

THE

O

RESOURCE

NEWS, REVIEWS, INFORMATION TO USE

**Volume 4 No. 6
July/August 2017**

SCALE



**Canadian National Sanmore Subdivision
Building B&O's Iron Pot Hopper
Layout Lighting - Another Way
Scratch Building With Styrene
Model Railroad Design
O Scale West/S West
O Scale National
Workbench, Oddities
Shows, Meets and so much more...**

Published Bi Monthly

The Model Railroad Resource LLC
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[Amy Dawdy](#)

Managing Editor / Advertising Executive
[Daniel Dawdy](#)

July/August 2017
Volume 4 No. 6

Welcome to the online *O Scale Resource* magazine. The magazine is presented in an easy to use format. The blue bar above the magazine has commands for previewing all the pages, advancing the pages forward or back, searching to go to a specific page, enlarging pages, printing pages, enlarging the view to full screen, and downloading a copy to your computer.

Front Cover Photo

A scene on Daniel Dawdy's railroad with his new lighting ideas. A local with RS-1 No. 827 in the lead heads up the "widowmaker".

Rear Cover Photo

Night in the town of Athens, Tennessee on Daniel Dawdy's railroad. This scene was created with LED lighting.

Bill Of Lading

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The Model Railroad Resource, LLC publishes [THE O SCALE RESOURCE](#) and [THE S SCALE RESOURCE](#). Be sure to look at both of our magazines. There are many articles in our magazines that are not scale specific and will be of interest to you. Click the magazine title in this announcement to see the magazine.

From the Publisher's Desk



This issue comes out a little later than normal, and just after Dan arrived home from the 49th Annual O Scale Convention in Enfield, CT. I had other plans, so he attended this one himself. While there, he took a lot of pictures and did a feature article so that we could put it in this issue. That's one of the great things about an online magazine – we don't have a "set in stone" printing deadline! Dan enjoyed the show, met some new people and continued to spread the word about the magazine and the upcoming Indianapolis O Scale Show and S Scale Midwest Show to be held September 22-23, 2017. [If you haven't signed up yet to attend Indianapolis, be sure to do so](#) – we'd love to see you there.

Want FREE ADMISSION to the Indianapolis show? If you're local, how about being on the list of layout tours? You set the hours you want to be open, give us a map, and we'll have the list available at the show. Do you have something of interest that you could teach other modelers? We are looking for people to do short clinics. We will be happy to comp your \$25.00 registration fee upon confirmation of a layout tour or clinic. Email amy@modelrailroadresource.com or daniel@modelrailroadresource.com or call us at 815-584-1577 so we can include you on the schedule.

Speaking of shows, we also have some coverage of the 2017 O Scale West / S West 12 show. This article comes to us courtesy of Tom Dempsey since Dan and I were not able to attend this year. I've heard "through the grapevine" that Rod Miller has booked the show again for next year, so depending on the date and our schedule, we hope to be there. Be sure to check the [website](#) for updated information.

We have a couple of layout features this month. Serge Lebel's Canadian National Railways Sanmore Subdivision is in this issue, along with a layout design article. Serge tells us how in conjunction with a career move, he built his current layout. He explains the process he went through designing and building not only a his new layout, but also the home that would house it. The second layout article is the first in a series of articles on design by Pete Mottershead. Lastly, Dan shows how LED lighting strips can be used around the layout not just for lighting, but also for setting the mood during different times of the day.

As promised previously, the Scratchbuilding with Styrene article by Kevin Gibbons appears in this issue. This article takes an actual Victorian home, the Dragonfly Bed & Breakfast, and recreates it in O Scale. The building continues this month with an article by Richard Cooke on building a B&O Iron Pot Hopper. This unique car would look great on any layout! Don't forget to continue to send us what you're working on so we can feature it "On the Workbench" like Pete Vassallo did for this issue.

Happy Reading & Happy Modeling,

Amy Dawdy

NEWS YOU CAN USE

[From Wasatch Model Company](#): I'm putting an order together for the following "O" Scale Passenger Car Trucks. All trucks have 0.145 NMRA Wheel Sets Ball Bearing Journals. Ordering the following trucks which are out of stock:

- 61-UDO Trucks
- 2410 Heavyweight Trucks
- 242 Heavyweight Trucks
- 41-CUDO
- 41-N

If you want any of these trucks please reserve them NOW!



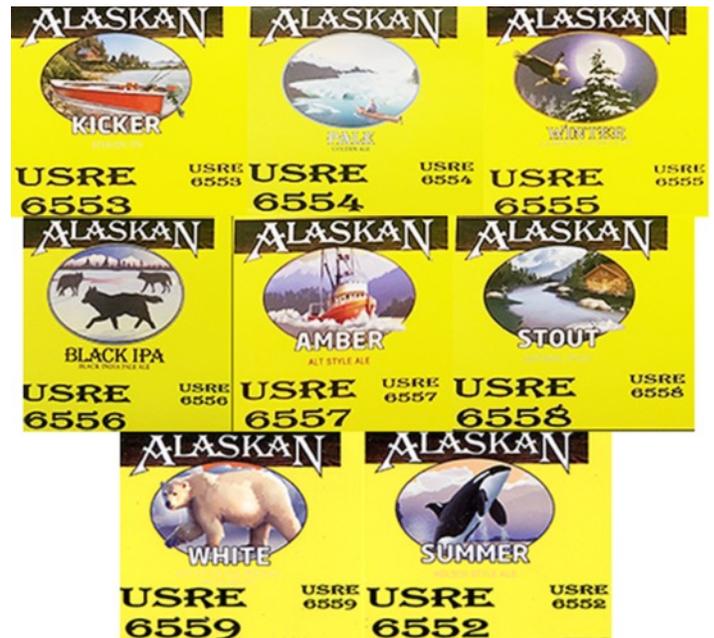
Also: 100-ton Barber S-2 Bearing trucks.

If you want any of the 100-Ton Barber S-2 trucks in 5', you need to order them now as this may be your last chance to get them. The gentleman that has been cutting the wheels has retired, and we are not sure we can get him to cut more wheels. My production runs are small now, and he didn't have much interest in setting up his machines for such a small run when he was in business.



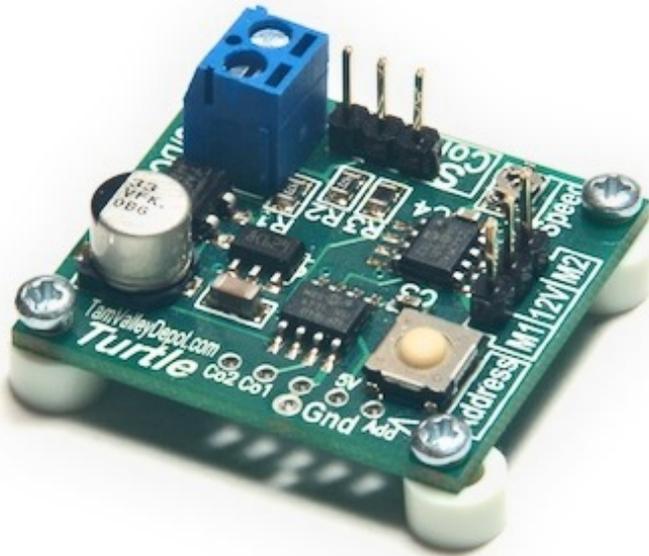
I am selling the 100-ton S-2 trucks at cost for those that need and want them. Just satisfying a need for modelers. If I can get a large order, it may help get the wheel cutter to produce the wheels we need. For all the details go to: [Wasatch Model Company](#)

[Precision Vintage Classics](#) announces new reefer decals in three scales. We are releasing reefer decals for Alaska Brewery. Choose from 8 logos and 3 scales. Available in Narrow Gauge for "O" "S" & "H0" and in Standard Gauge for "S" & "H0".



New from [Tam Valley Depot](#), Turtle Stall Motor Driver and DCC Decoder

Now you can use TVD Fascia Controllers to drive your Tortoise or other stall motor based switch machine. The Turtle can drive just about any stall motor on the market including the Tortoise, Switch Masters, Cobalt, as well as the higher current MP1 and MP5. There is an integrated speed control trim pot that will let you use just about any geared motor as a switch machine by lowering the force until the motor runs slow and stalls.



It has a built in DCC accessory decoder that "learns" addresses at the push of the Address button. No programming CVs. A second address is used as a Local Lock Out function so you can disable the Fascia Controller for use on CTC layouts where the dispatcher must release certain turnouts. [See their Website for more details.](#)

Decals for Virginian bulkhead flat cars, in white, in O-scale, #142, are available from [Great Decals!](#), 3306 Parkside Terrace, Fairfax, VA 22031, for \$7.95 each, postpaid. Each set does up to two cars. Dealer inquires welcome.

The set includes a number jumble to allow modelers to decal multiple sets of these cars. These decals include the Virginian road name and car class (PW-1, F-6, F-7(A)), road number, dimensional and capacity data, and build and painted dates specific to these cars. The modeler may use any of the variety of car bodies now on the market, or scratch built cars.

Jay Criswell says:
RIGHT-O'-WAY IS EXPANDING

We are both proud, and yet humbled, to announce that effective June 1st, 2017, Right-O'-Way will be taking over the American Switch & Signal line from John Pautz. All orders and correspondence regarding American Switch & Signal should be directed to Jay Criswell at Right-O'-Way. Email is preferred. The email address for Jay is: jay@right-o-way.us.

Also effective June 1st, 2017, Right-O'-Way has purchased Red Cliffs Miniatures' Proto 48 standard and narrow gauge track and detail products from Jim Harper. All orders for Red Cliffs Miniatures' products should also be directed to Jay Criswell at Right-O'-Way.

Contact Jay online at jay@right-o-way.us or by phone at 559-297-0505. Once again, email is preferred. All products will be added to our website (currently a work in progress). Please visit our Website: right-o-way.us

Also from [Precision Vintage Classics](#):
Announcing three new kits:



First we have released our Bryan Ellerby design ore car in On30 and Sn3 with trucks & couplers, no decals. Kit numbers OK23 and SK23 priced at \$38.00 plus shipping.

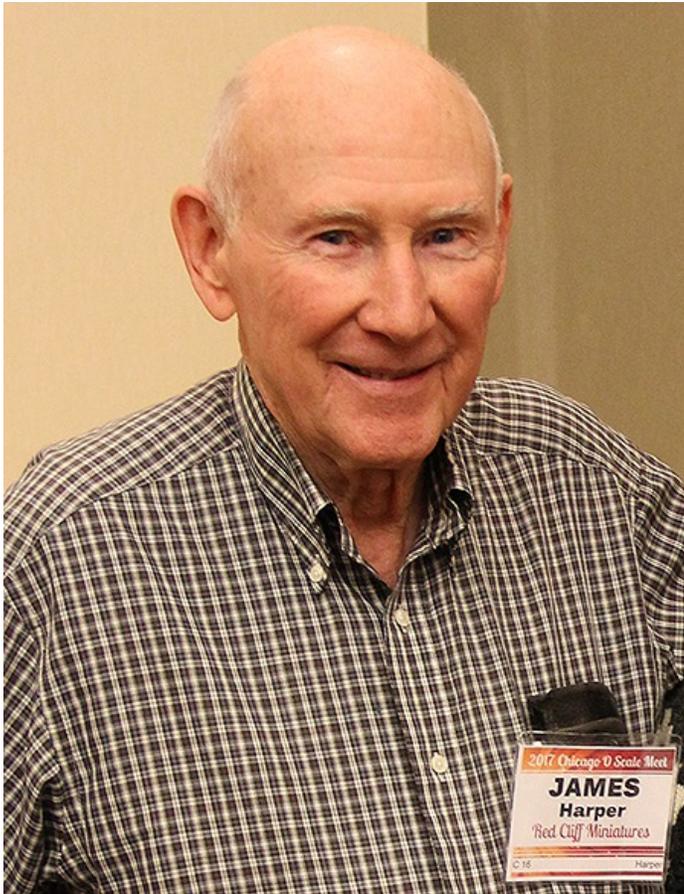


We also are releasing an A Frame Kit for a Bachmann part #26531 On30, 18' 3 board gondola. This will convert a regular gondola to an A-Frame gondola. This is kit OK13 at \$5.00 + shipping. The kit consists of a resin A-frame casting, hinges and hinge rod. The kit does not come painted as the color is left up to the individual modeler's taste.

In other news, we are going to Flat Rate Shipping. \$15.00 for Domestic and \$25.00 for International. [Check their refreshed website here.](#)



Jim Harper also sent in information about Red Cliffs Miniatures.



Red Cliffs Miniatures (RCM) Proto:48 track products were developed in the 1990s by Jim Harper and marketed by him from his High Sierra Models hobby shop in Reno, NV. After the sale of High Sierra Models in 2002 and a subsequent move to S. Utah in 2005, the name Red Cliffs Miniatures was adopted to reflect the beauty of the surrounding landscape of the red rock cliffs and mountains of nearby Zion and Bryce Canyon National Parks, an area called 'Color Country' by the local residents.

With the growth of AAR 1/4" fine scale in the early 1970s and 1980s, officially renamed Proto:48 from 1986, those modelers building dioramas, modules or layouts to the then NMRA Recommended Practices for P:48, which later became NMRA Standards, were of necessity hand laying track due to the non-existence of commercial track products. Facing the prospect and daunting task of having to cut and fit each and every individual turnout for a sizable

layout was a limiting factor for many wannabe P:48 modelers. Additionally, fine scale modelers wanted track with prototypical detail to match super or highly detailed locomotives, rolling stock and structures. Thus the demand for detailed castings of frogs, points and guard rails complete with the details of prototype track, such as nut-bolt-washers, joint bars, rail braces, gauge plates and other details became apparent. This was the incentive for developing the initial High Sierra Models line of track products, consisting of frogs, points and guard rails in nickel silver or and other details in white metal and brass.

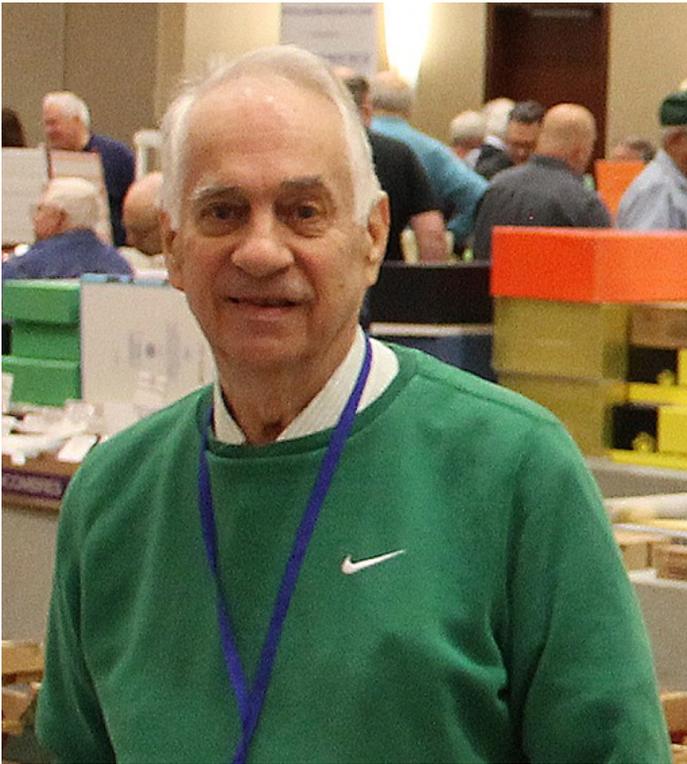
The RCM line of products grew to include other detail parts, mainly associated with but not exclusive to detailed track work. An all weather brass cab window, used extensively by many railroads located in colder climates was added in 2011.

In 2012, RCM acquired the rights to the former 1/4" scale Timber Creek brass operating switch stand kit that was initially developed and sold to a limited market by Gordon Briggs of Grass Valley, CA. Additional details were added to the switch stand kit and a matching sprung throw rod made available as a separate add on item. In 2014, the rights to a second non-operating brass switch stand was added using a master pattern made by Charlie Morrill in Benjamin, TX. This switch stand kit was also supplemented with additional parts and made available in various configurations. A New Century low level stand was added in 2015 and in 2016 lighted versions of the operating stand and low level stands were added to the line. Other switch stands and track details were under development at the time of sale of Red Cliffs Miniatures to [Right-O-Way](#).



**Have a new item to sell or
announce.
Email us and we'll be happy to
add it into our
News You Can Use**

**Email:
daniel@modelrailroadresource.com**



As noted earlier in the News, our good friend John Pautz from American Switch & Signal as sold the line to Jay Criswell of Right-O'-Way. When asked what he will do now John said "Start building some of my stash of resin kits." I am sure we will continue to see John at shows.

Come see what's new at [Sunset Models and GGD](#) Welcome to the 2nd half of 2017. Crazy how fast the year is going. We have some new project announcements and news of current projects to tell you about.

1. The EMD E8/E9 Diesels have arrived. We are currently shipping to our customers. Please check your email and spam folders for your tracking info for your models from UPS.COM.

2. We have received the production sample models of the CB&Q O-1a Mikados. [Please see our Website for pictures.](#) These will be arriving in August.

3. The F7 Rerun reservations are closed and the factory is beginning production. They will finish in July and ship with the CB&Q Mikados.

4. We have announced 2 new projects for 2018. First is the NYC L-2c/d Mohawk. This project is being spear headed by Sam Shumaker. Sam is an expert in NYC, and claims this will be one of the most detailed NYC Mohawks available. You can reserve 4 versions of these by going to our [Website HERE](#).

5. The 2nd new Announcement for 2017 are the EMD E6 Diesels. In keeping with our spectacular diesel productions, these will be even better. We will give you more details as the design progresses. So please get your reservations in for 2018. You won't be disappointed. [Click HERE](#) to go the web page.

6. We are a couple of weeks away from receiving the first pre-production samples of the O Scale Harriman cars. These will produced in June for an August / September arrival.

[See their Website for full details.](#)

[Atlas O, LLC](#) has a new caboose in the Trainman® line. The first all-steel cabooses built for the Chesapeake & Ohio Railroad were produced in 1937 by the Magor Car Corporation in Clifton, NJ. Magor, along with St. Louis Car Company and ACF, ultimately built a total of 350 cabooses for the C&O using a similar design.



The last were produced in 1949. Through subsequent rebuilding and modernization, many remained in service through the end of regular caboose usage in the 1980s. Cabooses of a similar design were also built for Pere Marquette, Missouri Pacific and Chicago & Eastern Illinois. [See their Website for more information.](#)

Jay Criswell says again: Great news on the drop in conversion kits for the newer Sunset 3rd Rail diesels. Scott spoke with his supplier in Korea and they will be making enough worm gears and bearings for 100 axles. Scott also told me it will probably be a month, or two, before we can take delivery. Time for me to make 100 axles and ramp up the tooling required to assemble everything.

Contact Jay online at jay@right-o-way.us or by phone at 559-297-0505. Once again, email is preferred.



[Donald Tichy of the Tichy Train Group Inc](#) has new decals available. Paper catalogs are now available for HO, N, O & Decals. If you want one, let us know [or download here](#).



[Chris from Miler Engineering](#) has have two new lighted billboards coming this July for O scale. They are B&O and Chessie. Attached are images of them. Each sign comes ready to run with 46 different chase patterns to choose from.



