoline-powered passenger cars often referred to as "doodlebugs").

EMC was purchased by General Motors in 1930 and began by building multi-car streamliners such as the UP M10000. The Second World War provided considerable momentum as EMD's competitors were limited in the development and production of diesel locomotives, while EMD produced the FT. EMD followed with "F units" and its own versions of the roadswitcher, one of which was to become the single most numerous first-generation locomotive.

By the end of the 1950s and diesels' "first generation", EMD was out-producing all other manufacturers combined, selling over 20,000 diesels of all types up until that time.

### FT

The FT is sometimes known as "the Diesel that did it". The FT was the first road diesel that was powerful



FIGURE 6: Both Intermountain and Microtrains offer the FT in AB sets. This Reading set from M-T uses a plastic drawbar to permanently couple the units.



FIGURE 7: These two F units from Kato have been equipped with knuckle couplers. The F3 and F7 models show the contrast in fans and screens evident on the prototype.



FIGURE 8: These NYC F7s from Intermountain show one of the many attractive paint schemes offered on the prototype in the 1950s.



and reliable enough to replace steam. Despite that reputation, it remains popular among modelers and railfans.

The FT (F for Freight and T for Two thousand-seven hundred hp) was delivered in a two-unit permanently-coupled set with a cab “A” and cabless booster “B” unit, and was built between 1939 and 1945. More than 1000 such sets were sold and used primarily in freight service, although ATSF famously used them to pull their first-class streamliners. Some railroads eventually replaced the drawbar with couplers. The FT was the first N scale diesel offered by two different long-time manufacturers. Both created outstanding models of this significant prototype.

**Micro-Trains FT:** FT was M-T’s first N scale diesel, introduced in 2002 and offered regularly ever since. It was an excellent initial effort. In addition to a state-of-the-art-split-frame DCC-ready mechanism, the unit features permanent drawbars to allow close coupling (the prototypes were almost always operated this way), etched-brass grills and consistently outstanding paint and details.

**Intermountain FT:** This is also an excellent first model, introduced in 2003, and includes the mechanism and appearance of today’s quality diesels. Initial releases required a bit of soldering to install the DCC board, but that has been fixed in more recent versions.



**FIGURE 9:** This Erie unit is an early example of Atlas’s GP7. It still is equipped with the original Rapido® couplers that have been upgraded to knuckle couplers on later versions.

### F3

The F3 was the successor to the FT, produced between 1946 and 1949 (not counting the 100 or so units produced as the F2). Horsepower was increased to 1500, creating 3 thousand hp in a two unit set. Unlike the permanently-coupled FT, the F3s were independent and could be operated singly or in as many units as necessary. The locomotive established the general appearance of EMDs cowl units, with variations in side panels, number boards, and roof fans creating “phases” all the way through the end of cowl unit production. Primarily intended for freight service, some roads added steam generators and used the F3 in passenger service.

**Kato F3:** Kato first offered the F3A and F3B in 1988. It was an exceptional model for the time. Its heavy frame and flywheel-equipped mechanism allowed for smooth operation and significant pulling power. Although

originally equipped with Rapido® couplers, knuckle couplers were an easy replacement. At the time, DCC was just a dream in N scale, but the models can be fitted with a decoder with a little effort. In 2003, an upgraded model was released that is DCC-ready and substitutes Kato’s version of knuckle couplers.

**Intermountain F3:** I-M followed the release of their FT with the F3, and would follow with an F7. This is also a great-looking, smooth-running model. It has a split-frame motor with flywheels, knuckle couplers and is DCC-ready.

### F7

EMD continued the evolution of the cowl unit by offering the F7 beginning in 1949. The F7 was different from the F3 mostly in electrical equipment and external details such as roof fan size and placement. They remained in service well in to the 1970s. Late in their careers, when reliability became an issue, sets of six to eight or more

units were used to ensure sufficient horsepower should one or more units fail. EMD built more than 3000 F7 A and B units, with some railroads buying in remarkable quantities. Santa Fe had more than 500, NYC had 238 A units and 56 Bs, B&O had 257 As and Bs, PRR over 200, and C&O more than 150.

