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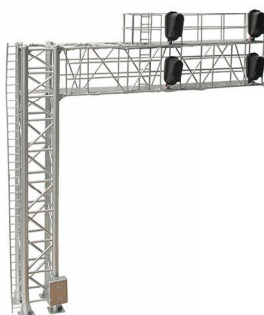
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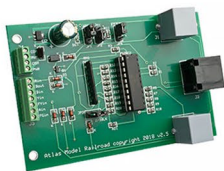
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Model Railroad Hobbyist September 2019 | #114

(Updated 09/06/19)

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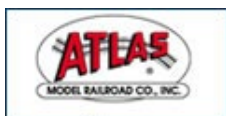
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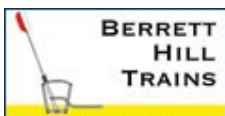
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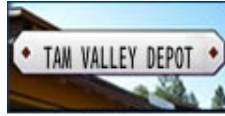
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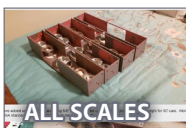
The screenshot shows the MRH Marketplace website with several vendor advertisements. The top left features 'MRH MARKETPLACE' with a 'TRAINS' icon. Below it are ads for 'CROW RIVER PRODUCTS' (Lower Etched Wood Kits), 'Yarmouth Model Works' (DCC and N scale products), 'Great Decals' (FCC, F&W, Virginian, etc.), 'Model Railroad Control Systems' (DCC systems, decoder, etc.), 'Westerfield' (USA DS Express Box, NWP Redwood Empire), and '2019 NORTHERN GREENHOUSES' (NNGC-2019). The bottom of the screenshot shows navigation links for 'MRHMAG.COM', 'REGISTER', 'INDEX', and 'TABLE OF CONTENTS'.

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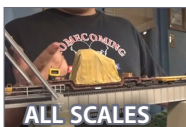
## Publisher's Musings: Building a dream layout ...

*MIKE MUSIK (Guest)*



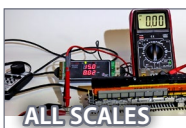
## MRH Website this month: Boxcar improvements, and more!

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## September 2019 news and events

*RICHARD BALE and JEFF SHULTZ*

In

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EXTRA****This month ...****Buy eBook: \$2.99 >>**[store.mrhmag.com](http://store.mrhmag.com)**TABLE OF CONTENTS | RUNNING EXTRA**

September 2019



Publisher's Welcome: Attaching scenery to spline ...

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Limited Modeler: Choosing a new setting

JIM SIX



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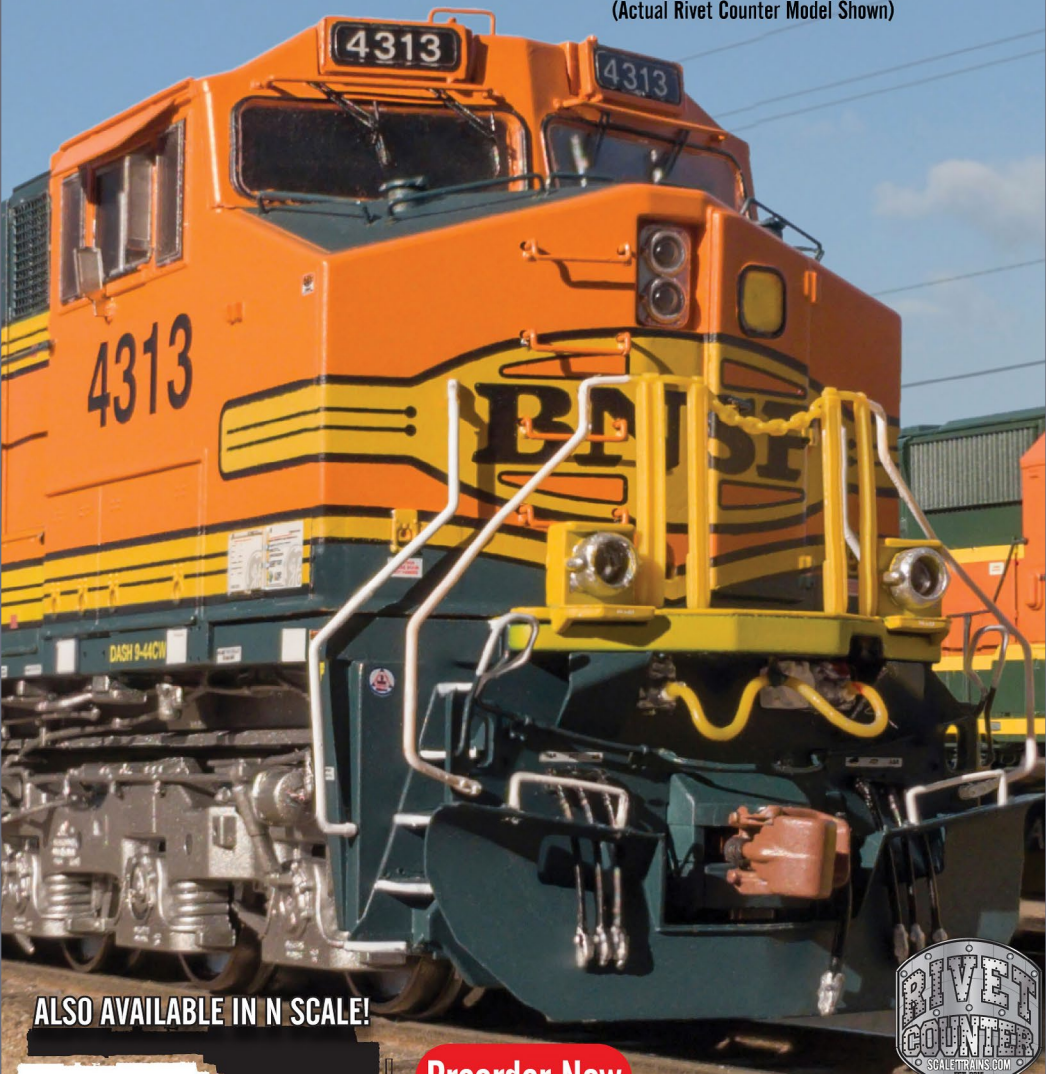


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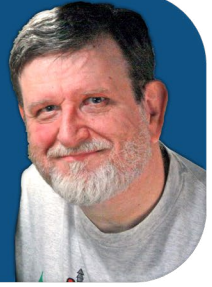
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1:87 SCALE



# PUBLISHER'S MUSINGS



Model Railroad Hobbyist | September 2019

**MIKE MUSIK (GUEST): THOUGHTS ON BUILDING A DREAM LAYOUT ...**



**ME: “HI. I’M MIKE, AND I’M BUILDING MY DREAM LAYOUT.”**

Group: “Hi, Mike!”

Model Railroader Anonymous meetings aside, it seems more than a few model railroaders aspire to building a larger dream layout.

Some see this as dreaming the impossible dream, as rather unrealistic, and beyond the reach of mere mortals. But there can be compromises able to bring the grandiose layout vision back into the achievable realm.

## What about mainline modeling?

The rush to call the dream of a larger personal layout impractical or impossible presupposes “small operation” thinking. Not everybody’s idea of the railroad experience will be satisfied depicting shortlines, bucolic branchlines, industrial switching, or a couple highly compressed vignettes in a loop.

What if your life interest in railroads runs more along the lines of heavy Class I action? Layout-sized trains with lots of power in front can feel awkward on a smaller layout.

Three, four, or five locomotives on the point of a 15-car train just doesn’t properly satisfy the “big operations” itch.

Limiting layout execution and operation to social modules such as N-Trak or FreeMo frequently comes with many compromises. Outside of a home layout built in this manner, for many the take-your-modules-to-a-train-show approach implies little if any train operation outside of events.

Likewise, clubs can be a challenge for rail model hobbyists not living in or near major metro areas where it's easier to find other modelers with comparable interests.

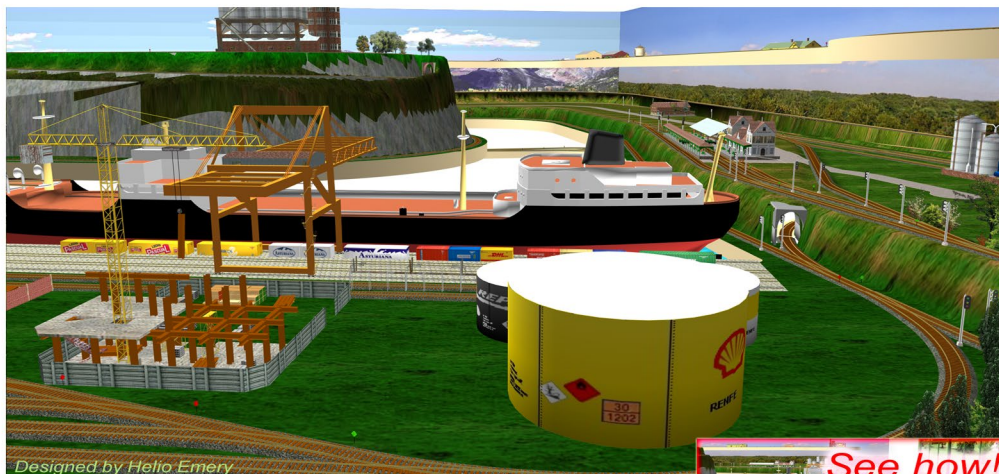
Then what about operating sessions? My experience with a train show modular layout has been that it's impractical to have organized realistic operations for the most part.

The public wants to see trains run, not puzzle over an obtuse strategy game characterized by lots of small back-and-forth movements.

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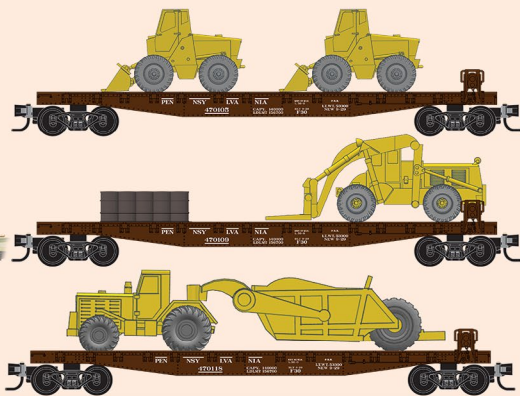
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## PUBLISHER'S MUSINGS | 3

The key to a successful large layout project comes by:

- Thoughtful design and planning (not happy accidents)
- Minimizing construction / maintenance setbacks
- Managing the layout environment
- Setting realistic goals and milestones
- Adjusting where necessary as you go along.

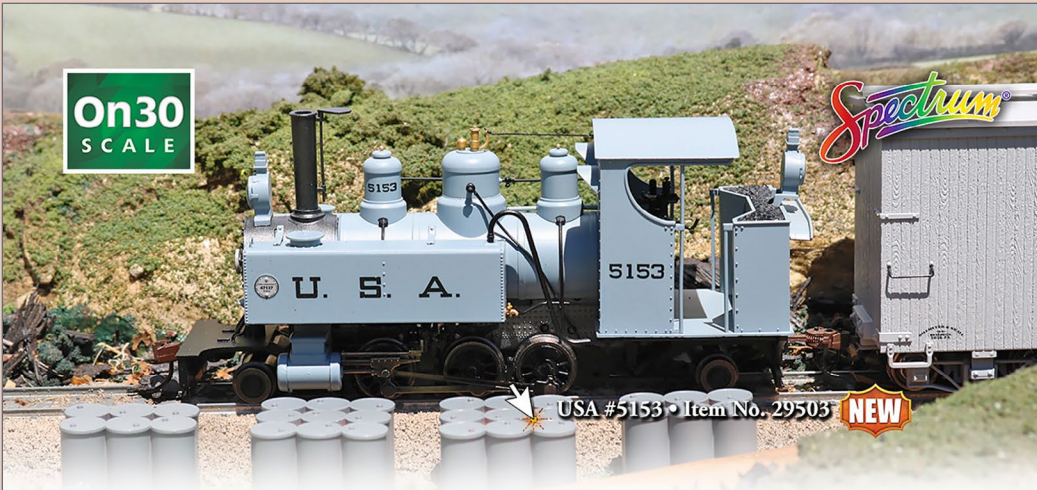
## Phased construction

As observed in the June MRH guest editorial, many larger layout projects get in trouble building for years (sometimes a decade+) with little or no operation until *everything* is done.

It's also true there are plenty of layouts that rarely make it past the "Plywood Pacific" stage. Building the benchwork for the final layout

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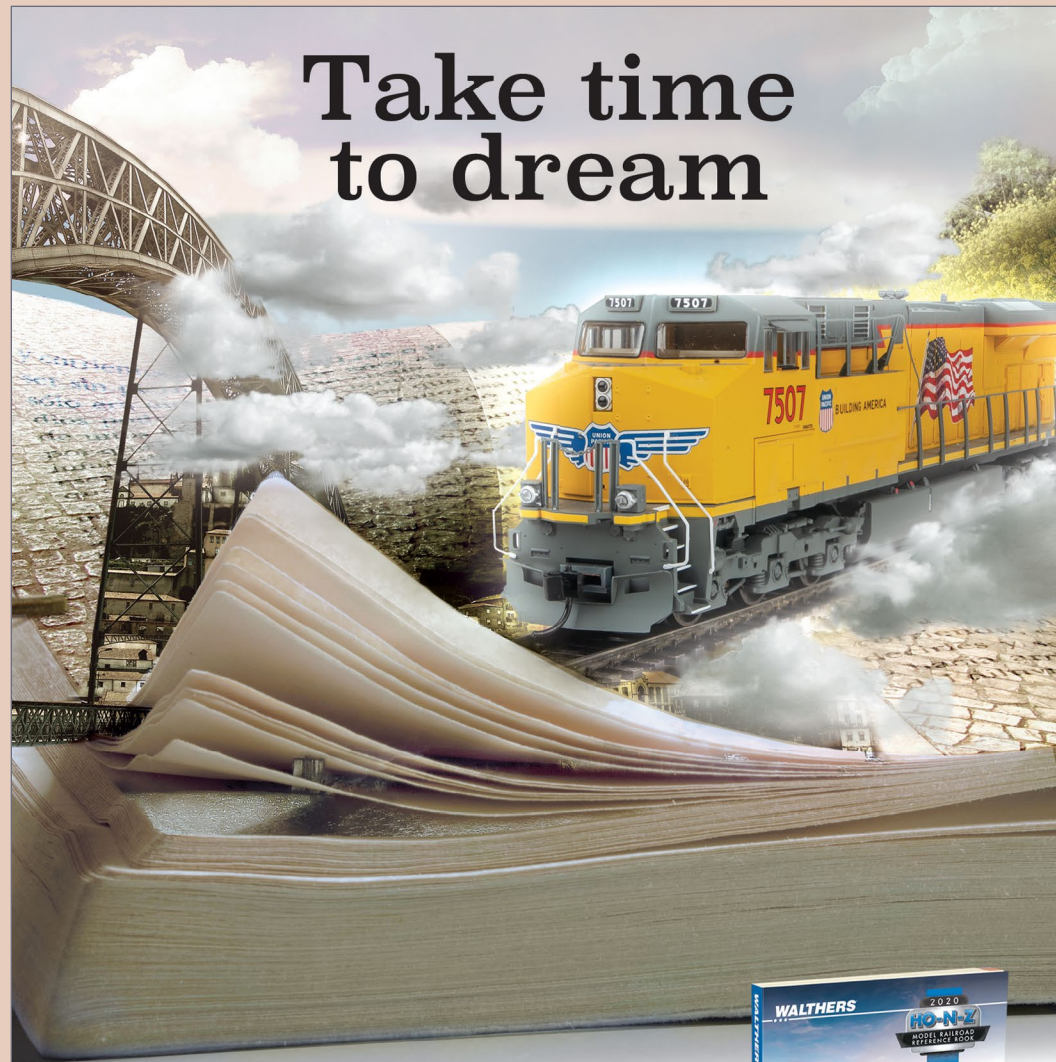
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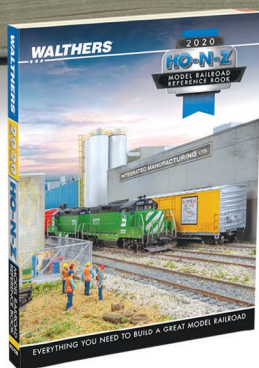
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## PUBLISHER'S MUSINGS | 6

Temperature and especially humidity stability remain key to reliable operation and long-term satisfaction. The larger the layout, the more beholden it is to a stable environment.

Don't forget dust control – dust equals dirty track. It's not the only cause, but certainly a big contributor.

A layout area may not need HEPA-grade filtration, but don't overlook double-filter HVAC ducting into the layout room. The difference this makes can be surprising.

Also plan and construct with access in mind. For years, I heard "24-inch maximum reach" and you know what? They were right, but sometimes it is simply unavoidable. I have a couple of areas on the layout that break the 24-inch rule and can confirm they've been challenging to construct and maintain.

Multi-level layouts have become popular as a way to squeeze a larger layout into a smaller space. I find a direct correlation between the difficulty of construction and maintenance – and a multi-level layout design.

# Bowser

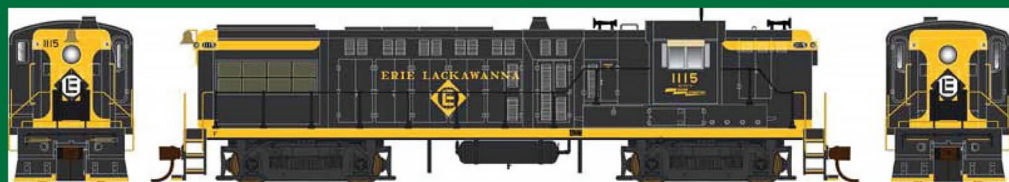
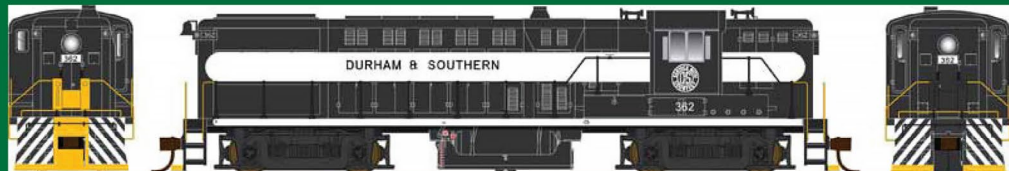
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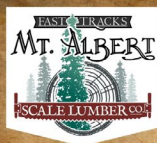
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## PUBLISHER'S MUSINGS | 7

For instance, adjusting switch machine linkages in a complex yard with only 12" of access clearance underneath can be challenging. Finished scenery on the lower lever only confounds the difficulty.

Select benchwork construction materials and methods based on dimensional stability in the expected environment. Organic materials such as wood expand and contract.

If the environment will be difficult to control, consider modern materials such as metal studs for framework and extruded polystyrene (XPS, or "pink foam") for the benchtop.

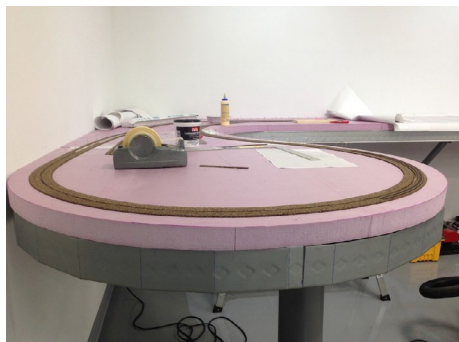
### Ten pounds in a five-pound bag

Some larger layout designs put too much track in a too-small space. This causes many "dream" layouts to get into trouble. Design for the available space and be conservative.

As previously mentioned, multiple levels and their associated access problems can confound construction and maintenance.

## Manage the complexity

With a mainline-oriented layout in a larger space, avoid filling every square inch with a railroad function. You can reduce costs, construction time, and maintenance effort by going with a simpler design.



Steel and XPS benchwork.

Sometimes a larger layout can actually be less complex than a smaller one by aiming for a lower turnout-to-mainline ratio. For instance, a smaller switching layout with lots of turnouts and hidden staging can actually be more of a headache to build, operate, and maintain.

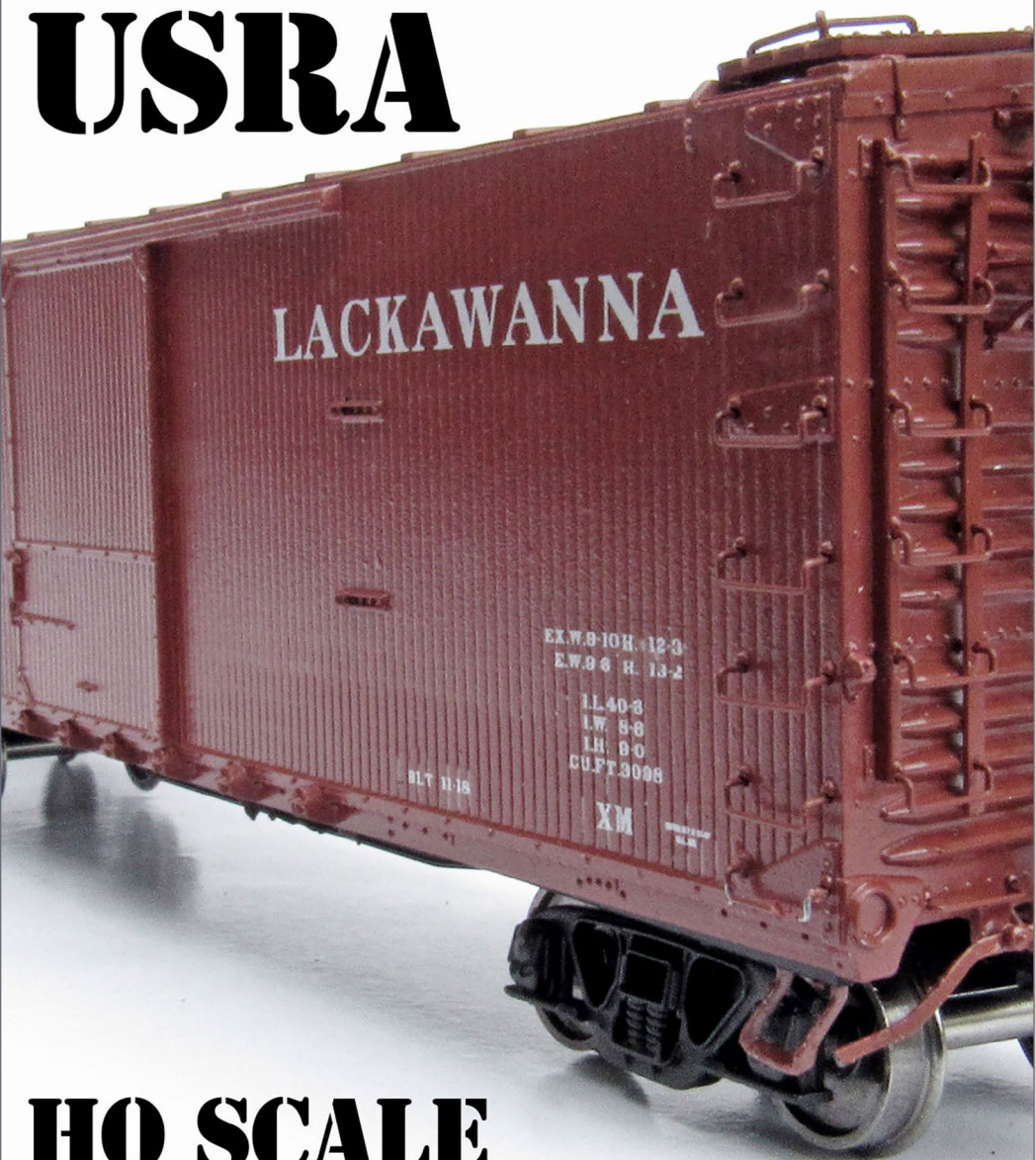
Once I had my original layout concept in the computer and had the framework started, I quickly discovered some gotchas. Certain layout design elements added significant work both above and below the benchtop, with rapidly diminishing value for the effort. Realizing this, I exercised the rightclick delete function of the layout design software without mercy!

## Experiment

Be creative and flexible in design and execution. Take tried-and-true published advice, techniques, and materials as solid starting points. Ignore any naysayers who protest that “it can’t be done that way.” Be open to discovering faster techniques, better materials, and better suppliers that can streamline construction.

Hint: Explore and become familiar with art supply stores. These stores stock materials and related techniques not normally discussed in the model railroad media or seen in hobby shops. These materials and

# USRA



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methods can jump start scenery projects and sometimes make execution quicker with better results. “Quicker” and “better” are especially good with a large layout.

Test new methods off the layout, even at the cost of throwing away usable track or other valuable materials. It's better to spend a few pennies trying something you're not sure about on some scrap than on finished benchwork as a major fail you need to rip out.

## Life will get in the way

I guarantee there will always be something more important in your life not related to your hobby, impinging layout progress. Just expect it.