Our B&O Billboard, #88-2701, 4.4" tall x 3.6 wide and comes with supports for the back of the sign. The suggested retail price is \$49.95

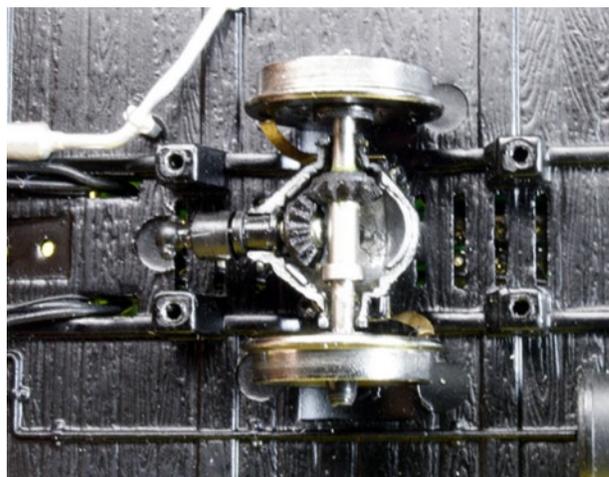


The Billboard, #88-2751, 4.3" tall x 3.2 wide and comes with supports for the back of the sign. The suggested retail price is \$49.95

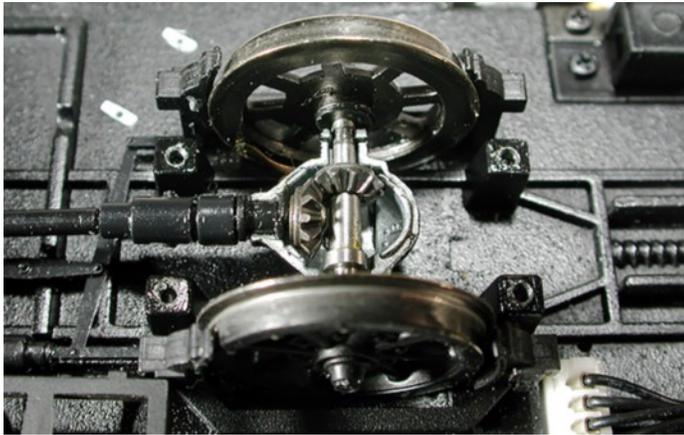
[See their Website](#) for full details



[NWSL](#) has two new On30 products.



[On30 Bachmann RAIL TRUCK replacement gears #2805-6](#). Fits the Bachmann On30 RAIL TRUCK - Set of three steel lineshaft gears to replace the factory plastic lineshaft gears, which are prone to breakage. The kit includes 6 gears and step-by-step instructions for installation.



[On30 Bachmann RAIL BUS replacement gears #2804-6](#). Fits the Bachmann On30 RAIL BUS - Set of six steel lineshaft gears to replace the factory plastic lineshaft gears, which are prone to breakage. The kit includes 6 gears and step-by-step instructions for installation.

[See their Website](#) for full information.

[Atlas](#) has updated their Track Planning Software. If you are unfamiliar with the program, the Atlas Track Planning Software is a great tool for creating magnificent layouts in HO, N & O scales using Atlas track. This software allows you to create and customize your very own layout, view it as a 3D model and then generate a shopping list to make your dream layout a reality. **Note: ATPS is Windows ONLY. You may download the free software [here](#).**

[David Vaughn](#) sent the following: We are pleased to announce that the 2018 Scale O National Convention has been set for August 22-25 (Wednesday through Saturday) at the Rockville Hilton, 1750 Rockville Pike, Rockville, Maryland. Wednesday is a load in/set up day and dealer reception; the Convention, trading hall, clinics, layout tours and banquet take place Thursday through Saturday.

Rooms will be \$109 per night plus tax. That rate - which is great for the Washington metropolitan area

and will be a big draw - will also be available five nights before and three nights after for those who want to combine the Convention with a DC vacation. Parking is free for hotel guests and vendors. A vacation will be made easier by the fact that a Subway station is right out the back door. A host of railroad attractions are within an hour or so of the Convention site.

The theme of SONC 2018 will be "a fresh look at O Scale," and while we will be relying on our long time base and vendors, a focus of the program, which will be repeated in social media, YouTube and other efforts in advance of, during and after the Convention, will be to attract modelers just entering the hobby or considering switching from another scale. We want to make that look as easy and as interesting as possible. More information as it becomes available.

[SoundTraxx Tsunami SoundCar™ Digital Sound Decoder](#) with NEW Sounds. Updated Tsunami SoundCar Digital Sound Decoders with an expanded sound library are now available through your local hobby shop or online retailer.



The Tsunami SoundCar is the only Digital Sound Decoder to replicate prototypical rail car sounds and lighting effects for your entire train. The updated SoundCar features 8 new airhorns and whistles, 2 new bells, and selectable sounds for cattle and sheep including a "spooked livestock" effect. The expanded sound library also includes adjustable clickety-clack, customizable generators, multiple

brake sounds, multiple coupler effects and more! The SoundCar also has four function outputs for both interior and exterior lights and is easily connected to a SoundTraxx CurrentKeeper. [See their Website](#) for all their fine products.



[Rick at Rusty Rail](#) has some new offerings this month.



RRSP-O-30 is a bulk fuel tank and a cool stand that can make a diorama all by itself. This tank is offered above as a separate casting for those that want to build their own scene. The tank will come with a value. The base has a wide assortment of fuel and oil cans around it. Even an old gear under the tank. The base measures 2" by 1 1/2" the tank measures 1 7/8" by 1/2" by 1 1/4" tall at the fill cap.

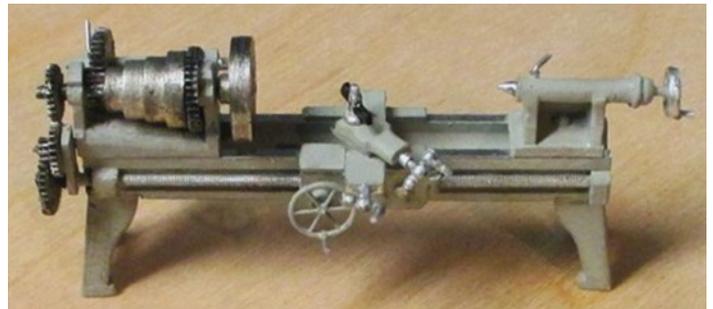


RRS-O-11 The new loggers bunkhouse on skids. The roof is removable and the interior is hollow for you guys that want to do an interior. The skids can be removed and it turns into a great bunkhouse for your ranch or mining outfit or train crews. Also comes with a set of additional castings to a to the outside of the cabin. [See their Website](#) for more O Scale offerings.



[Crow River Products](#) has just introduced a lathe "O" Scale Kit 335A - Lathe, to our product line. This is a machine tool lathe of an older vintage to be used with overhead pulleys such as our Detail Kit O-53 Overhead Pulley & Belt System.

The lathe is the first in a series of Vintage machine tools. Next in the series will be a Drill Press. The Lathe consists of 23 pewter castings and a few pieces of hardware. Drawings and instructions are of course included which makes it fairly simple to assemble in spite of the many parts. Cost is \$30.00.



They will also be making a "Conversion Kit" which consist of an electric motor and pulleys. The conversion was attached directly to the machine to make it independent of the overhead system. The model builder can decide whether to use the overhead system or not. [See their Website](#) for more O Scale parts and kits.



[From Model Tech Studios LLC](#): Matthew, the soda jerk boy. This iconic working youth is detailed down to his "candy striped apron, soda jerk cap, service tray and the soda pop he is serving. No Diner or Fountain scene is complete without the classic soda jerk character.

Soda Fountains go all the way back to the late 1800's and they thrived through 2 world wars. They often served as the social hub for local communities and were either standalone joints or located inside



another business such as a drugstore. The soda jerk was an integral character at the soda fountain. He mixed and served pop, ice cream drinks and bottles of pop. They were known for creating all kinds of interesting flavors when mixing drinks....often to keep themselves from getting bored on the job. This is our detailed scale character of a CLASSIC SODA JERK to finish your scenes !

It's cleanup day...the company janitor, Fred is pulling his loaded and heavy trash dolly. Create "in action" worker scenes to make your detailing come alive.

Perfect for any industry, retail or other scene to show a cleanup in progress.

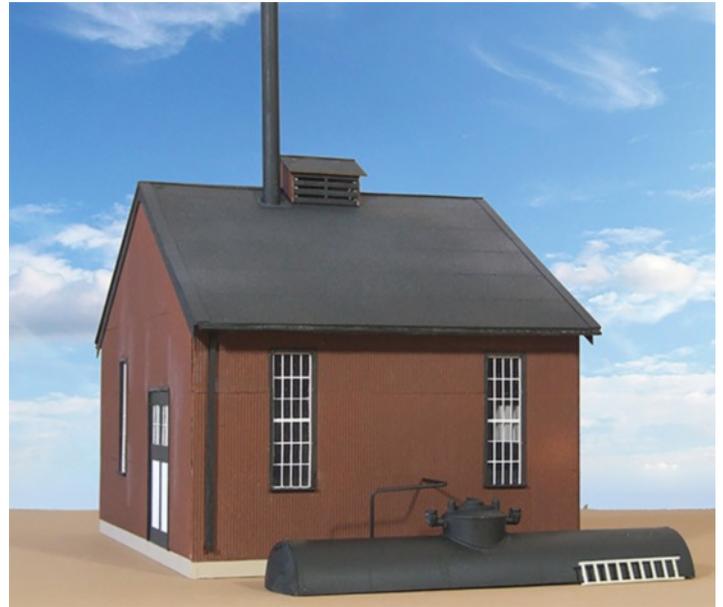


O scale "in action" working figures come FINISHED and Layout ready for you

[See their Website](#) for all their O scale figures, kits and more.

Michael Eldridge from [Sandy Point Models](#) announces a new kit. Southern Pacific Power House Kit. This kit was developed from drawings made in 1924 of the power house at Mount Hebron,

California, and a photo of the power house at Wendel, California. This was a common standard Southern Pacific power station, which supplied steam and electricity to other buildings, typically maintenance structures such as shops and repair facilities at remote sites.



The basic structure is made from parts laser cut from various materials, with contoured paper corrugated siding applied over MDF for the walls. The oil tank in the picture is included, along with other cast resin parts. This is an intermediate level kit. You can purchase the kit from our website, sandypointmodels.com. If you would like to preview the instructions, they are available for download on the website.

New SoundTraxx Tsunami2™, 4-amp Digital Sound Decoders for Steam, Diesel or Electric Locomotives.

The TSU-4400 is a universal-style, 4-amp Digital Sound Decoder with 6 function outputs. It is available in steam, diesel or electric versions. This digital sound decoder is designed for models with high stall currents such as some S, O, and smaller large-scale locomotives. This decoder features terminal blocks for solder-free wiring and a high-power audio amplifier for big volume, indoors or out. New features include an expanded library of realistic sounds (including new prime movers and exhaust chuffs), Hyperdrive2™ advanced motor control, and simplified function mapping using SoundTraxx' Flex-Map technology.

Tsunami2 TSU-4400 series of sound decoders also feature Dynamic Digital Exhaust™ in all versions – steam, diesel and electric. Steam versions contain over 60 whistles, while diesel versions have upwards of 40 horns and as many as nine prime movers in each version.

See their Website for all their fine products.



All Aboard Trains announces the release of their new "O" Scale Brass, Lighted, Manually Operated Adlake Switchstand.

This is the first time that a functioning Adlake switchstand has been reproduced in any scale. Two



years in development, the unit operates just like the prototype. The switchstand has 2 red reflectors and 2 green reflectors with red and green lenses respectively. The Throwing Lever when turned 180 degrees causes the Lantern and large gear to rotate 90

degrees, which in turn causes the switch itself to be pushed or pulled (thrown).

This is the item that can bring completion to your



track work with the distinctive red and green lights and their warm glow. The price is \$24.95 per unit. You can order on line at www.all-aboard-trains.com

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Altoona Model Works

AltoonaModelWorks is taking preorders for the Omaha Station



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Visit our website: altoonamodelworks.net

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2017 O SCALE WEST / S WEST

Descriptions and photos by Tom Dempsey

Amy and I could not make the trip out to O Scale West / S West this year so I asked (conned) [Tom Dempsey of Clover House](#) to take some pictures of the show. The show was held this past May 25 - 27, 2017 at the Hyatt Regency Santa Clara in Santa Clara, CA. We look forward to getting back there next year, but for now, here are a few shots from Tom.



The On30 modular layout



The S Scale modular layout



Above are overall shots of the convention floor.

Right is the Golden Gate Lionel Railroad Club modular layout



Top left to right: Our host, Rod, working his table; Jay Criswell explaining his latest drive.

Center left to right: Rio Grande Models; Jim Harper, talking to a customer. See the News section for more about Jim and his history with Red Cliff Miniatures.

Bottom left: Norm Buckhart from Protocraft.



Above: New S Scale items from Des Plaines Hobbies.

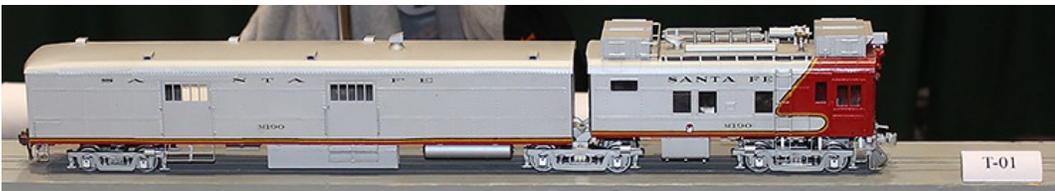
Below: The “white elephant” table.





A sampling of contest models.

Bill Basden built the beautiful passenger car above. We brought you a four part article on how he builds these starting in the November/December issue of [The O Scale Resource](#).



THE YANKEE CLIPPER

O Scale East - 49th O Scale National Convention

By Daniel Dawdy

The Southern New England Model Railroad Club hosted 49th Annual O Scale show this past June 23-24, 2017 at the Holiday Inn Springfield South-Enfield. Since Amy had her sisters annual quilting and wine drinking retreat, she sent me out alone. Set up was quick, and I had time to catch up with some of the vendors on Thursday night, and even some clients from my other business. I don't believe the total show attendance was what they were hoping for, however, the dealers I talked to were very happy with sales. Prices were for the most part very good, if not down right cheap. I want to commend the The Southern New England Model Railroad Club for taking this on. It's a large undertaking, and as far as I could tell, the show itself went off with out any problems.

I type this in the hotel Saturday night realizing that I have to up and out of here at 4:50 a.m. (Amy thought I would like to be home early Sunday... bless her heart...), so what follows are some shots of the show and the people attending.



The show was in two rooms both about the same size. This was ballroom B showing Pat from P&D Hobbies.



There were lots of great deals all over the show. Bill Mosteller from Great Model Railroad Decals is in the blue shirt.



Our good friend, Randi from Crow River Products, was in attendance with their whole line of products there.



Bob and Karen Lavezzi from All About Trains were displaying cars along with Weaver parts.





Top: Some nice buys on a variety of older brass. Reasonable offers accepted.

Left: Norm from Norm's O Scale Trains talking with Craig Smith.



Fall Scale Models display of built up models. They also do custom model services.



Model Tech Studios had a large display of their beautiful products and castings.



Sales were being offered on all types of brass – new and old.



If you needed scenery products they were here!



Kevin Macomber from Narrow Gauge Modeling Company was showing his product lines.



Train Troll has some very nice laser cut products for both railroads as well as dock scenes.



The always lovely Karen Lavezzi as she was texting my wife, Amy, who was at her yearly quilting and wine drinking retreat...



From the contest room... Above first place structure by Herm Botzow and his NYC express reefer (center) also first place in freight cars. Sam Shumaker's beautiful NYC Number 3148 (bottom) also won awards.



CANADIAN NATIONAL RAILWAYS SANMORE SUBDIVISION LET THE BUILDING BEGIN!

By Serge Lebel

What does it take to build a large home layout? Space? Money? Time? Talent?? If you asked ten different model railroaders, you would probably get ten different answers. Each of us have their own personal reasons and resources. Can it be done? Absolutely!! But after working for only three years on my layout project, I have to say that the one thing needed in my opinion is determination.

I guess you could say that my layout falls in the category of the above-average in terms of size... It does not tip the scale, but at 32' x 58', it is my biggest layout to date. This is not my first layout that fills an entire room, but it is my first O scale 2-rail layout of this magnitude. Of course, I had my doubts as to my capacity to fulfill such a tall order, so I had a lot of things to consider. In this article, I will take you through my entire process. Please note that this is only one man's opinion and method of enjoying this hobby. There is no wrong way to do this, and your involvement and investment in the hobby might be different from mine.

After spending many years working on my latest layout, I came to the realization that I wanted more out of this hobby than just operating trains. This is when I decided to turn to O scale so I could experience something new. But, my move was rather radical. I was not just sending my old layout to the scrapyard... I was selling the house and building a bigger one. This decision was also affected by my career, and it was a major factor in my motivation to accept a job some 500 miles away from my current home town. Accepting the new job would mean more money, a chance to build that new house with more space, and the flexibility in my work schedule to allow some time to actually work on a new layout. That may sound ridiculous to many readers, but had I been satisfied with my current layout, I would have turned down the job! Don't get me wrong, I was still doing the work I love, just not in the same part of the Country.

So, here we are six years later. I made the big move and dismantled the layout, sold the house, moved to a place where I did not know a single soul, and accepted the job I was offered. I spent the first two years getting used to living in a new environment (much colder climate of the great Canadian North!) and designing a house that would allow me to grow with my hobby. This being my third new house of my own design, I was determined to include all I ever liked in the first two houses relative to my hobby. Here is my list of must-haves that I settled on:

- An un-obstructed basement (no electrical panel, no hot water heater, no furnace, no load-bearing walls except for posts... but I had to settle for a few windows because of building codes).
- A ground floor workshop with direct access from exterior, and access to the basement. Workshop needs to be at least 14' x 32' with a few large windows, running water, and sound-proof dividing wall to keep noise to a minimum in the rest of the house.
- A woodworking shop as a separate building, but accessible directly from the workshop.

So, with that in mind, I got the house built. My first order of business was to build my own woodworking shop because I knew I would be needing to prepare a lot of lumber and commodities for the layout and the new workshop. Now I know that many will argue that you don't need to have a woodworking shop to build a layout. But in my case, I was now living in a very isolated town where I was a total stranger. I

felt I needed to have a few tools on hand to avoid always trying to find people to build things for me and to also avoid the very high cost of labor and finished products. Besides, this is all part of my "dream layout" concept. I like building things... What can I say?



The shop measures 12'-0" x 26'-0". It is not without hurdles and a few aches that I learned to work solo in building this project. But that also builds character!

