THE BRASS POUNDER

Newsletter of the Carolina Southern Division 12, Mid-Eastern Region, National Model Railroad Association

Volume 20 Number 2 February 2020

Division Coming Events
(See CSD Website for further details)

Wade's Train Town Open House
Saturday Feb 8th
10:00am – 2:00pm
Brookford Community Bldg
1700 S Center St.
Hickory, NC

DIVISION MEETING and OPERATING SESSION
At the Southern Pacific railroad of fellow member Joe Skorch
Saturday Feb 15th
10:00am – 4:00pm
Members Only
542 Eastway Avenue
Kannapolis, NC
28083-9023

To enable a head count, email Joe if you will attend.

Superintendent's Corner

By Alan Hardee

As January closes, so does another successful Railroad Modeling University also known as RMU. I want to thank Doug and his great team of volunteers and instructors for another great event. Some of the clinics were trial runs for the Carolina Special MER Convention in October. The Make and Take Bull Chute by Scott Perry and the All day scenery Clinic with Gil, Ed, and Ed seemed very popular.

As we continue into 2020, we will be very busy with planning the "Look South in 2020" Carolina Special MER Convention. We can use everyone's help on the planning committees. Those with model railroads are encouraged to open their layouts for tours and / or Operating Sessions. I would like to schedule our monthly meetings this year to member's home layouts just for this purpose. Hopefully this can help with completing some work and shake down the operating scheme while adding to your AP Certificates. Thanks to Joe Skorch for offering his layout for our February 15th meeting with an Operating Session to follow. Let me know when we can visit you.

I want to thank everyone for your support and confidence in re-electing me to serve as Superintendent for a third term. Let us welcome our returning and newly elected division officers:

Alan Hardee, Superintendent (Re-elect)
Andrew Stitt, Assistant Superintendent (New)
Ed Gumphrey, Clerk (Re-elect)
Dave Thrams, Paymaster (New)
Scott Perry, Director (New)

I also want to thank Jack Monette – Asst. Super, John Stevens – Paymaster, and Roy Becker – Director, for their years of service to Carolina Southern Division 12.

MID-EASTERN REGION 2020 CONVENTION
CAROLINA SPECIAL

OCTOBER 15TH – 18TH 2020
Crowne Plaza Charlotte, Executive Park
CHARLOTTE, NORTH CAROLINA

Carolina Southern Division is proud to be hosting the MER 2020 Convention

REGISTRATION IS OPEN AT THIS LINK

Convention activities will include:

- A wide selection of model railroading clinics, including by some nationally recognized names in the hobby
- Tour of the North Carolina Transportation Museum Back Shop and other non-public areas
- Tour of the Southeastern Narrow Gauge and Shortline Museum
- Tour of Wade's Train World in Brookford, a layout maintained by the CSD
- HO, S and N scale operating layouts in the Convention Hotel
- Home layout tours in the area, to include The Piedmont & Western and NYC Piney Fork Branch, which were both cover stories in *Model Railroader*
- Operating Sessions
- Shane Wilson, President of Scale Trains to be keynote speaker at banquet

MORE INFORMATION IS ON OUR WEBSITE

http://carolinasouthern.org

UPCOMING AREA TRAIN EVENTS

Central Railway Model and Historical Association Rail 2020 Model Train Expo
Friday Feb 7, 2020
1:00 – 7:00pm
Saturday Feb 8, 2020
10:00am – 4:00pm
207 Rock Springs Rd.
Easley, SC 29642

Asheville Train Show
Friday Feb 28th
noon - 7:00pm
Saturday Feb 29th
9:00am – 5:00pm
WNC Agricultural Center
765 Boylston Hwy
Fletcher, NC 28732

Editor's Notes

By Ed Gumphrey

Well,January is in the rear view mirror. I'm pleased to have been reelected as the Division Clerk and editor of *The Brass Pounder*. As I said during the January Annual Meeting, I'm having fun with it, especially the chance to meet more members and see so many layouts during my visits. I also admit I was overwhelmed by the ovation I received during the meeting. I'm pleased that so many of you seem to enjoy and approve of what I'm doing.

Echoing my comments during the meeting, I encourage all of you to think about sharing your model railroad projects with the membership. If you have a layout under construction, I'd like to come visit and work up an article about it. Similarly, if you're doing a special kit build, expansion, scenery upgrades, take some pictures with your cell phone and send them to me. I'll be happy to work with you if you need help writing the article. "How To" articles are especially welcome. My continuing thanks to Tim Rumph and Ed Smith for their regular submissions. In this issue, Scott Perry presents the first of a promised series on scratchbuilding. Let me know what you think.