Other model railroading interests can also distract and create time-outs from layout construction.

No doubt about it, that kit for the prototype you always wanted will be released while you're in the middle of a crucial bit of layout work.

Don't feel guilty, not in the least! A model railroader does not live by building layouts alone.

## Above all, revel in what is done

Enjoy every finished sub-project no matter how small, at every stage of work.

Trains run through a complex junction where you just finished the trackwork and everything stays on the rails? Great!

This evening ten more feet of ballasting was done? Good!

Backdrop tacked-up in Smithville? Fabulous!

All those little successes add up – winning layout execution comes as a sum of overcoming all the micro-battles along the way.



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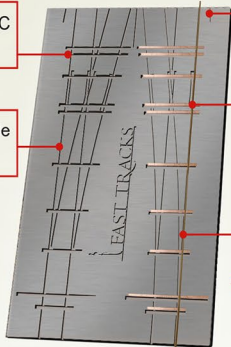


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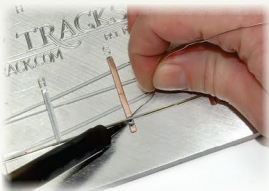
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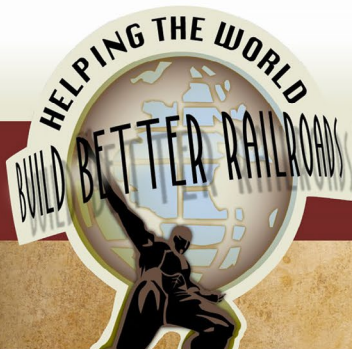


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Simply glue the soldered trackwork to the wood ties, break off the frets, and your turnout is ready to be installed onto your layout!



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**About the author:** Mike Musick has been a model railroader since early childhood, crafting bridges, structures, and other accessories within days of receiving his first American Flyer trains for Christmas. His love for larger layouts got inspired by his family's visit to the gymnasium-sized 1964-65 New York World's Fair model railroad. As if that wasn't enough, the family followed the World's Fair visit immediately by a cross-country car vacation paralleling the Union Pacific mainline through Nebraska, Wyoming, and Utah.

Adopting N scale in 1968 long before it was cool, Mike says, "The dream ever since has been to capture the essence of heavy mainline railroading paying homage to the ambience of long trains, heavy motive power and horizon-to-horizon mainline operation.

Now retired, Mike's current layout project is in its sixth year, in its own building made affordable by virtue of living in a flyover USA rural community. Mike has dedicated a 40' x 44' room to the layout. He's beginning scenery execution on the first phase at this writing, with trains (thankfully!) running on more than 10 scale miles of mainline. ■



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## LAST ISSUE'S RATINGS

The three top-rated articles in the [August 2019 issue](#) of *Model Railroad Hobbyist* are:

**4.2** Writing for MRH

**4.2** August 2019 news

**3.9** Creative layout downsizing

Issue overall: **3.5**

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*dog days of summer  
pricing ends this month*

Best of the

# MRH WEBSITE



THIS MONTH

Model Railroad Hobbyist | September 2019 #114

compiled by JOE FUGATE



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Freight Cars for "Mortals"

Good to hear

Sun, 2019-08-18 12:03 — King\_coal

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I've learned a lot from this thread. Always enjoy learning more tips.

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*new*

Here is another pair of

Sun, 2019-08-18 17:34 — James Six



Here is another pair of freight cars that will be featured in upcoming issues of Running Extra's Limited Modeler column.

1. *Jim Six's* "Freight cars for mortals" thread keeps getting more posts added to it almost daily. As you can see from this recent post, many find this thread to be extremely helpful. Go check it out!

► MRH'S MONTHLY GREAT MODELER POSTS

## Starting point

Fri, 2019-08-30 10:07 — mesimpson



I have added weight to the cars using 5/8" nuts to get the cars up to my preferred 7.5oz weight for 50' cars. More than NMRRA standard but I prefer the cars to have some "heft" when switching.



I also test fit the doors from my friend Mike M. He 3D printed these doors with his Photon printer and I think they turned out really well. This style of door has never been offered in HO Scale so having the ability to make prototypical doors for these cars is a wonderful thing. My hat is off to Mike for taking on this project.

2. MRH forum regular *mesimpson* has a new blog thread he's calling "Project 50 foot" on doing a batch build of 50-foot CN boxcars. Click above and follow along ...

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Destroy the beautiful car with a really ham handed approach and add some commercially available graffiti decals that we nicely done but on top of this yellow car turned it into a gypsy circus wagon. Also make sure the roof and lower portions of the car had so much paint on them that they looked coated with six inches of mud. etc. ad nauseam. Notice the two other victims patiently waiting behind the circus wagon. 2015.....bad year for boxcars .



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Close up



Step #3

Hide the car in a storage cabinet and vow to someday do a better job on it.

3. Get heavy-handed with some weathering and have a car you think is a lost cause? **Rick Sutton** takes a car he "ruined" and later came back to do an astounding save ... see what he did!





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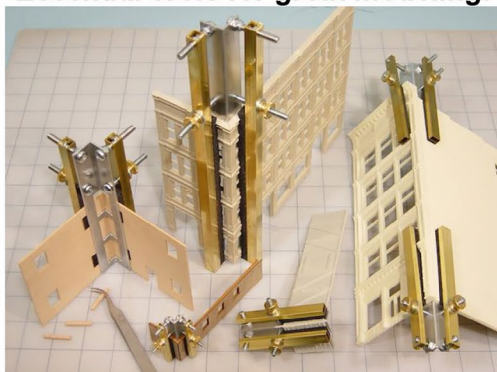
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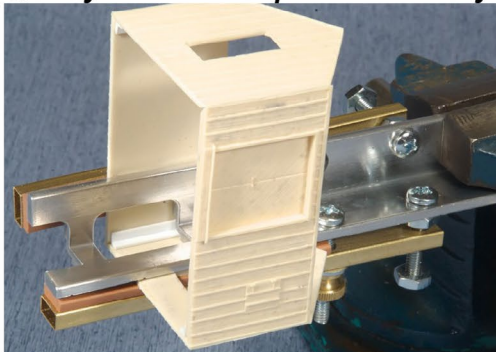
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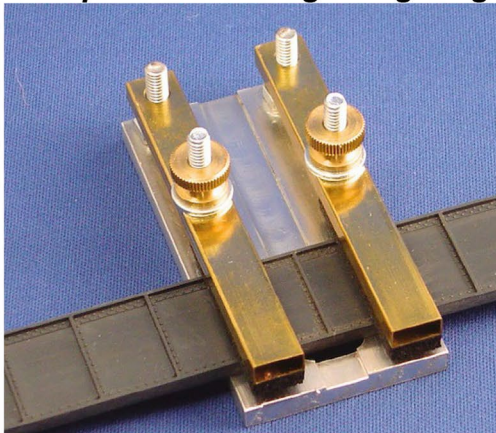
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## The Hills Line - Waterways in Iowa City

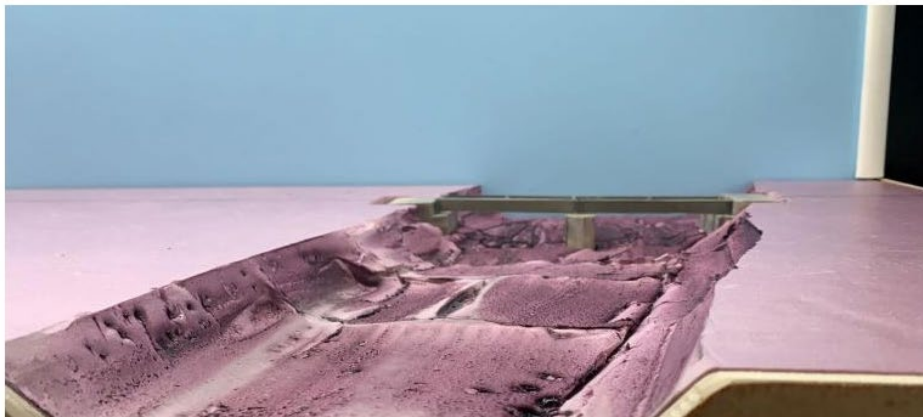
Sat, 2019-06-08 14:49 — *jfmcnab*

Progress update on The Hills Line, as the creeks, rivers, and other waterways have been carved, along with the bridges, piers, and abutments being painted and installed. First up is the multi-span crossing of the Iowa River, south of Iowa City.



A small wooden trestle crosses the flood plain between the Iowa River and US Highway 6 in Iowa City. Again, space limitations prevented me from modeling it anywhere near the prototype length, but it still does a good job of representing what's actually there. The trestle was from a Walthers kit, painted and weathered to (hopefully) look like wood. The foam for this and the rest of the watercourses were carved with a variety of tools, including a hot knife, surform rasp, and a few serrated knives.

Unlike the rest of the waterways, there won't be water at this location. Rather the trestle will be surrounded by large old-growth trees and low scrub, per the prototype.



4. In his MRH blog, *jfmcnab* discusses the waterways and bridges on his new Hills Lines layout. Learn insights from what James is doing as he posts photos of his many examples ...

## SD9s

Sun, 2019-09-01 08:33 — kevin

Trio of SD,s crossing Hammond Slough on the go to Samoa.



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delete edit reply Ban IP n ...



*new*

## Leaving town

Sun, 2019-09-01 09:00 — fempoint



5. How can we pass up these really nice photos on the latest MRH Photo Fun thread? Click above to go check out these and many more great photos.



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# WHAT'S NEAT

column



Model Railroad Hobbyist | September 2019

**KEN PATTERSON** LOOKS AT:

- N SCALE MODULAR LAYOUT
- MITCHELL BEVFODEN MAKES CANVAS COVERS FOR LOADS
- DIMENSIONAL MODELING CONCEPTS' NEW PRODUCTS
- BILL SCHARNHORST SHOWS LAYOUT ANIMATION
- JAMES REGIER BUILDS A GREYNA, MANITOBA GRAIN ELEVATOR ...



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## MODEL RAILROADING Flatcar load CANVAS COVERS

*what's neat in  
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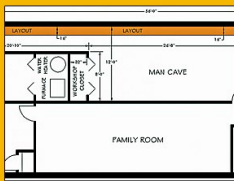
September 2019 show

▶ PHOTOS AND VIDEO OF SUPERB MODELING

## Galesburg N scale modules



1. Jim Wiggin and Bill Selleck (right) pooled their passions for railroading in Galesburg, Illinois. Jim suggested they work on a layout together, because of a strong mutual interest in Galesburg, and model an short industrial short line in N scale. In front are the Santa Fe mainline and tracks to reach some major industries on this side of town. Ken (left) caught up with them at the Spring Creek Model Show in Nebraska.



### THE LIMITED MODELER

Jim Six: Continues rethinking how to approach his layout.

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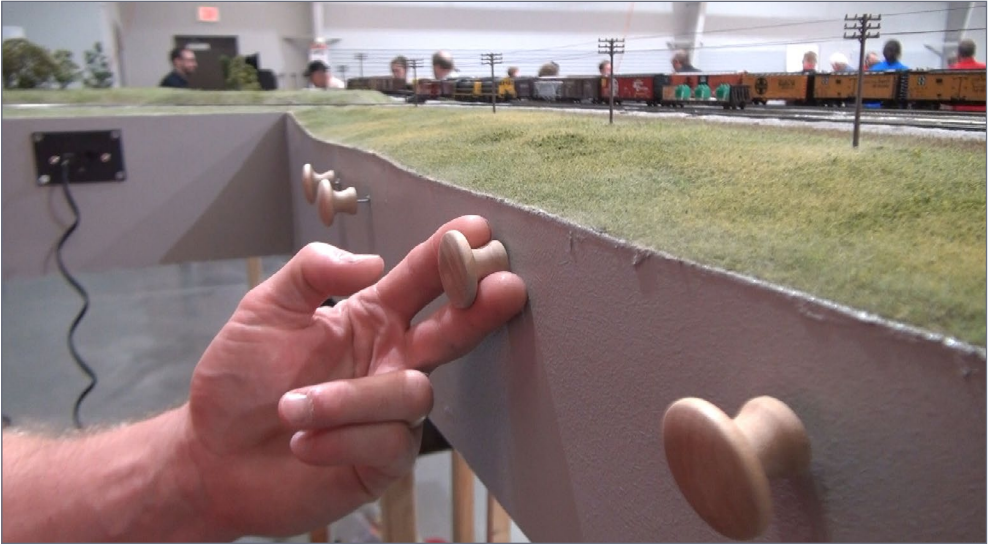


2. Bill and Jim try to be careful observers of the real thing. They model the 1960s, so they did some research and looked up pictures at the city library. The track is Code 55 and the detailing rivals what can be done in HO. Bill remembers the limited options in N many years ago and is thrilled by the etched metal and resin parts now available: “The trick is really bringing those details and things together and try to model the prototype as closely as we can.”



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3. They use the NCE DCC system to run the trains and find it simple to use and easy to set up. Because it's a switching layout, they don't need complex controls. Some switches on the modules are built with model airplane servos and others have Blue Point switch controllers using a simple push-pull type operation (above). The track level is about 53 inches and the whole idea is not to be mean to children, but since it's N scale, to bring it closer to eye level.



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4. Switching Galesburg can take Jim and Bill quite a while. 20 freight cars might take a couple of hours. At train shows they're often interrupted with talking to people and whatnot. But that's why they are there. The railroad has been in shows in Michigan, Indiana, Ohio, Wisconsin, Nebraska, and Illinois. Jim Wiggin has a page about the railroad on [www.Trainboard.com](http://www.Trainboard.com) and maintains a Facebook page called the Galesburg City Job. Bill Selleck posts on The Railwire at [www.therailwire.net/forum/index.php](http://www.therailwire.net/forum/index.php).

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## Make a Kleenex tarp



5. Mitchell Bevoden here: We're going to do some tarp loads on standard flats. What you're going to need is a base load that you're going to tarp. This can be something that you've bought or something that you've built yourself. You also need Saran Wrap to protect your load as well as protect your car. The tarp is made of standard Kleenex, Woodland Scenic scenery cement, and whatever paint color you choose. Earth color makes a great canvas color and just looks great.

6. (Right top and bottom) Take a piece of Saran Wrap and spread it over your car. This becomes your work platform. You're not doing this on a bench. This is something that you're doing on a model itself. Next you're going to take a piece of Saran Wrap and lightly and carefully wrap your load. In this case it is a transformer. Don't worry about getting creases out because when you go to paint the Kleenex on there and it will help it look like a tarp being swept by the wind. It looks pretty cool when it's done.

# WHAT'S NEAT | 7



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7. Now take your Kleenex and drape it over the load. Apply your Woodland Scenics cement with a brush. Let's start slowly coating the Kleenex. Once you have the Kleenex wetted down with glue, slowly start moving the tarp as well as the load into position with the brush. It would be okay if you dry it overnight. A convection oven on low heat works, too. Once I get it all cut up and trimmed, I just start slathering on the paint and let them both dry together.



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8. When it's almost dry, grab your hobby knife and start cutting away at the lower edges of the Kleenex lightly and slowly. Once you get done cutting away all your excess tissue, form it and clean up any imperfections. We only partially dried it, so it's still somewhat wet. It gives you a good workable material. Even if it tears slightly, you can repair it with just a little bit of a patch. It actually looks like they patched the tarp, which happened all the time back in that era. Then we step onto painting. You just dip your brush. We'll start adding the color.



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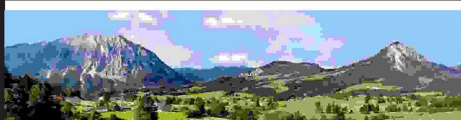


9. Finishing up paint here and, as you can see, the earth color will give it a nice tan canvas color. You can shape it with the brush while it is still a bit wet. You can show some rigging and it all depends on the type of car you have, how you want the load fastened. Look at photos. What I do next is take a knife and just poke a little hole here on each side. Take your rope – we use thread, or you can use chain, and bring it down to one of the tie-downs on the car. Or bring it up high and you need some cross bracing.

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10. This model is what your finished product hopefully looks like when it's tied down. We added some extra stuff to give it a little more detailed look.



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## Dimensional Modeling Concepts



11. Ken also spoke with Mike Brusky, the proprietor of Dimensional Modeling Concepts to learn more about their newest items.



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Jack Burgess on how to do your layout just one scene at a time.

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12. **Mike Brusky**, founder of Dimensional Modeling Concepts, has been “doing trains” since he was 15 years old and discovered there’s a lot of things out there that modelers need that nobody makes. “When I retired a few years ago, I got into 3D printing as a way to first produce models for me, stuff that I needed. Then, I thought it would be a great way to bring some of those concepts to other people and to also bring other people’s concepts alive for them.” One of his stand-out products is this container loader.



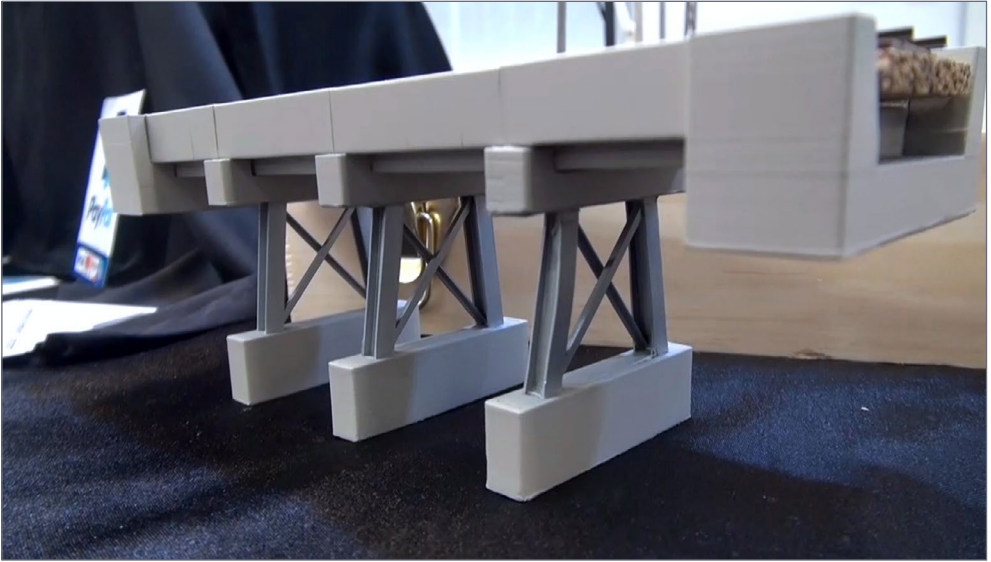
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13. "When you drive down the highway, you see a lot of these wooden poles out there, the big power towers and the wish-bone. They're along the highway, they're going across country, you see them everywhere," Mike says. "Nobody's modeled those ... they don't take up a lot of space on your layout because they run overhead. And literally you've got two poles or one pole in the ground and ... These don't take real estate. We have double-arm wishbones, single-arm wishbones, the really big power towers, the 75-foot towers, and then some of the old T-T style that you see everywhere."

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14. "We've got a segmental modular concrete bridge that we're bringing out. I started it as parts for flat car loads and then all of a sudden, you know, I had the decks, I had the abutments, I had the bents and it was like, okay, I've got all the pieces for an actual bridge kit. We'll have extension kits on it where you get an extra deck and an extra bent. You can make this as long as you'd like."



### AMTRAK INTERIOR UPGRADE

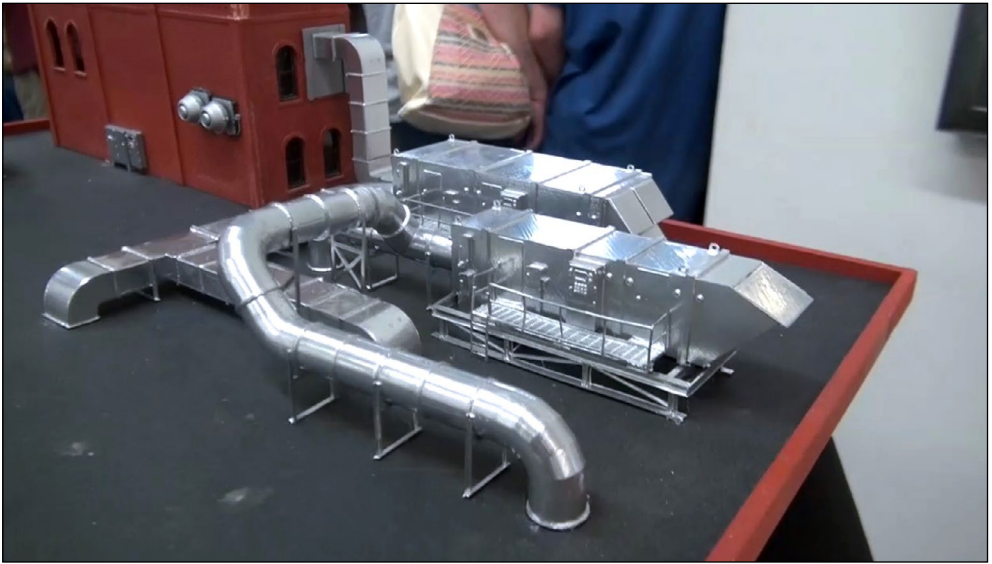
Dirk Reynolds shows how to upgrade the interior of a Kato Amtrak Superliner passenger car.

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15. "One of our signature items is industrial HVAC for rooftop units. A lot of what is out there is small air conditioners and things that are more suited to office buildings or small retail establishments. Being a former engineer, I've worked with this stuff a lot in the food industry. I've made a whole line of that stuff and we keep expanding it all the time. This year we've come out with some new rooftop exhaust fans like you can see on the top of restaurants or fast food places. You want to go to Dimensional Modeling Concepts at [dmcrrproducts.com](http://dmcrrproducts.com). That's where you can find us. Everything is available on the website. If I don't have it in stock, I'll print it up for you and have it out within a few days."

Dimensional Modeling Concepts: [dmcrrproducts.com](http://dmcrrproducts.com).



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## Layout animation



16. **Dave Scharnhorst:** "If it's got Norfolk and Western on it I'm interested in doing it. We started showing our modules about 27 years ago. This is probably the 83rd or 84th show that I've been at ... The bridge is scratchbuilt with cardstock, basswood, hardware cloth, Legos, and whatever else. I don't remember what kind of motor that powers the bridge. It actually lifts with lead counterbalances."



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17. Dave likes simple devices, like the magnetic loader. "I call it clockwork animation. No matter when you come into the show, you can see it because it loads the gondola for a little while and then it turns around and unloads it automatically. It runs all weekend long. And I don't have to operate it much."

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18. The fact that Dave's railroad is at 36 inches rail height makes it a real crowd favorite for the kids. On its last outing, it stretched 55 feet. For the big Milwaukee Trainfest show this fall, it'll be 65 feet. It all fits in the back of his pickup truck.



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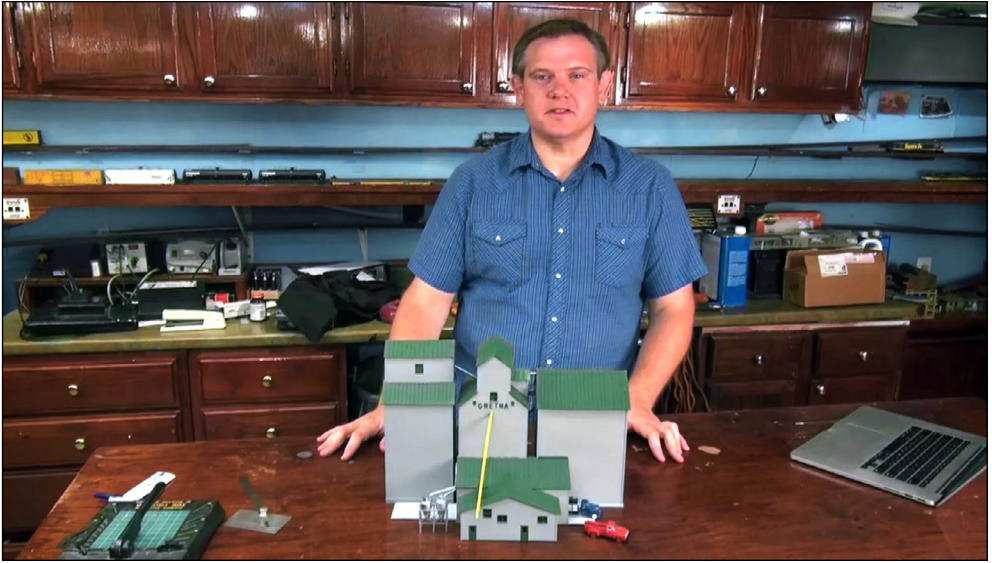
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## Gretna grain elevator



18. **James Regier:** This model of the Gretna, Manitoba elevator started with the Walthers country co-op elevators. He built the same tower when he was 10 and did his own paint scheme and sort of his own design. "I wasn't really satisfied with it and I'd always gone to visit my grandfather in Canada near the town of Gretna and we'd haul grain to this elevator and I thought, I want make my elevator look like that," he says. "I looked at this elevator and it was pretty unique. ... So, I got another Walthers kit. I stripped the paint down on this one. I added a little bit of height to it because I noticed there was a height difference between the two towers and I smoothed out the backside to represent an elevator that had been abandoned through a merger and then merged on to this one. I added an extra door and that tower was complete."