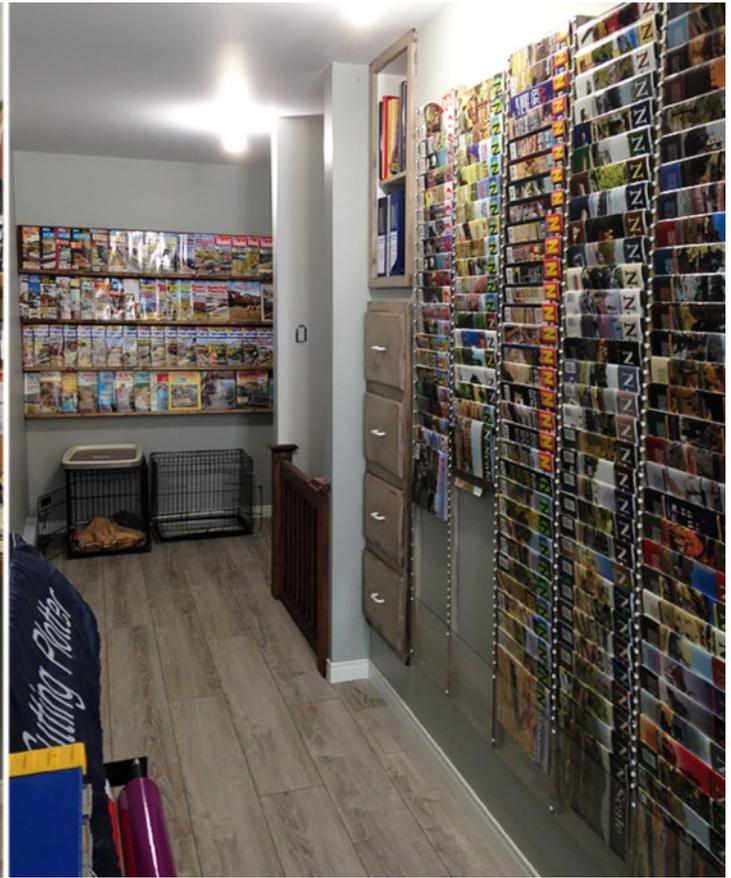
You must be wondering when are we going to get the the model railroad related part of this article, right? Well, I feel it is important to let you know all the steps that will eventually lead to building my ultimate layout. One of these things is to have an additional clean workshop area to build projects and work on locos, cars and everything that will go on the layout. I call this area of the house my "studio". This was left totally unfinished by the contractor who built my house. I wanted to

take the time to put up my own dividing walls, run my electrical wires, my plumbing, and finish everything so that it would fit my rather particular needs. I wanted to have a dedicated space for my laser engraver, brass etching equipment, spray booth, small power tools and plenty of counter tops to work with.



Having the woodworking shop allowed me to build all my cabinets, counter tops, and any small commodity I needed, like recessed filing cabinets. The studio was painted in bright lively colors to stimulate creativity and positive energy. I finished my cabinets with a bit of antiquing to give them the feel of an old railway station.

Since I had a large layout to design (not to mention many buildings), I put up my good old drafting table and installed a good quantity of reference material for inspiration. This had served me well in the past, but I always had to scramble to find what I was looking for. Now I can find what I need in a matter of minutes.



Okay, I made you suffer long enough, it is time to get to the good stuff... When I was asked by Dan to send some photos of my unfinished layout, I was hesitant to put up a photo of a bare basement. Personally, I love seeing how the room looked before a layout was started. An empty room leaves space for imagination... *What would I do with this empty room?* Then I thought, if I like seeing empty rooms, perhaps others would like it too! So, what would you do with this empty room?



At this point, a track plan was needed before getting anything else done. This is one of my favorite aspects of the hobby... Dreaming up a new layout on a blank page!

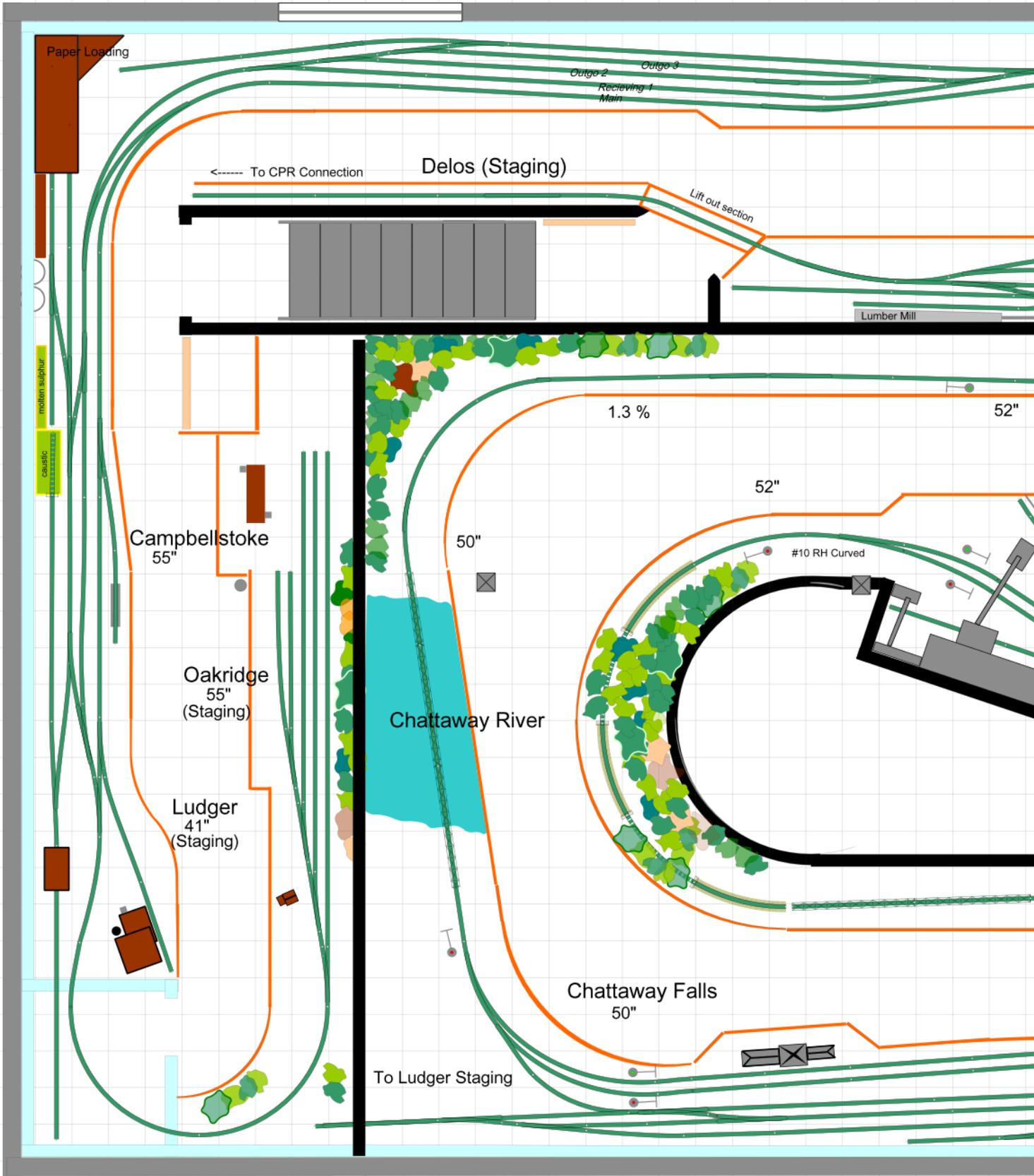
The basement measures 32'-0" x 58'-0", and has the stairs leading from the studio offset to one side of the room. There are a few support posts right down the middle. As much as I tried, I knew I would not be able to hide all of them behind the layout backdrop. This is the only thing that I had no control over. Some things just have to give I guess!

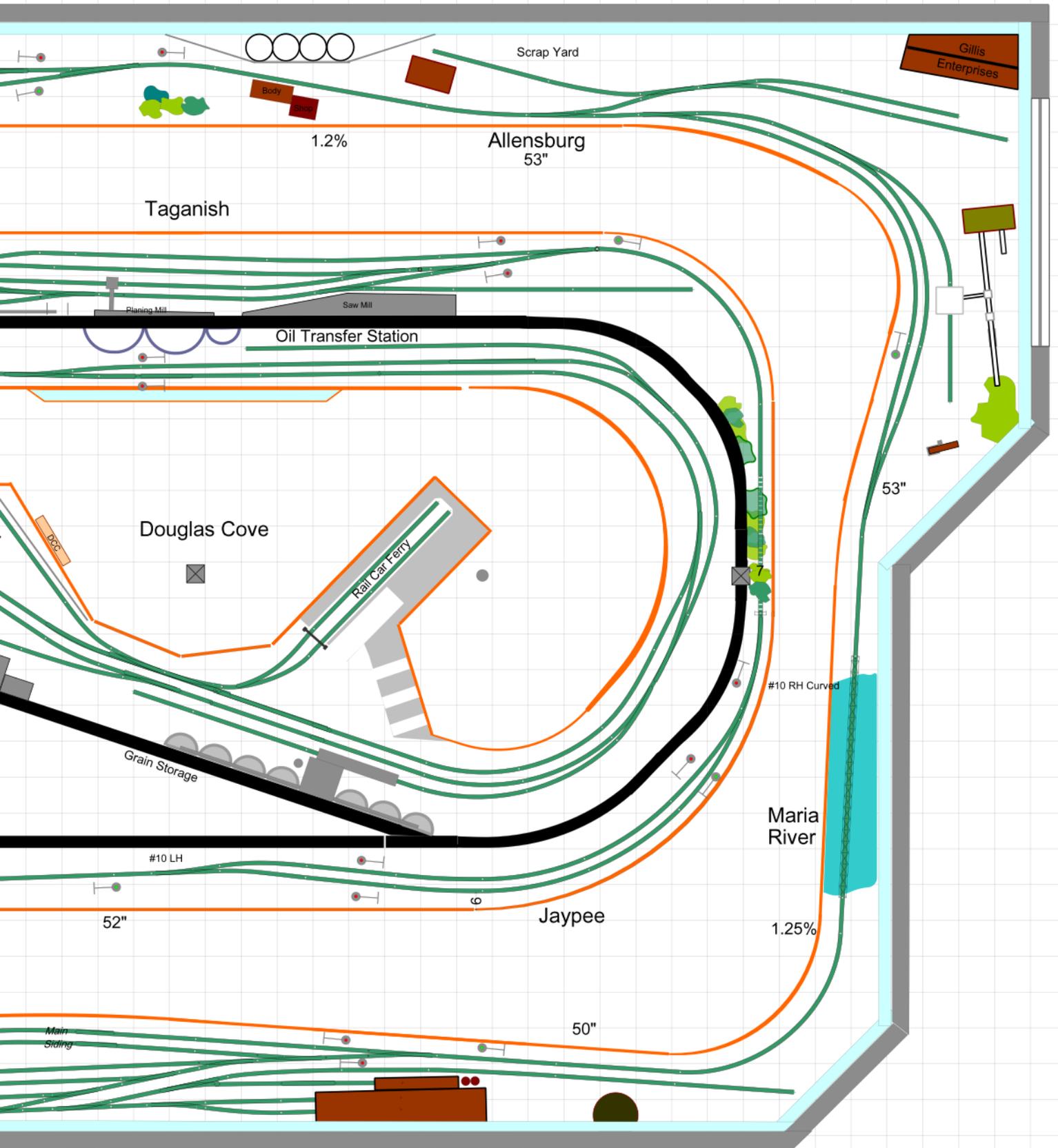
I have been in model railroading for the past 38 years, building layouts in HO and N scale, and one very small layout in O scale. At my age, I knew this would have to be my final layout if I want to see it done and have the time to enjoy it. So for my final layout, I chose to go with O scale 2-rail standard gauge. I wanted to get back to the original scale of this wonderful hobby and build the layout in a traditional manner; handlaid tracks on homemade ties, all scratch built buildings and as many modified and custom painted and weathered rolling stock as possible. This was a golden opportunity as I was just getting started in O scale and had no buildings, no tracks and only a few pieces of rolling stock. Man! What a great feeling to get to start over and avoid all those impulsive purchases!! This was my chance to put in practice all the smart advice I had been reading in model railroading magazines. Since I have been operating with DCC for the past 20 years, I decided to update my faithful EasyDCC system to accommodate the larger sound-equipped locomotives with more power, but with the same flexibility enjoyed with my previous layouts.

Now, I will not go into deep detail on my layout design and desires, as this would require an article on its own. What I wanted was a layout built for operations, including a separate area upstairs for a CTC machine. I wanted a sincere linear design with staging yards. Aisles would allow me to follow the trains without having duck unders or other access limits. I wanted as little hidden tracks as possible, and each scene had to be visually isolated from the next. It was decided that my minimum radius would be 50 inches, based on previous experiences with tighter curves and large modern equipment. I did not want to model any specific prototype subdivisions for fear of space restrictions. I wanted to model 1990's to present day Canadian National in a slightly remote area. With that in mind, I designed a layout that would be totally fictitious and tried my best to come up with town and subdivision names that do not exist. If a name rings a bell to anyone, please know that it is purely coincidence and was not intentional. This is how the **Canadian National Railway's Sanmore Subdivision** was born.

Now that I had a track plan, it was time to start preparing the room for the layout. Since I now live in an area that brings well over 6 months of winter and extreme cold weather, it was mandatory by the building code to put up 3 inch thick foamboard insulation on the walls and under the concrete floor. This provided a nice comfortable room that I heat up using electrical baseboards.

So once my walls were prepped, my next step was to transfer my track plan in full size on the basement floor in order to determine where the dividing walls would go. The basement floor was painted soon after so I did not mind all the scribbles on the floor. The dividing walls were built to be used as separators for each scene, and as support for the layout. There is no way this layout is coming out of that basement intact! But that is something I had taken in consideration even before building the new house. These walls were partially finished with a 1/8" masonite in 36" x 96" sheets. It required 49 sheets of masonite laid on their long side to cover the backdrop of the entire layout. The masonite was glued to vertical stringers using construction adhesive and plenty of finishing nails. Since my basement is heated 12 months per year at a very steady temperature (+/- 1 degree), humidity is non-existent and the masonite does not expand or warp. This was finished with drywall compound and painted blue for the moment.





Drawing by Pete Mottershead for
The O Scale Resource



I then installed the lighting. I decided to go with standard light fixtures, as the cost would be much lower and this would allow me to pick and choose the type of lighting I want in the future. I installed 54 such fixtures lined up in the center of the aisles. For the moment, I am using 23 watt compact fluorescent bulbs. Perhaps when I get to the scenery stage, these lights will be replaced with something more color-friendly.

Then came the part I like doing the least...the suspended ceiling. I want to have a nice, clean environment for the layout, and one of the things that keeps a layout dust-free is having a proper ceiling. But with all the curved walls, this is a daunting task and one that I try to do in small portions. Besides, the cost for covering 1800 square feet of ceiling is reason enough to take a few months to get it all done! However, with the ceiling done, there is nothing stopping me from getting some benchwork in place, and that is one aspect that I enjoy.

So in December of 2015, the first pieces of benchwork were put up and it was now time to start laying some tracks.

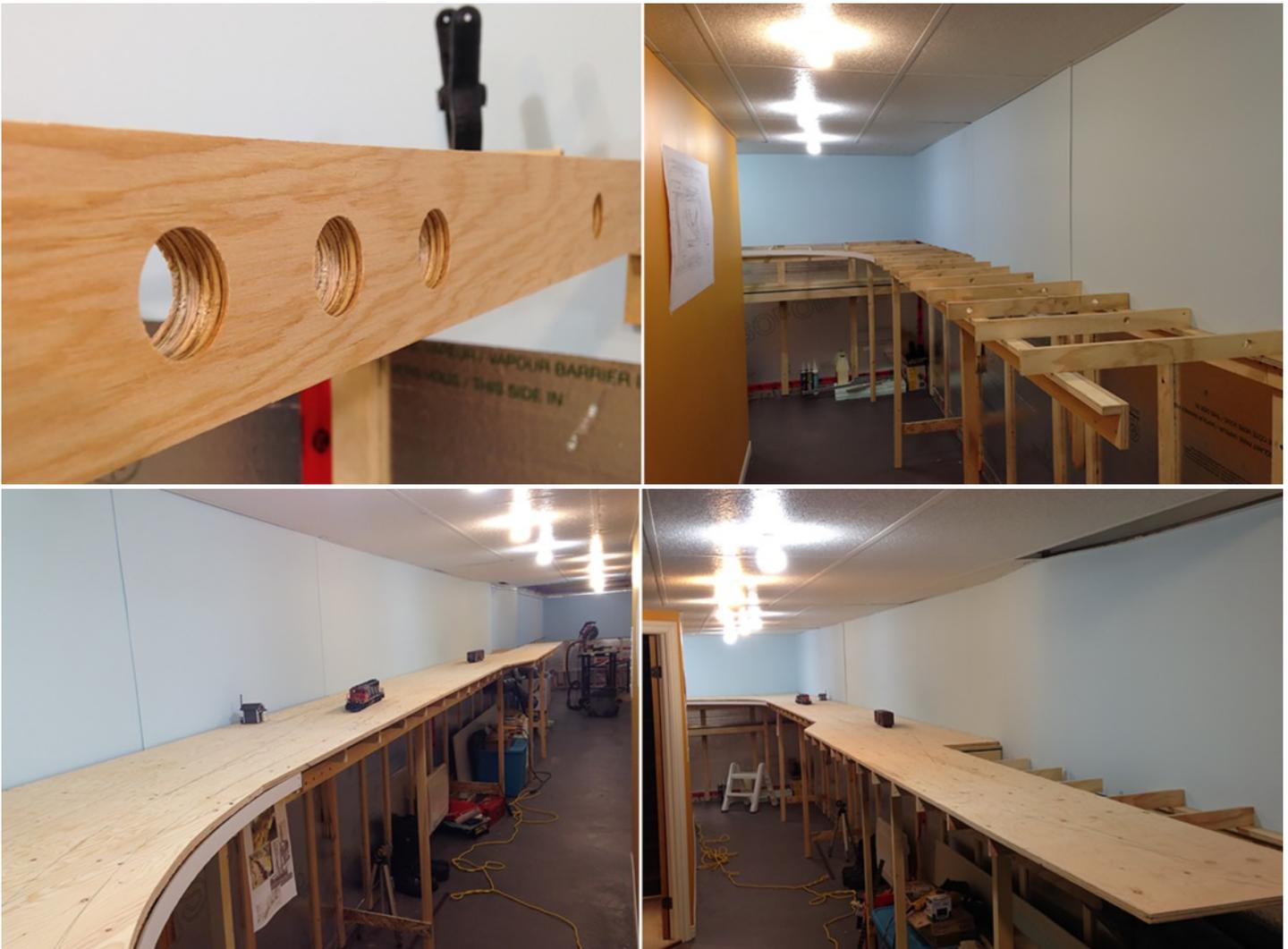
This is where a good track plan will serve you right in avoiding mistakes. I had good measures to work with and built the benchwork accordingly. This makes the track laying process so much easier. Besides, with handlaid track, the last thing you want is to have to start over!

Going back to my woodworking shop, I prepared all the wood for the benchwork. I chose to go with





5/8" plywood for its stability. I used pine boards that I cut to smaller strips for the spline sub-roadbed, and purchased on-line a large roll of 1/4" cork that I cut in to strips for the roadbed. Buying materials in bulk is the only way I can do this. The closest hobby shop is 9 hours away, and as hard as I tried, I found no other model railroaders in the area to whom I could ask for advice. Being a lone wolf modeler is not really a matter of choice in my case, but it is something I have to deal with.