RMU was another success story this year. I joined forces with Gil Brauch, MMR, and Ed Smith to present a four part "make and take" clinic on scenery. Of interest, during a conversation with my wife in late December, she made a comment about wanting something to do. Since scenery is her favorite aspect of model railroading, I suggested that she attend RMU. She agreed, and enjoyed the scenery clinic. It did make for a bit more work on my part – she wants me to give her some follow-on coaching on making furnace filter trees.

I'm excited that our February meeting will be at Joe Skorch's house. The brief meeting will be followed by an operating session. Having operated on Joe's layout in the past, I can promise you'll enjoy it. Hope to see you there.

SUBMISSION GUIDELINES
I target the 1st of each month for publication. Please submit articles for publication by the 27th of each month.
The preferred format is MS Word, but I can convert most other formats.
For questions and help, email me at editor@carolinasouthern.org

DIVISION AND REGIONAL NEWS

By Ed Gumphrey

The Division held its January meeting on Saturday, January 18th at the North Carolina Transportation Museum in Spencer. There was a great turnout with 19 members in attendance. Our thanks to fellow member Marcus Neubacher for arranging our use of the conference room in the Master Mechanics Office Building. The meeting was also our annual business meeting. Accordingly, reports were submitted by the Superitendent, Paymaster, Webmaster, and yours truly, the Clerk & Newsletter Editor. These reports will be consolidated (less financial information) and posted on the Division's website in the near future. Although no formal report was submitted, our Convention Chairman Neal Anderson, MMR provided an update on convention planning.

Superintendent Alan Hardee ready to open the meeting.

There was a good turnout for the January meeting. Scott Perry had some fun joking with MMR Gil Brauch.

Mookie, the cat, roamed freely, and seemed to befriend Fred Miller, MMR.

As Alan Hardee mentioned in Superintendent's Corner, we also held elections. Combined congratulations and thanks to those elected and re-elected:

- Alan Hardee, Superintendent (Re-elected to third term)
- Andrew Stitt, Assistant Superintendent (New)
- Ed Gumphrey, Clerk (Re-elected to second term)
- Dave Thrams, Paymaster (New)
- Scott Perry, Director (New)

A highlight of the meeting was the presentation of two Achievement Program awards. Congratulations to Joe Skorch who earned an Achievement Certificate for Scenery along with a Merit Award for scenery. Ed Smith earned an Achievement Certificate for Civil Engineering.

AP Chairman and MMR Neal Anderson presents an Achievement Certificate for Scenery and a Merit Award for scenery to Joe Skorch.

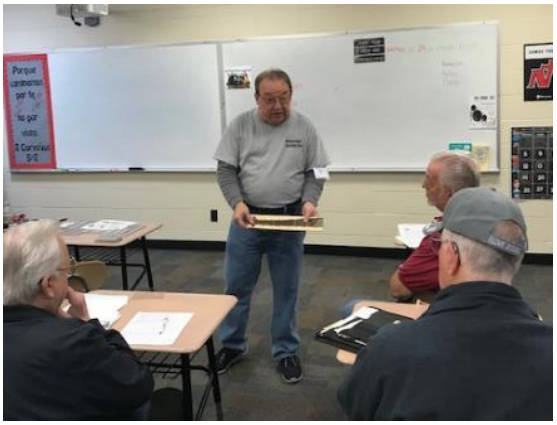
Ed Smith earned an Achievement Certificate for Civil Engineering.

When Alan Hardee adjourned the meeting, he recommended that we reconvene across the street at [The Little Choo Choo Shop]. Being close to this great hobby shop is a bonus any time we meet at Spencer. I took advantage of the opportunity to spend a gift card my son had given me for Christmas. Another added bonus is getting to see some train activity. I had never seen this collection of cabooses (cabeese?), so I snapped a picture on my way to the hobby shop. And it's always a pleasure to see Southern #6133 in action.

15th Annual RMU – ANOTHER SUCCESS STORY

Saturday, January 25th was the big day for CSD's 15th Annual Railroad Modeling University (RMU). Although attendance was down a little bit from last year, feedback from RMU Chairman Doug Algire was positive. We chatted a little bit about the difficulty in getting young people interested in the hobby. I encourage you all to try to plant a seed of interest among others whenever you have the chance. This was my second year giving a clinic for RMU. I teamed up with MMR Gil Brauch and Ed Smith for a four-session "Make and Take" clinic on scenery. I enjoyed sharing some of my ideas, and, as always, learned something more from a master. Particularly impressive in our clinic was Gil's succession of five or six props showing development of a scene from basic foam, to shaped landscape, ground cover, and up to and including water effects. Next year it will be a tough choice for me to decide whether to give another clinic, or take a year off so I can attend Scott Perry's clinic on scratchbuilding techniques. If I'm not too busy with other chores during the Convention in October, maybe I can attend Scott's clinic then.