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19. "Then I looked at the middle tower. Now this middle tower had a longer dumping bay than your typical elevator. I spliced the two dumping bays from the original two elevators as best as I could. I did the roofs so that the seam lines between the roofs would be undetectable. I laid it flat out on a sheet of glass, pushed them together using Plastruct and made the seam. This annex was Evergreen clapboard styrene that I cut to size, measuring very carefully so the width would equal the elevator. All the time, I was looking at satellite photos of the elevator complex that still exists today. And I used the little ruler that Google maps has to actually get the dimensions so that it would look right. I also looked at where the dust collector piping was going on the side of the building. I used extra sprues and pipes that I had from a Walthers tank car loader that I had assembled."



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20. Next, I observed the office in front of this building and built it from Evergreen styrene. I painted the whole thing sky gray from Tamiya paint and then I painted the roof a field green. The dust collectors were from a Redwing mill scrap kit that I received. I used a sprue to create the augers running between the two buildings. These are all extra sprue parts that you cut off and file to the right angle to create the truck loader here. Now this little support tower I noticed looking at photos of the prototype, I actually used brass wires to create that. I bent that to shape and soldered together. Now, the nice thing is I made it modular. I don't currently have a permanent layout. Everything comes apart and reconnects fairly quickly."

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21. James used a graphics program to design the lettering, printed it on cardstock and cut it out using a very sharp knife. He painted it the same shade of green as the roof and glued it on using Micro Kristal Klear. Now with all of these little details, it was simply a matter of looking at the photographs, considering how to make them and then going and doing that, using a straight edge to find exact angles and using the correct adhesives to put it all together.



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22. "Here's a streetside view. The Gretna elevator actually had a much longer loading auger; the spout coming down from the top of the building was much longer on the Gretna elevator than on the Walthers original. I used sprue to add length and brass rod to reinforce. And that's the Gretna Manitoba Elevator. This will be the beginning of a diorama that I intend to create based off of the town of Gretna circa 1985, when this elevator was active. There were several elevators like this along the line."

Ken P: All of the model railroad products seen in this episode of What's Neat are available through Caboose in Lakewood, Colorado, or order online at [mycaboose.com](http://mycaboose.com). ✓

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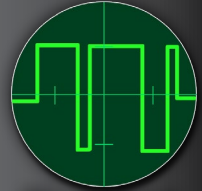
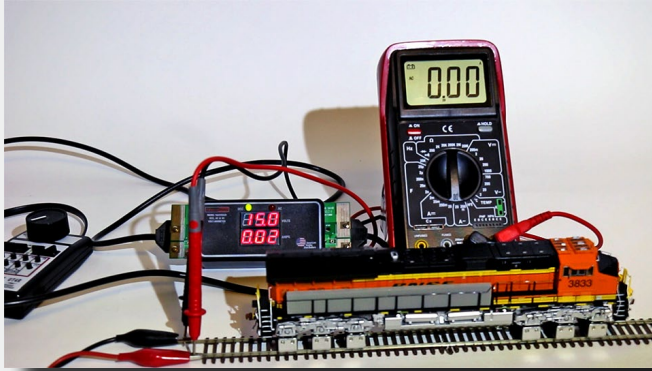
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# RRampMeter vs. a standard multimeter



Electrical  
Impulses

Model Railroad Hobbyist | September 2019 | #115

1. Jeff used this setup with a type 2 RRampMeter and inexpensive Harbor Freight multimeter for comparing volts on the multimeter. Measuring amps needs a different probe setup to put the multimeter in series.

**JEFF SHULTZ** looks at measuring DCC volts and amps with an RRampMeter versus a standard multimeter ...

**FOR MOST MODEL RAILROADERS, IT'S ENOUGH TO** hook up the wires of our DCC command station and booster to the track and turn the power on. It just works, and we trust the DCC manufacturer to have built the system to put a sufficient number of volts on the track.

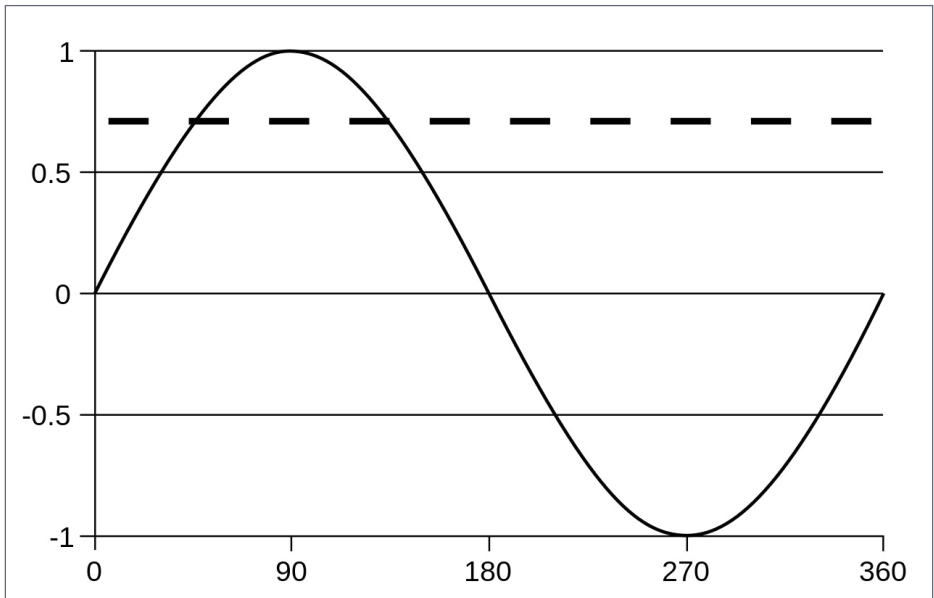
Unless there are a lot of locomotives sharing the track, particularly sound units, the 3 to 5 amps of a standard DCC power source seems to be adequate.



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Then something goes wrong. The circuit breaker on a booster keeps popping, indicating an overload, or everything just seems sluggish – or won't power up at all. At this point we need a meter to determine how many amps the train is sucking up, and how many volts our booster puts to the track. It can also help to see if what's going to the rails is still DCC.

While a common multimeter should be a tool anyone who works or plays with electricity has in their toolbox, it's not the best tool for measuring DCC voltage and amperage. In fact, it's borderline to measure DCC voltage and virtually useless for measuring DCC amperage.



**2. Standard AC waveform (AC sine wave graphic from [commons.wikimedia.org/wiki/File:Sine\\_wave\\_2.svg](https://commons.wikimedia.org/wiki/File:Sine_wave_2.svg)).**

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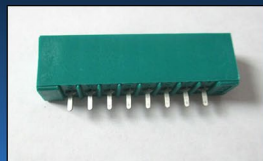
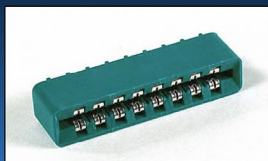
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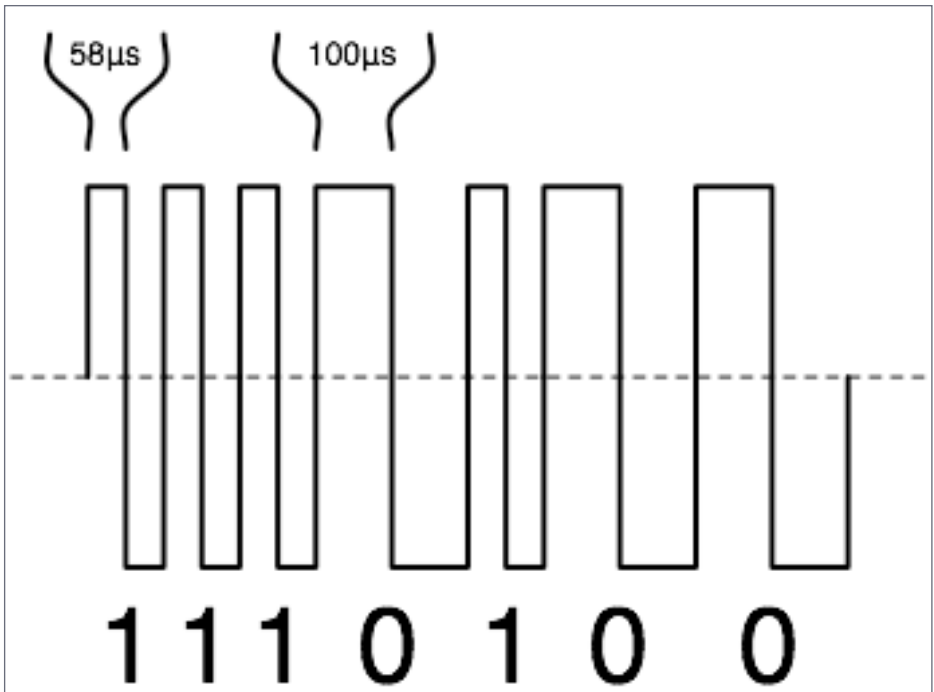
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It's often said on forums that DCC puts AC power on the rails, but this is not quite accurate. More accurately, a DCC system puts a form of alternating current on the rails, but not what an electrician would consider AC power.

Instead of having a sine wave of smoothly alternating curves at a fixed frequency [2], DCC uses a square wave [3], and the duration of a single square wave indicates a digital "one" or "zero" in the signal.

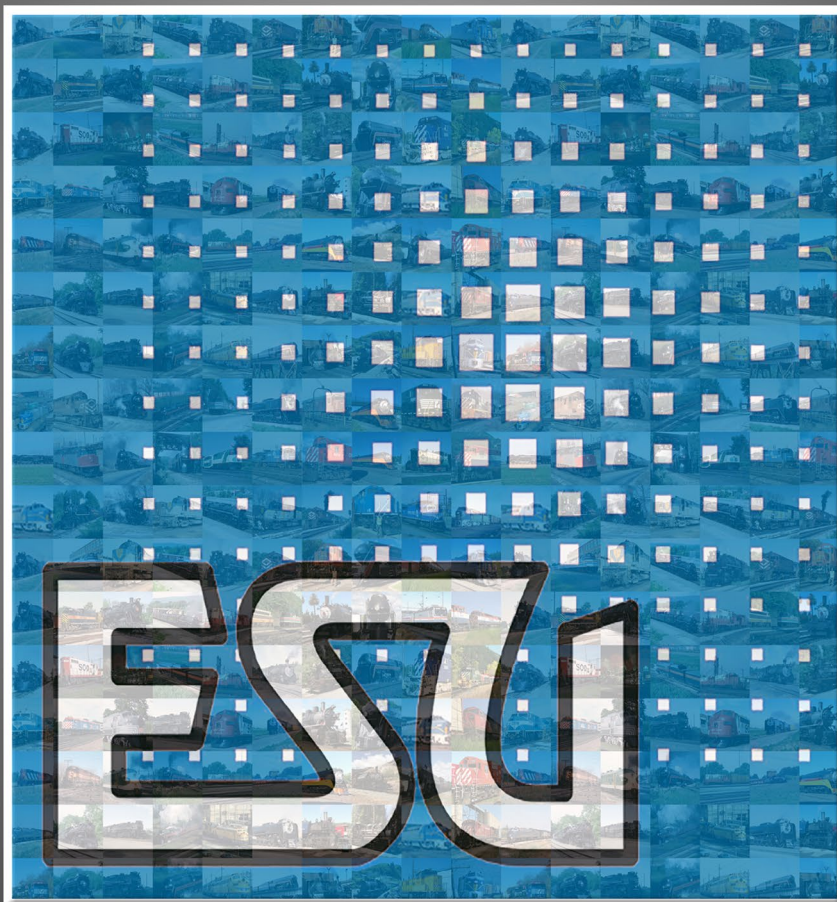
The DCC track voltage is a high-frequency square wave (5,000 to 8,500 Hz, depending on how many "0s" and "1s" are in the



3. DCC square wave signal (from [dccwiki.com/DCC Power](http://dccwiki.com/DCC_Power/)).

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packets) that's nominally 14.25 volts for HO. See the NMRA Standards for more details.

While a multimeter works as the proper tool for checking continuity and the presence of voltage, the standard AC volts setting on a normal multimeter will not accurately reflect that voltage, and as noted, it won't show DCC amperage properly either.

The electronics of a normal multimeter set to AC volts assumes the AC being measured is standard home electricity of 50 Hz in much of the world or 60 Hz in the US. Further, the meter assumes the waveform to be a smoothly shaped sine wave.

Reading AC voltages of any other frequency and waveform, a standard multimeter gives an incorrect voltage reading. Using an RMS Voltmeter will give a more accurate reading.



4. RRampMeter type 2 with a case and leads. Here we see it's measuring an even 15 volts and one hundredth of an amp on empty track with a standard multimeter from Harbor Freight also attached to the track in parallel to measure voltage (not shown). NOTE: To measure amps, the HF multimeter needs to be inserted into the circuit so one of the track feeder leads goes *through* the meter. You also need to change the probe use the Amps meter port.

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5. In this video, I compare the volt and amps readings of a standard multimeter set on AC to the readings from an RRampMeter designed to measure DCC.

I connected a Digikeijs DR5000, powered by a 15V power source to an RRampMeter, which in turn is connected to both the multimeter probes and the tracks. The multimeter slightly mis-reports the voltage present (although close) but it dramatically under-reports amperage through an operating loco: see the video above.

Conveniently, the RRampMeter can automatically sense if the signal being passed through it is AC, DCC, or DC. If AC or pulsed DC power, the AC LED is lit. If DCC, the DCC LED is lit. If the power passing through the RRampMeter is DC, neither LED is lit, but proper voltage and amps are still displayed.

You can purchase a RRampMeter from most of the *MRH* DCC sponsors. It comes in four different versions. For price, we list the typical street price.



[www.SBS4DCC.com](http://www.SBS4DCC.com)



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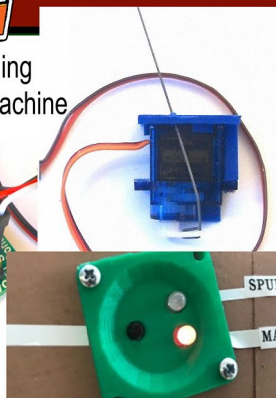
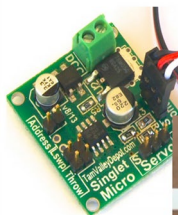
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## Why does it matter?

Accurately measuring the DCC track voltage can be extremely helpful when a layout has more than one booster. The boosters should have similar voltages for trouble-free operation.

Another issue can be a slow-running loco or consist at certain locations on the layout. To troubleshoot such a “voltage drop” problem, measuring the DCC voltage directly can quickly tell you what the track voltage is along the track. Once you see where the voltage drop occurs, you can begin troubleshooting the cause, most likely a bad feeder somewhere.

Measuring current draw, especially with consisted sound units, can tell you if you’re going to outstrip your booster’s ability to supply the needed current to your trains.

One way to use the RRampMeter is to get a type 1 for each of your power districts and install it inline. This way, you get voltage and current (amp) readings at all times, which can be invaluable for rapidly detecting and locating problems.

Can you operate a DCC layout without a RRampMeter? Of course. Can you spot and resolve problems more easily with one? Absolutely.



**RATE THIS ARTICLE**



J. Fugate

## MEASURING FUNCTION VOLTAGE EASILY

When adding lighting to a DCC loco, it can be very helpful to know the function voltage. Once you know the voltage, you can precisely determine the voltage-drop resistor needed for LEDs or 1.5V incandescent lamps.

The action of the bridge rectifier and the PWM circuits in a decoder reduce the voltage such that the function voltage should be around 1.5 volts lower than the track voltage.

To measure the function voltage exactly, use a standard multimeter with a setting of around 25V.

Power the decoder from the rails (red and black wires – or temporarily install the decoder in a loco and put the loco on the track), then measure the blue wire of the decoder with the red probe and the white wire with the black probe.

Make sure to set the decoder/loco direction to forward and turn on the headlight function to get a voltage reading.

On my Siskiyou 1 layout powered by an NCE system and Lenz boosters, the track voltage measured right at 15.5V with the RRampMeter and the function voltage measured almost a perfect 14V with a standard multimeter.

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# Small layouts can be fun

Model Railroad Hobbyist | September 2019 | #115



**PETER VASSALLO** cleverly breathes new life into running trains on a smaller layout ...

**FOR MANY MODEL RAILROADERS, OPERATION IS AN** integral part of the hobby. And for good reason – after all the hard work of building a layout, it's a pleasure to run it in an engaging way and share it with others.

Many operations schemes are possible to suit particular layouts as well as the people who run them. Some like sophisticated

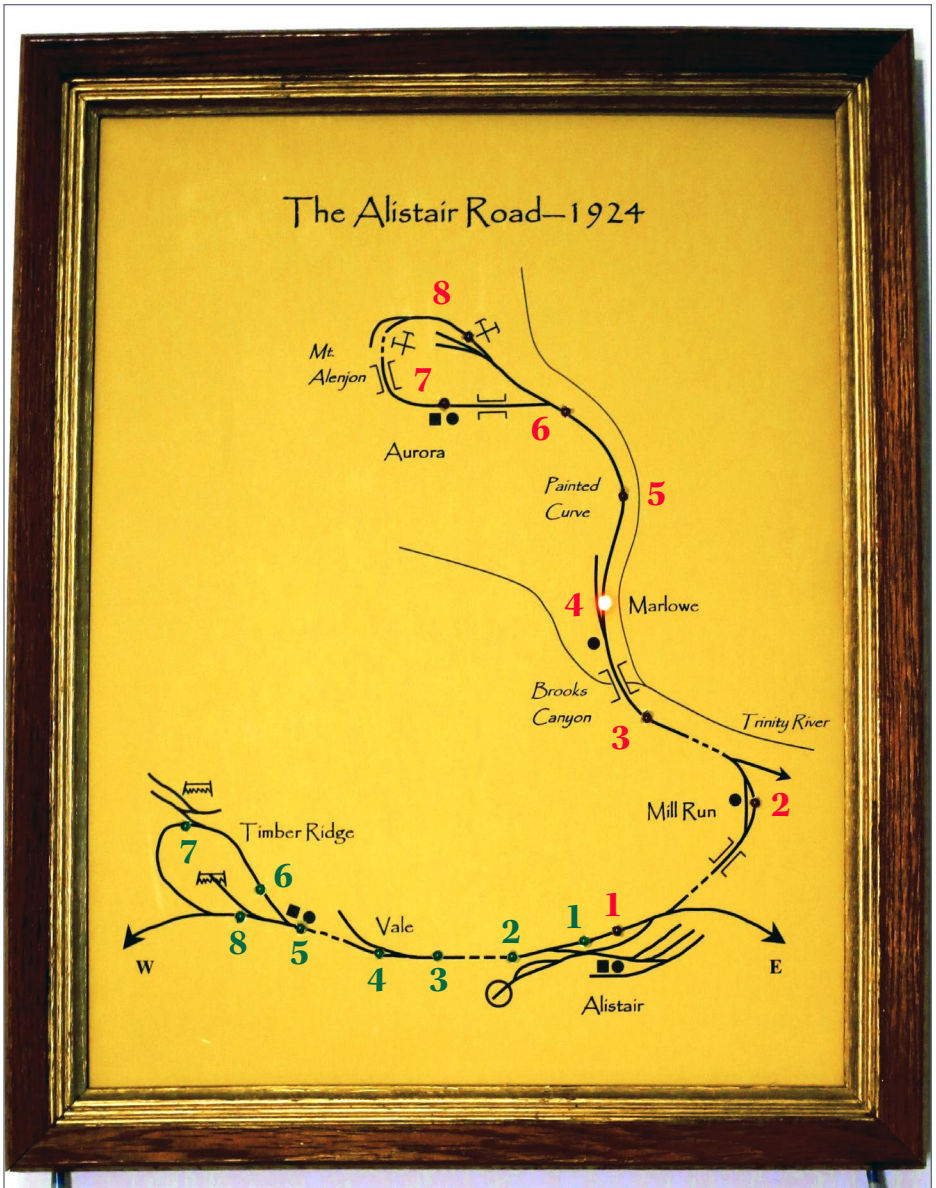
1. Overall view of the author's HOn3 apartment layout. Left throttle controls Timber Ridge turn, middle throttle controls Alistair yard and right throttle controls Aurora turn. Near the left and right throttles are rotary switches that control lights on the system map visible on the back wall.

schemes involving signals, dispatchers, train scheduling with fast clocks, switch lists, etc.

Others – myself included – prefer a more casual approach that doesn't require much paperwork. In fact, while running my narrow gauge trains over the years, I find myself enjoying just taking a few cars out for a spin around the layout, from yard to towns and back. In doing this, I run laps around the loops to lengthen the mainline and provide a sense of distance between stops.

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2. System map of the Alistair Road, with sequence numbers for north and west routes overlaid. At this moment, the lights indicate a train is stopped at Marlowe.

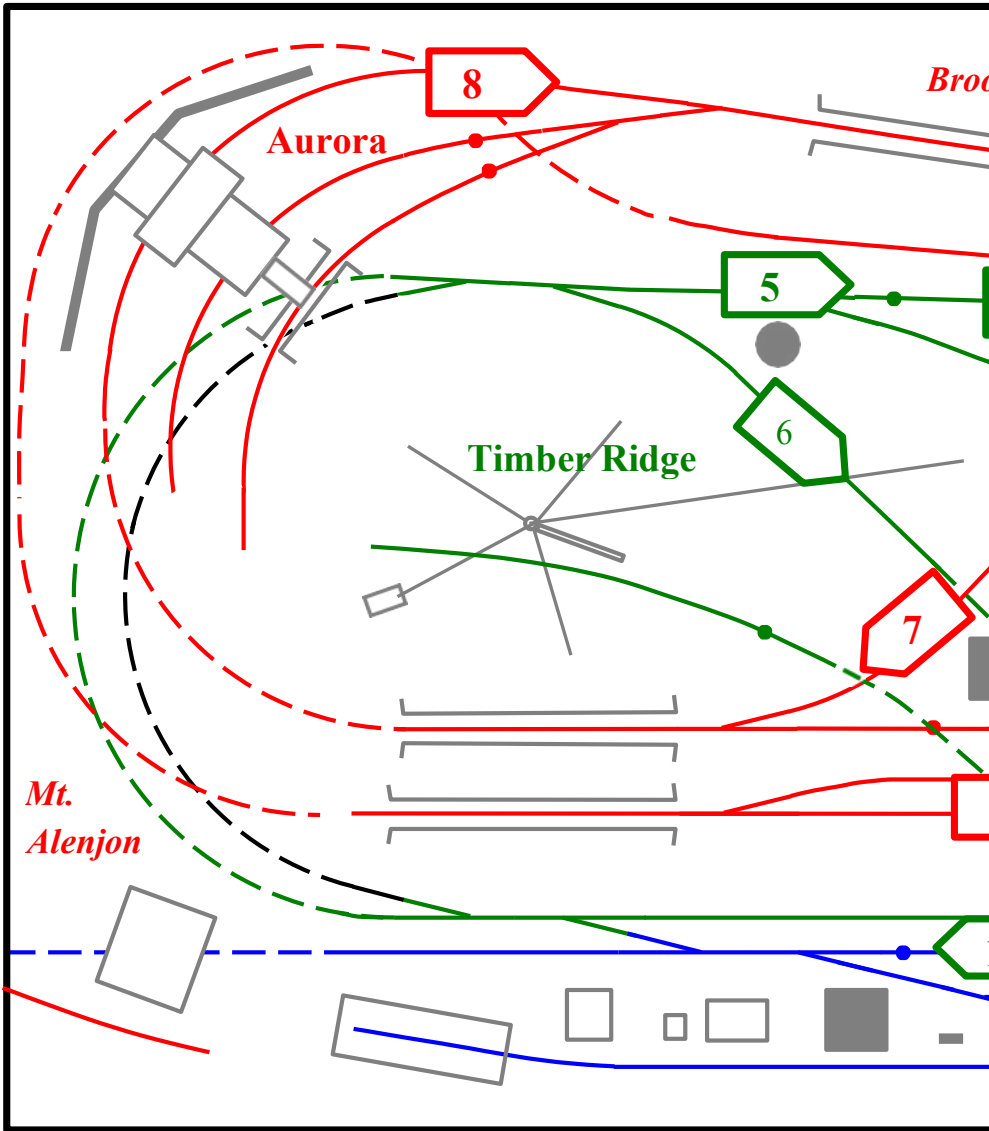
It occurred to me that I could break the bounds of the layout circle by adding a system map to track the progress of my trains. In this approach, rather than mentally count laps to approximate distance, distance would be physically indicated on a system map placed in view of the operators. A rotary switch located near the throttle controls would be used to activate the position indicators on the system map.