**Kato F7:** The Kato F7 is similar to their F3, with the same mechanism in both old and new versions. Recently, Kato has been offering both F3s and F7s to match their passenger car sets. Although the Fs were mostly considered freight units, many were equipped with steam generators for passenger service. Kato’s models include the roof-mounted details for such units.

**Intermountain F7:** I-M continues to release smooth-running, great-looking cowl units. Most North America railroads had at least a few Fs, so the potential variety is considerable. The graceful lines of the F allowed



railroads to paint these in attractive schemes, reflecting a time of pride and artistry. I-M has captured many of these schemes perfectly.

## GP-7

The GP-7, produced between 1949 and 1954 was EMD's successful entry into the roadswitcher market following the BL2 which was sold briefly in 1948 and 1949. The GP-7 built upon the BL2 and on other manufacturer's roadswitcher designs. It utilized EMD's successful and reliable 567B engine design. Units could be equipped with or without dynamic brakes and steam generators, and could operate "long hood" or "short hood" forward. Some units had air reservoir tanks moved to the roof of the locomotive. This allowed more space for fuel and water tanks under the locomotive for passenger service. The long rooftop tanks suggested the term "torpedo tubes" for these units. Geeps were used in everything from yard to passenger service.

**Atlas GP-7:** Atlas first offered a model of a GP-7 in 1987, just as N scale locomotives were making significant improvements in performance. That model performed well, but had a serious problem. Atlas used the mechanism from their RS-3 model. It worked well, but created a locomotive that was wrong in significant dimensions, especially truck spacing. Fortunately, Atlas introduced a new model in 1995 that rectified this issue



**FIGURE 10:** This PRR GP-9 is a good example of a recent release from Atlas. The model has knuckle couplers (Accumate® in this case), crisp paint and details. This particular Geep is DCC-equipped and the model is also available in a DCC-ready version.

and has continued to release great models since. As with EMD's F units, GPs evolved over time, creating minor differences in fans, louvers and other details. Atlas' models do a good job of reflecting these differences along with the other features specific to a particular railroad. Models released after 2006 are DCC-equipped or DCC-ready.

**Bachmann GP-7:** Bachmann has just announced a new model of the GP7. Samples have not yet reached consumers so performance can't be evaluated, but based on photographs, this model has the potential to add another manufacturer to the list of producers of quality N scale diesels.

## GP-9

The GP-9 was certainly the most successful first generation locomotive produced. EMD built more than 3000 from 1954 to 1963, and 600 more

were built in Canada. Many have been upgraded and are still operating in the 21st century. The GP-9 offered improved performance with 1750hp but was otherwise generally similar to the GP-7. While louvers and other details varied considerably, the best way to tell a GP-9 from a GP-7 is the GP-9's two 48" rooftop fans that replaced four 36" fans on the GP-7 (and a few early GP-9s—proving that model and phase variation is an art into itself).

**Atlas GP-9:** Considering the similarity between the prototypes, it isn't surprising that the Atlas GP-9 shares much with the GP-7. The GP-9 also has been offered in a number of variations over the years, with recent units DCC-equipped or DCC-ready.