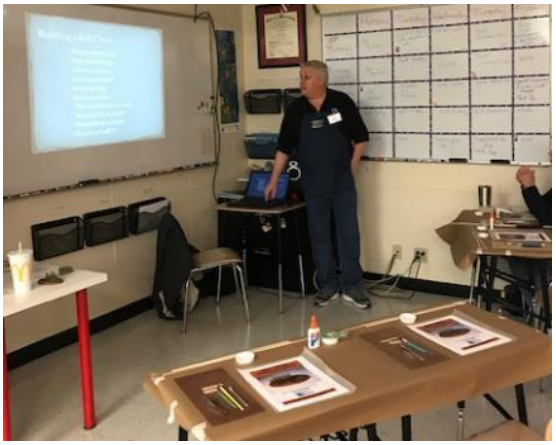
My thanks to Alan Hardee for roaming around the various classrooms to provide the pictures, which tell the rest of the story.



Ed Smith gave a clinic on making Fast Tracks Turnouts during the first session.

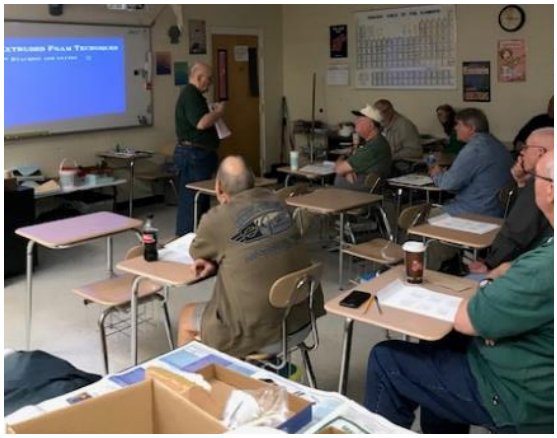
MMR Neal Anderson gave his popular clinics on layout LED lighting and ballasting.

A perennial favorite, MMR Jack Parker gave his clinic on Tips and Tricks.



Scott Perry presented "Bull Chute," a clinic on basic scratchbuilding techniques.

Bob Halsey presented a clinic on how to build various types of fences.



MMR Gil Brauch started the four-session scenery clinic with a slide presentation.

Good props really help. Here's one from the scenery clinic by Gil Brauch, MMR.

Clinic attendees go to work on their scenery projects. At this point, they are starting to paint rock outcroppings as MMR Gil Brauch guides them along.

Ed Smith closed the scenery clinic showing how to tie various elements together.

Michele Chance, Doug Algire and Dave Chance take a well-earned break. They did a lot of work behind the scenes for RMU.

DIVISION NEWS BITS AND PIECES

Back by popular demand, here's a couple of bits and pieces of news from social media….

Scott Perry's work on his engine house is continuing. His post of this workbench shows the scale workers' approval.

Seth Gartner commented on this picture from his Piney Fork Branch that he really likes deep scenes. I wholeheartedly agree.