Some background on my layout is necessary to understand how the system works. As seen in [2], there are two main routes from the Alistair yard, one running west to Timber Ridge, and the other running north to Aurora.

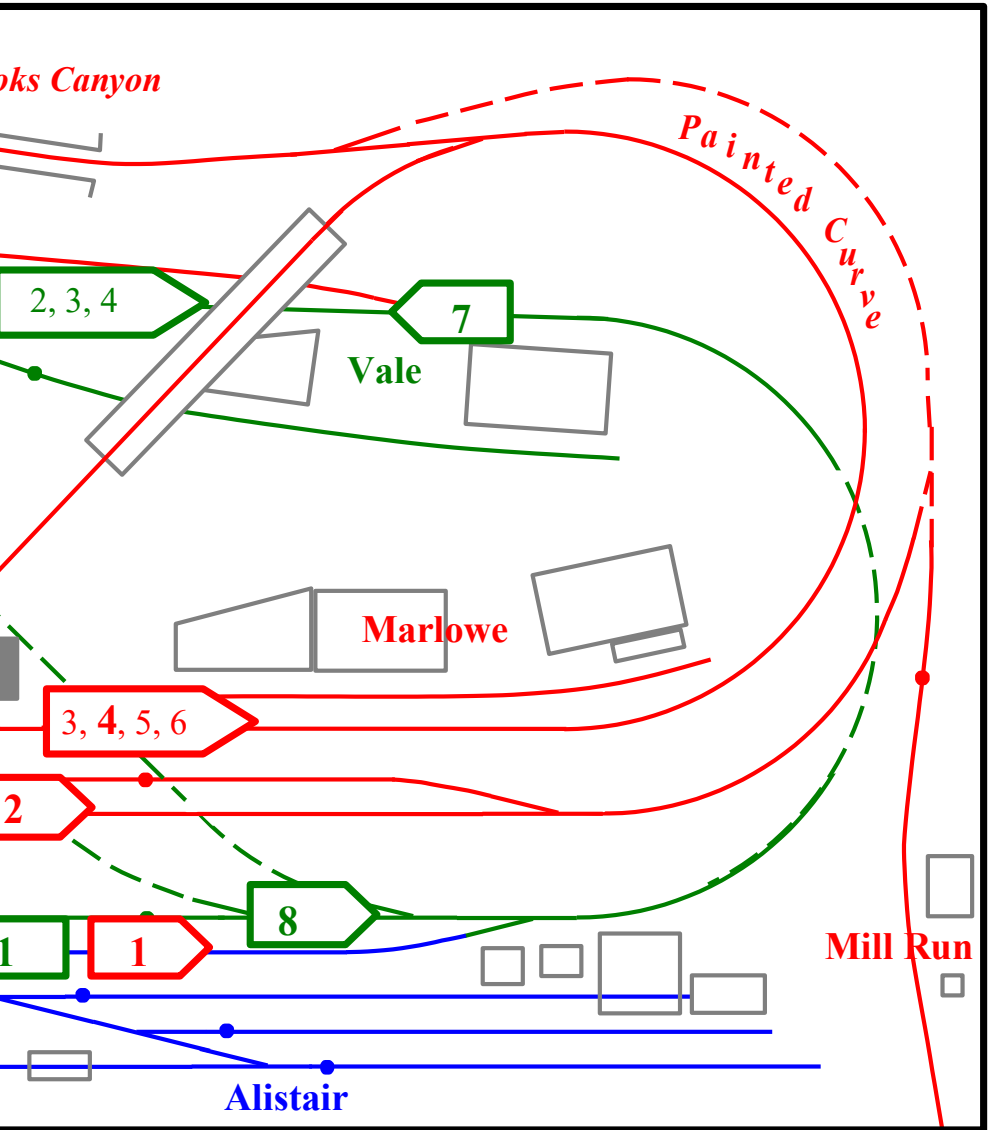
The lower loop on the layout [3] simulates the east-west route while the upper loop simulates north-south. Trains for each route operate as turns: the trains leaving the yard go out to the reverse loops and back, switching towns along the way.

As I run various trains, I turn the rotary switches near the throttles [4] to indicate the relative locations of the trains. Taken together, [2] and [3] shows how this works on the layout. When the trains take the return loops, the process reverses as the trains make their way back to Alistair.

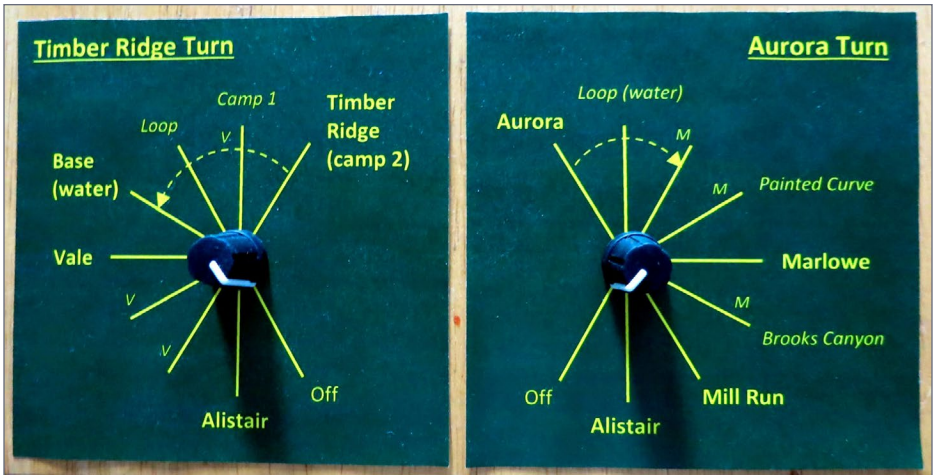
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3. Track plan routes for outbound portions of Aurora (red) and Timber Ridge (green) turns. Numbered positions correspond to locations on system map [2] activated using the rotary switches [4] when the train reaches each position on



the layout. Return trip reverses positions. Note that bold numbers indicate train stops. Solid gray structures indicate water tanks.



## 4. Rotary switch panels for operator route tracking.

Part	Quantity	Vendor	Total Price
16 x 20 inch frame with 3/16 inch hardboard backing	1	As desired	~20.00
Rotary switch panels, 4 inch square	2	Standard printer	N/A
Route board graphics	1	Staples poster (16 x 20 in)	\$10.00
Rotary switch, 11 position	2	allelectronics.com, RSW-39	\$2.90
Knob	2	allelectronics.com, KNB-269	\$1.30
Ten wire control cable, 22 gage, 10 ft long	2	allelectronics.com, 10CS22	\$12.40
No. 22 wire, 25 feet	1	allelectronics.com, 22RD-25	\$2.70
Red LED, 12VDC	10	allelectronics.com, LED-12R	\$4.50
Green LED, 12VDC	10	allelectronics.com, LED-12G	\$4.50

Table 1. Project list of materials



## Building the System Map

See [Table 1] for a list of the materials I used for this layout. I purchased the electronic components from All Electronics ([www.allelectronics.com](http://www.allelectronics.com)), which is an inexpensive source of electronic equipment.

In making this list, I found the most expensive item to be the frame and backing board, although in my case I found a perfect frame for free that someone had discarded in my apartment house. Talk about lucky! Once I had the frame, I drew the system map in Word and printed it to a PDF file at the right size to fit the frame.

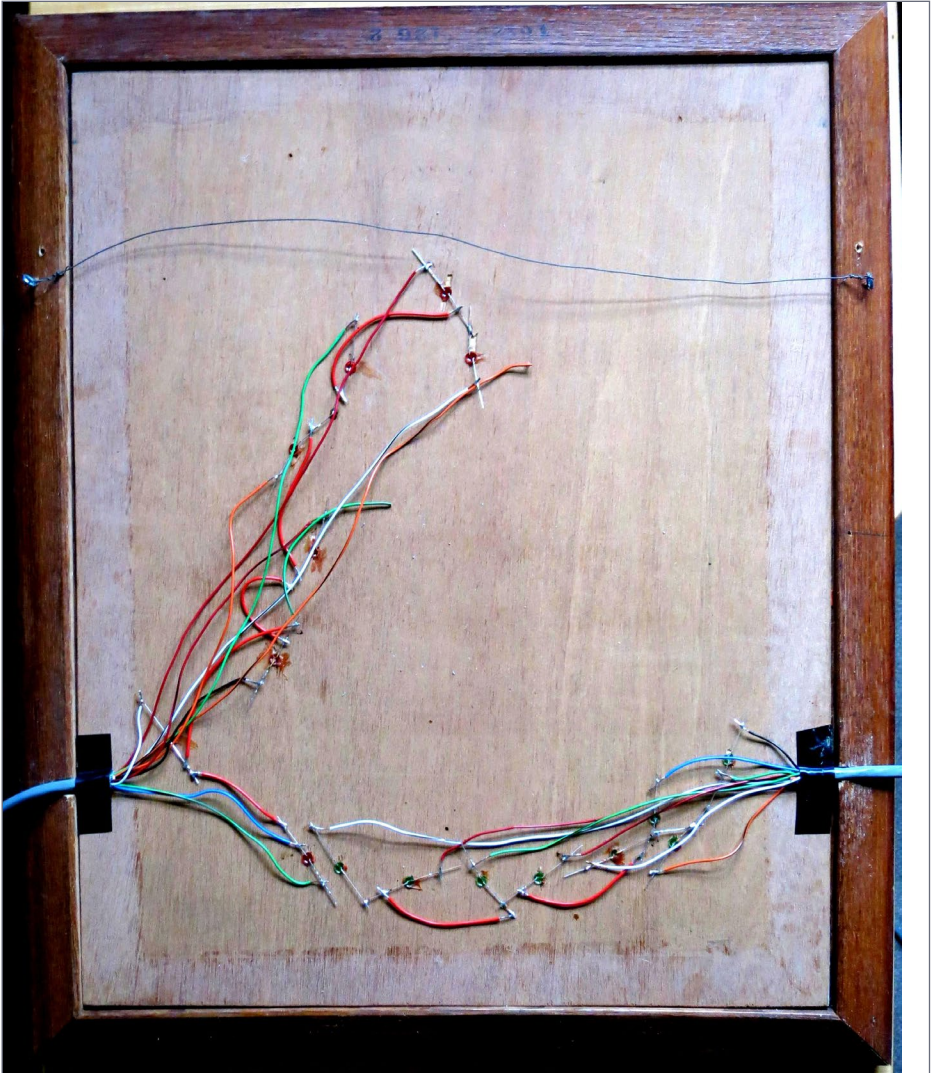
It took some time to draw the map in a style that looked good to me. I included text for towns and points of interest as well as symbols for water, fuel, and mining and logging operations [2].

For a color scheme, I chose a gold background with black graphics to accent the colors of my layout. I took the PDF file to my local Staples store and had them print it onto poster paper and cut it to size.

Back home, I attached the poster to the backing board using Walthers Goo. I then drilled holes through the poster and backing board at the appropriate locations to accept the LED lights.

I dabbed Goo on each light and pushed it through the backing board from behind with the leads for each light splayed out against the board.

I soldered the negative (anode) leads together where I could and used short sections of wire to connect the more distant negative leads together. I did this for each of the two routes, each containing eight lights [5].



5. Backside of system map framing board. Short red wires connect anodes of LEDs for the common negative polarity wire, while individual wires from the control cables connect to the positive cathodes of particular LEDs. The wires at the opposite end of the control cables connect to the rotary switches and to a DC power supply.

With a Dremel tool, I carefully cut and peeled back the outer casing of the 10-wire control cables to expose 12-18 inches of the individual wires inside. I soldered each of these wires to the positive (cathode) leads of the LED lights along the backing board for each of the two routes.

I exposed a few inches of the wires on the opposite ends of the cables to attach to the rotary switches. The connections were, of course, coordinated between the rotational position of the switch and the LED lights along the routes. I could find only 11 position rotary switches from [www.allelectronics.com](http://www.allelectronics.com), so I used one of the extra positions as an off switch and did not use the last two positions.

I cut notches in the sides of the frame to accept the control cables and glued and taped the cables in position. I then hung the frame on the wall behind the layout and snaked the rotary switches under the layout to the front control panel. I drilled holes in the control panel to accept the rotary switches with the small graphics boards set in place under the control knobs.

Lastly, I connected the two positive wires from the rotary switches and the two negative wires from the control cables to my DC power supply, the same one I use to power my Tortoise switch motors.

The LEDs I purchased have built-in resistors to operate up to 12 volts. My DC power supply is an old 8.5-volt DC charger; the LEDs shine brightly at this voltage.

Actually, the green looks brighter than the red. This is because the eye is more sensitive to green, which is at the center of the visible spectrum. Better intensity matches would be obtained with green-yellow or red-blue LED pairings.

## Layout Operations

With the system map in place, it's time to have some fun. To help a guest operator, I've written general instructions for each route, including arrivals and departures, switching duties and water/fuel stops [6].

I put the general instructions into a four-inch-square plastic holder. Later, I slip handwritten notes inside (visible from the back) to define the car movements.

As an example, the notes for the Aurora Turn might read: *Aurora: deliver 2 empty ore cars, pick up 2 loaded ore cars; Marlowe: deliver boxcar, pick up reefer.*

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When writing these notes, I make sure the deliveries are in the yard and the pick ups are at their industries. This is best done on the fly; in other words, operating the trains as extras.

## **Aurora Turn**

- Assemble train, depart Alistair
- Arrive at Mill Run, take water
- Switch Mill Run as required, then depart
- Arrive at Marlowe, take water, then depart
- Arrive at Loop, take water and fuel, then depart
- Arrive at Mine 1, switch as required, then depart
- Arrive at Marlowe, switch as required, then depart
- Arrive at Mill Run, take water, then depart
- Arrive at Alistair, break up train

## **Timber Ridge Turn**

- Assemble train, depart Alistair
- Pass Vale
- Arrive at Base, take water and fuel, then depart
- Take Loop
- Arrive at Camp 1, “switch” as required, then depart
- Arrive at Camp 2, switch as required, then depart
- Arrive at Base, take water, then depart
- Arrive at Vale, switch as required, then depart
- Arrive at Alistair, break up train

6. General conductor's instructions for Aurora and Timber Ridge turns. These instructions correspond with indications on the rotary switch panels [4].

Since the local freights originate in the yard, it's best to have a yardmaster defining the train orders. The engineer (or conductor, if you prefer) switches the location controls as the trains are run.

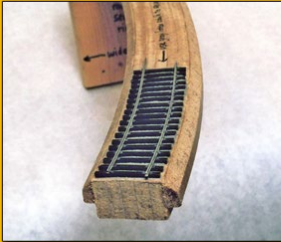


7. The morning unfolds as No. 32 pulls up to the water tank in Alistair, preparing for the day's first run. It will take about ten minutes to fill the tender, then another ten minutes to couple onto the cars in the yard and depart for the trip to Aurora.

I usually operate by myself and perform both engineer and conductor duties (not to mention yardmaster duties). If another operator visits, I take the role of conductor and operate the system map as the other operator (as engineer) drives the train.

With a dedicated yardmaster, they find the system map a convenient way to track the progress of each train and gauge how much time they have before any train returns to the yard.

The lights on the system map correspond with towns, landmarks or water/fuel stops along the line. Water and fuel (typically coal) governs the distance a steam engine can travel, as gasoline might govern the range of an automobile. A steam engine will go through its water supply faster than its coal supply, so water tanks at strategic locations must be used to keep the trains moving.



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8. Road engine 31 departs Alistair while no. 49 switches the yard. The little diesel began its career as a Grandt Line kit, but was later modified by hollowing out the superstructure and placing it on a Bachmann N scale switcher mechanism. A





jeweler's screwdriver was used to expand the wheel spacing to the proper gauge. An idler flat car with N and HO<sub>N3</sub> couplers solves the coupler mismatch problem.

Narrow gauge railroads in particular required numerous water tanks as the engines were smaller and had to strain against steeper grades. As an example, the Denver and Rio Grande's route from Durango to Silverton, about 45 miles total, had water tanks spaced about 10 miles apart ( five tanks in all).

I've explicitly modeled three water tanks on my railroad: one at Alistair yard, one at Marlowe and one at the base camp in Timber Ridge. I've also implicitly modeled two more: one at Mill Run and the other at Aurora.



9. Marlowe's Paint Works is one of the town's major industries. Tank cars carrying raw chemicals are unloaded using the spout siphon, and crated cans of paint are loaded onto box cars, using the wooden loading dock at the rear of the spur. Down the hill in back (in story terms, 70 miles away) is the freight house at Vale, with a gondola full of pipe ready for unloading. Looming in the background is Painted Curve, a picturesque passage between Aurora and Marlowe.

These implicit water tanks show on the system map at locations miles apart from the modeled tanks. I stop for water at these imaginary tanks at locations on the layout physically close to the Marlowe tank to help foster the illusion that the engine takes on water while stopping there.

Sound is another great way to foster the illusion. I've been running two of my older locomotives as soundless DC models, but I recently purchased a Blackstone C-19 with a Tsunami sound encoder and an MRC Prodigy Explorer DCC controller.



10. Number 33 stops for water at the base camp in Timber Ridge after picking up a string of loaded log cars from Camp 2. A simple water tank like this creates another stop along the line even if it's only a few inches away from another stop (in this case, the town of Vale). The tank is an easy scratchbuilding project, partly because it can be seen only from the back and, as such, no spout detailing is required!

The MRC Explorer works perfectly for small railroads like mine; it cost just \$90.00, takes up just 4x5 inches and controls up to four locomotives easily.

When I stop the locomotive for water, I use the “water fill” sound effect to simulate the opening of the tender hatch and the sound of water flowing into the tender.

After about ten seconds, I turn the fill effect off and proceed with a corresponding “whistle” send off.

Water tanks are particularly good to model, as they take up little room on the layout and can serve as separate stops along the line. For example, the small tank at the base camp in Timber Ridge has its own unique stopping point on the system map but sits literally just inches away from the town of Vale.

Just use your imagination to separate them in your mind as you are taking laps and following the lights on the system map.

Other layout elements can correspond with locations on the system map, including geographic features, tunnels and bridges. Some examples of these on my layout include the rock shelf trackage around Painted Curve and the wooden truss bridge over Brooks Canyon.

Again, some imagination is required to only “see” the train passing through these features when the lights on the system map indicate it. The loop circuit at Timber Ridge is longer than at Aurora, mimicking a longer logging route through several camps (green routes 5-6-7-8 in [3]).

Aurora’s loop is shorter (representing about 3 miles around Mt. Alenjon), and is simulated using the red route 6-7-8 in [3]. The train stops for “fuel” after taking the switch into this loop (modeled by stopping at red 7 in [3]). Red 7 is physically close to the



11. Engine 31 exits the cut stone portal of tunnel 1 on the westward route to Vale. Life is good for the engineer, driving his train under creamy blue skies through northern California scenery.



12. Engine 32 pauses at Painted Curve with a short freight in tow. The engineer is waiting for the track crew up ahead to clear debris that had fallen during last night's storm. The conductor took advantage of the delay to capture this dramatic photograph.

water tank at Marlowe; as mentioned previously, this helps with the illusion that the engine is taking on water while stopping there.

Trains can be left at any location between sessions, making the system flexible and relaxed. It's so flexible, in fact, that you can skip laps if you choose and just flip the rotary switch forward to the location you want to work as soon as the train gets there.

The key is, *you can see your exact position* on the railroad while working or stopped at a given location. Even without the lights, the system map reminds me that the railroad is not just a few loops of track but rather a complete and imagined system.

Model railroad operations using a system map breathes new life into the much maligned track circle, which is often the heart of

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13. A northbound freight crosses the wooden truss bridge in Brooks canyon. The train will stop shortly for water at Marlowe before continuing on the uphill climb to Aurora, where empty





ore cars will be exchanged for loads. After taking the turn around Mt. Alenjon, the train will return southbound to Alistair, dropping the box car off at Marlowe on the way.

small layouts. This approach allows those with small layouts to get a concrete sense of travel distance when taking circular laps, adding a whole new dimension of fun to operations.

The approach could be adapted for use with larger point to point layouts, too.

If you wanted to get fancier, signal detection could also be used to automatically increment train position as it progresses along the line.

I'm having a lot more fun running trains on my layout – for those of you with smaller layout, try it, you might like it!



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## PETER VASSALLO



Peter lives in Albany, NY and works part time as a mechanical engineer. His interests are many, including golf, Yankees baseball, Giants football, Sabres hockey, writing fiction and poetry, country music and dancing and, of course, trains. His favorite prototypes are the narrow gauge lines of old Colorado and California. An earlier feature on his Alistair Road was published in the Sept/Oct 2017 issue of

*Narrow Gauge and Shortline Gazette.* ■



### BRUCE CHUBB'S MODEL RAILROAD MUSEUM PROJECT

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Joe Fugate interviews Bruce Chubb and architect Ralph Moxley on a new model railroading museum they're planning.

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# Building paper and cardstock models

Model Railroad Hobbyist | September 2019 | #115



**RATE THIS ARTICLE**

**JOHN AND AARON GIBBENS** describe how to construct cardstock models ...

**WE LOVE READING OLD MODEL RAILROAD MAGAZINES.**

They are loaded with stories of how people made models from what they had on hand. These folks were creative, making do with what could be found, and turning it into fabulous models.

We remember a magazine cover photo from the '70s showing an amazing black wrought-iron looking bridge built entirely of paper and cardstock. Wow!

Building structures out of paper is not common today. With an abundance of plastic and laser-cut wood kits available, building a model tends to be fairly quick. But then comes time to paint the model – and try our best to make our model look real.

1. An HO warehouse (and props) made entirely of paper and cardstock.

Many people love to paint and can produce stunning results. For those who don't produce such superb results, let's introduce you to paper modeling, because paper models are basically *already painted!*

Building structures out of printed paper remains quite popular in Europe but has fallen out of favor here in the United States. Several manufacturers produce excellent models in the UK and Europe, but only a few in the USA.

As new designers come along, our choices for western style models is improving.

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There are three advantages to downloadable paper models. They're inexpensive, immediately accessible, and are "pre-painted." Using photographs and quality illustrations, these models typically look great the moment the final piece is installed. With no cost for packaging, injection molding, laser cutting or shipping, paper models are a tiny fraction of the price of boxed or bagged models.

You can shop at anytime from anywhere you have internet access. You can download and start building your next great scene. Most companies offer free "example" models so you can experience their quality and modeling with paper. For scratchbuilders, paper model companies offer huge arrays of pre-finished pages of wood, brick and metal siding, roofing, stone walls, paving and more.

Modeling with paper may not be for everyone. Construction can take longer than plastic models and there can be more



2. This is John's first attempt at scratchbuilding a paper model, an N-scale low relief model of the Southern Pacific depot in Eugene, Oregon.



J. Fugate

## MAKE YOUR OWN STRUCTURE DESIGNS

In this article, John and Aaron talk about paper structure designs you can download, print out, and build.

But if you want to design your own paper structures, check out Model Builder. It is very affordable software from Evan Designs that lets you design your own paper structures on a Windows computer.

**WEB:** [modeltrainssoftware.com/products/model-builder](http://modeltrainssoftware.com/products/model-builder).



3. Paper can be used for more than just buildings. Here paper is used for paving and walls.

parts to assemble, but you save time by not needing to paint. Parts can be small; glue can be messy and some folks just don't think they can cut a straight line. But like any other skill, the more you practice the more your speed and quality will improve.

## What you need to make paper models

As with any type of modeling you will need certain basic tools and supplies [4]. These are few and inexpensive, and available at most stores with office supply, craft, or hobby departments. Most modelers will already have most or all of these around their work area. Here's our recommended list of basic tools:

### Must haves:

- Scissors
- Hobby knife



4. The basic tools needed to construct paper models are available at most stores, not just specialty hobby shops. Scissors, knife, glue, metal ruler, paper and cardboard will get you started. You may already have them.



- Glue stick glue
- White (PVA) glue
- Metal edge ruler, preferably with cork no-slip backing
- Smartphone, tablet, computer, or borrow a friend's
- Paper
- Poster board
- Mat board

## **Optional but helpful:**

- Color printer - See topic "No Printer? No Problem."
- Tweezers
- Cutting mat

## **Some of our favorite specialty tools**

As you progress in modeling with paper and cardstock you may wish to expand your tool selection. We each have some favorite tools to speed up construction or do it more precisely. None of these are necessary and we would recommend waiting to acquire them until you find the need [5-8].