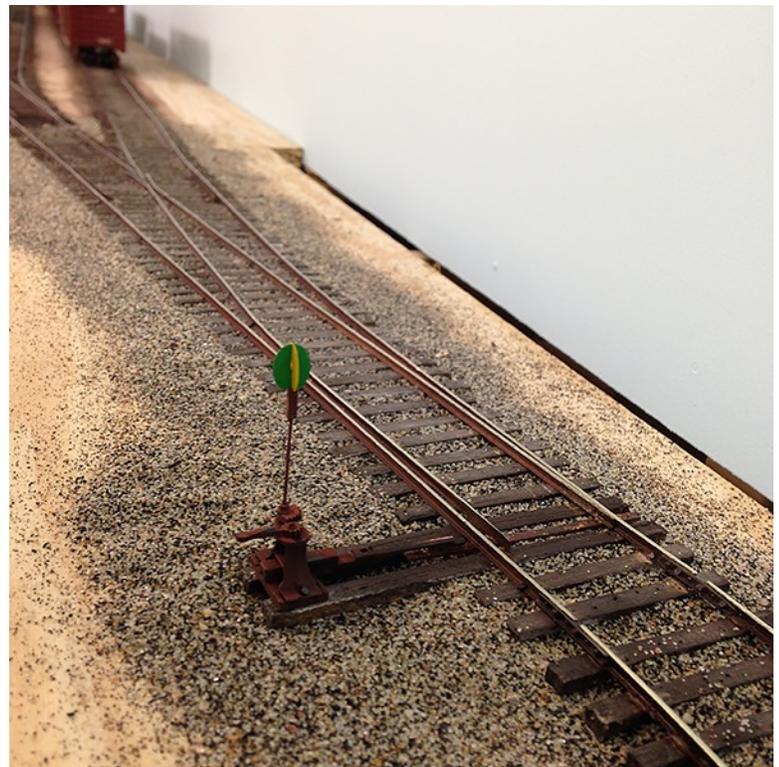
Looking at my track plan, it was determined that I would need about 35,000 hand cut ties. Good thing I have a woodworking shop! If one looks at all that needs to be done in building a layout, no wonder some folks throw in the towel. I take baby steps, and whatever I get done that day is that much I can put behind me. This is how I tackled the task of cutting the ties. I make small bags of 1000 ties at a time. I can cut about 2000 ties in four hours. I also pre-cut all the switch ties and put them in numbered bags. I made enough ties to get me started and keep me busy for a couple of years.





Changing scales from N to O meant that many of my techniques would be different. In a way, I am like a beginner as I never worked with O scale before, so most of what I do is researched on the web prior to starting each phase of the project. I will not go in detail on my techniques as they are as basic as it gets. So, with these basic techniques in mind, I laid the ties, sanded and stained them, and then laid my rail on top. I used code 100 rail. I know this will raise some eyebrows, but I went with the smaller code rail for it's low cost, and for the look. I guess you could call it a side effect of 20 years of dealing with oversized N scale track! I have about 30% of my track in place and have operated on it with several locomotives and cars, and I must admit, I am very happy with the way it performs.

Since I don't want this article to drag forever, I will let the next photos speak for themselves. As of this date, I have the benchwork

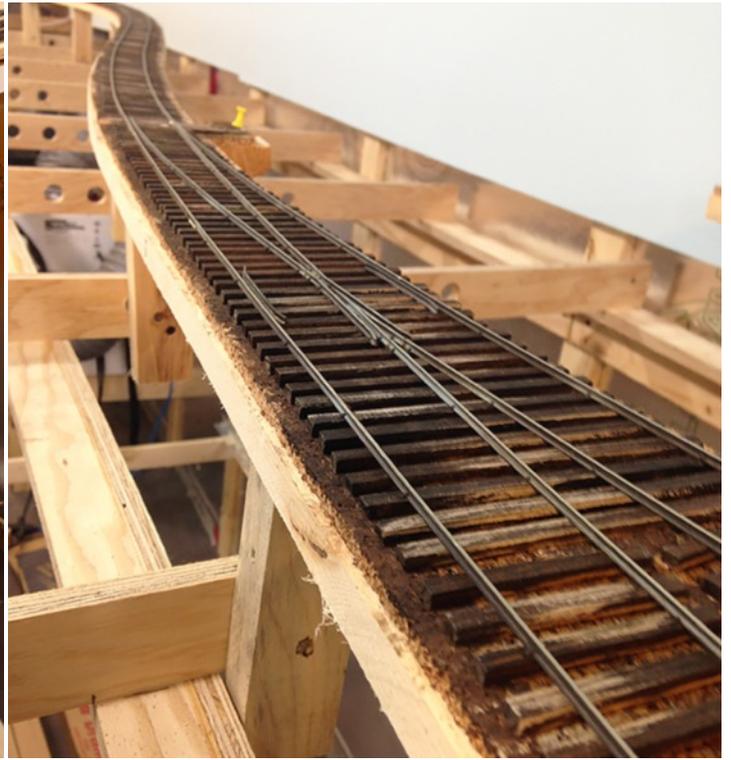


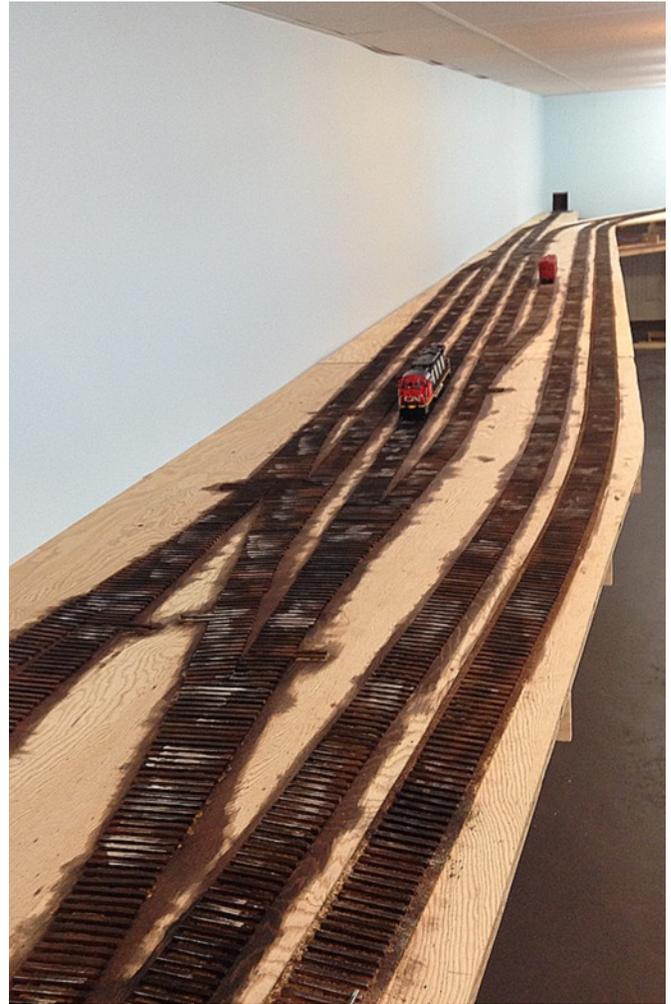
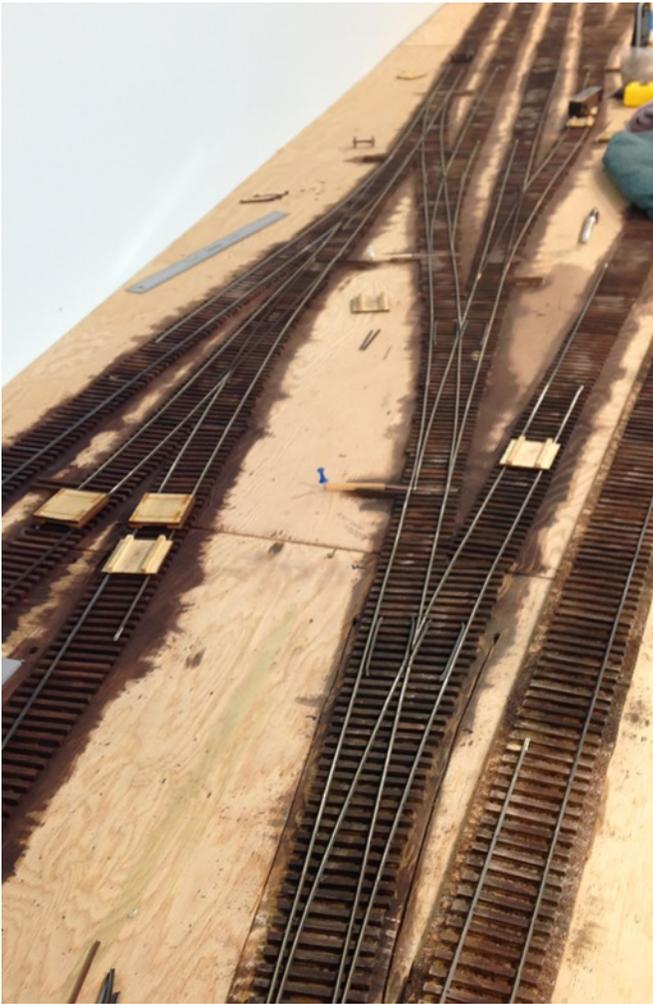
and track completed from Oak Ridge to Chattaway Falls, with plans to finish the benchwork all the way to Taganish by the end of the year. As I move along, I try to get the fascia in place, do all my wiring, and install the signals and detection. This is only the beginning of a great venture, and I am in no hurry to reach the end... I figure the layout should be ready for a magazine spread by the time I retire from my day job in 15 years.

So if you have any doubts about getting started on that new layout, all I can tell you is go ahead, and enjoy every moment spent on your hobby. Building a layout is a learning process that you have to experience hands-on, no matter the size of your project!









I love to buy old cars for a few dollars and re-build them. Here is a good example. This is a Weaver tank car which I added weights and glued the body so I could fill all the seams. I also scratch built a new platform out of photoetched brass and florists wire for the handrails. I then printed the decals on my Alps printer and applied a very light weathering to the car and trucks, which are old Athearn trucks with Intermountain metal wheels.



I also like to scratch build any type of equipment. My railroad is in major part a modern logging and paper industry related line, so I can put just about anything together without fear of having it looking odd. The forestry industry uses a lot of custom built equipment! Here is a logging truck trailer, built with just about any scraps I had in my styrene shapes box.





I am kitbashing two Atlas truss bridges to make them longer and more detailed. Here is the replacement deck, which features wood ties, and over 700 nut/bolt castings and scratch built double tie plates.



Same goes for signals and signal bungalows. This is laser cut styrene and photoetched brass details, all scratch built except for the door handles, which are locomotive door handles!



This is the Ludger staging yard under Campbellstoke, while it was under construction.

About the author:

Serge Lebel has been involved in model railroading for the past 38 years, mostly in N scale, but switched to O scale a few years ago. He lives in Sept-Iles, Quebec, where he works as a locomotive engineer on the Quebec North Shore & Labrador Railway. In addition to model railroading, he enjoys woodworking, playing bass guitar and painting.

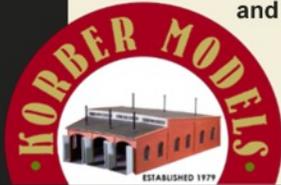
The following pages show more of the overall progress Serge has made to this date. At the end are a few kitbashed and scratch built equipment Serge has completed. Enjoy!



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SCRATCHBUILDING WITH STYRENE

SHERI AND KYLE'S

BY KEVIN GIBBONS

How many times have you driven past a structure and thought to yourself how much you would like to have that building on your layout? Or just to build it as a diorama? That bug has bitten me a few times and the last time it did, I decided to try to build it from scratch. My friends, Sheri and Kyle, purchased a Victorian built in 1885 in Algonquin, Illinois that had been modernized and given a face lift. Their dream was to open it as a bed and breakfast. At the age of 52, Kyle passed away. We were all devastated, but Sheri was heartbroken as well as devastated. Eventually, after a couple of years, Sheri soldiered on and went forward with their plan. She completed all the changes they wanted to make and rearranged the rooms in the house so that there were four guest bedrooms upstairs. She applied for all the licensing, jumped through all the municipal hoops, and her B&B is scheduled to open in mid July, 2017. Fortunately for me, I started the project back in October. My medium of choice for this project was styrene sheets and strips. For paint, I used the exact outdoor latex paint that was used on the house.



Sheri and Kyle's

I knew the owners, so I had no problem taking pictures and measurements, and I also took copious notes, i.e., front wall upper windows are 32" x 65" double hung. West wall upper window are...you get the drift. When measuring for window location, measure from the corner of the building if there is no corner post. If there is a corner post, subtract the width of the corner post from the measurement for cutting the wall width. Taking good notes means making fewer trips back to the structure.

Once you've got your dimensions, it's good to make drawings of each elevation. They don't have to be architectural quality, but accuracy is paramount. Include corner posts in the drawings if the prototype has them. This will help in cutting the wall width accurately. Cut the styrene sheet for the front wall to width and, if necessary, height. If you're building all four sides of the structure, cut two walls this width unless there are architectural differences. For laying out windows, measure from the edge of the wall to the edge of the window trim and add a scale 2" for the rough opening. If possible, measure from the bottom of the siding to the bottom of the window sill. It's good to make a mockup of the structure out of cardboard or foam board before cutting the styrene. This serves two purposes: 1) it allows you to see what the structure will look like; and, 2) it allows you to make any size adjustments.

If the window dimensions aren't available commercially, (Tichy Train Group or Grandt Line make excellent styrene windows, doors and detail parts) you'll need to scratch build them. It's easier than you think



(as long as you're not requiring working windows. That's doable too, but this is a primer so I'm not going to go into that). The real key to scratch building windows with styrene is to make good, clean and accurate cuts when cutting the windows out of the styrene wall panel. Needle files are essential for this. I used to scratch build in N scale, and windows were always tough to cut accurately in that small scale, but now that I'm building mostly in O scale, it's a little easier to do. I cut them out the same way a drywaller cuts a hole for an outlet or switch. First, I mark the window cuts with a pencil and steel straight edged ruler. Then I come back over that using a new #11 blade, and make 4 or 5 passes using steady pressure. I do that on all four lines (be careful not to cut past the corner), and then I cut an X from corner to corner on the portion

A mockup: I chose to build this model of the house from the roof ridge forward, and not the entire structure.

of the styrene that will be scrap. After that, I poke the end of the scribing tool into the center of the X and the four sections pop out. Do the same with doors. Test fit everything!

The last four or five structures that I've scratchbuilt with styrene needed to have scratchbuilt (non-working) windows. The way I did it so that there would be enough styrene for the components of window sashes to be cemented to, was to double the walls. I purchased clapboard siding and plain styrene sheets. I cut the walls out of both and laminated them together with styrene cement. This gave the wall a total width of .80 and that's plenty for the window sashes to adhere to *provided your cuts are good*. If there are too many irregularities in the cut out windows, the needle files can fix that, so take your time and be patient getting the cuts as straight and square as you can manage. **BEFORE YOU MAKE ANY CUTS, CHECK THE CLAPBOARDS TO MAKE SURE THEY AREN'T UPSIDE DOWN.** (Don't ask...)

Once you're happy with the rough openings of the windows, measure and mask the inside dimensions and prime the walls. A rattle can grey always works. Once the primer has cured (it takes longer on styrene), cut your sash components out of scale 1x4's. Use a 2" x 6" for the sill and put it place in order to have the side sashes butt to the top of the sill. (You should determine in advance what dimensional strips you are going to need. Typically 2"x4", 2"x6", 2"x8", 2"x10", 1"x4", 1"x6" 1"x10" for fascia and prime one side of all of them.

After painting the finish color, cut them snug, and cement them in place. Once the cement has cured, I flip it over so it's upside down on the bench and then I carefully apply Tenax-7, a plastic welding solvent with capillary action that creates a strong bond. Unfortunately, the cement and solvent will take the paint off so be careful, and be ready to touch up the paint anyway.

When you've got all of the window's sashes and sills cemented in place, turn the wall over on the bench and apply your window treatments, i.e. acetate, curtains or blinds (cut out of paper and glued on the acetate). I like to use scale 12" x 12"s for bracing in the corners. They are very sturdy and they provide ample gluing/cementing surface, so if you decide to use them, allow for their size when cutting the window acetate.



Front porch with sashes, sills, glass, grids, and scratchbuilt door.

For the main roofs on my bed and breakfast build, the tops of the walls supported the roofs combined with ridge beams at the top of the gables. Rafter tails and soffit/fascia were installed after the roofs were glued in. The porch roof was a different story; the prototype having a low hip roof. I decided that the best way to go about it was to frame it out. This turned out to be a good idea because it made it easier to cut the roof panels, and the roof panels wouldn't sag over time.

For this project, I chose to use Rusty Stumps Scale Models self adhesive three-tab shingles on a .10 thick styrene sub-roof. That's a very thin sub-roof and the reason I framed the porch roof. I used .30 for the main roofs and gables.

The first step on the roof is to cut all the geometric shapes of the roof panels, and with a mechanical pencil and a ruler, mark your roof panels every 1/8" and draw lines. Doing this makes aligning the shingles much easier. Then just follow the instructions on the shingle packaging. Walt Gillespie sells the best shingles on the market in my opinion and I use them exclusively (having learned some hard lessons).

I did the small dormer roofs. All of the windows on the prototype are trimmed with a crown molding across the top. Crown molding is just not available in O scale. I searched everywhere for it and couldn't find any, so I fabricated my own out of styrene angle and a 1"x4" cemented to the back of one of the angle sides, and a piece of quarter round cemented in the corner of the angle. After that cured for a day, I primed it with a rattle can grey and let that cure. Then I painted it the reddish trim color (3 coats on every piece of trim).



After finishing them, it was time to tackle the soffits and fascia. The prototype was built in 1885 by master carpenters, and the soffits are quite intricate. They consist of two separate boards with a trim piece between them and against the siding. They are also odd in that they angle downward from the rear of the soffit to the fascia. I realized early in the project that if I was going to employ modeler's license, it would be on the soffits, so I opted to replicate the trim piece with paint instead.

To build the soffits, I needed to cut rafter tails out of 2"x8" at the correct angles so I cut rafter tails for all the soffits and installed them. Then I carefully measured the width (depth) of the soffit and cut them out of pre-primed and painted .10 styrene and cemented it in place. Then I cut the pre-painted 2x8 soffit boards and very carefully installed them and the structure was finished.



The next, and last step, is to construct the diorama. I chose to build the model on a 14"x10" piece of 1/2" MDF. I drew in the location of the house, sidewalks and driveway and masked those areas. Then I painted the board black. The driveway was installed first. To start the driveway I needed to cut some railroad ties to border it, so I cut them out of some stock lumber I had, distressed the ties with wire brushes and stained them with pastel powders and alcohol. Then I epoxied them in place. I made a trip to Walmart and bought a package of self adhesive 1/16" foam padding and cut a strip the size of the driveway (the finished diorama represents half of the driveway), peeled off the backing and stuck it down to the MDF. Then I cut a strip of 220 sand paper and glued it over the pad and put blocks on it and let it dry.



Once dry, I took three pastel chalks and with a single edged razor blade, scraped the pigment onto the sandpaper. When I felt there was enough, I added more. Then I “washed” it in with alcohol which evaporates quickly I added small pockets of weeds along the railroad ties, and the driveway was done. Next, I installed the pre-painted styrene sidewalks.

I purchased a grass mat from Scenic Express, cut it to fit, and glued it down. As you can see in the prototype picture, there is quite a lot of foliage growing around the house and none of that was available commercially so I had to scratch build the shrubbery, except for the small reddish hedge. I bought that. The shrubbery was made by cutting several pieces of stranded wire approximately 8 inches long. Grab them in the middle with a needle-nose pliers and bend both loose ends up and together. Grab the bend in lineman’s pliers and grab the rest in the needle-nose, twisting them all together until most of the twist can be used as the stalk of the bush, and the looser end the branches. With the lineman’s pliers, bend the end at a right angle. This will help attach the bush to the MDF later on. Bend the loose wires however you want the bushes to appear (in this case I made 6 lower bushes and a large bush for the left side of the porch). There’s a large bush there on the prototype and it also masks a miscalculation in the windows of the porch – the one hiding behind the tall bush is skinnier than the other windows.