My Southern S-Line
Layout Command Control: Introduction

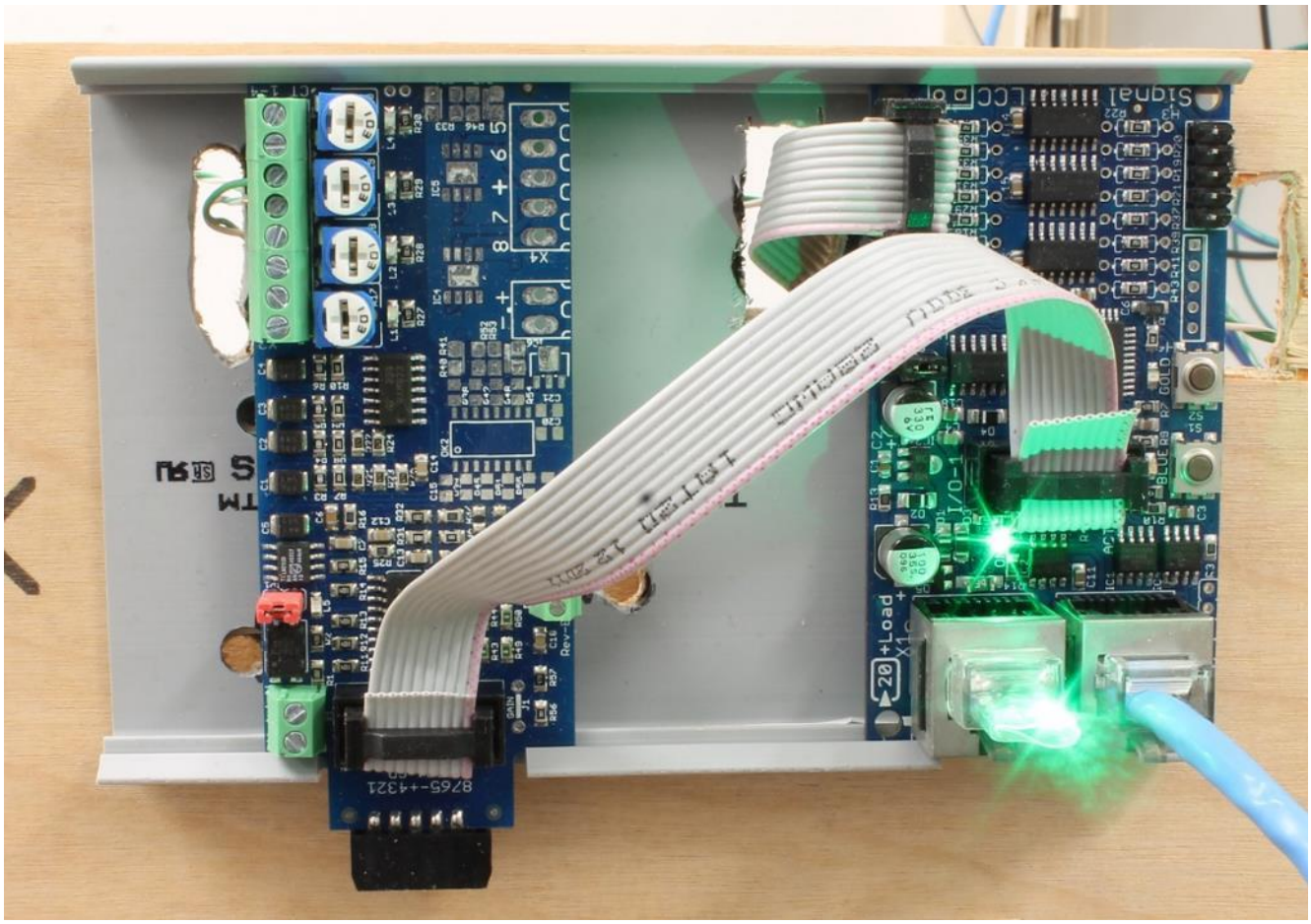
By Tim Rumph

Layout Command Control (LCC) is a system adopted by the NMRA for controlling things on a model railroad layout. It is most often associated with signals, such as the Newton train order signal shown on the right. It is not limited to signals, and I'll show you several examples of other things that can be controlled by LCC.

Newton, NC Train Order signals on Tim Rumph's Southern S-Line

LCC does not make the trains move. That is what DCC is for. LCC does not require DCC. It can control virtually everything on any layout, including DC and Lionel® layouts, dead rail and live steam. In addition to signals, LCC can control staging yard ladders, show track occupancy on a panel. You can also control traffic lights, streetlights, building lights, and sound effects. With the right additional hardware, it can control room lighting and layout lighting. Do you want a simulated sunset on the layout at 7:30 in the evening? LCC can do that. It can also control things that don't have anything to do with model trains. How about LCC controlled Christmas lights in the front yard?

One thing that LCC does not require is having a computer permanently connected to your layout. You will need a computer to configure the system. This configuration is telling the various parts what you want them to do. Once you've done that, you can turn off the computer and unplug it. All you need is the proper hardware connected together and provide power to the system.



Typical LCC hardware

Now I've whetted your appetite, and you want to get going. It turns out that there is currently one supplier for LCC hardware, and it happens to be RR-CirKits, which is owned by Dick and Karen Bronson. They are members of the Carolina Southern Division and live down in Waxhaw. The picture above shows two components I bought from RR-CirKits. On the left is a BoD-4. This is a block occupancy detector that can monitor four blocks. On the right is a Signal LCC.
The Signal LCC is called a node. Nodes are the parts of an LCC system that do things. The BoD-4 is connected to the node and allows it to connect to the real world. In this case, it can monitor up to four track blocks and, if there is current flowing in that block, it turns on an input on the Signal LCC.

That is the key piece. LCC nodes produce and consume events. When the input on the node turns on, it produces an event. This event is sent over the blue cable, which is a standard CAT-5 Ethernet cable. In this case, it is saying, "Block 123 is occupied!" This is like someone standing in a tower with a megaphone. All of the other nodes on the system can hear this, and some of them will consume this event. This means that they will use it to do something. Perhaps this will be turning on a light on a control panel, or setting the signal protecting that section of track to "Stop", or turning on a sound affects module that makes a noise like flanges squealing through a tight curve. It can even make Rudolph's nose blink on the Christmas lights. The advantage of LCC is that all of this can happen. The node that produces the "Block 123 is occupied" event

doesn't know about any of this. Each of the consumers does whatever it is supposed to do and they don't know or care what the other ones are doing.