## **No printer? No problem.**

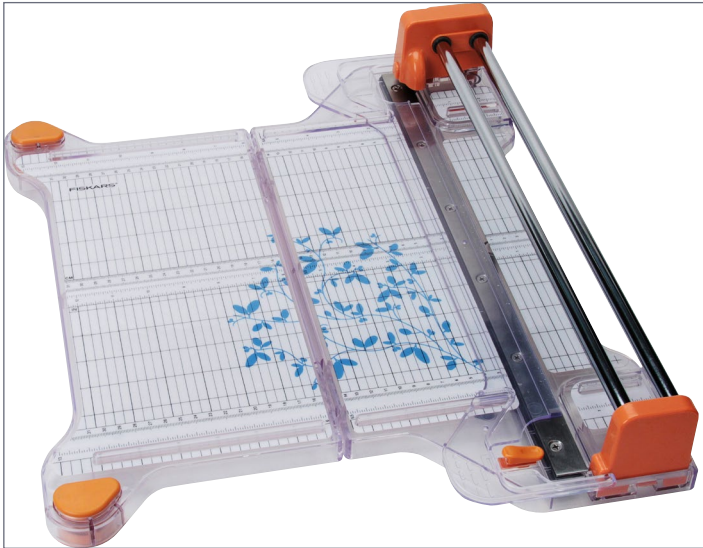
Perhaps the biggest hurdle for some will be printing the files. Have no fear. If you don't have a color printer, or even a computer (but you do have access to email by smartphone or tablet), you can get quality printed output of the files at any of the thousands of FedEx Office or similar stores.

While on the road we needed to print out some PDF documents and had no access to a printer. The only tool we had was a mobile phone. John's wife smartly suggested he call a nearby FedEx Office to see if they could help. They made it so easy!



5. The Chopper by Northwest Short Line. For making slender, small or repetitive cuts of mat board you can't beat The Chopper. Although expensive in comparison

to basic tools this can be a real time saver. An inexpensive alternative: a simple razor glass scraper from the hardware store. Some of the advantages at a tiny fraction of the cost.



6. A rotary paper cutter: We like the deluxe version from Fiskars but even an inexpensive model will assist you in making long straight paper cuts.



7. Mini scissors: I use a pair of expensive German-made sewing snips that excel at small cuts and trimming edges. Many bonsai snips will also work well. Look for a thin blade that will hold an edge. Thick blades will tend to curl the paper and cardstock as you cut.



8. Rotary punch: This doesn't get used very often but is practically indispensable if you need to make small diameter circles in mat or poster board. We specify its use in making

round industrial roof vents for instance. Hint: the 4mm punch is perfect for making N-scale barrels! Four punches of mat board glued together and painted with a felt pen or paint makes a quick 24" diameter by 36" tall standard metal drum.

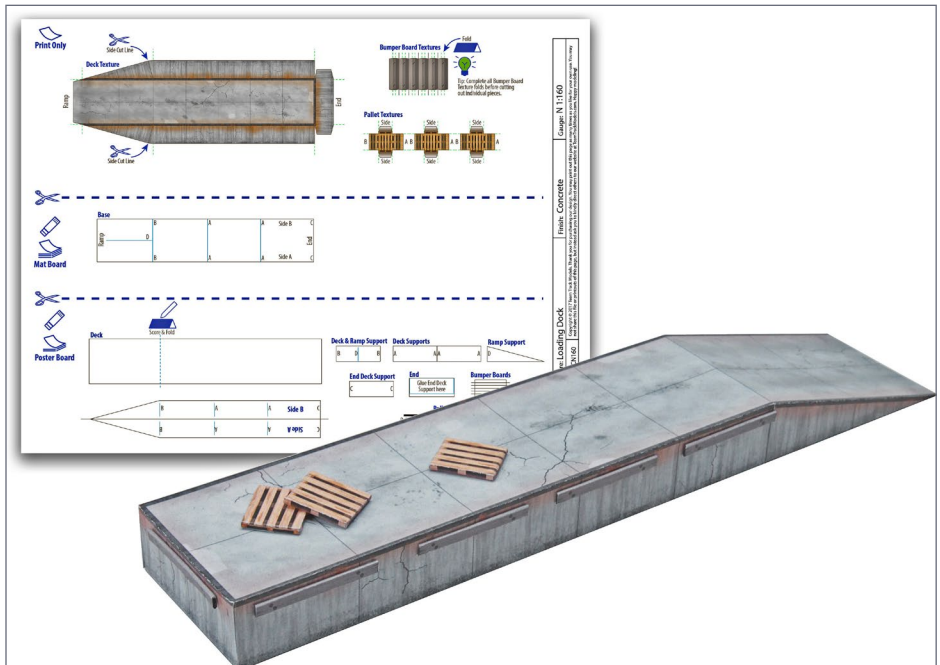
# PAPER CARDSTOCK MODELS | 9

It occurs to us their handy solution would work for any of our modelers who don't have a color printer, or who wish to have vibrant, waterproof, toner-based color printing!

Here's how it works.

Email the PDFs to [printandgo@fedex.com](mailto:printandgo@fedex.com). You will receive a retrieval code back by email.

Go to any FedEx Office location and use the self-service printers. At the Print & Go payment kiosk near the self-service printer, select **Print** and then **Print with Retrieval Code**. Enter the code



9. Here's an example of a basic model available for free online at one of the several vendors. We'll use this to illustrate the basic steps to building a paper model.

and follow the instructions to print the files you sent via email. You even pay at the kiosk.

And for those who feel intimidated by a self-serve process, you can work directly with an employee to print them for you.

## Basic steps to building any paper model

Since this article is an overview of modeling with paper we're not going to show each step in building a specific model. Instead, we're going to show you the basic process so you know what to expect. Your model will typically come with its own set of detailed instructions.

To build a paper model you will download the model files, print out the pages and assemble. Assembly starts with gluing some of the model pages or parts to heavier cardstock such as poster and mat board for rigidity. These are then cut out and glued together, forming a finished model.

Here's the basic steps to build a simple paper loading dock model [9], one of the many free models offered by paper model companies (this one is available from our company at [www.teamtrackmodels.com](http://www.teamtrackmodels.com)).

To begin, you need to download the files. After you make your purchase, typically, you will have a link provided either by email or on the paper model company website [10]. Click the link to download and save the model files. If storage space is limited such as on a mobile phone or tablet, we recommend having a Dropbox or Google Drive account for download storage. They are free, reliable, and accessible from any computer or device.

The next step is to print the model pages and, if desired, the instructions. Color laser printers and copiers have good color

dynamics and are waterproof but the finish is somewhat glossy. In general, we recommend laser printed pages for their durability and bold color. Inkjet printers can be less vibrant on regular paper but don't "shine" with reflected light. If you print using inkjet it can be a good idea to give your pages a coat of dull clear spray to protect the print.

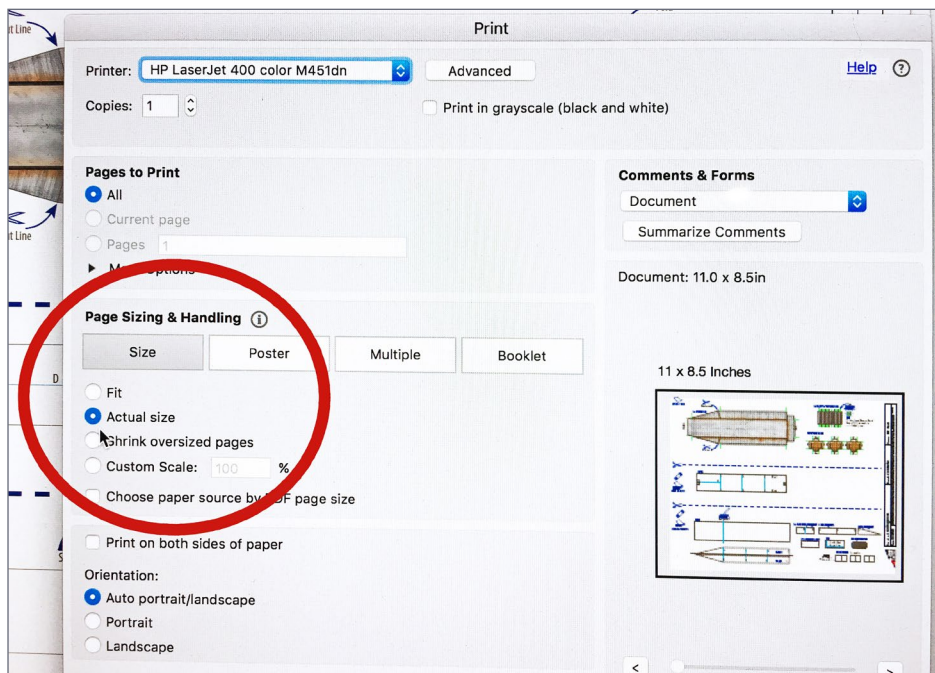
## Your order is complete

Hi there. Your recent order on Team Track Models has been completed. Your order details are shown below for your reference:

### Order #2622

Product	Quantity	Price
Concrete Loading Dock - N - 1:160 Scale: n-us-1160	1	\$0.00
<ul style="list-style-type: none"><li>• Download 1: <a href="#">LDC_N160.pdf</a></li><li>• Download 2: <a href="#">LDC_instructions.pdf</a> ▾</li></ul>		
<b>Subtotal:</b>		\$0.00
<b>Total:</b>		\$0.00

10. Once you complete the checkout process (even with free models) you are presented with the links to download your files.



**11. When printing the model pages, print them at actual size without any fitting or scaling, unless your model comes in one size but you want to model a different size.**

Print the pages needed with scale set to none [11]. This preserves the original scale of the model. Some models include instructions on how to print to different scales. These are usually drawn at HO and can be printed in smaller scales even though this leaves a lot of empty space on the page.

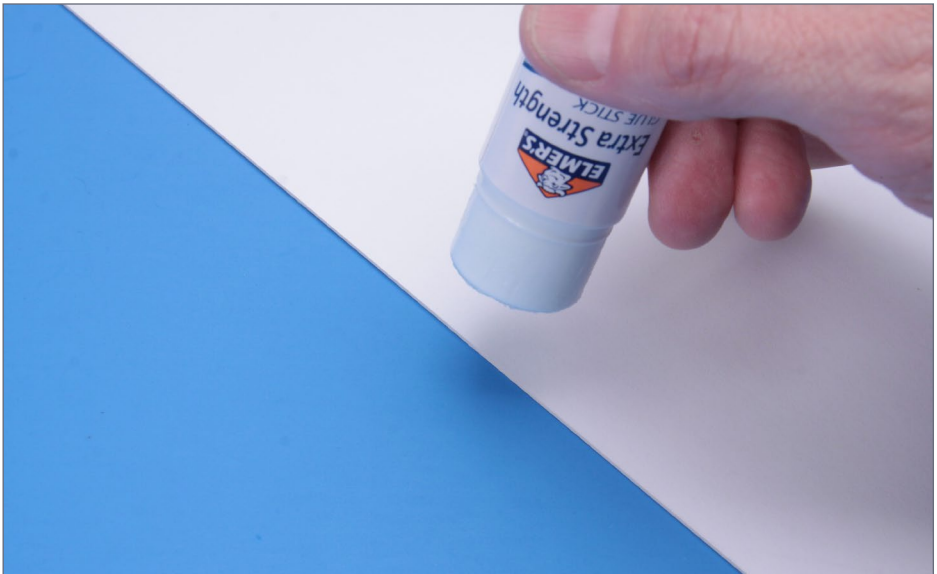
Some parts or pages need to be glued to thicker cardstock before cutting out while some are glued after as per the model instructions. When gluing paper to heavier stock, apply the glue to the poster or mat board [12] and then press the paper to the board.

We have found that applying the glue directly to the paper can cause the paper to stretch, resulting in pieces that don't fit or

assemble properly. A rolling pin (called a brayer) can be useful to get all the bubbles out from underneath the paper and give a better finish.

The most time-consuming aspect of paper modeling is cutting out the parts. Care in cutting results in smoother lines, better piece fitting, and a better overall model upon completion [13]. The advantage of paper models over plastic or wood is that mistakes are easily and inexpensively repaired by simply reprinting a replacement piece.

Paper can be cut with good scissors but cardstock parts need careful cutting with a hobby knife. One of the best knives we've found is the cheap dollar store snap-blade knife.



12. It is most important, especially on larger pieces, to apply glue to the heavier stock. The process of applying glue to thin paper will stretch the paper, rendering your part shape larger than intended.





**13. When cutting, keep your knife vertical and use a metal straight edge to get precise cuts. The best knife we've found for cutting poster and mat boards is a cheap snap-blade knife.**

They can be found for as low as three for a dollar, have 10 or so blades in each knife, are sharp and sturdy, and last longer than pointier hobby knives. Replace your blades frequently as mat and poster board will dull them very quickly.

The assembly stage brings your model to life. Follow the model's instructions. They were written during the design/build process and will help prevent errors and mistakes. Some models have pictograms to show how the pieces go together.

Apply glue sparingly. A little goes a long way. Allow drying time between steps [14]. While simple models can be built in an hour or two, complex models can require many evenings.

Some structures include light to heavy weathering depending on the effect the designer intended, but you can add weathering to

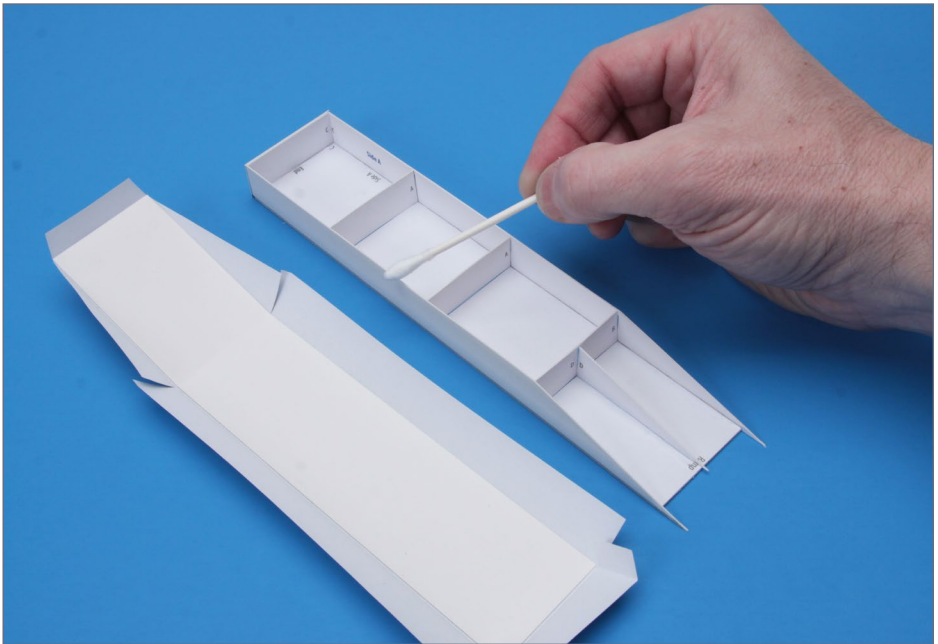
your structures with colored pencils and pastels [15]. Go lightly at first and keep adding detail until you've reached the desired effect. A coat of dull clear finish can seal in your work if desired.

And that's it. That's the basic process for completing a paper structure for your layout.

## Textures for scratchbuilders

Most of the companies that have building and structures also have large selections of printable textures and finishes including roofing, siding, flooring, and more [16].

Inexpensive printable textures can be a gold mine of finishes for the scratchbuilder. Regardless of the base building materi-



14. A cotton swab or Microbrush will speed up and help control the application of PVA glue.



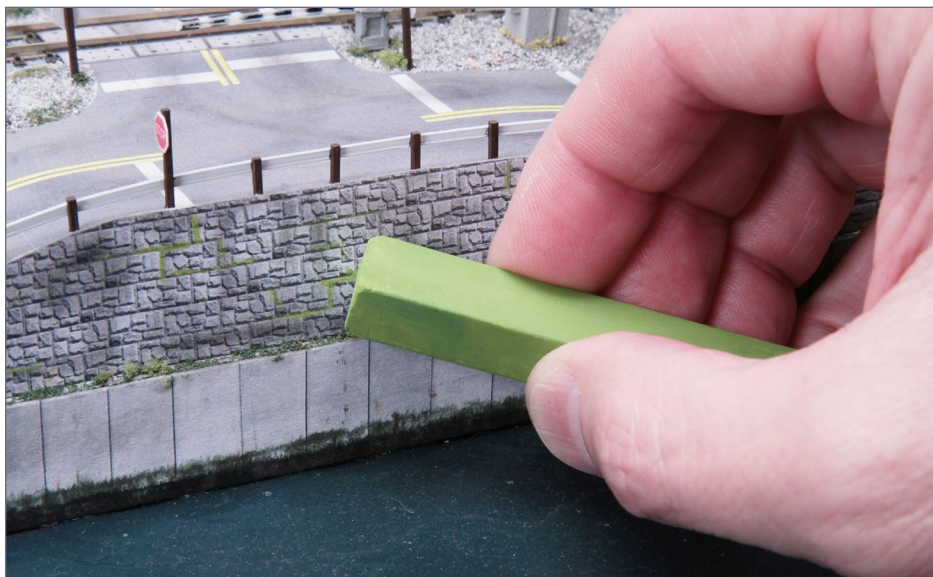
J. Fugate

## MORE THAN JUST BACKGROUND STRUCTURES

You can use these paper structures for more than just background buildings. With a bit of extra effort, you can add more layers to get more of a 3D bas-relief look, resulting in foreground structures that are hard to tell from plastic, resin, or laser cut wood structures.

Back in the January 2012 issue of *Model Railroad Hobbyist*, Lance Mindheim discusses the process of adding 3D effects to paper structures made from digital photos (similar to what the authors show here), giving a foreground building that can look more realistic than plastic, resin, or laser cut structures.

**WEB:** [model-railroad-hobbyist.com/magazine/mrh-2012-01-jan](http://model-railroad-hobbyist.com/magazine/mrh-2012-01-jan).



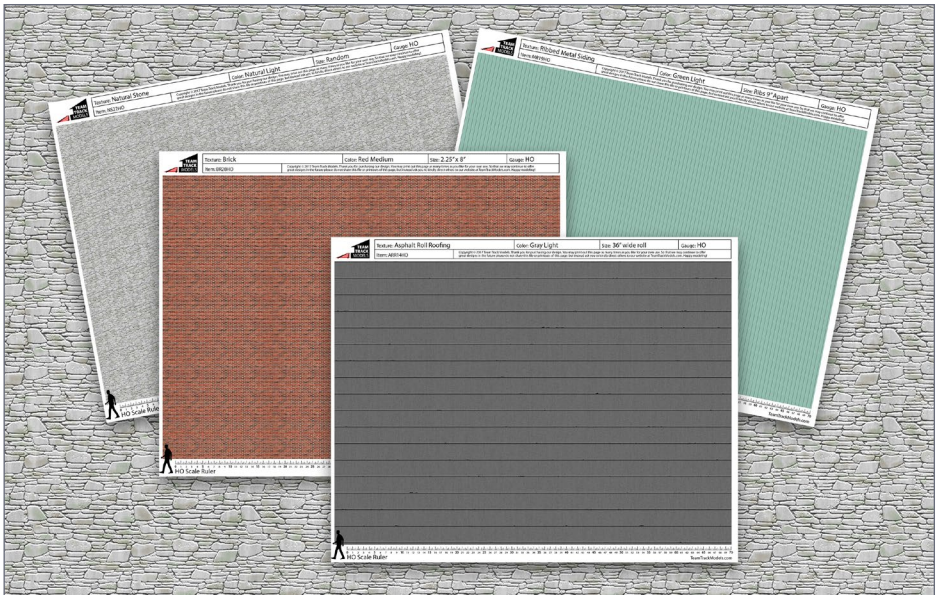
15. You can add weathering with simple pastel chalks and colored pencils. Here we're adding a bit of moss and algae color to this N-scale concrete block shoreline wall.

al, whether it is cardstock, styrene, or wood, printed textures can be an excellent method of finishing a model without the difficulty of paint.

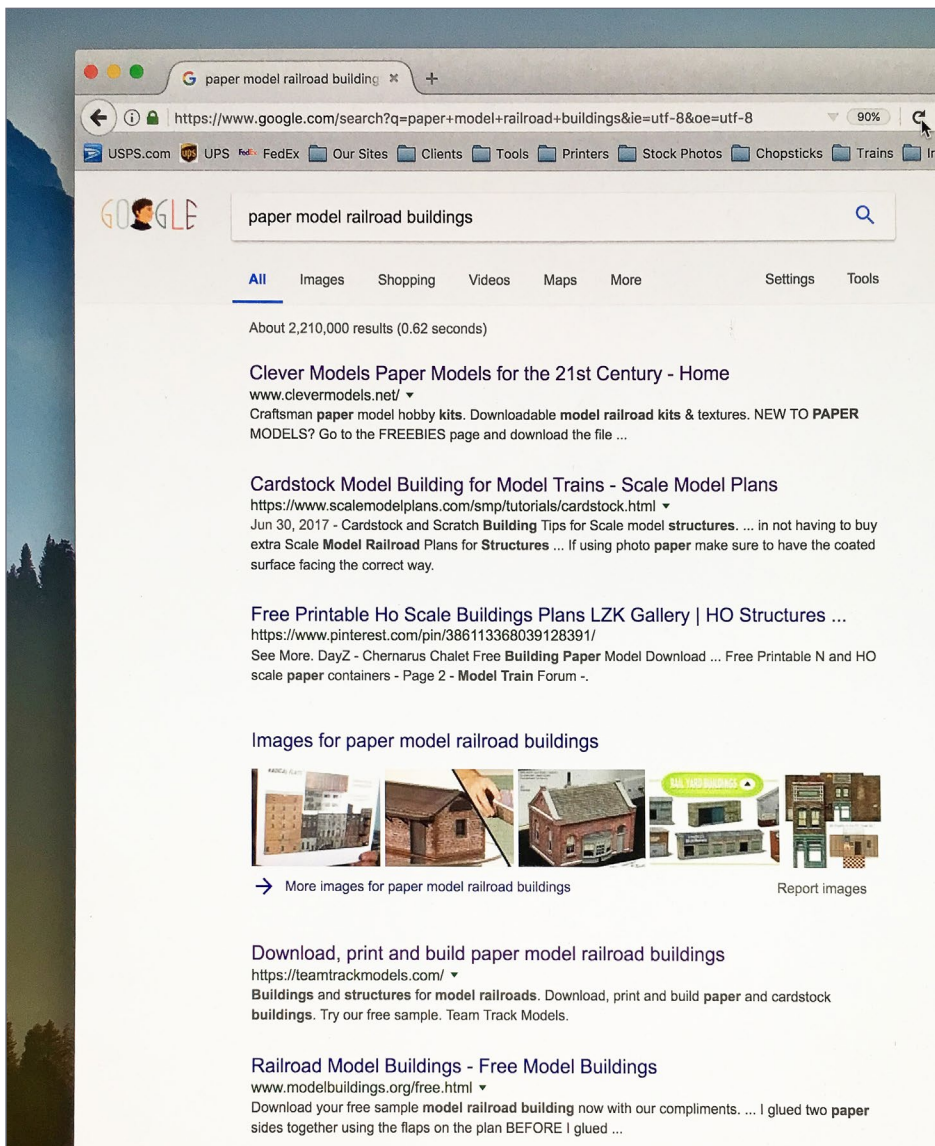
## Where to get models

Enter “paper model railroad buildings” into your favorite search engine [17]. You will have many options from which to choose. Businesses offering models for sale typically have excellent model quality, finish and instructions.

Sites offering only free models can be good, but they tend to be simpler models with less graphic quality and less structural detail. A few companies you might try are:



16. Thousands of textures are available to scratchbuilders for practically any finish and color desired such as stone, brick, ribbed metal siding, and asphalt roll roofing.



The screenshot shows a web browser window with the search query "paper model railroad buildings" entered into Google. The search results page displays several links to websites offering paper model kits and plans. Below the text results, there is a section titled "Images for paper model railroad buildings" which includes a gallery of six images showing various paper model buildings, such as houses and industrial structures. Below the image gallery, there are three more search results, each with a title, URL, and a brief description of the content.

paper model railroad building

https://www.google.com/search?q=paper+model+railroad+buildings&ie=utf-8&oe=utf-8

USPS.com UPS FedEx Our Sites Clients Tools Printers Stock Photos Chopsticks Trains

GOOGLE

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About 2,210,000 results (0.62 seconds)

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**Cardstock Model Building for Model Trains - Scale Model Plans**  
<https://www.scalemodelplans.com/smp/tutorials/cardstock.html>  
Jun 30, 2017 - Cardstock and Scratch Building Tips for Scale model structures. ... in not having to buy extra Scale Model Railroad Plans for Structures ... If using photo paper make sure to have the coated surface facing the correct way.

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[www.modelbuildings.org/free.html](http://www.modelbuildings.org/free.html)  
Download your free sample model railroad building now with our compliments. ... I glued two paper sides together using the flaps on the plan BEFORE I glued ...

17. A simple search will bring up several reputable companies to choose from. Look for sites that are secure, those that start with <https://> as opposed to just <http://> to know you have a safe and secure connection, especially if you're making a payment.