Test fit on base.

Next, I took a piece of wood and some double sided tape and secured the bushes to the tape/board and went out to the garage and spray painted them a dark brown. It took several applications to cover the copper sufficiently. When dry, I sprayed them with a cheap hairspray and sprinkled Woodland Scenics fine turf over the wires. Meanwhile, with a small scissor I cut up chunks of Woodland Scenics turf clumps into small pieces. I applied thinned white glue to the insides/tops of the bushes and pushed the clumps into the bushes. The tree was purchased from Scenic Express.

The house had to be removed from the base in order to get the bushes in place, but once all the greenery was installed, the house was epoxied to the base and the diorama was installed in a case made of aspen and stained red mahogany, finished with a satin verathane.

The following are three pictures of the finished product.





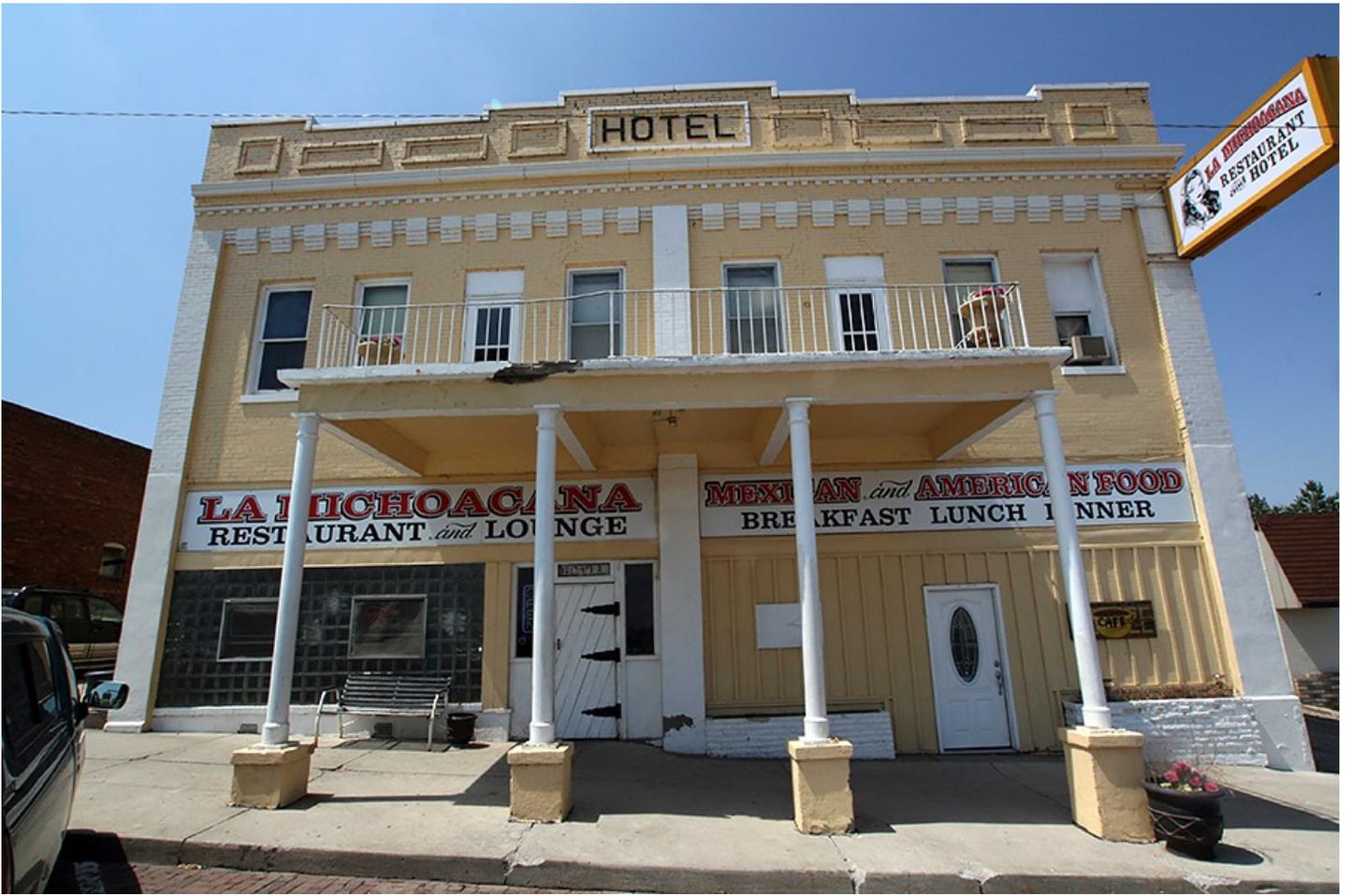
Editor's Note: Kevin sent along another impressive build that I thought I would share with all of our readers. Here's the story from Kevin:

I was approached by Kyle (same gentleman as before) several years ago to see if I could build a model of an old hotel in Wakefield, Nebraska based on a newspaper photo from 1967. Sheri's dad retired from the Chicago & North Western after 40 yrs, and was the station agent in Wakefield for his last assignment. The Wakefield Railroad Club acquired the old depot for a railroad museum. The hotel was the center of town back in the day, and they wanted a model of it on their railroad, so I asked Kyle to take some measurements of the hotel the next time they went to Nebraska. He did, and took photos of the structure too. As you can see from the picture "hotel 1", it's a pretty ugly structure these days, but I gave it a shot. The last three pictures are the finished model. Sheri's dad came up to Antioch, Illinois for the holidays and while he was at her house, I brought the model over to him. He had no idea I was doing it. When I handed it to him, he cried a bit and called his friend from the railroad club. "Brad, I'm holding an exact model of the chuck wagon in my hand right now. Wait until you see it".

This model is also 100% scratch built with styrene sheets.



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Building B&O's Iron Pot Hopper

By Richard Cooke



B&O No. 23002 Iron Pot Hopper - Archives Collection

For the last fifty years, the drawing of B&O's iron pot hopper found in the RMC *Rolling Stock Plan Book* has intrigued me. I had just purchased a small resistance soldering outfit, and thought this car would be a good project to try it and hone my soldering skills.

B&O built these class Q 20 ton hoppers in 1883 as a further development of their line of iron hoppers for coal hauling.

My model is 99% scratch built. Yes, some of the parts could be purchased to save time, but I enjoy the construction end of the hobby. None of the parts are hard to make, just require some patience.

After much research, I realized that the RMC drawings were sized for O_w5. It's a narrow car and one would not want the journal boxes extending wider than the body. I could have built it that way, but decided to build it to P48 standards.

The wood frame pieces are maple, cut on my table saw. Basswood could be used thus eliminating the need for the saw. These pieces are glued and pinned together for strength and the look of bolt heads.

The only fancy tool is a \$20 rummage sale wood lathe used to turn a mold for the pots. A flat was cut where the dividing plate would separate the compartments. Fighting with half-hard brass when bending sheet or large wire is no fun, so I softened .015" brass and used it to fabricate the three pots.



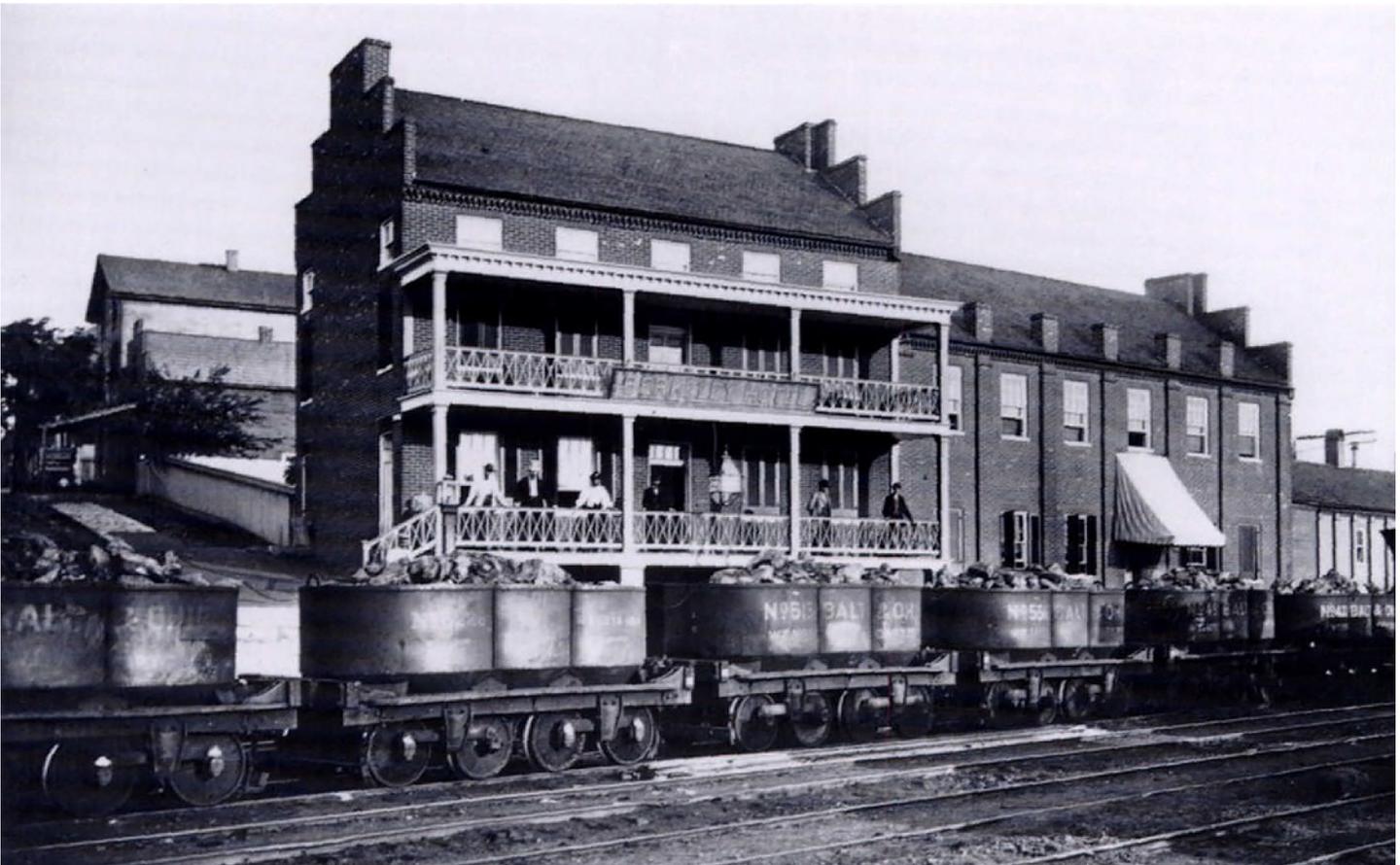
Mold for pots turned on lathe.

Your high school geometry could be used to develop the abridged cones of the pot bottom sections, but I found it easier to wrap the brass around the mold and mark where the flat meets the cone. I cut two full rings for the outer cones, then used the cut-offs for the center parts. All these pieces were flattened then had rivet heads pressed for the inside using a drill press. Thin strips were cut and pressed with rivet heads for the outside. Only after riveting, wrap the parts around the mold and solder together. A bit of filing will perfect the joints.

The four journal boxes were gang produced from a lamination of five strips of .030" brass sweat soldered together.



Divider flat cut, with rivet flange relief.



Herbert H. Harwood, Jr. Collection

This method was used to obtain the three ears on top of the journal boxes. All the holes were drilled and the profile was filed to shape. Then, the strip was sawed into separate parts. Working this way gives a larger piece to clamp while drilling and shaping. A wood block was carved for a die to shape the pedestals. A nail with a rounded end was used as a punch to hammer softened brass into this die. It was not hard to shape the brass. Brads held the brass in place while shaping.

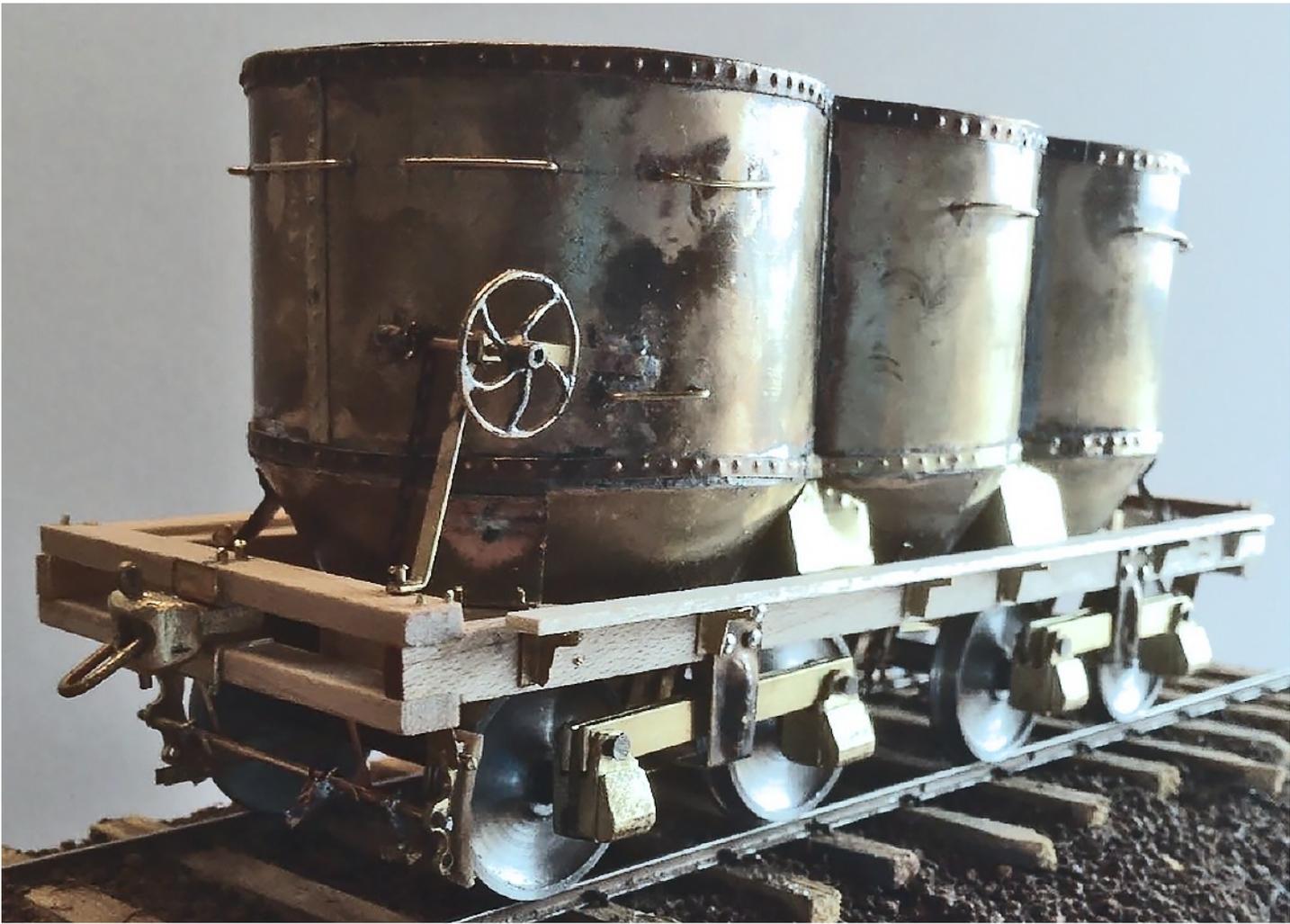
Brake shoes were drilled, filed and sawed to shape, and basswood liners super-glued to them. I used wood to insulate the brakes from the wheels. For the brake wheel, a ring of .020" brass wire was bent and pinned to a piece of wood. The wire shaft was inserted in a hole in the center of the ring. Now the spokes could be soldered in place without anything moving.

I realized that a tiny drop of household oil on the brake links will stop the flux and solder from flowing where not wanted. The brake link pins have a dot of solder on the ends because cotter pin holes are too hard for me to drill.

The link and pin couplers are carved from a piece of brass. They were made face to face so that one hole was drilled to obtain the front curve, then sawed apart. Coupler dimensions are not critical as there are many styles made and seen on this car.

A display track was built using code 70 rail and hand cut ties. Code 83 rail may have been a better choice, but I used what I had. Some ties have bark on their sides, are wider than normal or cut from a curved tree. Just very crude. Ballast, and I use that term loosely, is sand. This was a fun project and a very good learning experience. The resistance soldering unit is not needed, but made some of the work much easier.





MODEL RAILROAD DESIGN

OUT AND BACK WITH TWO YARDS

By Pete Mottershead

Introduction

Before we start, here's a few rules so the reader can understand what decisions are being made and why. Everyone knows we can't fit a real train in a real basement. OK, let me clarify that – 120 coal cars, 60' long is a real 7200 feet. Reduced to 1:48, that's 150 scale feet and no engines. Shucks, my basement is only 149' long. Um, no, it is 26' long. That's the first bit of reality everyone knows and everyone forgets when they plan a layout (yours truly included). **Second, what an engine or rolling stock can traverse is one thing, but what the real railroads would have really done that is quite another.**

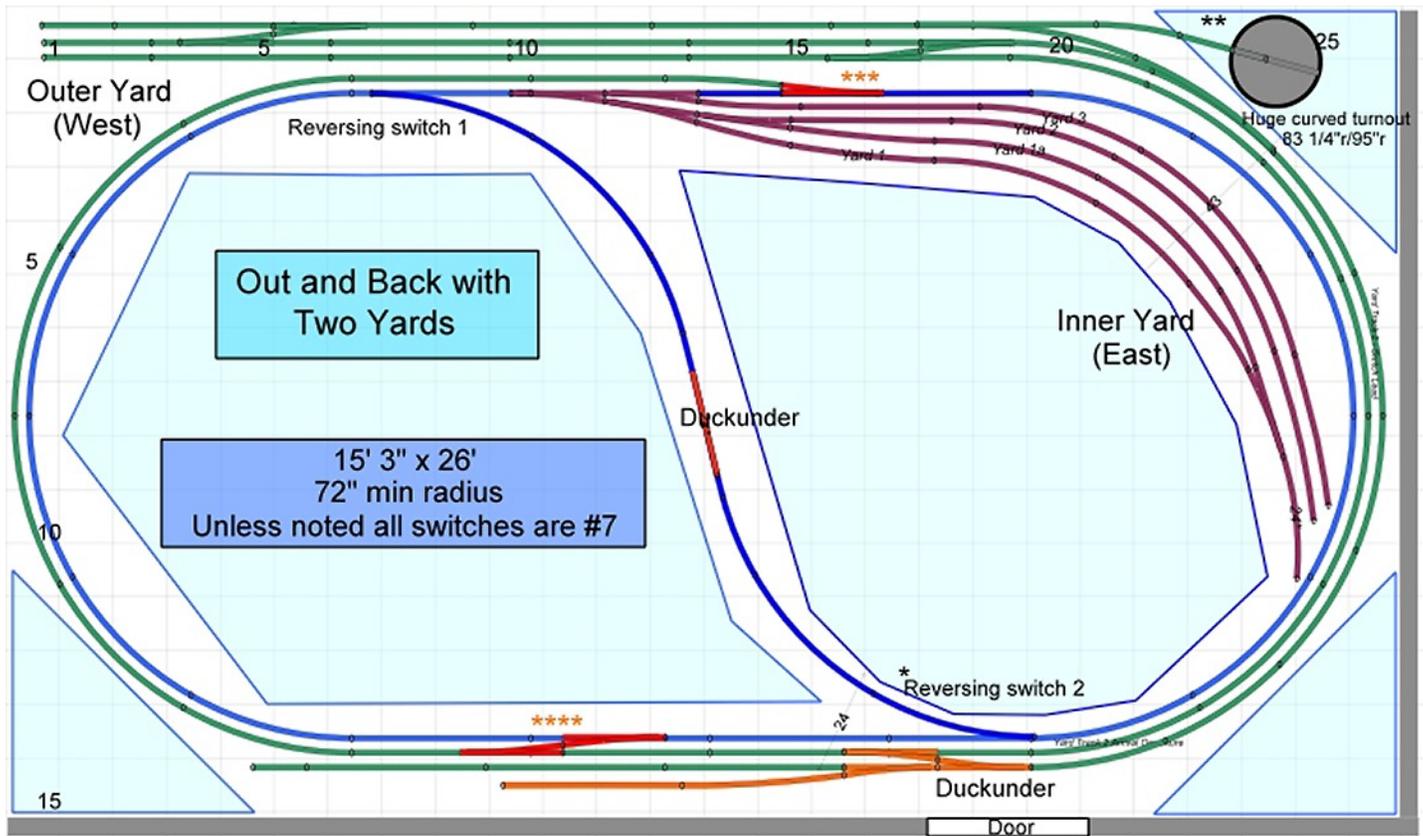
Where turnouts are concerned, the author uses two primary sources and a selection of specific sources for specific information. The primaries are: The Pennsylvania RR and the American Railroad Engineering Association. The O Scale Resource website page "[Useful Information / Prototype Information](#)" refers to The American Bureau of Inspection and Test, Consulting and Inspecting Engineers. Ironically, all three sources differ on exact dimensions, but are close. For example using a #8 turnout, they all agree an 8 to 1 ratio is 7 degrees, 9 minutes (PRR adds 10 seconds). Now, AREA and ABIT specify an 18' switch (the whole thing is the 'turnout' and the points are the 'switch'), while PRR likes the 16' 6" spec; same length as what Right-O-Way delivers. Now things get real dicey... the lead: the distance from the tip (toe) of the points (switch) to the 1/2 point of the frog – the actual sharp point where the wheel tread first hits, is different for all three: AREA = 70', PRR = 68' and ABIT = 75' 3".