I hope that this is enough to get you interested. Next month I'll go into more details about the hardware and how it's connected and configured and give a simple example of something useful that you can do with LCC.

I've started sending information forms asking people to host layout tours and operating sessions during the MER convention here in Charlotte in October 2020. I'm still sending these out, so if I know that you have a layout, I'll be in touch. If I don't know about your layout, please contact me and I'll get the information to you. Also, if you know other people who have layouts, please ask them to contact me.

Tim Rumph
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718 Canterbury Dr.
Lancaster, SC 29720

GO WEST, YOUNG (er…) OLD MAN

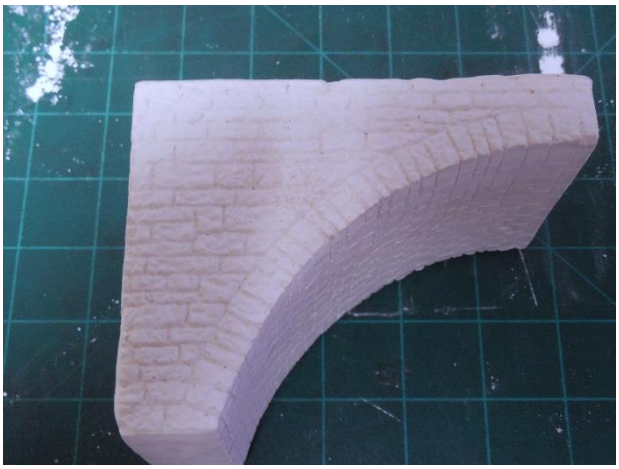
By Ed Smith

Welcome to 2020. A new year, and we have already lost a month. Where did January go? It's amazing as we grow older, the inverse reaction happens around us. We slow down and time accelerates. Before we know it, the MER Regional Convention will be here on our home turf in October. Set aside the dates of Oct. 15 through Oct. 18 and plan to participate and maybe volunteer in a weekend full of railroading, sponsored by our Division. With January over, another RMU has come and gone. Kudos to everybody that worked to make this session a great day of model railroading.

There are 9 months until the MER convention, and I'm in my layout room, staring at the daunting task of finishing my mainline for the layout tour. A year ago, it was such a great idea to tear out the electrical system and remake the power districts for signaling. There weren't time constraints, but the convention deadline has changed that. That said, I'm not in panic mode. I have a plan. I have around 300' of the approximately 700' double track main installed. By May, I want to have all 18 mainline power districts completed. I will then install the DCC feeders, one district at a time. Each district will be on a PSX breaker, and completely isolated from yards, industrial spurs, etc. This should allow relatively easy installation and trouble shooting. By July,

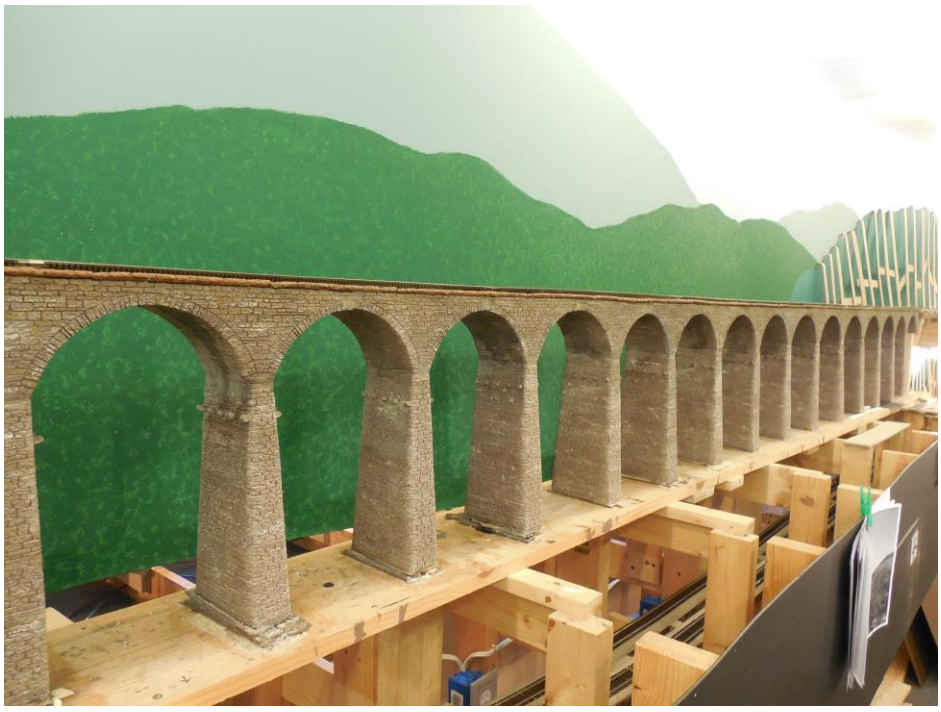
I hope to be running trains, working out kinks, and adding sidings and scenery. That's the goal. This brings us to this month's article. As in prototype railroading, traveling west on my railroad, bridges have to be installed to continue. Many are built, waiting to be placed on the layout. Others still have to be kitbashed or scratch built. This month's project is creating the stone single arch viaduct near Shohola, PA (pic 1).