## Summary

This is hardly an exhaustive list of all the N-scale first-generation diesels

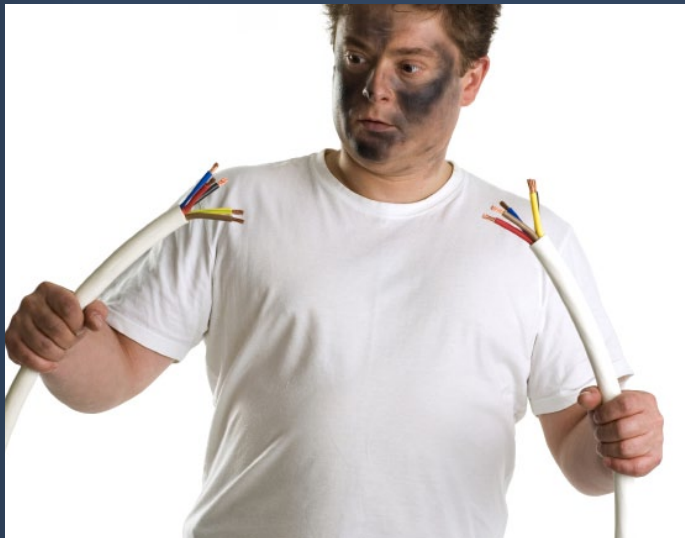
produced over the years. However, any of the models discussed here would be a credible acquisition for any railroad. My own PRR includes one or more of most of these, even if not originally present on the Pennsy. The PRR was always generous with trackage rights.

All of the manufacturers discussed in this article continue to release additional models of these locomotives fairly regularly. An N scale Motive Power Foreman's chief complaint is that there is only a limited amount of time to acquire any specific model. N Scale locomotive performance and appearance continues to maintain a high standard. DCC capability and even sound is becoming more and more available in N Scale. The engine houses of N scale railroads never looked (or sounded) better. ✓



# REVERSE RUNNING: Why I hate layout **WIRING** ...

Stepping outside the box with a contrary view



— by **Joe Fugate**

**W**hat is really important on a model railroad? Something that's nearly invisible, but so important that if it isn't working, then almost nothing else will either.

Wiring!

## **I hate wiring:**

I make no bones about it – my least favorite part of the hobby is layout wiring.

First, most wiring is not especially difficult – a lot of it is connecting point A to point B following a theme. Trouble is, there's usually a ton of those theme-based point

As and point Bs on a medium to large layout.

Take rail feeders as an example – point A is a rail. Point B is a power bus or a terminal block fed by a power bus.

For reliability, I agree with Allen Gartner, author of the well-known [Wiring for DCC web site](#), who wrote *“every piece of rail needs to be soldered to something – either a feeder or another piece of rail.”*

Do you know how many pieces of rail are on the typical medium to large model railroad?

Soldering each piece of rail to a wire or another piece of rail is not rocket science – rather, the most apt description of the task that I can think of is “mind-numbing tedium!”

## **Boredom leads to carelessness:**

And this leads to yet another reason I hate layout wiring – it's so darn boring that often I don't pay proper attention to what I'm doing so I'll probably make mistakes.

After a session of pretending I'm an electrician, what's the most common result I get when I turn the layout power back on?

Mystery short!

Ever try to find a mystery short? Essentially you get to disconnect all that wiring you just did until the short goes away. Then you get to connect it back up again – this time paying attention like you should have the first time. Gee, it was so much fun doing it the first time, I think I'd like to do it again!

When everything is disconnected and the short is still present, you discover the screwdriver laying on the track causing the short.

Grrrrr!

Not my idea of a good time.

## **Gravity:**

Then there's gravity. Why is that a problem? Think about where the wires are usually located – below the layout, but above your head, shoulders and arms while you're working.

Solder is heavy and gravity likes heavy things. It's also hot ...

Ow!

## **Invisibility:**

Then there's the worst part – all that hard work isn't even visible.

I can spend a few hours doing scenery and when the guys come over for the next op session, they quickly comment on the new scenery, oh-ing and ah-ing over the changes.

But I can spend weeks on wiring work and when the guys come over to operate, they mumble, “Humph. Didn't have time to work on the layout this month, aye?”

To which I just mumble under my breath, “I hate layout wiring ...”

I rest my case. ☒



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## Coming in the Nov/Dec 2010 issue

- Victor Roseman on modeling the SP Daylight
  - Scenery extravaganza:
    1. Using weathering powders on your scenery
    2. Tips on modeling rock talus
    3. Making rock molds using kitchen caulk
    4. Easy highway striping
    5. Tree-planting tricks
  - Innovative structure modeling – building a Spanish Revival Bungalow
- ... and lots more!