Now guess what, we in O scale can't use any of these because we insist on 5' between the rails and the big guys use 4' 8 1/2". (Right about now, you should feel a guy with Proto 48 on his cap smiling and looking over your shoulder). That extra 3 1/2" throws everything off. But, fortunately, things are close enough we can get by. There is a lot to be said for Proto 48.

It takes a lot of imagination and explanation to plan a layout that is satisfying on the first try. But as the owner/operator, it really helps to be able to understand and explain the tradeoffs. Compromises such as why the freight house is only about 1 car length long. Why the switcher pocket switch is OK at a #6 and the mainline crossover is as big as we can get. In representing the real thing in miniature, we have to pick what we like, emphasize it and leave the rest. So, as we move through these plans, we will try to explain the tradeoffs and why they were made.

Out and Back with Two Yards

This plan, like so many in 2 rail O scale, comes with the usual seemingly outrageous criteria. The room size is 15' 3" x 26'. Empty, it looks like plenty of space. But the request is for 72" minimum radius. Period! No exceptions! This pretty much limits us to around the walls with the trains running in one direction. In fact, given the 72 inches; a 12' diameter in a 15' room leaves precious little space to do anything. All the access will have to be inside or in the corners. Ducking under will be a way of life, and so bench work height will be important too. In an effort to keep this layout as buildable as possible, the number of **extreme switches or complex track work has been kept to a minimum.**



But, this causes some oddities that may wind up being desirable to the O Scale, big engine enthusiast. We are going to begin this journey in the outer or west yard and head east. Because of those space restrictions mentioned earlier, the yard tracks have unusually long leads and, in fact, are actually in **tandem**. Our 'consist' is sitting on track two at the extreme right side of the layout instead of physically in the yard. A concession to the confines. This is highly prototypical. It was not uncommon where a yard was fitted in between say, a river and a bluff to stretch the yard out. For sure, we could plan this in a more conventional manner with the use of curved turnouts, but the prototype did not do that to any extent, and besides they do cost money. There is one in front of the turntable. A nice sweet 83 1/4"/95" monster. That thing could be 5' long before all is said and done. One more comment before we depart: With those long lead tracks, the owner can enjoy seeing his 85' Pullmans, 89' flats and/or big modern diesels parked while he operates in other areas.

So now, we head east. We join the main at switch ***. From here, we can do the loops as desired until something more is asked. This turnout, and the ones marked ****, are intended to be as long as the owner can get. As drawn they are 9's, 12's would be better. The idea is, if the operator wants 72" radii, it is obviously is to get the best appearance possible. #12's would be downright beautiful! For this, there is plenty of room.

At this point, we have several options on how to proceed:

1. We can head into the inner yard and use the run around on yard track 1 and 1a; or,
2. Make a choice between reversing switch 1 or 2 and begin looping the other way; or,
3. Make the same choice as #2 and back into the yard; or,
4. Grab another train at the inner yard and head back west.

If we take the 4th 4, we cannot reverse our direction like we could when we were heading east. We can only go on into the outer yard. There are two prototype points to make here: In reality, "not being able to get there from here" is common. The inner terminal is, in reality, a stopover or turnaround point.

It is not an origin; trains don't get made up or originate here. They get minor servicing, fuel, water, and then continue or head back. The other point is, a common practice would be for our eastbound to take reversing switch 2, pass through reversing switch 1 then back into the inner yard. Backing movements happened often. The C&NW's flagship 400 backed through the wye at Wyeville in Wisconsin every day. Given these options, it's not long before the owner/builder/operator realizes there is a lot he can do with just a little bit more than a simple oval. And his generous switch sizes and radii should allow for flawless backing movements.

We have made our run out and back. Now, we will discuss each area and at least highlight what's important. Once again, we'll start with the Outer yard. Not a lot of rail and ties here, but that was understood in the beginning. If the different colors show through on the printed version you can see the outer yard, in green, actually wraps all the way around the railroad, considering the main itself is only about that same distance. Certainly that is disproportionate to the real thing and even to other model railroads. But, there is an answer and justification. Some people like to model just the yard. In this case, the owner wanted a smooth, wide radius display of his large rolling stock, but did not want any weird stuff like long curved switches (well, he got just one, sorry) – this plan will do that. The switch lead is actually the extension that brings trains in and out of the yard, along with being a passing track for the main via switches *** and ****. The crossovers at the duck under allow the switcher to access all three yard tracks. East of there is a pocket track and an industry siding. Counting in from the top wall, there is an engine runaround between tracks 1 and 2 and a full train runaround between tracks 2 and 3. The turntable ** is highly questionable. It very much gets in the way of accessing that big long curved switch and anything that gets on the ground in that area. This will fall into the 'as built' category.

At the other end, the inner yard enjoys some really weird track spacing. Well, there is a reason for this too. ALL track is to be a minimum 72" radius and that is it! The bumpers wind up being normally spaced, but getting there requires a little spread room. Only an engine runaround exists, but remember, this is a secondary terminal. In our O scale world of large engines, large radii and small rooms, we can keep 'em rolling!

Final comments and modeling notes

Two comments to make about the plan:

1. Notice the duck under by door at the bottom of the drawing. Keep the bench work – where it says '* Reversing switch 2' - as close to the wall as possible. During construction it's very easy to forget about actually getting to the points of a turnout and truly regretting it later.
2. If possible, gently lower the outer yard 1/2% downgrade. No steeper than that. It will add some realistic contour. Of course, there is much more that can be done with this plan. The first order of business would be to add line side industries.

Good Luck and Happy Modeling.



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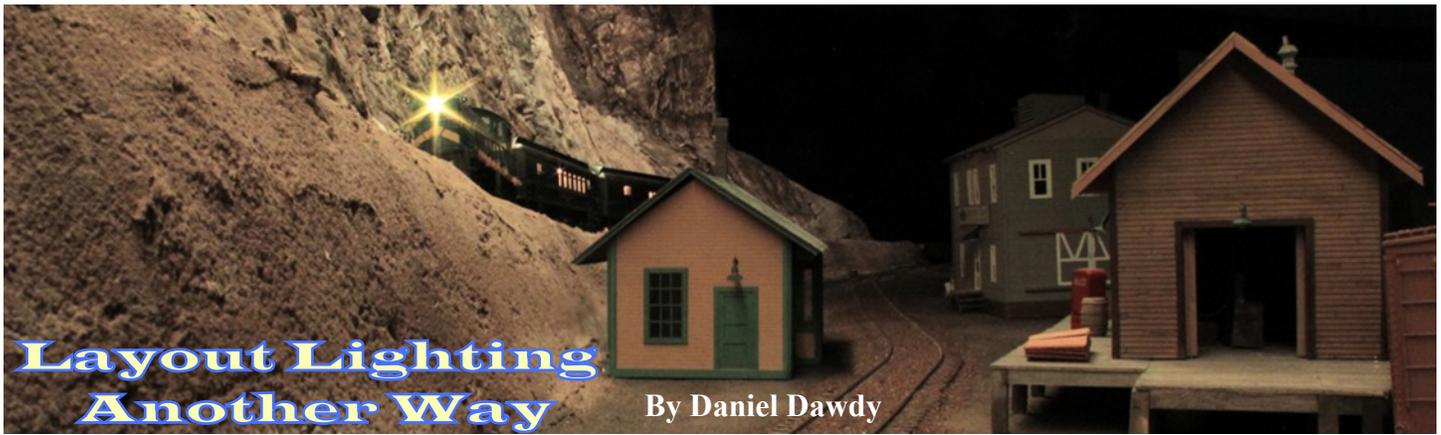
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Layout Lighting Another Way

By Daniel Dawdy



Two silhouetted figures in The Big Combo (1955). The film's cinematographer was John Alton, the creator of many of film noir's stylized images.

I have always had a fascination with lighting. Being a fan of film noir, lighting in those B&W films was very important to set the tone and mood for the scene. While traveling to Toronto a few years ago to photograph some layouts, my wife, Amy, and I came across two with exceptional lighting. The first was the St. Jacobs & Aberfoyle Model Railroad and their system for going through a 24 hour light sequence. The second was Trevor Marshall's Port Rowan layout. Trevor uses lighting like a stage production, emphasizing places he wants you to notice.

When I started work on the basement of my "forever home", I went with 4 ft. T8 32-Watt Daylight (6500K) florescent tubes. At the time, they needed to be ordered as not many places carried Daylight tubes yet. Now they are common

place. The reason for the Daylight tubes was photography. No filter would be needed on the camera. This was more important when using film then it is now as all modern digital cameras have a white balance setting. I also liked working under these very bright lights. Of course, running trains with these lights is fine, but I wanted to come up with a less expensive way to tone down the lighting and focus on the layout. I had thought about a combination of low voltage track lighting using floods and spots which would allow me to turn off the regular room lighting. That got real pricey. Even with the newer LED track lighting, the fixtures were more than I wanted to spend.

Moving ahead a few years, I built a staging yard under the layout. It spanned three tracks and ran about 25 feet in length. I have seen many layouts with lower staging like this and they used a variety of Christmas lighting strung along the staging to light up what was in staging. I have seen tangles of mini lights and even the much hotter running C-7 bulbs that I grew up with on the Christmas tree. I did not like the wires or the bare bulb look of these. At the time, it was a necessary evil. When I built my staging yard, I tried something new, at the time it was fairly new, and that was LED tape lights or ribbon lights. They normally come in five (5) meter (approx. 16 feet) spools. I ordered a bright white version as this was not for mood lighting, but for seeing what was where. I attached a 1 inch furring strip along the bottom of the upper level and attached the LED tape light which came with its own adhesive backing. It's powered by 12 volts so I simply taped into my 12 volt line on the layout. It's been stuck up there for almost four years now without any problems.

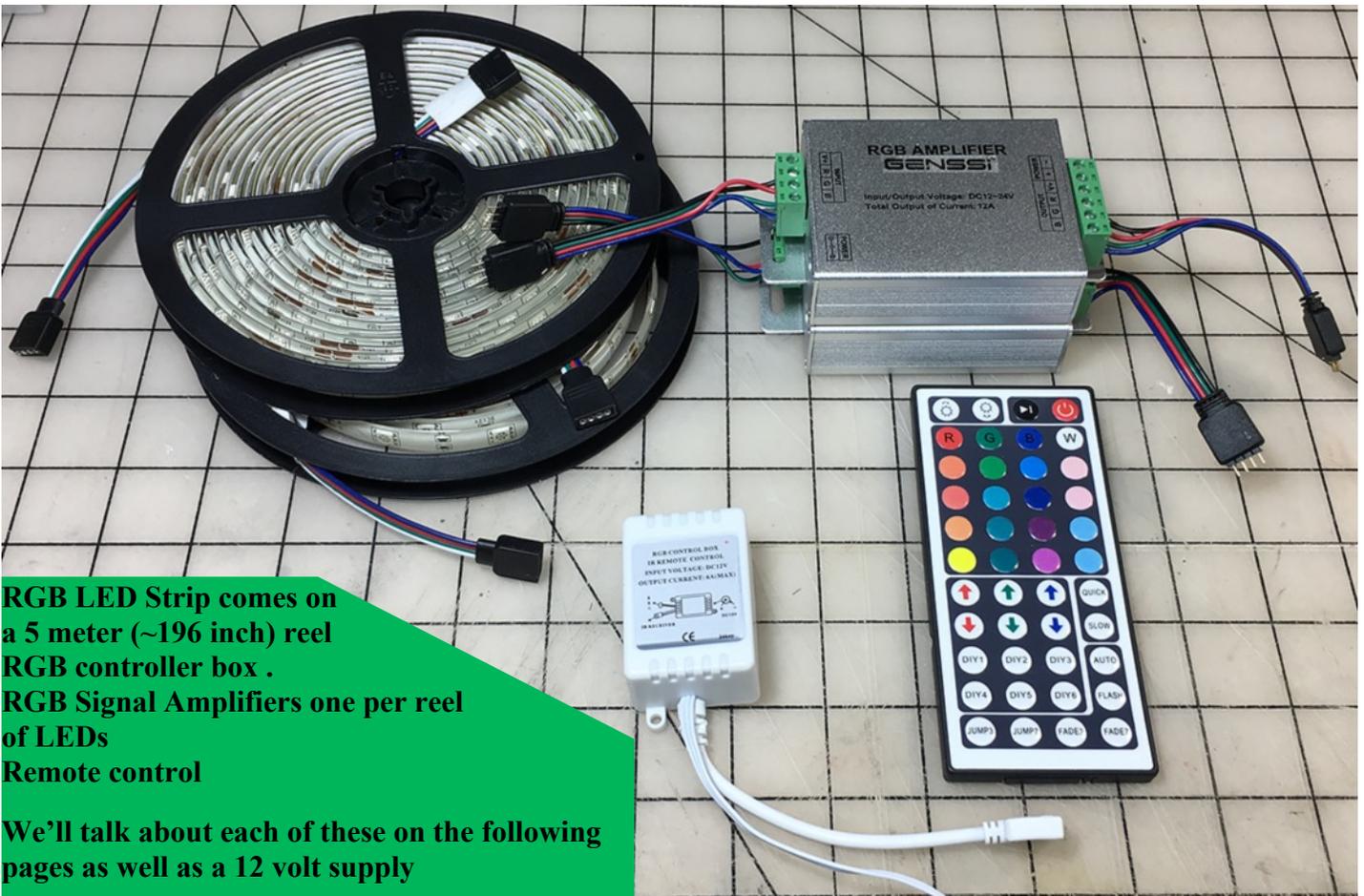
I also like night shooting. There was an article in RMC a few years ago about using blue rope lighting for creating night shots and even running in a night environment. I actually went out and bought a rope light only to realize the LED's were white and only the plastic casing was blue. Definitely not the effect I was looking for.



Lower staging lit by LED strip only above and below with regular room lighting turned on.



OK, now to the present day. I thought about LED strip lighting, but I also wanted to simulate different times of day in the lighting. Not only for photography, but just to set the mood of an operating session. The answer was RGB LED strip lighting. That's a lot of letters but all it means is RGB (red, green, blue) when mixed correctly can make a broad array of colors. Thinking to myself, white light for daylight, blue to help simulate night and maybe a yellow to simulate early morning/late evening. Below are the parts that make up this lighting experiment.



RGB LED Strip comes on a 5 meter (~196 inch) reel
RGB controller box .
RGB Signal Amplifiers one per reel of LEDs
Remote control
We'll talk about each of these on the following pages as well as a 12 volt supply

Over the past half year that I planned this, I had ordered a few LED strips from different suppliers. These came with power supplies (wall warts) and remote controllers. My first thought was to have a power strip mounted under that layout where this lighting was going to be tested. That, in turn, would simply plug into an outlet.



Let's take a closer look at what we need. First of f, you can buy all of these in a set: LED reel, controller, remote and wall power supply. While that works well if you will only use one, it's better to buy these individually.

The RGB control box is normally sold with a remote control. Pictured at the bottom right are are two remotes I acquired along the way. The large one has more features that, for model railroads at least, you will not use. (But they are are fun!) The remotes use a standard CR2025 battery which is available most anywhere. The box itself and a 12v input commonly using a wall transformer or wall wart as they are called. There is a four wire plug which goes into the LED string or, in my case, an amplifier. The three wire cable with the black tip is the remote sensor.

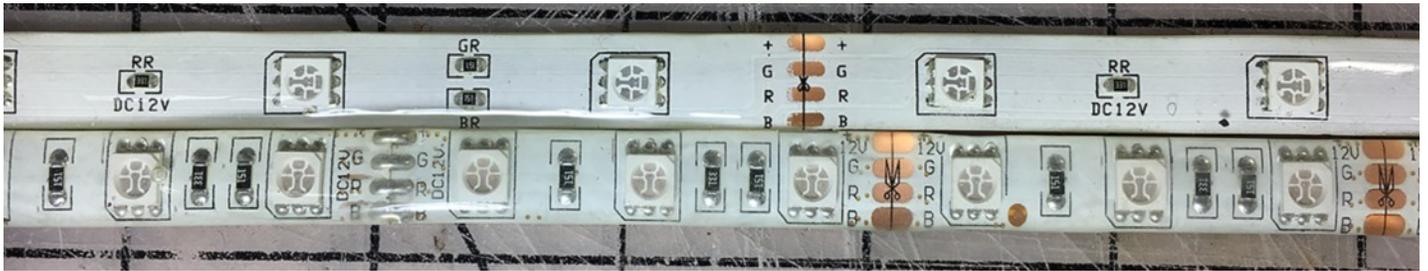


The RBG amplifier is used when more than one LED string is tied together. I figured this out the hard way as you will learn. This also needs a 12 volt source.

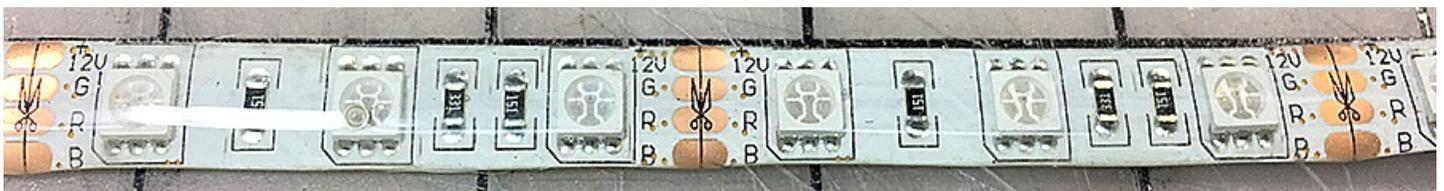
Last of course, is the LED reel which we'll talk about on the next page.