Pic 1: Erie Railroad's single arch stone viaduct near Shahola, PA

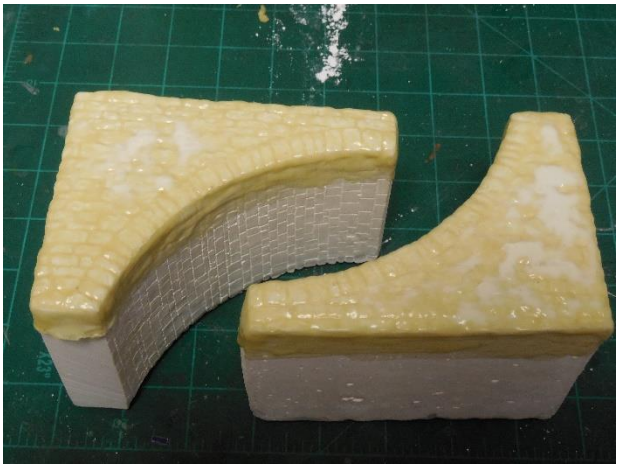


Pic 2: Half arch Hydrocal castings were used for the single arch bridge as well as the viaduct.

I decided to use leftover Hydrocal arch segments (pic 2) from my construction of the Starrucca viaduct (pic 3) in PA. The first thing I did was make latex molds of the stonework (pic 4), so I could pour casting of the stone to be used where needed (pic 5, 6 on the next page). With this done, I glued the two arch segments together, using full strength Elmer's white glue (pic 7 on the next page). I find that Elmer's glue works great on Hydrocal, as depicted in the arch construction on the Starrucca viaduct.



Pic 3: Ed Smith's model of the Starruca viaduct. The prototype spans the Starruca Creek near Lanesboror, PA. Built in 1848, it still carries mainline traffic today.



Pic 4: Latex was applied to the half arch castings to make a mold of the stone.

Pic 5: The completed latex mold is ready to pour sections of stone for abutments and extensions.

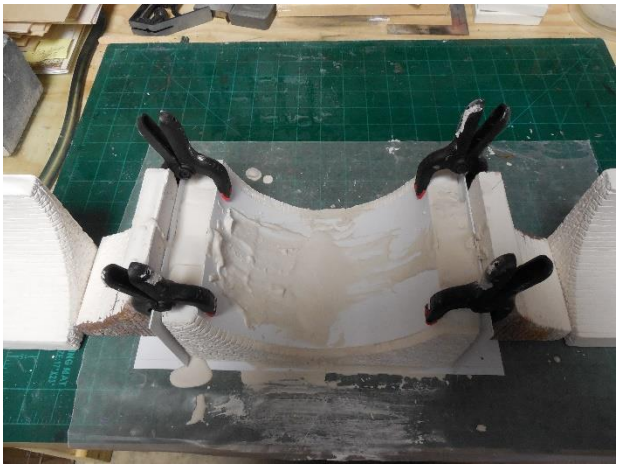
Pic 6: The latex molds are filled with hydrocal. Just waiting for it to set up.

Pic 7: Two half arches were joined using full strength Elmer's white glue.

On my layout, the double track mainline is on 2½" centers. This means the viaduct is not wide enough and has to be widened. I found this out the hard way. A few years back, I was in a hurry to build my new stone Starrucca viaduct. I followed all the plans and built a great structure, never taking into consideration my 2½" centers. Well 17 arches can't be widened easily. So now, my approaches squeeze down to 2" centers on each end. Lesson learned. A visitor may not notice, but I know it's there. Now you do, too.

Back to construction. After letting the glue dry, I cut the arch in half, with a razor saw (pic 8). I turned the pieces upside down and placed them on a styrene sheet, with a 1¼" gap between them. Using .020 styrene on the ends and .005 styrene in the arch, I made an enclosure to dam the Hydrocal pour. Then using a soupy mix of plaster, I poured the mix into the orifices created by the styrene (pic 9). I let this dry for over 24 hours.

Pic 8: The assemble arch was cut in half to allow widening for double track.



Pic 9: With styrene dams in place, plaster was poured into the resulting cavity.