- Clever Models [[www.clevermodels.net](http://www.clevermodels.net)]
- Scale Scenes [[www.scalescenes.com](http://www.scalescenes.com)]
- Scale Model Plans [[www.scalemodelplans.com](http://www.scalemodelplans.com)]
- Team Track Models [[www.teamtrackmodels.com](http://www.teamtrackmodels.com)] (our little company)

Many sites offer a free model to download and practice with such as the Concrete Loading Dock model shown earlier [9].

Try a company's free model to look at how good the graphics are and their level of quality of construction before buying kits. Usually they are smaller and easily put together in a short amount of time.

This gives you, the builder, the opportunity to view their graphic quality and building methodology. Use these to practice your building techniques before spending money on more complicated designs.

## Note about CA allergies

Cyanoacrylate glue (superglue or CA) is one of a modeler's favorite glues. It bonds many materials and does it quick and strong. When we first began building our paper models naturally we used CA. Last spring, I (John) started having severe colds.

I'd be ill for several days, start to get better for a couple days and then get sick again. This went on for months, including an expensive trip to the doctor and an unsuccessful round of antibiotics, without finding a cure.

I started to wonder if the glue could be the cause, and with a little research I found that a small portion of folks are allergic to CA. The severe cold-like symptoms' onset was about 12

hours after exposure and last about 3 days. Bingo, that was it! I stopped using CA and after a few days I was well.

We decided that if CA can make people sick, perhaps we should look for an alternative [18]. To the rescue is good old PVA (such as Elmer's Glue All). For paper modeling PVA has an excellent bond, reasonably sets in only about twice the seconds as CA and allows for a little adjustment.

We've grown to like using PVA more than CA for most cases when constructing paper models. Our research suggests that medical grade CA (which is also safe for gluing foam) might not cause a reaction, and it seems to not cause me (John) any ill side-effects.



18. Two glue alternatives for people with allergies to CA: Foam Safe CA (also referred to as Medical CA) and PVA such as Elmer's Glue-All.

## JOHN AND AARON GIBBENS



John and Aaron Gibbens operate Team Track Models ([www.team-trackmodels.com](http://www.team-trackmodels.com)), a new-in-2017 downloadable paper model company in Eugene, Oregon. The brothers are both

model railroaders in N scale.

Aaron has been an HO model railroader most of his life before converting to N scale a couple years ago. Outside of work he is a Lieutenant with the local volunteer fire department and enjoys barbecuing.

John started model railroading four years ago with N scale T-Trak modules. He was looking for an activity to do in the winter months. He operates a catalog design company with his wife and enjoys sailing and movies. ■





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# The Southern Railway's Tennessean

Model Railroad Hobbyist | September 2019 | #115



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## JONAS H. NILENDER

looks in depth at a train that both Southern and Norfolk & Western fans can model ...

1. Postcard showing the attractive Tennessean green, white, and yellow paint scheme. *From Wikipedia*

**THE SOUTHERN RAILWAY/NORFOLK & WESTERN RAN** the Tennessean as a secondary streamliner between Washington, D.C., and Memphis, Tennessee. This train became Southern's third entry into the Washington-Memphis market and quite clearly ran as a secondary train when compared to the likes of the Crescent or the Southerner.

The Southern shepherded the train from Washington to Lynchburg, Virginia, where the N&W took over to Bristol,

Tennessee. There, the Southern took over the train again and brought it into Memphis. The train first ran in 1941 and continued until 1968, though service had steeply declined by then, as it had for all streamliners.

The Tennessean never stood out as a particularly fast train – it only averaged a little less than forty miles per hour either way – but, for many years, it provided a direct link between Memphis, Washington, and points to the north.

Because both N&W and Southern operated it, this train provides modeling opportunities for modelers of both railways.



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EXTRA**

## Historical consist notes

The railroad painted the cars of the Tennessean a plain silver with “Southern” lettering. They painted the motive power more elaborately: Southern diesels which handled this service had an attractive green and white scheme with yellow stripes, as can be seen in [1].

Car Type	Number	Assign
Baggage-Mail (60' Rolling Post Office (RPO) Section)	1700-1701	Wash
Baggage-Mail Storage	1750-1751	Wash
Baggage-Mail (30' RPO Section)	1725-1726	Chatt
Baggage/Dormitory/22-seat Coach	703-705	Wash
52-seat partitioned Coach	903-905	Wash
56-seat Coach	806-814	Wash
48-seat Diner	3303-3304	Wash
56-seat Coach	806-814	Wash
56-seat Coach	806-814	Wash
Tavern/Lounge/ Observation (flat rear end)	1150-1152	Wash
10-3 Sleeper (Pullman-Owned)		New
12-1 Sleeper (Pullman-Owned)		Brist
12-1 Sleeper (Pullman-Owned)		Chatt

Table 1. According to Wayner (see sources at the end of this article), the 10-3 (10 section, 3 double bedroom) sleepers assigned to the Tennessean were Villa Heights, Villa Nova, and Villa Verde. The 12-1 (12 section, 1 drawing room) sleepers assigned were Brentwood, Dahlonega, Knickerbocker, and Puritan.

The train, when inaugurated, included all-lightweight cars except for the heavyweight sleepers at the rear.

Like many Southeastern roads, the Tennessean featured a partitioned coach in order to comply with Jim Crow segregation laws. As these laws were phased out in the late '50s, so were the partitioned coaches.

The heavyweight sleepers included in the consist were

Assignment
Washington-Chattanooga
Washington-Chattanooga
Chattanooga-Memphis
Washington-Memphis
Washington-Chattanooga
Washington-Chattanooga
Washington-Chattanooga
Washington-Memphis
Washington-Memphis
Washington-Memphis
York-Memphis
Chattanooga-Nashville
Chattanooga-Memphis

Painted an aluminum color to match the rest of the sleek train. They were also 'shadow lined': a treatment was applied to the side of the car to imitate the fluted sides of the streamlined cars.

After World War II, the heavyweight sleepers were replaced with lightweights, with configurations such as 10 roomette-6 double bedroom, 14 roomette-4 double bedroom and 10 section-1 drawing room-2 compartment. A Budd 34-seat coach/bar/lounge replaced the original observation car in the late '40s.

After May 1944, a third baggage-mail car with a 60' railway post office section was provided

for expanded RPO service to Memphis and Chattanooga. It is unknown if this car operated between Memphis and Chattanooga alone, or if the car was added to the train to allow through service from Washington to Memphis.

In any event, if you are modeling the Tennessean after 1944, consider having at least two baggage-mail cars with 60' RPO sections between Washington and Memphis if you have the space.

More information on car assignments is available from Mike Condren's Tennessean web page at [condrenrails.com/MRP/Tennessean/Tennessean.htm](http://condrenrails.com/MRP/Tennessean/Tennessean.htm).

## Historical power notes

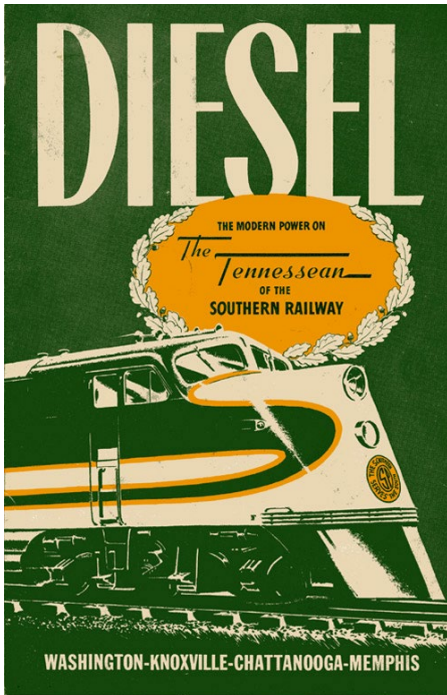
The Southern Railway had one of their attractive Ps-4 4-6-2 Pacific locomotives streamlined for service with

the Tennessean between Washington and Monroe, Virginia.

However, Southern was an early adopter of diesel power so this locomotive, #1380, was not on the Tennessean for very long. It went to the Washington-Atlanta pool after being retired from Tennessean service; it retained its streamlining to the end of its service life.

Over Norfolk & Western rails, the famous class J streamlined 4-8-4 locomotives handled the Tennessean to Bristol, where a Southern diesel would take over.

This could be an E-unit, an Alco DL-109 or an Alco PA



2. An EMD brochure describing the E-unit prominently featured its use on Southern's Tennessean.



**3. The Tennesseean at a stop in Johnson City, Tennessee. This appears to be a publicity run of the train since no head-end cars are present and the train didn't stop in Johnson City normally.**

unit. When the entire service was dieselized, these locomotives could be seen anywhere on the Southern portion of the route, though it seems that the E-unit was the most common power for the train.

The Tennesseean would be an excellent subject for any modeler of the Southern or Norfolk & Western in Tennessee or Virginia. One idea would be to model Lynchburg, Virginia, a town which had three major railroads running through downtown: the Norfolk & Western, the Chesapeake & Ohio, and the Southern.

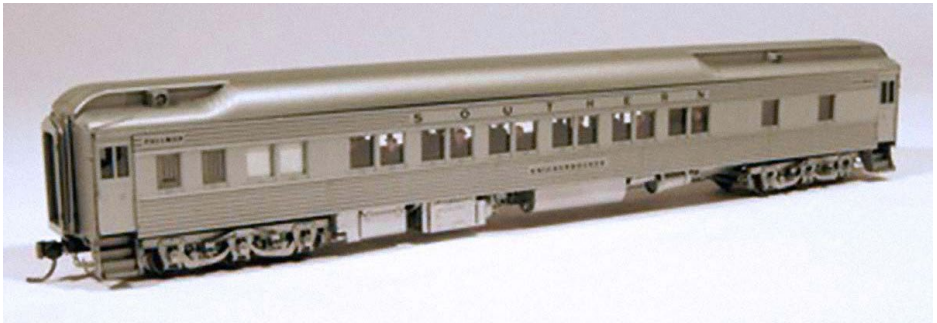
Lynchburg was where the Tennessean was handed off to the Norfolk & Western, so it would provide an opportunity to showcase both the tuscan and gold of the N&W and the Virginia green of the Southern. The same idea could be used to model Bristol, Tennessee, if you are pressed for space or uninterested in the C&O.

If you are modeling Knoxville, Chattanooga, Memphis, or Washington, D.C., then adding the Tennessean to your operating session would be as simple as finding or building the appropriate cars, power, and fitting it into your timetable.

Similarly, any points on the Tennessean's route could see it pass through once an operating session.

## Cars

Models of cars for modeling the Tennessean are indexed below [Table 2]. All Union Station Products sides are offered in multiple scales, including HO, N, S and O, making it easier to model the train in those scales. Union Station Products also



4. An HO scale Atlas-Branchline model of the Pullman 12-1 sleeper 'Knickerbocker' as used on the Tennessean. The car has been painted silver and 'shadow lined' to match the rest of the train. *Photo by Worthopedia*





5. Streamlined Ps-4 Pacific #1380 was a rare example of streamlined steam on the normally conservative Southern railway. This locomotive retained its streamlining until it was scrapped in 1953. *Photo by Heath Nicks*

offers core kits for convenience when ordering, though not in N scale to the author's knowledge.

Besides the cars listed, Union Station Products, as part as #9621-030, offers car sides for the Budd 34-seat coach/bar/lounge car which replaced the original observation car in the Tennessean consist in the late '40s.

The author has not been able to ascertain exactly what numbers these cars carried, though they were numbered from at least #950 to at least #955. Furthermore, car sides are offered for Southern 10-6 and 14-4 cars as #4140F and #4153C, respectively. Finally, Walther's and Atlas-Branchline both offered a 10-1-2 heavyweight sleeper which can also be used on the Tennessean.

The author has not been able to ascertain names or road numbers for these sleepers with relation to the Tennessean, or if later heavyweight 10-1-2 sleepers were also 'shadow lined.'

The power you use on the Tennessean will depend on the period and location you're modeling. The majority of the train on Southern rails was powered by diesels. In HO scale, Broadway Limited offers an EMD E6 unit painted in appropriate colors for the Tennessean with product #BLI-3272.

Car	Manufacturer
#1700-1701 Baggage-Mail	NKP Car Co. 'Southern Baggage/Mail' / USP #7462
#1750-1751 Baggage-Mail Storage	USP #7463
#1725-1726 Baggage-Mail	USP #7461
#703-705 Baggage/Dormitory/22-seat Coach	USP #7455
#903-905 52-seat Partitioned Coach	USP #7456
#806-814 56-seat Coach	USP #7457 (incorrectly listed as 52-seat)
#3303-3304 48-seat Diner	USP #7458
#1150-1152 Tavern/Lounge/Observation	USP #7460
10-3 Sleeper	NKP Car Co. 'Pullman 10/3 Villa Seating'
12-1 Sleeper	Atlas Branchline #B5300* NKP Car Co. Pullman 12 section / Walther's #932-10001*

Table 2. Model car directory, HO scale. Manufacturer links:

Atlas – [shop.atlasrr.com/c-1097-ho-branchline-passenger-car-kit](http://shop.atlasrr.com/c-1097-ho-branchline-passenger-car-kit)

NKP – NKP Car Co., [nkpcarco.com](http://nkpcarco.com)

USP – Union Station Products, [unionstationproducts.com](http://unionstationproducts.com)

Walthers – [walthers.com/pullman-heavyweight-12-1-sleeper-real](http://walthers.com/pullman-heavyweight-12-1-sleeper-real)

The same unit is offered in N scale as product number #BLI-1664. Bachmann currently produces a Southern E7 unit in appropriate colors as product #66602.

The Alco DL-109 was also seen in service on the Tennessean. Walthers Mainline series offered a DL-109 in appropriate Southern colors as product #910-9106, though it is now discontinued.

The same product was offered by Walther's in N scale as product #929-50207. The Alco PA, which was also seen on this

service, was offered in N scale by Con-Cor as product #1-202020. Con-Cor also offered dummy A and B units in the same colors.

If your interest is steam, the Southern streamlined 4-6-2 #1380 has only been offered in brass, to the author's knowledge.

Precision Scale Co. made a very limited 200-unit production run of the locomotive in HO scale in the 1990s, and these units go for around \$1,000 on the second-hand market (PSC also made an 8-car set of prototypically correct Tennessean cars, but these are so rare that they have not been listed in the cars section).

The N&W J class is readily available from Broadway Limited Imports as product #BLI-2551. In N scale, Bachmann makes the

Mail 85'
2-seat)
eries'
1 DWG RM

[ts.aspx](#)

[dy-to-run-pullman](#)

J-class as product #82153. Bachmann also made an HO scale version though it is no longer produced.

## Operations

The Tennessean offers a good operating potential for medium and larger size layouts. Like all streamliners, it takes a good amount of space to faithfully recreate the Tennessean. It



6. An Alco DL-109 handles an eastbound Tennessean out of Memphis. Southern used a variety of diesels on their passenger trains, providing modeling opportunities for fans of both EMD and Alco. *Photo by Phil Gosney*

would be difficult to recreate the whole train in larger scales on all but the largest layouts.

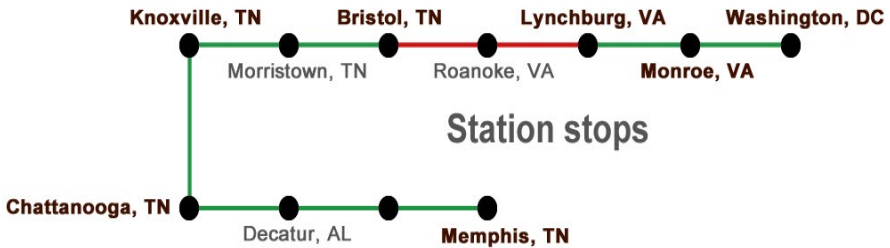
Consist length can vary based on specific layout characteristics, but generally it will take at least seven or eight cars to recreate the character of the Tennessean. A suggested consist might include:

## The Tennessean

*Created by Jonas Nilender*

#45 Westbound

#46 Eastbound



— Southern Railway  
— Norfolk & Western



7. A large amount of operating activity on the Tennessean took place at Chattanooga and Knoxville. This means that if you're not modeling the terminuses of this train, these two locations make good candidates, as well as Bristol and Lynchburg, as mentioned earlier. The Southern diesel image is from a Tennessean brochure. Note that only station stops are shown.

1. At least one baggage-mail car: #1700-1701 60' baggage-RPO if before Chattanooga, and #1725-1726 30' if after Chattanooga
2. #703-705 baggage/dormitory/22-seat coach
3. #903-905 52-seat partitioned coach
4. #3303-3304 48-seat diner
5. #806-814 56-seat coach
6. #1150-1152 tavern/lounge/observation
7. One or two sleepers: heavyweight if 1940s, lightweight afterwards

These are only suggestions, of course.

In general, when modeling the Tennessean, you should strive to include at least some head-end cars, a handful of coaches (including possibly the partitioned coach, to establish this as a southern train in the time of Jim Crow), the diner in the middle of the train, and the unique tavern/lounge/observation car.

Sleepers should round out the end of the train to allow more operating potential enroute. If you are modeling in N scale or have more space in larger scales, you can recreate the complete train as it is not overly large. It may take a while to construct each of the cars from side kits, however, especially in N scale.

## The Tennessean

### Southern Railway and Norfolk & Western Railway

#### Station stop notes:

**Washington, D.C.:** At Washington, Train 45 connected with PRR trains 101 and 107 on a daily basis. Train 101 was a

sleeper train and carried a through sleeper from New York to Memphis, while 107 was a coach-only train.

Train 46 connected with PRR train 108 on a daily basis, and train 160 every day except Sunday. Train 108 was a sleeper train and handled a through sleeper from Memphis, while train 160 was a coach train. Train 198 connected with Southern train 46 on Sundays.

**Monroe:** Streamlined 4-6-2 #1380 was taken off the train at Monroe, Virginia, and replaced by a Southern diesel.

**Lynchburg:** At Lynchburg, the train was transferred to N&W power.



8. A Norfolk & Western J class 4-8-4 handles the Tennessean around a bend. The Tennessean's routing was somewhat unusual for a joint train but was similar to that of other Southern trains like the Birmingham Special. *Photo by Phil Gosney*

**Bristol:** In Bristol, the Tennessean was transferred back to Southern diesels.

**Knoxville:** Inconvenient train times at Knoxville (the train passed through in the middle of the night) resulted in a 12-1, then 10-1-2 sleeper being added to the train in 1944. This sleeper operated between Memphis and Knoxville, set out by #46 and picked up by #45.

**Chattanooga:** Originally, dining car service was only provided between Washington and Chattanooga. In 1946, this was shortened to a Washington-Knoxville service. Before 1946, #46 would set out its dining car here and #45 would pick it up on its way east. After 1946, the same operation would take place at Knoxville.

One 60' RPO/baggage car was set out here and replaced with a 30' RPO/baggage car.

The shortest sleeper service on the Tennessean was between Chattanooga and Memphis. This was originally a 12-1 sleeper, then a 10-1-2 in 1950, followed by an 8-1-restaurant-lounge car in 1951. A sleeper was picked up by #46 and set out by #45 here.

A through sleeper from Bristol to Nashville via Nashville, Chattanooga & St. Louis (NC&StL) train #3 and #4 was set out at Nashville from the inauguration of the train. This car was later extended to operate Washington-Nashville and was originally a 12-1 sleeper until being replaced by a 10-1-2 in 1951.

**Memphis:** #45 terminated in Memphis and stayed until the evening, when it returned in the other direction as #46.

As mentioned before, a good idea for an entire layout would be Lynchburg, Virginia, which saw three major railroads running right through downtown, and several trains a day, including the Tennessean.



If you model anywhere else along the Tennessean's line, including the terminuses at Washington and Memphis, then the Tennessean can still form a part of your timetable. Reference the operation diagram above for ideas about operating potential on the Tennessean's route.

Like many streamliners, the days of the Tennessean are long past, but recreating the majesty of this train may be easier than you think.

## FLAT-END OBSERVATIONS: A SOLUTION TO A COMMON PROBLEM

Like many things, observation cars were more popular with railfans than they were with the railroads.

It was difficult to provide facilities for turning the cars at each end of the line, time-consuming to turn them, and it was impossible to run traditional open-ended or boat-tailed observations in the middle of a train. Few passengers wished to jump from the swaying platform of one car to the vestibule of another while rattling along at 70 miles per hour!

A solution found in the lightweight car era was the flat-end observation car. Rather than the traditional boat-tail featured on many popular streamliners, such as the 20th Century Limited and the Broadway Limited, the flat-end observation car could be switched into the train at any location.

This was also a boon for observation cars which featured a tavern, since passengers were more likely to purchase a drink if the tavern was next to the dining car. The dining car

## FLAT-END OBSERVATIONS: A SOLUTION TO A CO

was usually in the middle of the train, meaning a traditional observation car could not fulfill this niche.

Flat-end observations often occupied their familiar place at the end of the train, though, providing a place to look out the windows as the scenery rolled past. Their much-increased convenience compared to boat-tailed observation cars meant that they were used by many roads.

On the Tennessean, the flat-end observation car was used to allow sleepers to be switched in and out of the consist enroute. Some cars, like those for the *Tennessean*, were purpose-built to be flat-ended. Other cars were converted from boat-tailed observations by squaring off the end.



9. Tavern/observation/lounge #1150, a flat-end observation car used on the *Tennessean*. Photo by Phil Gosney

COMMON PROBLEM *CONTINUED ...*

Some roads, like the Denver & Rio Grande Western, simply added a housing to a traditional observation car that allowed a diaphragm to be run to the next car in the train, thus fulfilling the role – if not the appearance – of a flat-ended observation car.

Adding a flat-ended observation car is a good kitbashing project and adds interest to your passenger trains. It also allows you to run an observation car in a feeder train that doesn't have to be switched to place the observation car on the end of the train, thus allowing you to get away with having both a flat-ended and boat-tailed observation in the same train.

For tips on kitbashing a flat-ended observation car, see George Drury's Model Railroader article, April 1979, Page 84. ■



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## JONAS NILENDER



Jonas started in the hobby at a young age by watching "Thomas the Tank Engine" and visiting various model railroads. He lost interest in modeling for several years but came back to it recently.

Jonas' hobby interests are very passenger-based and include building passenger cars and operating passenger trains from the transition era.

Outside of the hobby, Jonas likes drawing, writing, theater, and singing. He goes to North Carolina State University and is studying for a degree in Mechanical Engineering. ■

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# SAVVY MODELER *Online*



Model Railroad Hobbyist | September 2019



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## Making awesome foreground conifers

In this 6 minute video, modeler **Maaïke Broek** shows how he makes some fabulous looking foreground conifers. This technique requires enough handwork that it's not for background conifer forests, however. He calls this "part 2" because he has an older video on deciduous trees (nice trees, blurry video): [youtu.be/u44LAaNoZgI](https://youtu.be/u44LAaNoZgI) ■



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# SEPTEMBER NEWS

## column



Model Railroad Hobbyist | September 2019 | #115

**RICHARD BALE** and  
**JEFF SHULTZ** report the  
latest hobby industry news



## INDUSTRY NEWS

**San Juan Model Co.** of Arvada, Colorado has purchased Rail Graphics, the Chicago-based manufacturer of high-quality specialized decals for model railroad kit manufacturers and hobbyists. SJM is in the process of moving the equipment, including artwork, to Colorado. In addition to its own line of decals sold under the Leadville Shops brand name, San Juan Model Co. acquired San Juan Decals from the estate of Dan Peterson in the fall of 2017.

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## NEW CLUB CARS



**Crescent City Model Railroad Club** in Metairie, Louisiana, is selling an HO scale kit for a Crescent Lines

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ACF Center-Flow covered hopper. The custom decorated model was produced for CCMRC by Accurail. The kit is available for \$30.00 plus shipping. All proceeds from the sale of the model go toward the club's building fund. For full details visit [www.ccmrc.com](http://www.ccmrc.com).

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## NEW PRODUCTS FOR MULTIPLE SCALES

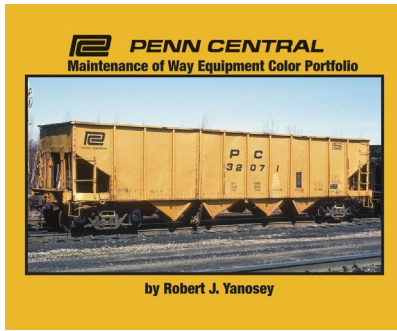
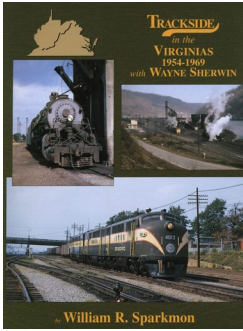


MicroBond is a specialized industrial-strength bonding system available from **Microscale Industries**. MicroBond is reported to have good shear strength and withstands expansion and contraction of different materials. It will successfully bond to rubber, brass, steel, resins, leather, wood, and assorted

ABS and styrene plastics. The material bonds in seconds and cures in about 5 minutes. MicroBond is not suitable for foam surfaces.