Time to test. I hooked the remote sensor to my bench 12 volt source and plugged one light strip in. I turned it on, played with the colors, flashing and other things that I'll never use. Good to go. I plugged the next 5 meter string in and... it was dim. Not only that, the first string went dimmer than it had been. Some of you are now yelling at your screens calling me a \$@%^!, but I was new at this, so after checking, I saw you must have a Data Repeater RGB Signal Amplifier between LED strips. The problem is line loss. This is not needed with the white only LEDs I used in staging. Those can normally have three strung together before an amp is needed.

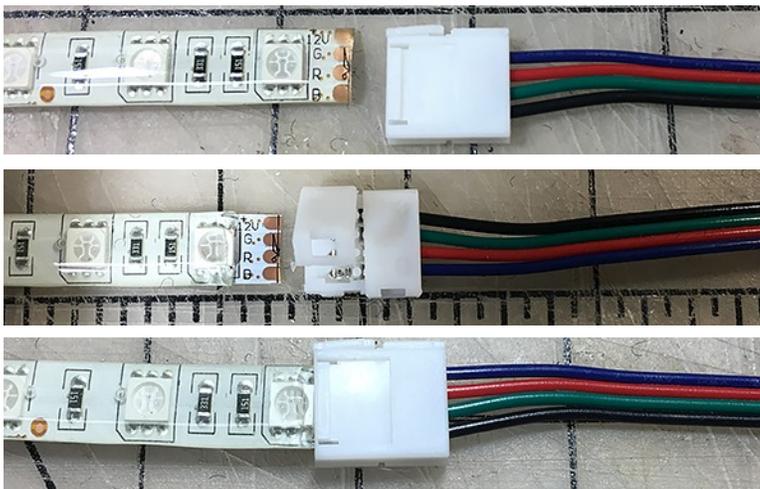
The LED reels come in two types, regular and waterproof. Both have sticky tape on the back for installation. The waterproof have a clear plastic coating on top of the LED's and onto the ends. That's what I am using here. I thought it may disperse the light more as LEDs are very directional. Looking back, I may have actually lost some lumens (light measurement) because of the coating. Also, there is an option in the number of LEDs per meter, 30 or 60. I went with 60 for the most light.



Top shows 30 LEDs per meter vs 60 LEDs on bottom.



*The LED strips may be cut on the cut lines.
In the the image above, you could have as little three LEDs working on a 12 volt supply.*



The LED strips may also be cut on any of the cut lines to fit any area you may need. If you do cut these, you will need a 10 mm 4 Pin two Connector with Cable For SMD LED RGB Strip Light. Note the three pictures on the left. The top shows the cut. With the waterproof LEDs, you need to also trim back the protective plastic layer as shown in the second picture. The third picture shows the new connector on and tight.

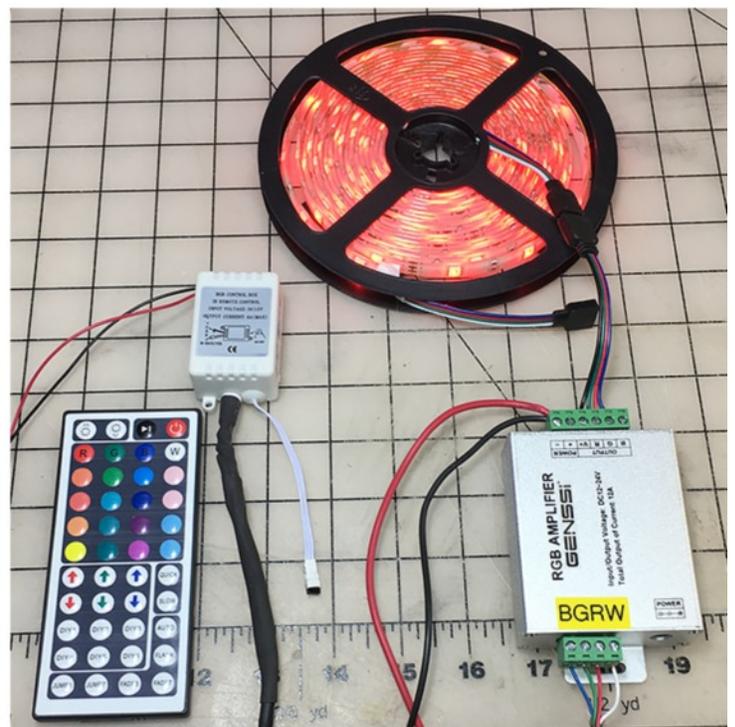
Time to install. I used furring strips attached to the floor joists in the basement ceiling. Our house is over 100 years old and the builders were not worried about consistency with the wood they used. You can see in the lower left picture that were some “waves” in this install. I could have laser measured all of this and shimmed, but eventually there will be a valance so it will not be seen. I installed these strips around the part of the layout I was using for this test.

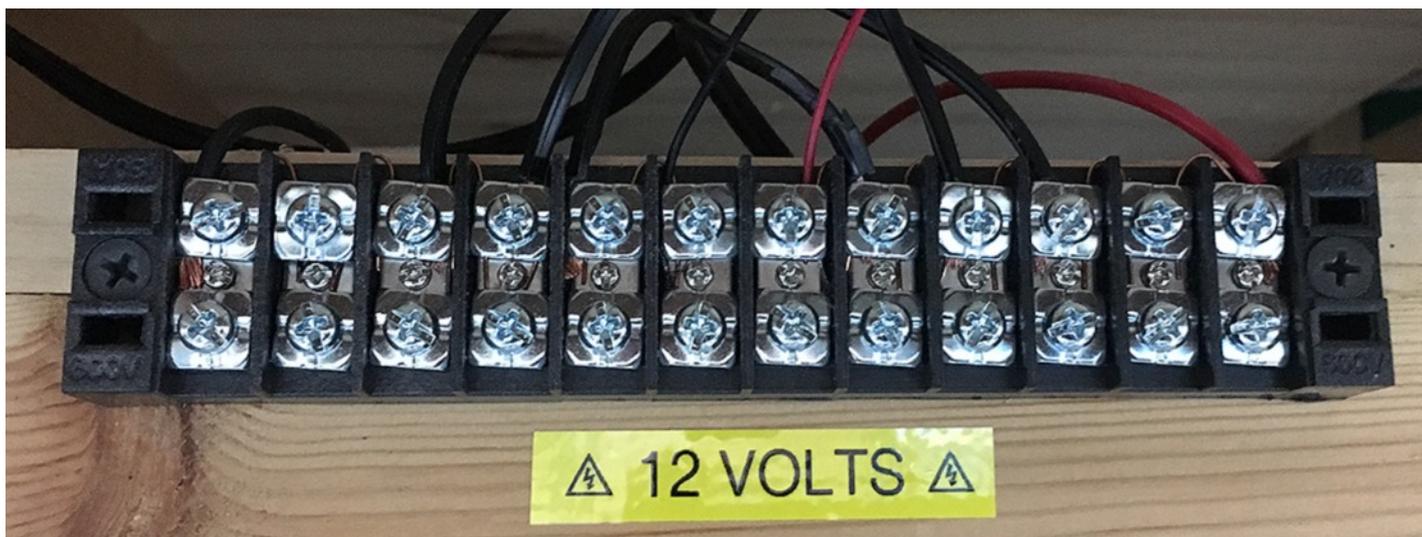


I knew I would need four strips to light the area I had mapped out – one full and three partial. That would be four transformers for that, plus three more for the Signal Amplifiers, and one for the controller.



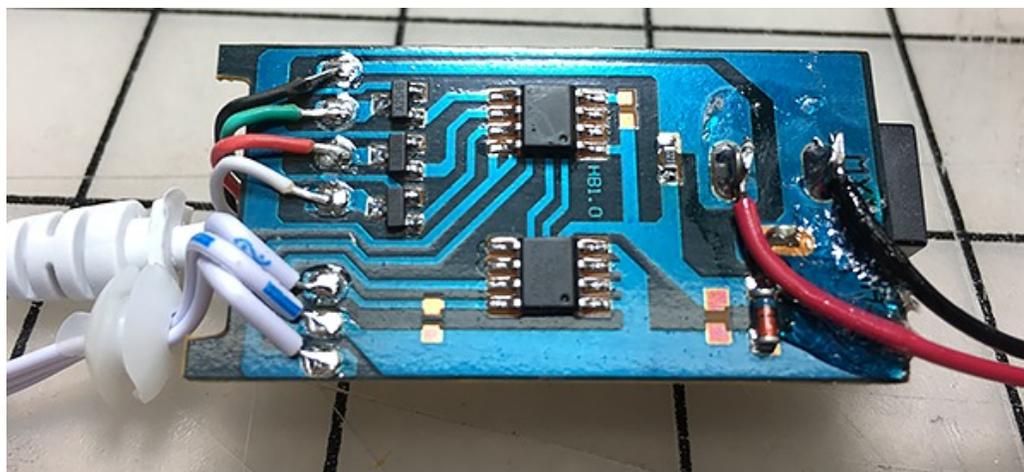
These pictures show just a few of the colors you can achieve using the remote controller.





I ran a 12 volt line around the entire layout as I built it. It's used for structure lighting and now LED lighting. This is one of many "hubs" under the layout.

The more I thought about this, the more uncomfortable I became with a bunch of cheap Chinese wall warts all lined up under the layout and running all the time. I say all the time, because even if I did wire in a switch, I would probably forget to turn it off if the LEDs were also off. That was my "The gates are down and the lights are flashing, but the train isn't coming" moment. I had a 12 volt buss running all around the layout... duh!... and it was only on when the layout and DCC were powered.



Inside the controller box. I used a new red and black wire for the 12 volts. The white, red, green, black wires on the upper left were cut and spliced with the furnace wire making note of the color swap and must importantly making sure which of the four is +12 In my case it was always the white wire.

The IR (remote) control box needed to be near the fascia so I could point the remote at a known point. This was the first part to be modified. Popping the box apart, the first thing I did was hard wire a 12 volt line. (Yes, in hindsight, I could have used the wall wart connector and cut, but I had another of those moments again where I work faster

than my brain. This 12 volts is polarity sensitive so be sure you label the wires. In my case, I used red and black so I know what is positive (red) and black for negative on the 12 volt site.

Next with the four wires (RGB and +12 v) going to the first amplifier, I cut the plug and connected up the extra length of cable. Keep track of the colors in the the connector you cut (red, black, green, white) that will go to the first amplifier. I used thermostat cable as it was heavier than phone cord. Both have four wires inside. Round phone cable would be easier to work with. The cord you use may have different colors than what the was used in the controller, so make note of what color attaches to what color at the other end. Also, test to make sure which of the four wires is the +12 volt. That is important. I soldered the wires and used shrink wrap to keep everything solid. I hooked all of this up on the bench to test. Using the remote control, I turned the lights on and all three (red, green, blue) came on making white. Well, kind of white. I pushed the blue button and LEDs



turned green. I pushed the green button and they turned blue. Red was red. This will be common between manufacturers. Mistakes can and do happen. Simply swap the wires going into the amp that control the blue and green. Trust me here, do all your testing on the bench because plugging in the next amp and LED string, the colors could be off again. Easy fix, but easier on the bench.

The control box was attached under the benchwork with Velcro®. The new four wire cable was snaked up behind the scenery to the first amplifier. I said earlier that amplifiers were needed for two LED strings tied together. This first LED string was 16 feet or so from the control box, so to be safe, I started with an amplifier and they cost less than \$8.00 each.

Left shows the new red/black 12 volt wires and the cut LED strip plug. I spiced into that with the furnace cable and shrink wrapped everything.

Below Left shows the box back together.

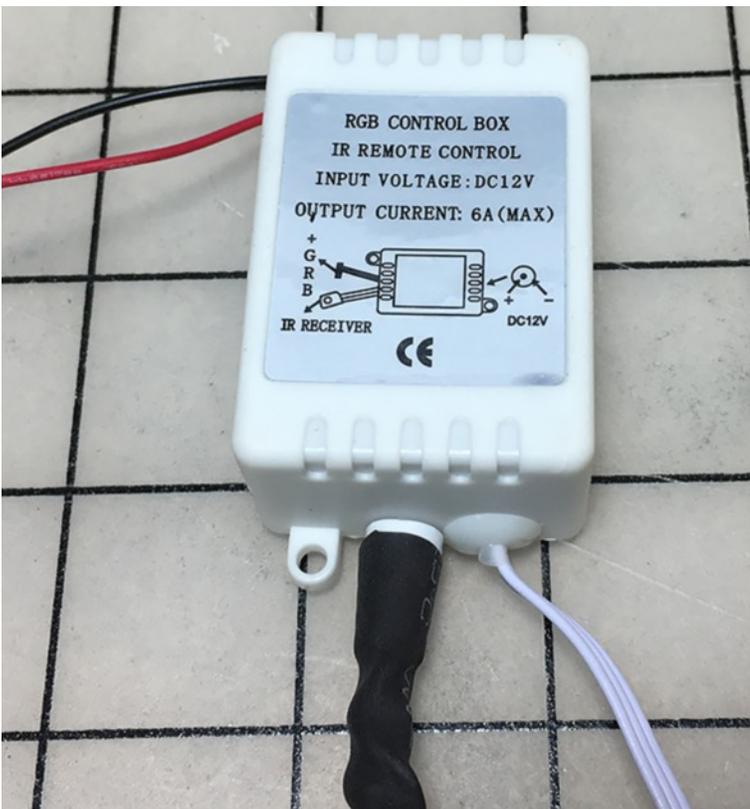
The 12 volt lines were connected and then I drilled a small hole in the fascia for the remote receiver as seen in the picture below.

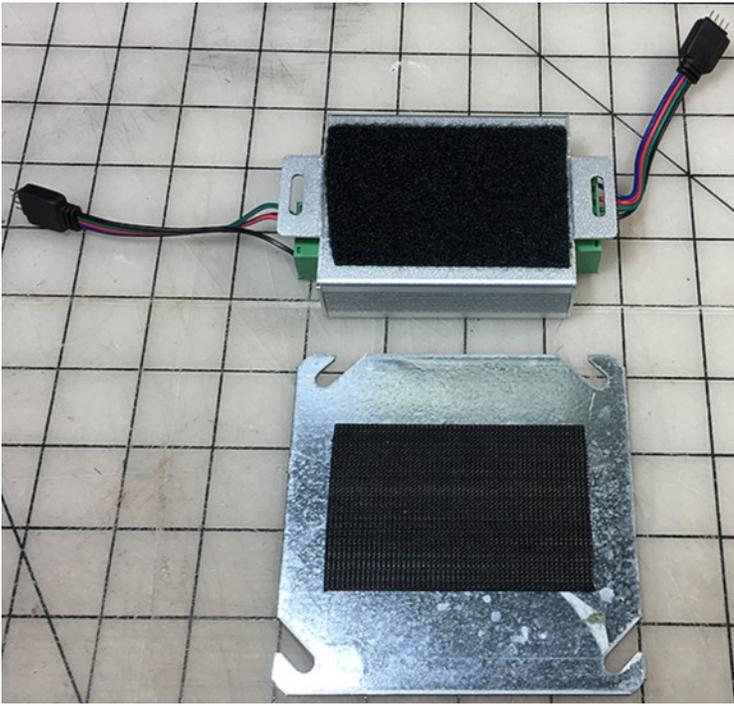
Now it was time to mount the amplifiers. I decided (for sake of easy replacement) to screw an outlet box cover to the floor joist and add Velcro® to that as well as the back of the amplifier.



Before mounting everything, I did one last test to be absolutely sure the colors were correct with the remote and that I had not broken something on the way up!

With the cover in place and the amp attached, I wired in the 12 volt line and then the four wire cable. Using the remote, I turned the system on and we had light!



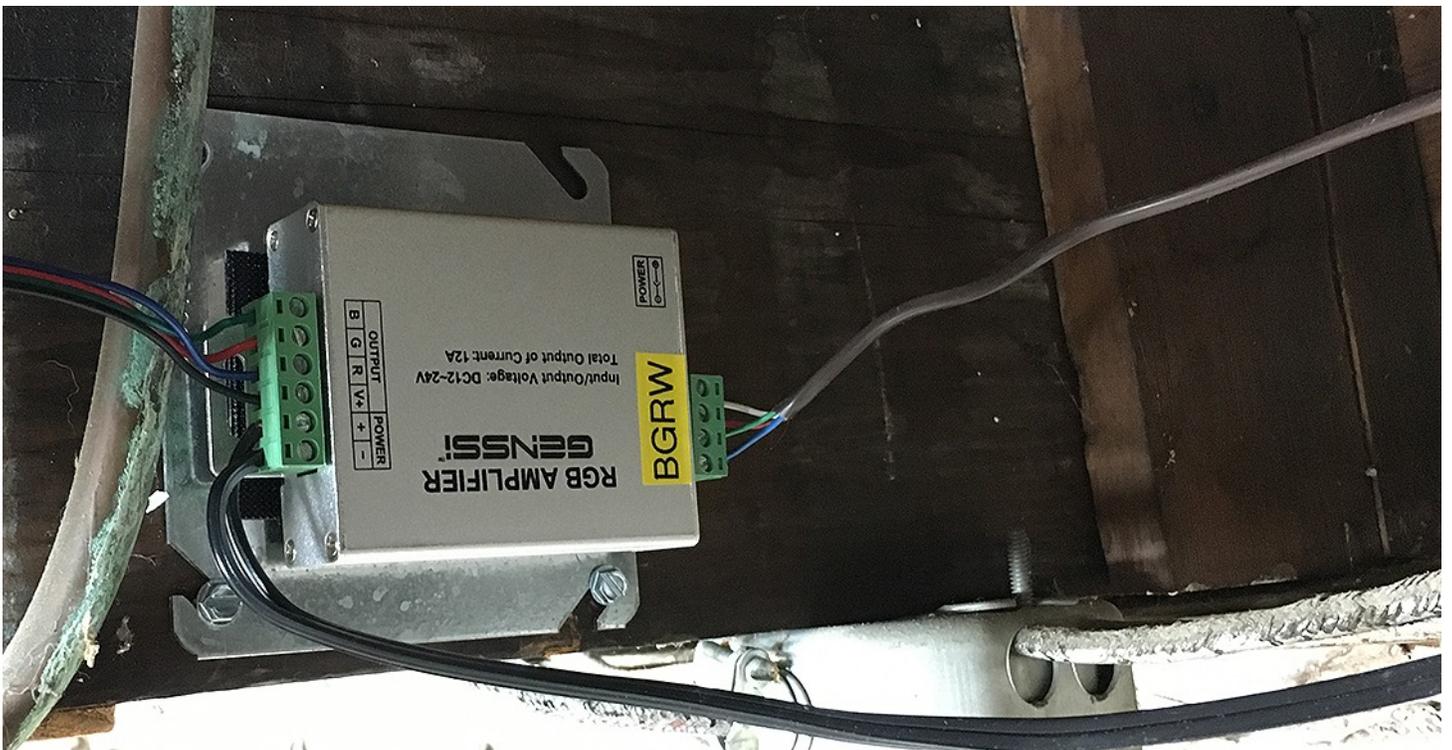


Above: Outlet cover and amplifier, both with Velcro®, ready to install.