After curing, I cut Chooch stone piers and added them to the bottom of each side of the arch, to attain the desired height. Also, using molds, I made castings for side wings (pic 10). Once glued together, I primed the archway with acrylic grey paint. After drying for about 2 hours, I weathered the stone with Pan Pastels and finished with a wash of India ink and isopropyl alcohol (pic 11).

Pic 10: Cast piers and wing wall sections are assembled.

Pic 11: The painted bridge was weathered with pastels and a wash of india ink.

To the layout. I installed a plywood base where the viaduct would sit and cut out the spline sub-roadbed. A snug fit, not a tight fit. The viaduct was installed using adhesive caulk, and Homabed was glued on the surface. Finally, blue foam board was cut, formed, and fastened with caulk to form the riverbed shoreline. This was sealed with caulk again. This prevents resin water leakage and it will leak, if it finds any hole. (pic 12). Next soupy plaster was poured to form the river bed and Hydrocal rocks, painted, were added (pic 13).

Pic 12: The completed bridge in in place and ready for surrounding scenery.

Pic 13: Plaster forms the river bed and Hydrocal rocks were added. Seams are caulked..

Finally, the river basin was primed with Woodland Scenics hunter green and ground goop was applied to banks and surrounding areas (pic 14, 15). Hunter green is too dark for this area, so I will try other light washes, leaving the center dark for depth. The resin water pour and scenery will be added in the future. The goal is to continue on laying the main.

Pic 14: Ground goop is in place. The river bed color will be lightened near the banks before pouring resin water.

Pic 15: An aerial view shows how it blends with the surrounding scenery.

It's time to move west. My protégé, Elway (pic 16), is already assembling a track crew. My biggest fear is that tomorrow I'll wake up and it will be June! The work goes on.

Until next month…

ED

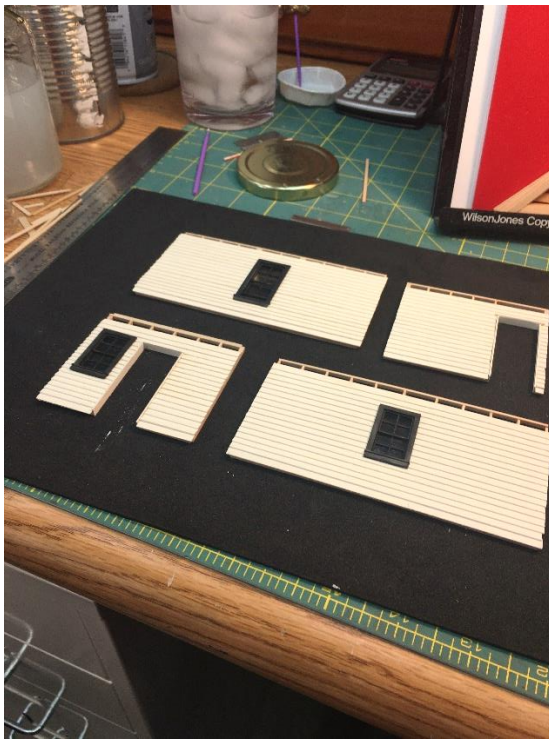
Pic 16: With Elway's help, I'll make my goal of mainline track installation.

Our Open-Door Closed Door Policy

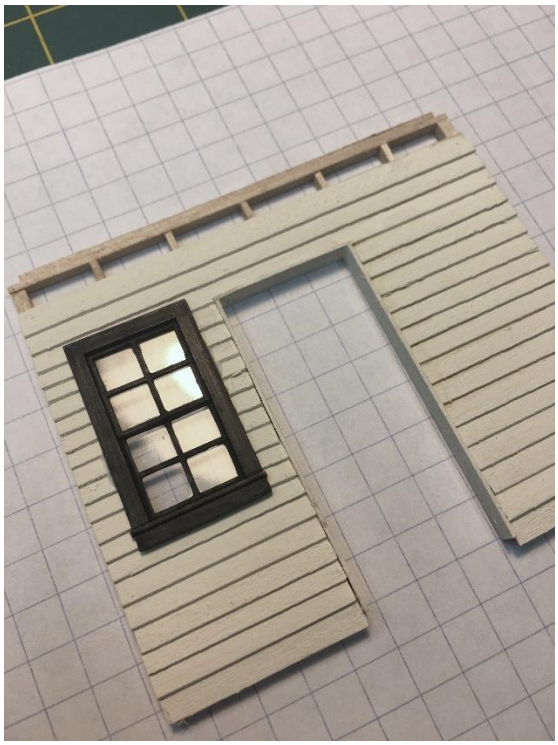
Scratchbuilding a Basic Door

Text and Photos by Scott G. Perry

Every building has at least one door. Might as well learn an easy way to make them. My Dr. Bank's Office model in O scale (Pic 1) needs both a front door and a back door. The carpenters are in a rural area in 1901 and had to make use of what they had, which were 1" x 8" planks and 1" x 4"s. The building is already framed and covered in clapboard, so we already know the dimensions of the door (Pic 2). My good friend Darryl Huffman, a master scratchbuilder, taught me how to make these.