MicroBond is available in three viscosities including Thin for gap filling projects, Medium for applying directly the material before bonding, and Thick when a longer bond time is needed for positioning parts. For bonding engineering plastics such as Delrin, or Celcon, the bonding surface requires the application of MicroPrep. MicroBond and MicroPrep are available in a complete set or individually. Adult supervision is recommended as there are safety issues in the use of this material. MicroPrep cannot be shipped by airmail, priority mail, or internationally. For additional information contact a Microscale dealer or visit [microscale.com](http://microscale.com).

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New publications from **Morning Sun Books** include *Trackside in the Virginias* in which author William R. Sparkmon

presents full-color illustrations of the railroads of both Virginia and West Virginia during the late steam to early diesel transition period. Scheduled for release this month is a new Robert J. Yanosey color portfolio titled *Penn Central Maintenance of Way Equipment*. Despite its chronic financial problems, the Penn Central assembled an extensive array of equipment to keep its property in operable condition. The softcover book features everything from ballast hoppers to jet engine snow blowers. For additional information contact a dealer or visit [morningsunbooks.com](http://morningsunbooks.com).

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**Motrak Models** is introducing a new line of easy-to-build kits called the “Mistie Street Series.” Each kit will have a limited run of 100 kits. The first kit of the series is The Watch Tower, which is also Motrak’s second release from the North East Scale Models line. Available in HO and N scale, the kit consists of only laser-cut materials, without any additional detail parts.

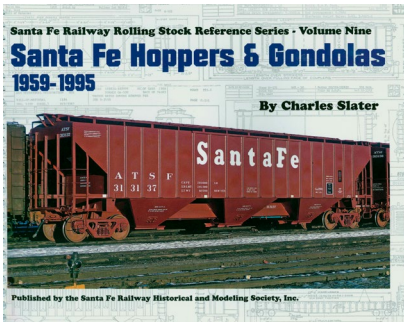
Andi’s Sandwich Shop & Newsstand, the second kit in the Mistie Street series, will be available in N, HO, S and O scales. A laser-cut wood structure kit, it includes all signage as well as laser-cut walls and tarpaper, with laser-cut or plastic



window and door depending on scale. Designed to be built in two days, the kit will be available in N, HO, S and O scales. The kit will ship in September. Photos are of the HO structure.

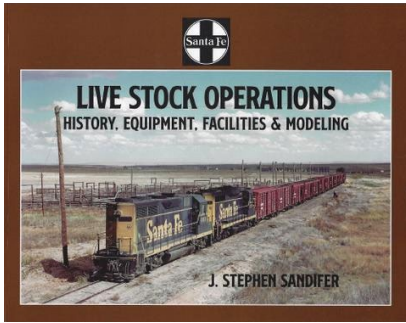


Also announced in N, HO, S, and O scales is an Industrial Water Tank and pump house. The kit includes laser-cut tarpaper, tank walls, and pump house walls, and stick pieces and piping. For more information see [motrakmodelsusa.com](http://motrakmodelsusa.com).



**The Santa Fe Railway Historical and Modeling Society** has released *Santa Fe Hoppers & Gondolas: 1960-1995*, by Charles Slater. This 256 page soft cover book is volume nine in the society's ATSF rolling stock reference series. It documents 107 classes with roster, painting and lettering information.

This volume covers the Ga class of cars that Santa Fe owned from 1960 to the BNSF merger in 1995. It includes two cars, the Ga-76 class 65-foot mill gondola and the Ga-107 class Hurley ore car, that were listed but not illustrated in volume seven *Santa Fe Open-Top Cars: Flat, Gondola and Hopper Cars 1902-1959*. For more information visit [sfrhms.org/product/santa-fe-hoppers-gondolas-1960-1995](http://sfrhms.org/product/santa-fe-hoppers-gondolas-1960-1995).



*Santa Fe Live Stock Operations* by J. Stephen Sandifer is now available from McMillan Publications. From its earliest days, livestock meant big business for the Atchison, Topeka & Santa Fe Railway. In 1884 Santa Fe shipped 800,000 head of cattle from Dodge City alone. Thoroughly researched and liberally illustrated,

this is the story of Santa Fe's livestock operations, including its history, a roster of unique livestock equipment, and the extensive infrastructure required to support the business. Sandifer touches on the rules and regulations governing the traffic, rodeo, and circus trains, Railway Express shipping, as well as modeling this fascinating part of Santa Fe's legacy. The 8.5 x 11-inch 256-page soft cover book includes over 140 color photos and more than 300 black & white photos and diagrams. For additional information contact a dealer or visit [www.mcmillanpublications.com/products/santa-fe-live-stock-operations-history-equipment-facilities-and-modeling-sandifer](http://www.mcmillanpublications.com/products/santa-fe-live-stock-operations-history-equipment-facilities-and-modeling-sandifer).

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**MSC**, a major distributor of professional metal working products, sells a wide range of precision jeweler-quality micro drill bits. Brand names for cobalt and solid carbide micro drill bits include M.A.Ford (above), Guhring, OSG, and Walter-Titex. For additional information visit [www.mscdirect.com/browse/tn/Holemaking/Drilling-Drill-Bits/Metalworking-Multipurpose-Drill-Bits/Micro-Drill-Bits?navid=12106217](http://www.mscdirect.com/browse/tn/Holemaking/Drilling-Drill-Bits/Metalworking-Multipurpose-Drill-Bits/Micro-Drill-Bits?navid=12106217).

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## O SCALE PRODUCT NEWS



**Frenchman River Model Works** is selling a kit for a 1:48 scale 32-foot Combination Fishing Boat. Components of the waterline kit include laser-cut detail parts and resin and pewter castings.



Prototype boats of this type regularly handle gill net, purse seine, or long line fishing. The model was designed using blueprints from the H.C. Hanson Naval Architect Collection, Whatcom Museum of History and Art, Bellingham, Washington. For

additional information visit [frenchmanriver.com](http://frenchmanriver.com).



**Motrak Models** has announced the O scale Valley Hardware & Plumbing Supply. The 9 x 10 x 12-inch structure includes laser-cut clapboard walls, windows, shake shingles, foundation, porch, stair stringers, and railings. Also included are Tichy doors and lamp shades. The kit is limited to a production run of 20 kits. For more information visit [motrakmodelsusa.com](http://motrakmodelsusa.com).



**Smoky Mountain Model Works** is selling a prototypically accurate kit for an O scale Southern

Railway 41-foot 6-inch low-side gondola. The kit features a one-piece cast resin body with a separate underframe casting, a brass weight, and numerous detail parts. The kit is available with a choice of either Roman or Block/Gothic decals. The illustration is an S scale version of the model. For additional information visit [smokymountainmodelworks.com](http://smokymountainmodelworks.com).

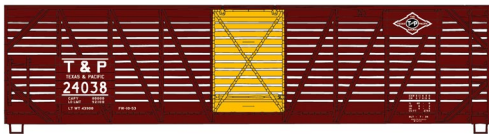
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## HO SCALE PRODUCT NEWS



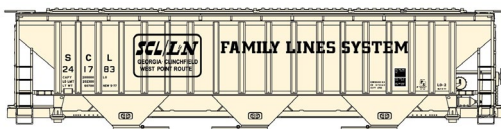
**Accurail** has released several new kits for HO scale freight cars including one for this Chicago & North Western USA twin-bay open hopper car.

The model is based on a prototype class HM coal hopper built in 1923.



Accurail's kit for this 40-foot Texas & Pacific stock car includes both yellow doors (for a double

deck car) and brown doors (single deck). The prototype of the wood stock car with a steel frame was built in 1933.



Accurail has a kit for a Pullman Standard triple-bay covered hopper decorated for SCL/Family Lines.

The HO scale model is based on a 4750 cu. ft. prototype built in May 1977.



Accurail's HO scale kit for this 40-foot Milwaukee Road PS-1 steel boxcar with a Youngstown sliding door displays a Route of the Hiawathas slogan.



This Fowler wood boxcar with Howe truss exterior frame was built for the Erie Railroad in 1913. The car had an interior length of 36 feet.



Chicago Great Western took delivery of this Pullman Standard triple-bay covered hopper in September 1966.

Accurail's HO scale kit is stenciled Not For Cement Loading. All Accurail kits include appropriate trucks and Accumate knuckle couplers. For additional information contact a dealer or visit [accurail.com](http://accurail.com).



**Athearn** is planning a January 2020 release date for a new run of SD45-2

diesels. The HO scale Genesis series model is based on a Dash-2 version of EMD's 20 cylinder 3600 hp locomotive that was 3 feet longer than the original SD45 and rode on high-adhesion trucks.

In addition to the Santa Fe blue and yellow freight version, decorating schemes will include Santa Fe Bicentennial (with shield on





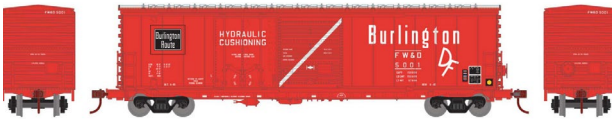
the handrail aft of the cab), Conrail, Erie Lackawanna, Clinchfield, CSX, HATX Helm Lease, and both SF and SPSF Kodachrome schemes. In addition to having Athearn's new LED lighting and rubber MU

hoses, sound versions of the SD45-2 will feature SoundTraxx's recording of an actual 20-cylinder 645E3 prime mover.



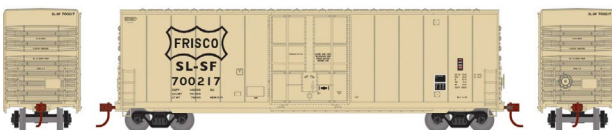
Athearn's July 2020 locomotive schedule concludes with a Genesis series

SD70. Road names will include Canadian National, Canadian National (ex-IC), Conrail, Norfolk Southern (Horse Head scheme), and Norfolk Southern (ex-Conrail patch). Athearn DCC-ready locomotives operate on standard DC and come with a QuickPlug 21-pin NEM connector for installation of an aftermarket decoder. DCC models have a factory installed DCC decoder with SoundTraxx Tsunami2 sound.



Ready-to-Roll freight cars on Athearn's July 2020 production schedule

include a 50-foot 6-inch boxcar with a combination plug door and 8-foot Youngstown sliding door. Road names will be Chicago, Burlington & Quincy; Richmond, Fredericksburg & Potomac; SSW-Cotton Belt, Denver & Rio Grande Western, Milwaukee Road, and Canadian Pacific.



Roundhouse brand models coming from Athearn next

summer include a 50-foot high-cube plug-door boxcar. The HO scale model will be produced from former MDC tooling. In addition to the SL-SF Frisco car shown above, the model will be available decorated for Burlington Northern, Santa Fe, Burlington Northern Santa Fe, Iowa Northern Railway, SSW-Cotton Belt, and Golden West Service. The model will be equipped with appropriate trucks with machined metal wheelsets.



This 40-foot triple-dome tank car is scheduled for release next July under the Roundhouse brand name. The HO scale

model was originally introduced by Athearn in 1957 and has subsequently received several upgrades including body-mounted knuckle couplers and appropriate trucks with machined metal wheels. In addition to Deep-Rock, road names will be Shell Chemical, Sun Oil, Union Tank Car, Cook Paint & Varnish, and General American Tank Car.



Also coming from Roundhouse next summer is a 50-foot flat car

decorated for Alaska Railroad, Denver & Rio Grande Western, Illinois Central, Ferrocarriles Nacionales de México, and CIL Monon (Chicago, Indianapolis, & Louisville Railway). A gray Maintenance of Way version will also be in the release. Although not shown in the illustration the HO scale ready-to-run model will come with side stakes. For additional information on all Athearn and Roundhouse products contact a dealer or visit [athearn.com](http://athearn.com).



**Bachmann Trains** has scheduled a fall delivery date for a trio of HO scale old-time wood passenger cars. Body types include a coach, combine, and baggage car.



Features of the truss rod-era passenger cars include a clerestory roof, open vestibule, and four-wheel wood beam trucks. Road names will be Santa Fe and Baltimore & Ohio.

For additional information contact a dealer or visit [bachmann-trains.com](http://bachmann-trains.com).



**Bowser** is taking reservations for HO scale versions of Baldwin diesel

road switcher locomotives produced from the late 1940s through the mid-1950s. Delivery of the Executive series models is planned for April 2020. The selection includes the original DRS-4-4-15 1500hp and the outwardly identical 1600hp AS16 units. Both ride on 4-wheel B-B trucks. They will be available for Baltimore & Ohio, Erie, Erie-Lackawanna, Soo Line, and Durham & Southern (ex-Soo).



Baldwin road switchers with 6-wheel A1A-A1A trucks with

unevenly spaced axles include the 1948-1950 DRS-6-6-1500 decorated for Duluth, South Shore & Atlantic; Soo (ex-DSSA), and Union Railroad.



Additional locomotives with 6-wheel trucks with unevenly

spaced axles include an AS416 in Norfolk Southern's red and yellow scheme, and AS616 units decorated for Baltimore & Ohio, Chesapeake & Ohio, DSSA, Milwaukee Road, Penn Central, and Pittsburg & West Virginia. Bowser's Executive series Baldwin road switchers feature MU hoses, air hoses, individual windshield wipers, operating headlights, blackened nickel silver wheels, and knuckle couplers. The locomotives will be available with LokSound sound and DCC installed. They will also be available for analog DC operation with a 21-pin socket for installation of an aftermarket decoder. For additional information contact a dealer or visit [bowser-trains.com](http://bowser-trains.com).

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**Broadway Limited Imports** is selling HO scale models of Baldwin's distinctive 1600hp Sharknose diesel locomotives. A and B units are available decorated for Pennsylvania Railroad with five gold stripes in both Brunswick green and the post-1950 Tuscan red.



Additional road names for the diesel include New York Central and Delaware & Hudson.

Baltimore & Ohio units and undecorated models are also available. The HO scale models feature Paragon3 Sound & Operating System with Rolling Thunder sound in both DC and DCC



environments. For additional information contact a dealer or visit [broadway-limited.com](http://broadway-limited.com).



Chevy Cameo in Alpine Blue, Omaha Orange, and Golden Yellow, and a 1950 Plymouth Sedan in New Brunswick Blue, Shore Green, and Palm Beige.

**Classic Metal Works** has released several new HO scale vehicle models, including a 1957



A White WC22 Tractor Trailer set is available in two Coca-Cola and a Ford Exchange Engines schemes.



flatbed truck with bricks, blocks and a wheelbarrow.

Also available are a 1960 Ford stakebed truck with 1960s Coca-Cola details, and a 1957 Chevy



Finally, Classic Metal Works has released three 1950s

country billboards advertising Coca-Cola, Hostess, and Planters Peanuts. For more information contact your dealer or visit [round2corp.com](http://round2corp.com).

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**InterMountain** showed several preproduction samples of PFE wood refrigerator cars at a recent RPM meet

held in Collinsville, MO. The HO scale models feature artwork prepared by PFE historian Dick Harley. Class R-30-13-18 reefers will be available with a single herald (above), with double heralds, and with a black stripe at the top of the side. PFE R-40-19 reefers built in 1923 and rebuilt in 1944 with convertible ice bunkers will display a single herald.



PFE R-30-12-18 ventilated refrigerator cars built in 1923 and rebuilt in 1941 have a bold boxcar red stripe at the

top and bottom of the side.



Completing the series is a class R-30-21 reefer built in 1924 and rebuilt in 1946 with a single herald and with both an SP

herald and a three-color UP shield. Multiple car numbers will be available for each version. For additional information contact a dealer or visit [intermountain-railway.com](http://intermountain-railway.com).

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**Kadee** has scheduled a late summer release for this HO scale Missouri Pacific 50-foot PS-1 boxcar. Details include full-height



ladders, a running board, Pullman Standard 8-foot sliding doors, and Bettendorf-type plain-bearing trucks.



Coming from Kadee this fall is a PS-2 twin-bay covered hopper decorated for Pennsylvania Railroad with a shadow key-stone herald. The HO scale

ready-to-run model reflects a prototype Pullman Standard delivered in 1955 in alkali resisting light gray paint. For additional information contact a dealer or visit [kadee.com](http://kadee.com).

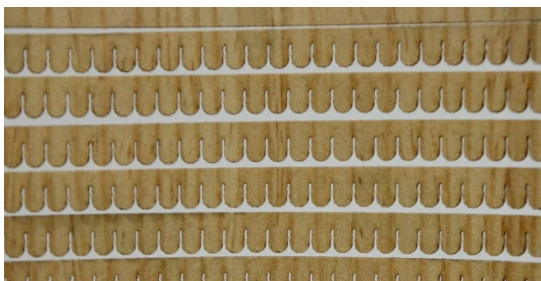
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**Lines West** has released a Milwaukee Road 1956 Thrall built bay-window caboose detailed for 1970s service. The caboose features scale 33-inch

turned metal wheels, cushion draft gear designed for Kadee #148 couplers, AB brake set, 1970s era specific decals, a jig for bending MILW style caboose grab irons, and wire to make grab irons. For more information see a dealer or visit [lineswestproducts.com](http://lineswestproducts.com).

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**Maple Leaf Trains** has a full selection of HO scale shingles featuring self-adhesive backs. The laser-cut shingles are available in natural veneer and treated and

painted craft cardboard, with eight different shapes and six colors plus natural veneer. Ridge-caps are also available. For more information see a dealer or visit [mapleleaftrains.com](http://mapleleaftrains.com).

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**Mine Mount Models** has announced an Industrial Racking detail kit in HO scale. The kit includes six uprights with all horizontal bars, six with top bars at an angle, and three with one sided racks that are found against walls and fences. The racks are laser-cut from 1/32-inch laserboard with 1/16-inch square basswood to create racks from 2 to 12 inches in length. For more information visit [minemount-models.com](http://minemount-models.com).

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**Motrak Models** has announced the re-release of their first structure kit from 2006, The Little Depot. Loosely based on a depot outside of St. Paul, MN, the kit includes laser-cut wood walls, shake shingles, and roof supports. Details include

Tichy windows and door and two scale 6-foot long benches. The benches, shake shingles, and wooden platform are new for this kit. The kit is limited to a run of 50 kits. For more information visit [motrakmodelsusa.com](http://motrakmodelsusa.com).

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As published in the July 2019 issue of MRH, **Rapido** announced plans to produce 11 of the 14 distinctive cars of the Rio Grande Ski Train. The initial response for the HO scale cars was far greater than anticipated with a large number of the responders also wanting to order the three cars left off Rapido's original offer.



**Spring Creek Model Trains** of Deshler, NE, has partnered with Rapido to offer the three missing cars.

They are identified as parlor/club car Idaho Springs, coach Mount Bierstadt, and coach/snack car Shavano Peak. Hobbyists wanting the full 14-car Ski Train can order 11 from Rapido or a Rapido dealer, and the final three from Spring Creek Model Trains. For additional information visit [www.springcreekmodeltrains.com/product/spring-creek-exclusive-ho-scale-rapido-rio-grande-ski-train-passenger-car-set](http://www.springcreekmodeltrains.com/product/spring-creek-exclusive-ho-scale-rapido-rio-grande-ski-train-passenger-car-set).



**ScaleTrains.com** has opened Rivet Counter GE Tier IV pre-orders for

Kansas City Southern “Southern Belle” and two Canadian National commemorative paint schemes – CN 100th Anniversary and CN Indigenous People. Additionally, CSX #3440 “Spirit of Ravenna”, benefitting the Kentucky Steam Heritage Corp., is being re-run and more road numbers for BNSF, CN, CSX, Norfolk Southern, and Union Pacific were included in the announcement. Three new road

numbers for each road will be available in the Operator line for BNSF, CN, CSX, NS, and UP. Delivery is anticipated in Spring 2020. For more information see your dealer or [scaletrains.com](http://scaletrains.com).

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Marc Simpson Collection

**Sylvan Scale Models** is soliciting reservations for a limited run of HO scale kits for a CN eight-hatch covered hopper. Accurate Canadian National noodle decals are

included with the kit. The challenge in building kits for this type of car has always been in assembling the end cage. Sylvan's newly developed etched metal end cage solves that modeling problem. The new end cages are included in this kit and are also available separately. For additional information visit [sylvanscalemodels.com](http://sylvanscalemodels.com).

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**Tangent Scale Models** has released another production run of its HO scale PRR X58 exterior-post boxcar. Based on measurements of the full-size

X58 at the Rail Museum in Danbury, Connecticut, Tangent's HO scale version faithfully reproduces the more than 2,500 prototype cars built between 1964 and 1966. Features include extended-length draft sill, see-through running board, wire grab irons, and formed wire trombone-style uncoupling bars. During their useful life X58 cars wore a mix of Penn Central, NYC, and Conrail paint schemes as well as the original 1965 PRR version shown above with a yellow Cushioned Car tag.



Additional schemes include Penn Central 1974 repaint with a white PC worm (above) and a 1998 restenciled NYC-CSX car.



Tangent also offers the X58 decorated as a PC 1974 green repaint, a 1978 Conrail repaint with a high brake wheel and ladders at the B end and short-

ened ladders at the A end, and two variations of Lehigh Valley cars restenciled for Conrail. Road specific details on Tangents X58 boxcar include high or low ladders and brake appliances, Keystone or Hydra-cushion underframes, and center door locking arm variations. All versions come with Kadee couplers and ASF 70-ton roller-bearing trucks with 33-inch machined metal wheelsets. In addition to an undecorated kit, Tangent is offering fully-assembled X58s ready for decaling. The undecorated cars are painted PRR freight car red, Penn Central green, and Conrail red. For additional information visit [tangentscalemodels.com](http://tangentscalemodels.com).

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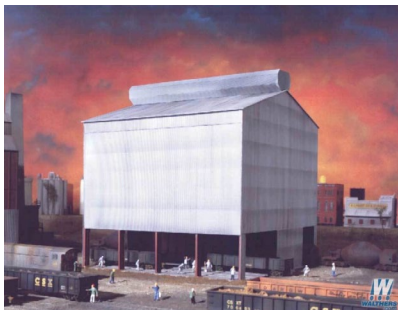
**Walthers** is quoting a November delivery date for two Mainline series 40-foot AAR boxcars decorated for United Parcel Service. The HO scale

ready-to-run model will be available with a traditional UPS herald and a globe logo (above), and with a modernized UPS herald and a gold stripe across the middle of the car side.



Each scheme will be available in three road numbers.

Walthers is re-issuing five HO scale kits that collectively make up an impressive steel-producing complex. The structure kits will be released over five months beginning this December with



an Electric Furnace (above left), followed in January 2020 by a Coke Oven and Quench Tower (above right).



The Blower Engine House (above left) will be released in February. A kit for a Rolling Mill and Reversing Mill Stand is planned for March. Walthers steel producing complex will be completed in April with the release of the Blast Furnace (above right).



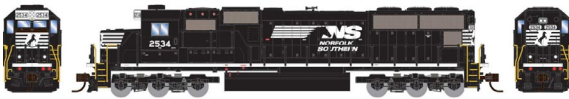
Specialized HO scale rolling stock for operation at the steel mill will include a Hot Metal Bottle Car (left) to move molten iron from the blast furnace to the electric

furnace, and a Slag Car (next).



Both ready-to-run HO scale cars will be available next June. For additional information contact a dealer or visit [walthers.com](http://walthers.com).

## N SCALE PRODUCT NEWS



**Athearn's** July 2020 production schedule includes an N scale

SD70 diesel locomotive. Road names will be Norfolk Southern, Illinois Central, CN, Conrail, National Railway Equipment, SPSF (Kodachrome scheme), and three EMD Demonstrator schemes. Road names will be Baltimore & Ohio-Chessie System, Chicago & North Western, Rio Grande, Green Bay & Western, Louisville & Nashville, and Rock Island.



Features include see-through cab windows, Celcon

handrails, illuminated front and rear headlights, and nickel plated blackened machined wheels. The N scale locomotive operates on standard DC layouts. It is DCC-ready for a replacement decoder circuit board that is available for purchase separately.



N scale freight cars coming from Athearn next summer include this 50-foot high-cube

boxcar with plug-doors. The ready-to-run model will be available decorated for SSW-Cotton Belt, SL-SF Frisco, Burlington Northern, Santa Fe, Burlington Northern Santa Fe, Iowa Northern Railway, and Golden West Service.



The boxcar will be equipped with appropriate trucks with machined metal wheelsets.



Completing Athearn's mid-summer release of N scale models is a 40-foot triple-bay open hopper with ribbed sides. The model comes with a removable load and features a separately applied brake wheel, machined nickel silver wheels, and body-mounted knuckle couplers. Road names will be Union Pacific, Norfolk Southern, CSX, RJ Corman, Herzog, Alaska Railroad, and Conrail.



Athearn's N scale hopper cars will be available singly and in four-packs. For additional information contact a dealer or visit [athearn.com](http://athearn.com).