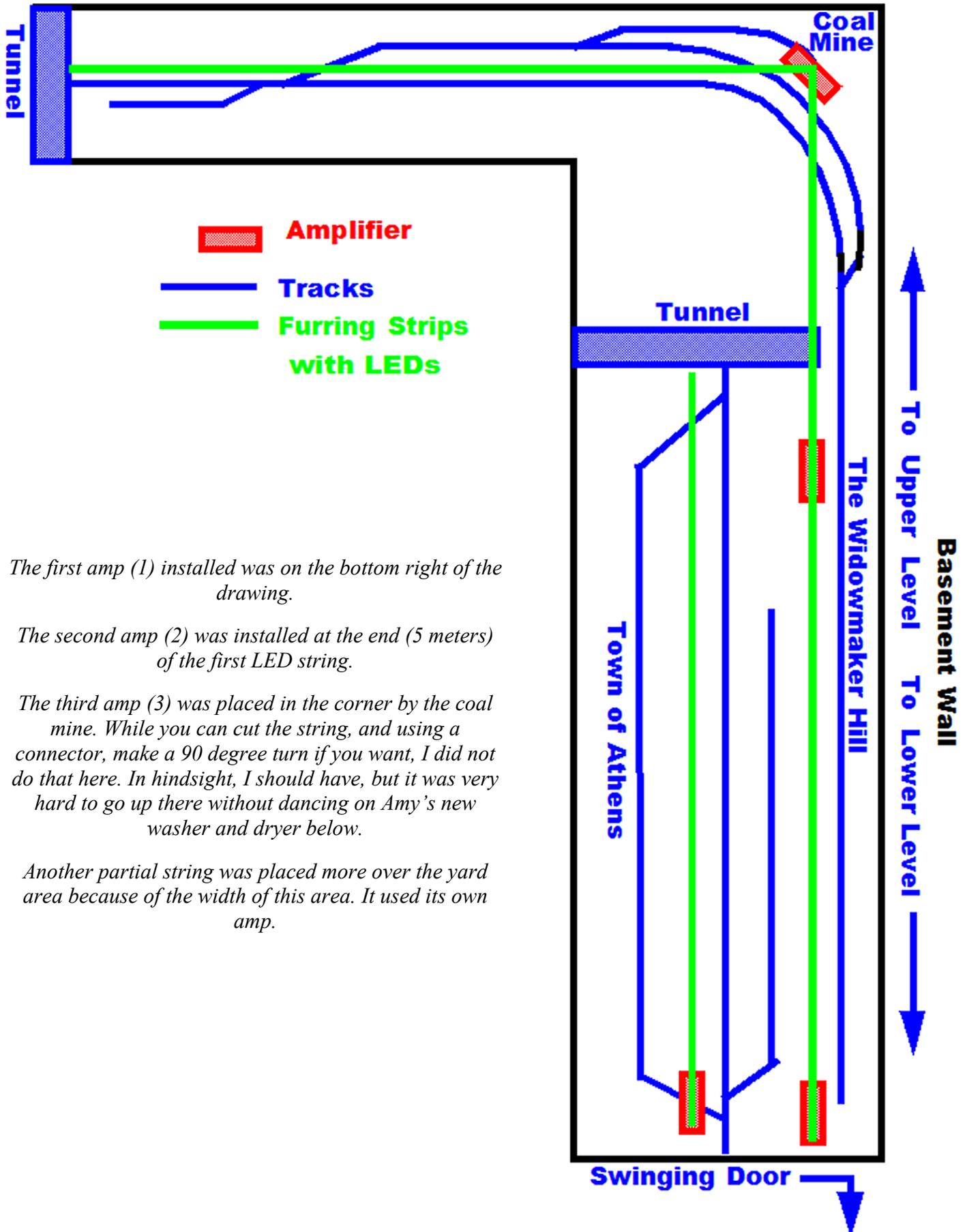
Right: one last test to make sure everything worked before attaching to the floor joist.



Below: Installed on floor joist. The four wire cable in on the right coming from the control box that was mounted under the layout. On the left side, the black lamp cord brings the 12 volts up and the four colored wires connect to the first full LED string. This is amplifier number one. See drawing on next page.



Basement Wall



The first amp (1) installed was on the bottom right of the drawing.

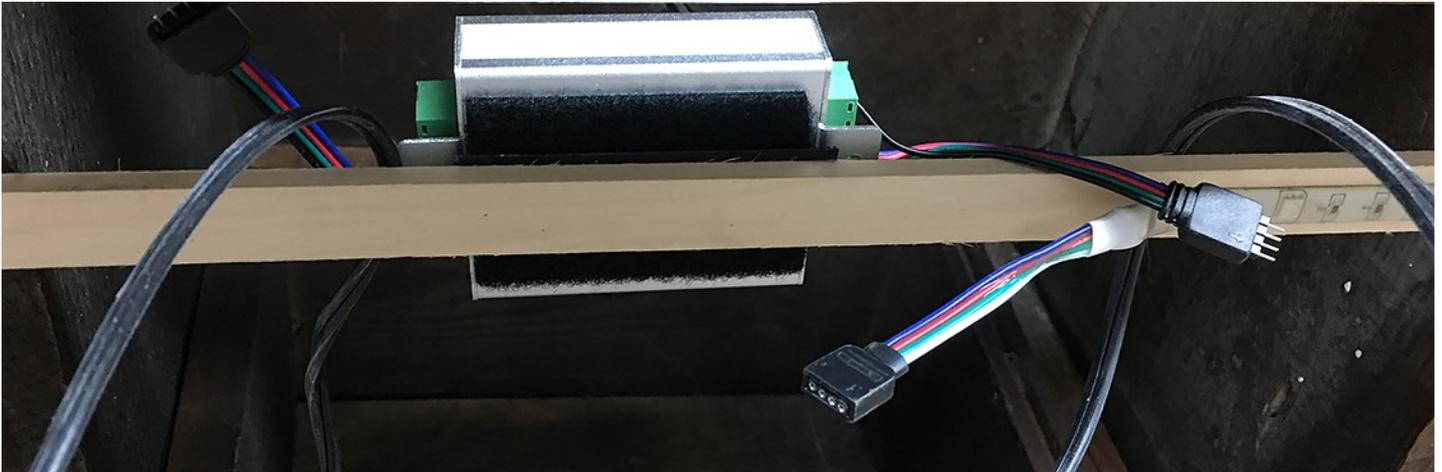
The second amp (2) was installed at the end (5 meters) of the first LED string.

The third amp (3) was placed in the corner by the coal mine. While you can cut the string, and using a connector, make a 90 degree turn if you want, I did not do that here. In hindsight, I should have, but it was very hard to go up there without dancing on Amy's new washer and dryer below.

Another partial string was placed more over the yard area because of the width of this area. It used its own amp.

With the first LED reel plugged in, I started to peel off the protective backing and began sticking the LED take to the furring strip. The adhesive on these is good, at least on the ones I bought. I did use small tie wraps on the ends where the connectors were as this was the only real stress point. If you notice the adhesive begin to fail simply use a small tie wrap every few feet.

At the end of the first LED string there was no joist close, so I simply used Velcro® on the top of the furring strip. The photo below shows the end of the first LED string on the right which will plug into the amplifier. The left side of the amplifier has a plug for the next LED string as well as a 12 volt input.



Amplifier number 2 - See drawing on previous page.



Amplifier number 3 - See drawing on previous page.

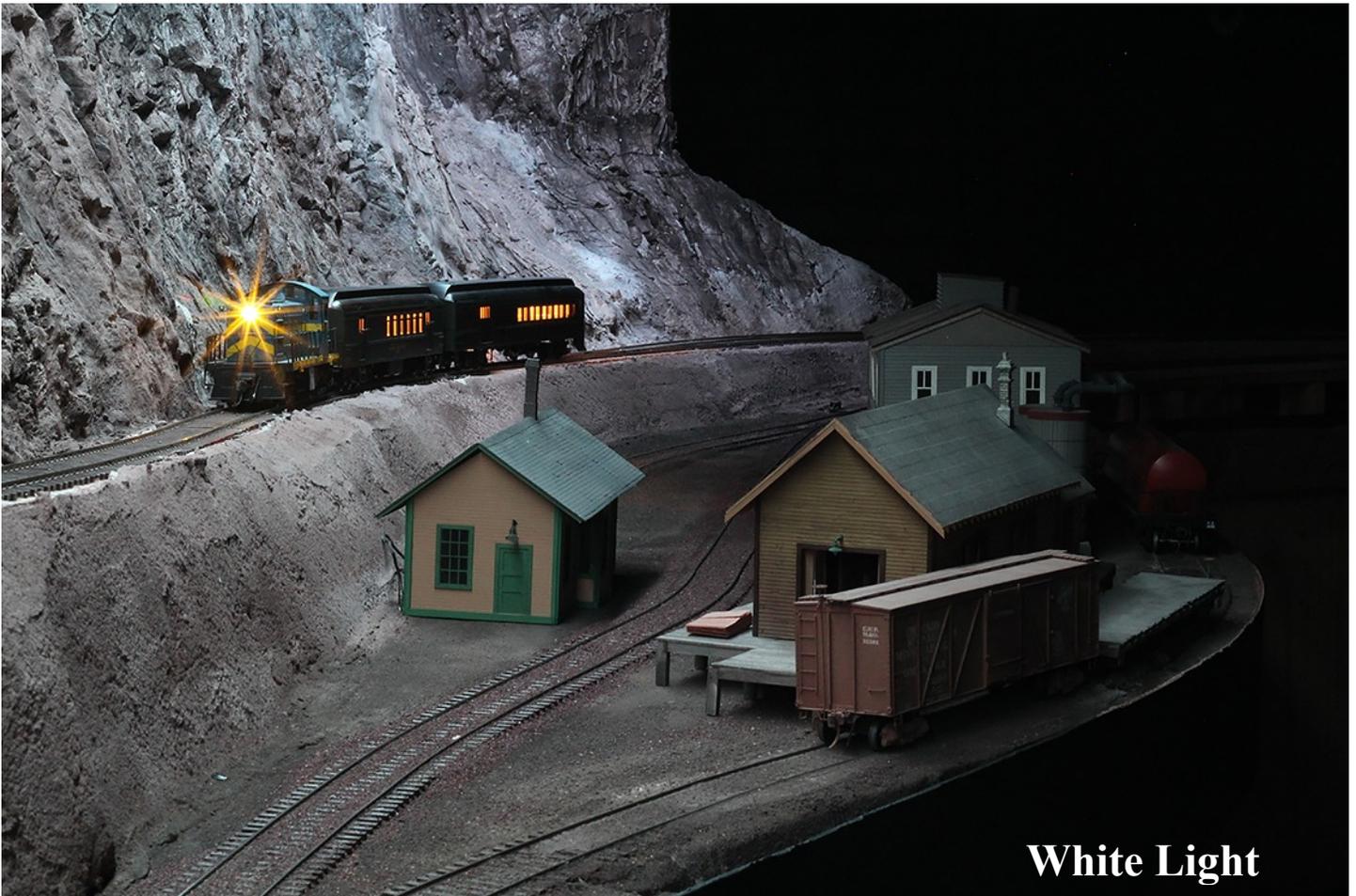
Amplifier three was installed where the L came together. Using a new LED reel, I ran the LEDs from here back to the upper tunnel. The last LED string was then cut to fit in the middle. Using the four wire connectors, you could cut the LED string and make a 90 degree angle if you wanted.



And this is why we should bench test. Green on one string and red on the other. To fix, simply swap two wires (green and red) going into the amplifier and you are good to go.

With all connections made, it's time to play. I turned on the layout power, which also controls the 12 volt line, and using the remote, turned on the lighting. The pictures on the followings pages will show a few of the light colors and their effect on the layout.

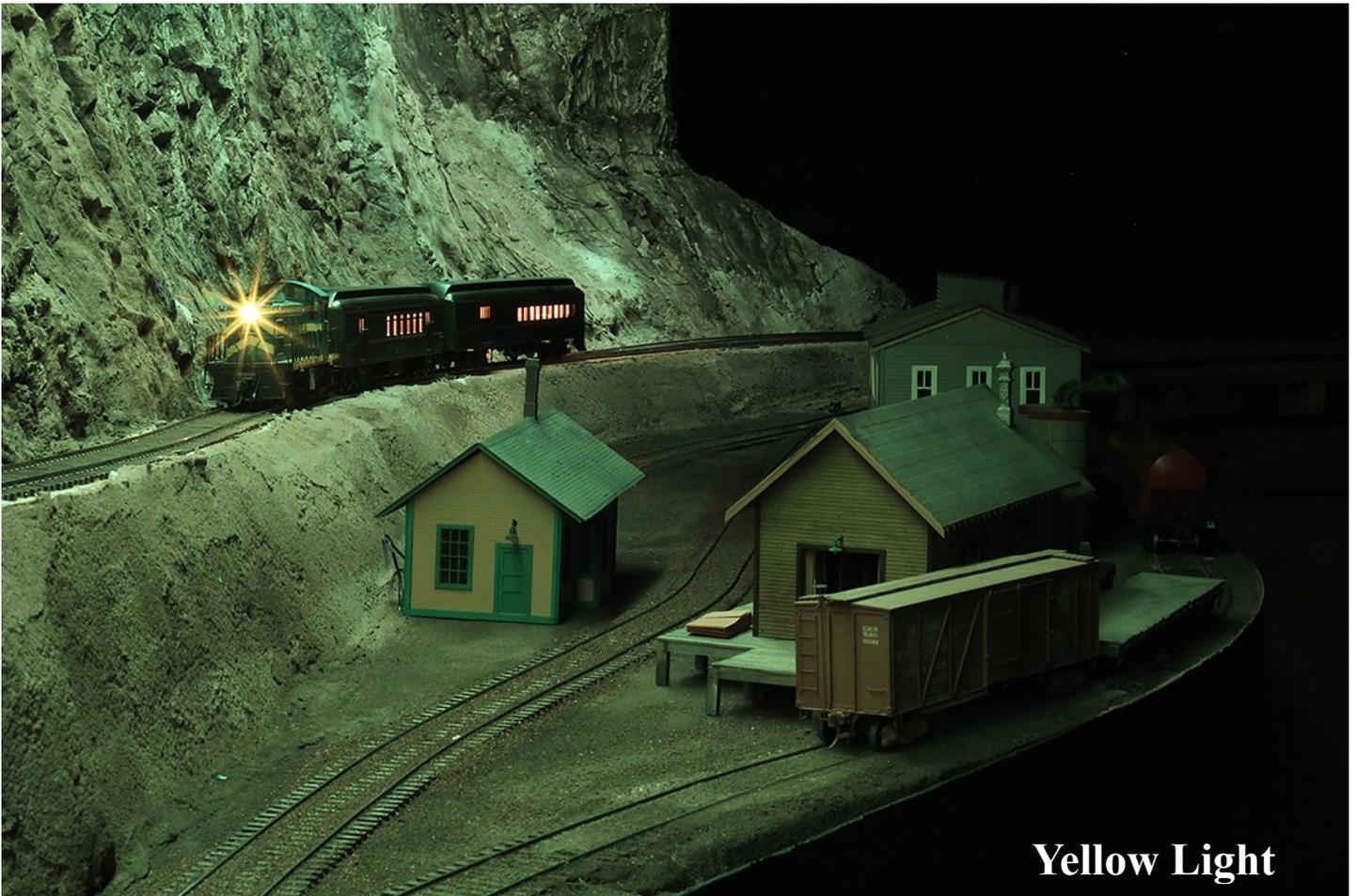




White Light



Blue Light



Yellow Light



Orange Light



White Light



Yellow Light



Orange Light



White light heading up the “widowmaker”

I have to say here that the pictures are a fairly good representation, but do seem darker than when standing in the room. The camera tries to fix lighting problems even when we don't want it to. Even playing with the white balance was problematic. It was very easy to see, read a car card or switch list, uncouple cars, see and operate the handheld controller and not run into things under all of the lighting shown.



Above: Upper coal mine with yellow light.

So, bottom line, what did I learn and is this a viable option for lighting? Yes and no. It all comes down to lumens. Remember back in the day you went to the store and bought a 60 watt light bulb? Well, we all know about what that gave us. 60 watts, however, has nothing to do with actual light output, but rather the energy used. With LED lighting, we look for lumen output. The Lumens definition according Wikipedia is:

YOU USED TO LOOK FOR	NOW YOU LOOK FOR
INCANDESCENT LIGHT BULB WATTAGE	LIGHT BULB BRIGHTNESS (MINIMUM LUMENS)
40W	= 450L
60W	= 800L
75W	= 1,100L
100W	= 1,600L
150W	= 2,600L

"a unit of luminous flux in the International System of Units, that is equal to the amount of light given out through a solid angle by a source of one candela intensity radiating equally in all directions". For this article, (yes we are keeping things fairly simple here) all the means is lumens equals brightness. The chart below gives us a quick idea of watts to lumens.

The problem is we can't easily read lumens, and there is no accurate way to convert lumens to Lux which we can read using an app on our smart phones. Well, there are some on-line calculators that say it can be done, but the results sometimes don't make a lot of sense.

With the LEDs on, you can see to read a switch list and see the DCC controllers and even uncouple cars without a problem. So for me, it's just what I wanted. It may not be for everyone. However, if you only used bright white LEDs like I did under the staging area, I think you would be happy with the light they put out.

To me, it's all about setting the scene, again, that may not be for everyone, but it's something to consider. For the cost, it is very inexpensive to give LEDs a try on a part of your layout. I prefer the look you get for dawn and dusk with yellow and orange, but you can also buy these in blue only for night running. So why not give it a try?

WHAT'S ON YOUR WORKBENCH TODAY?

This series shows our readers what other modelers are working on, and we need your help to make it successful. All that's needed is a simple snapshot of what your workbench looks like and the project on it. Send us a picture or two along with a short description of what you are working on so we can share it here. If it's a project under construction, send it in. Repair job, send it in. Completed project, send it in. Send your pictures and descriptions to daniel@modelrailroadresource.com

From Paul Vassallo: Like your new O scale online magazine very much.

In the "What's on Your Workbench Today" section you ask for pictures of what folks are making.



I made this copy of a feed mill building last winter. The prototype was from Decatur, IN on the Nickel Plate RR.

The model was built from Evergreen styrene covered with Builders In Scale corrugated siding and ribbed seam roofing and Grandt Line windows.

I built the building using only two old photos. The building was torn down long ago, so I had no dimensions. I built a cardboard mockup, and made multiple changes to it until I got the right proportions of the real building. Then built the model copying the mockup.

Actual construction was very straightforward; gluing up the styrene shell and then adding the corrugated sheathing.

I used Permatex® automotive weatherstrip glue to attach the aluminum corrugated to the styrene. Other suggested glues did not seem to work.

My layout depicts PRR and NYC in north central Indiana in the early Forties.



Oddity

n. 1. One that is odd. 2. The state or quality of being odd; strangeness.

By Daniel Dawdy

Many people take photos of engines and even cars, but most stop at that. I, on the other hand, just love to shoot things that I may want to model in the future. I love to model details and have people say, "Must have made that up... never seen a real railroad do that.". That's when I whip out the picture to show them that indeed the real railroad did.

Caution: This tactic does not make many friends :-)



This scene is rarely seen today. Orders being picked up on the fly in Joliet, Illinois. August 25th, 1990.

This Southern Pacific train is heading North and would have passed through Dwight, my current hometown, an hour or so before.

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Contact Sam Shumaker for more information



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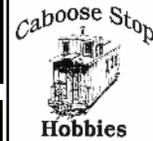
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