**Broadway Limited Imports** is selling an N scale model of EMD SD70ACe diesel locomotive in 13 paint schemes plus an undecorated version. In addition to a black and white Norfolk Southern scheme, NS Heritage paint

schemes are available for Erie, New York Central, Reading, and Penn Central.



& Rio Grande Western (below), Chicago & North Western and Southern Pacific.



Union Pacific models are available in UP's Building America scheme as well as UP's retro heritage designs for Western Pacific (above), Missouri Pacific, Missouri-Kansas-Texas, Denver

chassis and an ABS plastic body. They come with golden white LED headlight and rear light. For additional information contact a dealer or visit [broadway-limited.com](http://broadway-limited.com).

The N scale locomotives feature BLI's Paragon3 Sound & Operating System with Rolling Thunder for operation in both DC and DCC environments. The models have a diecast metal



**Classic Metal Works** has announced two new vehicles in N scale. The first is a 1950 Plymouth Sedan, which will come in New Brunswick Blue, Shore Green, and Palm Beige.



Also announced is a White WC22 tractor trailer set decorated in two Coca-Cola schemes and Ford Exchange Engines. For more information contact a dealer or visit [round2corp.com](http://round2corp.com).



R. Bale

## GG1 ELECTRIC

The famed GG1 electric locomotive entered service on the Pennsylvania Railroad in 1935 and later served on successor railroads Penn Central, Conrail, and Amtrak. A pantograph on each end of the locomotive body collected 11,000 VAC from overhead wires. Twelve 385-horsepower traction motors drove the GG1's 57-inch driving wheels. The two-piece frame of the locomotive allowed it to negotiate tight curves and confined station tracks. In operation the rear pantograph was generally used with the forward unit lowered. In the event of a high-speed failure the rear pantograph would not strike and disable the front pantograph. The iconic design of the GG1 is the combined work of Donald Roscoe Dohner and Raymond Loewy, who was called in late by PRR to enhance the GG1's aesthetics. Loewy's contributions included replacing the riveted body with a smooth welded design and adding the five gold pinstripes and Brunswick green paint scheme. In 1952, the paint scheme was changed to Tuscan red. Three years later the pinstripes were simplified to a single stripe and large red PRR keystone was added.



**KatoUSA** has announced plans to produce an N scale version of the Broadway Limited, the Pennsylvania Railroad's premier New York-to-Chicago passenger train. Both EMD E8A diesel and GG1 electric locomotives will be

available. The GG1 will come in both Brunswick green and Tuscan red. Both liveries will feature the five-gold stripes. Options include analog DC as well as factory installed DCC. A black GG1 decorated for Amtrak and Penn Central will be available for DC operation only.





Kato will offer its N scale version of the EMD E8A diesel decorated in the Tuscan red scheme with five gold stripes. It will be available for analog DC operation, with preinstalled DCC, and with ESU LokSound DCC and sound. Availability on all the locomotives mentioned will be during the first quarter of 2020.



Kato's reissue of the Broadway Limited includes new names and numbers on 11 Tuscan red cars. The cars will be sold in a ten-car set

consisting of a Bm70M baggage/mail heavyweight car, a 12-Duplex 4-double bed sleeper (above), 5-double bed/bar lounge car, diner, kitchen dormitory car, four 10-6 sleepers, and an observation car. With the exception of the baggage/mail, all of the cars are lightweight with smooth sides and skirts.



A four-car set consisting of two Budd 21-roomette cars and two 4-4-2 sleepers will also be available. For modelers wanting a complete Broadway Limited consist a Santa Fe 4-4-2 transcontinental sleeper will also be produced. All the passenger cars are scheduled for release in January with cars fitted

with interior lighting arriving the following month. For additional information contact a dealer or visit [katousa.com](http://katousa.com).

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**Micro-Trains** has added a 28-1 parlor car to its selection of Northern Pacific heavyweight passenger equipment. The N scale ready-to-run



car wears the two-tone green paint scheme developed in the early 1950s by designer Raymond Loewy.



Micro-Trains version of this high-side triple-bay covered hopper is an N scale stand-in for a Union Pacific 4700 cu. ft. class CH-90-14 prototype built in the late 1960s.



This N scale 40-foot wood-sheathed ice reefer with a steel fish belly underframe is based on a prototype built for Dingfelder & Balish's in 1932.



Micro-Trains N Scale 10,000-gallon insulated tanker represents a group of cars the U.S. Navy operated out of Norfolk Naval Base during World War II. For additional information

contact a Micro-Trains dealer.

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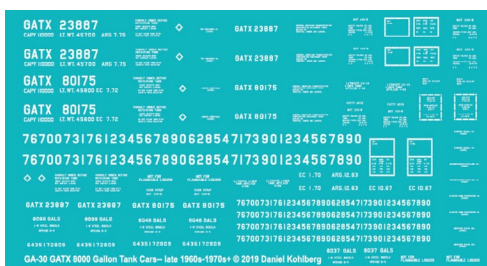
# NEW DECALS, SIGNS AND FINISHING PRODUCTS



New HO scale water-slide decals released by ICG Decals at the St. Louis RPM include #BN-12 for CB&Q class HC-1B twin-bay covered hopper. This set will correctly letter one Intermountain 1958 cu. ft. covered hopper. The silk-screened decal set is printed in red, black and white.



Also new from ICG are two lettering sets for GATX. Leasing 8,000-gallon welded tank cars. Decal set #GA-29 will letter two black cars in the correct 1948-1960 GATX scheme.



ICG's decal set #GA-30 will letter two black GATX 8000 gallon general service tank cars in use in the 1960s to 1980s. The decal set provides material for cars built in the 1948-1957 period that were repainted in the 1960s

and 1970s. Various dates and COTS are included. All ICG decals include prototype lettering guides. For additional information visit [www.icgdecals.com](http://www.icgdecals.com).

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## DOWNLOAD ISSUE



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**JOE FUGATE** goes over some simple tools and tricks for getting more realistic figure faces in the smaller scales.

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# The Amherst Railway Society Railroad Hobby Show

Our 2020 Show will be

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## BRIEFLY NOTED AT PRESS TIME ...

**NorthWest Short Line**, on the verge of shutting down, has been acquired by an unnamed employee. The new owner has pledged to fill all existing back orders, and will begin accepting new orders as soon as a new website can be established. NWSL's complete line of precision gears and other machined parts is expected to continue to be available. The company was founded in 1959 by Fred and Sheryl Martin in Seattle, Washington. In 2008, NWSL was purchased by Dave and Lynda Rygmyr who relocated all operations to Hamilton, Montana. Following this most recent change of ownership, NWSL's address will be PO Box 219, Kila, MT 59920. A new email address will be announced soon on the website at [nwsl.com](http://nwsl.com) ...

**Tariffs on Chinese Imports Delayed.** The pending 10 percent tariff on selected consumer items imported from China — including model trains and supplies — has been postponed until December 15. In announcing the delay the Office of the U.S. Trade Representative said the move was in deference to suppliers and retailers who are already committed to pricing and catalog programming for the 2019 Christmas season ...

**Morning Sun** has released a set of digital reprints covering *New York Harbor railroads*. Volume 1 details the marine operations, including terminals and float bridges, of the B&O, CNJ, DL&W, Erie, LV, LIRR, NYC, NH, PRR and independent Brooklyn Terminal railroads. Volume 2 documents float bridge operations, coal dumpers, floating grain elevators, Seatrain Lines, and the waterfront terminals of trunk line and short line railroads at the port ...

**InterMountain Railway** has released HO scale 40-foot R-40-25 steel refrigerator cars in six decorating schemes. Three are for PFE and two are for Northern Pacific. InterMountain has also released 40 and 53-foot HO scale intermodal containers in a choice of 20 decorating schemes.

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# SELECTED EVENTS



Model Railroad Hobbyist | September 2019 | #115

## SEPTEMBER 2019

*(Many events charge a fee. Check individual info website for details.)*

**ARIZONA, MESA, (Metro Phoenix),** September 25-29, Arizona Junction, 2019 NMRA Pacific Southwest Region Convention, hosted by PSR Arizona Division, at Sheraton Mesa Hotel at Wrigleyville West, 860 North Riverview Mesa. Info at [azdiv-nmra.org/psr2019convention](http://azdiv-nmra.org/psr2019convention).

**CALIFORNIA, SACRAMENTO,** September 4-7, 39th National Narrow Gauge Convention, at DoubleTree by Hilton Hotel, 2001 Point West Way. Info at [www.nngc2019.org](http://www.nngc2019.org).

**INDIANA, INDIANAPOLIS,** September 14, Train Show & Sale, sponsored by Naptown & White River Model Railroad Club, at Emmerich Manual High School, 2405 S. Madison Avenue. Info at [naptownrr.org](http://naptownrr.org).

**MARYLAND, LINTHICUM HEIGHTS (Metro Baltimore),** September 19-22, Mid Atlantic RPM Meet, at Double Tree by Hilton, BWI Airport, 890 Elkridge Landing Road. Info at [marpm.org](http://marpm.org).

**MISSOURI, SPRINGFIELD,** September 7, Fall Train Show, sponsored by Ozarks Model Railroad Association, at East Hall Ozark Empire Fairgrounds Eplex, 3001 N. Grant Ave. Info at [www.omraspringfield.org](http://www.omraspringfield.org).



**NEW YORK, LIVERPOOL, (Metro Syracuse)**, September 19-22, NMRA Northeastern Region Empire Junction 2019 Convention, at Holiday Inn, 441 Electronics Parkway. Info at [empirejunction.org](http://empirejunction.org).

**WASHINGTON, BATTLE GROUND**, September 28, 46th Great Train Swap Meet, sponsored by Southwest Washington Model Railroaders at Battle Ground High School Gymnasium, 300 West Main Street. Request info from Larry Sprenkel at [Larry.sprenkel@gmail.com](mailto:Larry.sprenkel@gmail.com) .

**WISCONSIN, MILWAUKEE**, September 21, NMRA Wise Division RPM Meet, Four Points Sheraton at Milwaukee Airport. Info at [www.wisedivision.org](http://www.wisedivision.org).

## October 2019, by location

**CANADA, ONTARIO, BRAMPTON**, October 5-6, Greater Toronto Train Show, at Brampton Fairgrounds, 12942 Heart Lake Road. Info at [www.torontotrainshow.com](http://www.torontotrainshow.com).

**CANADA, ONTARIO, MARKHAM**, October 19-20, Railview Historical Society Open House, 550 Alden Rd Unit 201. Info at [www.facebook.com/Railview-Historical-Society-209331442911433](http://www.facebook.com/Railview-Historical-Society-209331442911433).

**CALIFORNIA, BELLFLOWER (Metro LA)**, October 5, Railroad Prototype Modelers Meet, at Encounter Christian Church, 10012 Ramona Street. Info at [www.laapm.org](http://www.laapm.org).

**CALIFORNIA, CROCKETT**, October 12-13, Carquinez Model Railroad Society Open House, 645 Loring Ave, info at [cmrstrain-club.org](http://cmrstrain-club.org).

**CALIFORNIA, SAN LUIS OBISPO**, October 4-6, Central Coast Railroad Festival and Train Show. Info at [ccrrf.com](http://ccrrf.com).

**CALIFORNIA, OCEANSIDE**, October 12, Train Show & Swap Meet, sponsored by North County Model Railroad Society at Heritage Park, 230 Peyri Drive. Info at [swapmeetinfo@ncmrs.org](mailto:swapmeetinfo@ncmrs.org).

**CONNECTICUT, MILFORD**, October 6, 27th Annual Model Train Show, sponsored by New Haven & Derby Model Railroad Club. Jonathan Law High School, 20 Landsdale Ave., Info from [NHD06477@hotmail.com](mailto:NHD06477@hotmail.com) or [www.facebook.com/New-Haven-Derby-Model-Railroad-Club-1626679067606876](http://www.facebook.com/New-Haven-Derby-Model-Railroad-Club-1626679067606876).

**ILLINOIS, LISLE, (Metro Chicago)**, October 24-26, 26th Chicagoland RPM (formerly known as Naperville Meet), at Sheraton Hotel & Conference Center. Info at [www.rpmconference.com](http://www.rpmconference.com).

**ILLINOIS, MORTON**, October 26, Central Illinois Train Xchange, at Blessed Sacrament Church, 225 East Greenwood Street. Request info from Roger at [citrainx@gmail.com](mailto:citrainx@gmail.com).

**MASSACHUSETTS, BOXBOROUGH**, October 5-6, 55th Annual Railfair, sponsored by Nashua Valley Model Railroad Association, at Boxborough Regency Hotel, 242 Adams Place. Info at [www.nvrra.com](http://www.nvrra.com).

**MASSACHUSETTS, GARDNER**, October 5, Southern New England 2 Rail O Scale Fall Show, at United Methodist Church, 161 Chestnut Street. Info at [www.snemrr.org](http://www.snemrr.org).

**MISSOURI, KIRKWOOD (Metro St. Louis)**, October 12-13, Greater St. Louis Train Show, sponsored by Mississippi Valley N Scalers at Kirkwood Community Center, 111 South Geyer Road. Info at [mvns.railfan.net](http://mvns.railfan.net).

**MAINE, BREWER**, November 23, Annual Show hosted by Eastern Maine Model Railroad Club at Jeff's Catering, 15 Littlefield Way, East West Industrial Park. Request info from Geoff Anthony at [geoff04614@gmail.com](mailto:geoff04614@gmail.com).

**NORTH CAROLINA, FLETCHER**, October 4-5, Autumn Rails Train Show, Sponsored by French Broad e'N'pire NTRAK Club at Western North Carolina Agricultural Center. Info at [www.wncag-center.org/events/2019/autumn-rails-train-show](http://www.wncag-center.org/events/2019/autumn-rails-train-show).

**OHIO, CAMBRIDGE**, October 20, NMRA MCR Division 6 Swap Meet, at Pritchard Laughlin Center, 7033 Glenn Highway. Info at [div6-mcr-nmra.org/swapmeet.htm](http://div6-mcr-nmra.org/swapmeet.htm).

**PENNSYLVANIA, EASTON**, October 6, 43rd Annual Lehigh Valley Regional Train Show & Expo, at Charles Chrin Community Center, 4100 Green Pond Road. Info at [www.lehighlines.org/events.html](http://www.lehighlines.org/events.html).

**WASHINGTON, SPOKANE**, October 13, Fall Train Show, sponsored by River City Modelers at Spokane Fair & Expo Center, 404 North Havana Street. Request info from Shirley Sample at [shirley@busnws.com](mailto:shirley@busnws.com).

### Future 2019, by location

**CANADA, ONTARIO, FENWICK**, November 16-17, 23-24, Open House at Greater Niagara Model Railroad Engineers, 1141 Maple Street. Info at [gnmre.ca](http://gnmre.ca).

**CALIFORNIA, SAN PEDRO**, November 16-17, Open House at Belmont Shore Railroad Club, 3601 South Gaffey Street, Building 824. Info at [www.belmontshorerr.com](http://www.belmontshorerr.com).

**FLORIDA, DAVENPORT**, November 9, NMRA SSR Eastern/Western Fall Workshop, at Edgehill Recreation Association Clubhouse, 50 Westridge Drive. Request info from Jim Robertson at 352-249-6862.

**FLORIDA, PENSACOLA**, December 7-8, Railfest Model Train Show & Sale, sponsored by Pensacola Model Railroad Club at Pensacola Interstate Fairgrounds, 6655 Mobile Highway. Info at [pmrc.us](http://pmrc.us).

**INDIANA, INDIANAPOLIS**, December 7, Train Show & Open House at Naptown & White River Model Railroad Club, 1115 McDougal Street. Request info from Steve Handly at [nap-townmrr@gmail.com](mailto:nap-townmrr@gmail.com).

**KENTUCKY, LOUISVILLE**, November 16, NMRA MCR Division 8 Train Show, at Holy Family Parish Saffin Center, 3938 Poplar Level Road. Info at [www.div8-mcr-nmra.org](http://www.div8-mcr-nmra.org).

**MAINE, BREWER**, November 23, Annual Show hosted by Eastern Maine Model Railroad Club at Jeff's Catering, 15 Littlefield Way, East West Industrial Park. Request info from Geoff Anthony at [geoff04614@gmail.com](mailto:geoff04614@gmail.com).

**MASSACHUSETTS, MARLBOROUGH**, December 7-8, New England Model Train Expo, hosted by NMRA Hub Division at Best Western Royal Plaza Trade Center, 181 Boston Post Road West (US 20). Info at [hubdiv.org](http://hubdiv.org).

**MASSACHUSETTS & NEW HAMPSHIRE**, November 29-December 1, 25th annual Tour de Chooch, self-guided tour of open houses at model railroads in Northern Massachusetts and Southern New Hampshire. Details and maps of participating locations available at [www.tourdechooch.org](http://www.tourdechooch.org).

**MICHIGAN, EAST LANSING**, November 10, Model Railroad Club Show and Sale sponsored by Lansing Model Railroad Club at Michigan State University Pavilion. Info at [www.lmrc.org](http://www.lmrc.org).

**MICHIGAN, TROY**, November 7-10, NMRA NCR North Central Region Convention, at Troy Community Center, 3179 Livernois. Info at [www.div8.ncr-nmra.org/ncx-2019](http://www.div8.ncr-nmra.org/ncx-2019).

**NEW YORK, ALBANY**, December 1, Great Train Extravaganza Show & Sale, sponsored by NMRA Hudson Berkshire Division at Empire State Convention Center. Info at [gtealbany.com](http://gtealbany.com).

**NEW YORK, BATAVIA**, November 10, The Great Batavia Train Show sponsored by Genesee Society of Model Engineers at Richard C. Call Arena, One College Road. Request info at [batavia-trainshow@gsme.org](mailto:batavia-trainshow@gsme.org).

**NEW YORK, SCHENECTADY**, November 2, Open House at Hudson-Berkshire NMRA Division, 4026 Ryan Place. Request info from Irwin Nathanson at [HUDSON.BERKSHIRE.NMRA@gmail.com](mailto:HUDSON.BERKSHIRE.NMRA@gmail.com).

**NORTH CAROLINA, WINSTON-SALEM**, November 8-9, RPM Carolinas School of Railroad Modeling Techniques, at Forsyth County Center, 1450 Fairchild Road. Info at [sissonstony.wixsite.com/rpm-carolina](https://sissonstony.wixsite.com/rpm-carolina).

**OHIO, DAYTON**, November 2-3, Train Show sponsored by NMRA, Miami Valley Division, at New Montgomery County Fairgrounds, 645 Infirmary Road.

**PENNSYLVANIA, LANCASTER**, November 23-24, Brass Expo & Custom Craftsman Models 2019 Show, at Wyndham Lancaster Resort & Convention Center, 2300 Lincoln Highway. Info at [brassexpo.com](https://brassexpo.com).

**SOUTH CAROLINA, NORTH CHARLESTON**, November 16-17, Fall Train Show, sponsored by Charleston Area Model Railroad Club, at Danny Jones Armory Complex, 5000 Lackawanna Blvd, Info at [www.camrc.club](http://www.camrc.club).

## Beyond 2019, by date

**FLORIDA, COCOA BEACH**, January 9, 2020, Prototype Rails, at Cocoa Beach Hilton Oceanfront, 1550 North Atlantic Avenue. Info at [www.prototype Rails.com](http://www.prototype Rails.com).

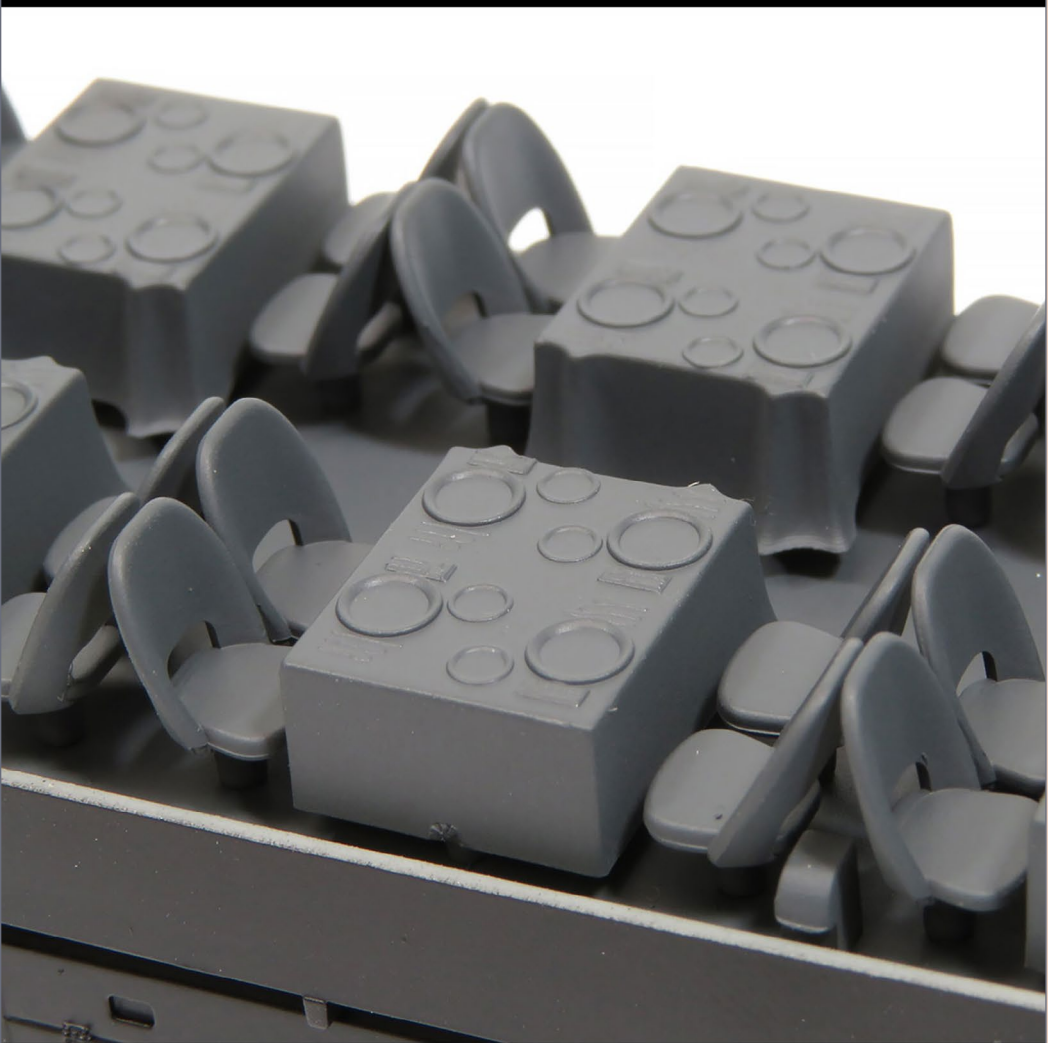
**PENNSYLVANIA, MALVERN (Valley Forge)**, March 27-29 2020, Railroad Prototype Modelers Meet, at Desmond Hotel. Info at [rpmvalleyforge.com](http://rpmvalleyforge.com).

**MISSOURI, ST. LOUIS**, July 12-18, 2020, NMRA National Convention and National Train Show. HQ at Hilton St. Louis at the Ballpark. Info at [gateway2020.org](http://gateway2020.org).

**CALIFORNIA, SANTA CLARA**, 2021, NMRA National Convention and National Train Show.

**ENGLAND, BIRMINGHAM**, 2022, NMRA National Convention and National Train Show. Info at [www.nmra2022uk.org](http://www.nmra2022uk.org). ■

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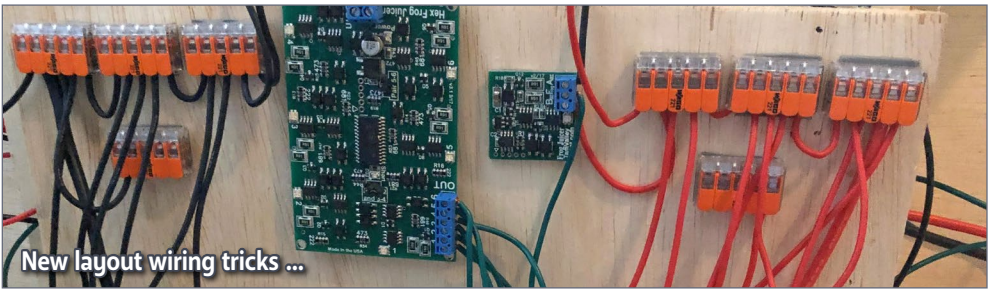
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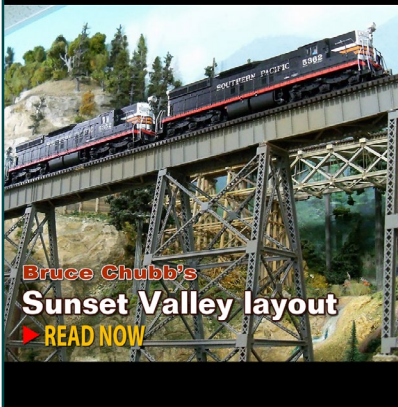
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