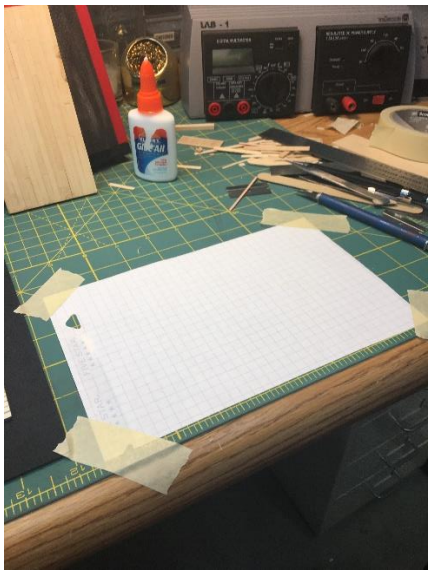


Pic 1: Dr. Bank's Office is an O scale model featuring board by board construction. Everything is to be scratch built except the Tichy windows.



Pic 2: Using graph paper saves a lot of time in drawing or sketching out the design. I build right on the graph paper.

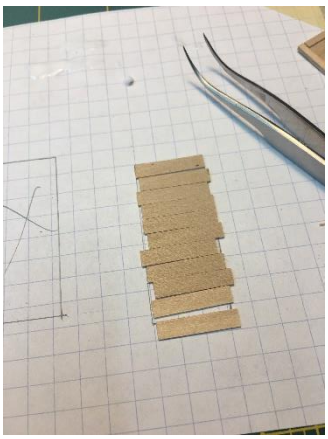
Using ¼" quadrille graph paper (Pic 3), I cut the sheet in half and taped it to my workspace. Lay one of the wall sections down on the graph paper and square up the opening to an intersection of two grid lines. Using a mechanical pencil (Pic 4), trace the door opening onto the graph paper.



Pic 3: Graph paper comes in 1/4" squares which is easy for O scale, but you can draw your own on a CAD system and print it in your preferred scale.

Pic 4: While my work bench is a little messy, I only keep the tools and materials I'm currently working with in front of me.

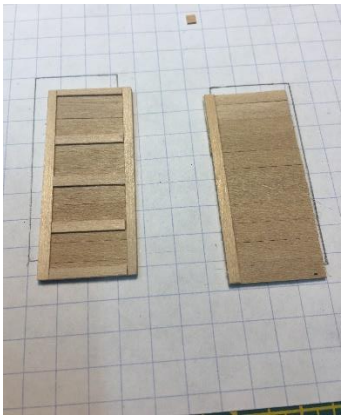
Using the pencil, measure the width of the drawing and mark the 1x8 stock. I set the board on my handy Shay Miter (or use your Chopper tool) and set the length on the stop. Quickly cut 11 boards all the same length. The Shay Miter I use is no longer available, but they are handy if you can find one. Mine came from a friend and is 39 years old. Align the boards on the drawing (Pic 5) and keep them tight. Don't worry if they are not perfectly cut as we will sand the sides later.



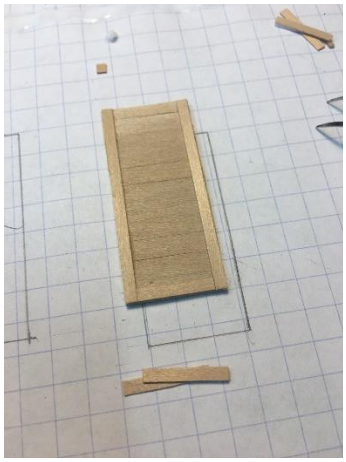
Pic 5: Align all the boards along the drawing tightly to make the solid door.

Using 1x4 stock, measure the length of the door and cut two boards (Pic 6 below). One side of a board is lightly (very lightly) coated in Elmer's Glue and placed on the left edge of the door (Pic 7 below). Glue the other board to the right edge. Next, carefully measure the width between the two outside edge braces and cut five identical pieces of 1x4 stock. Its ok if you cut them just a bit too long because it is better to be slightly longer and trim them for a snug fit. Check for fit then glue the bottom board (Pic 8 below) in place, then measure, test and glue the top board (Pic 9 below). This should give you a square box, so use a square and check the dimensions. Measure to find the center of the door and mount the center board (Pic 10 below). You'll also need to measure the midpoint between the upper boards and also the lower boards to fit and glue those additional boards as well, making for a total of five. The door is not a whole lot bigger than a quarter (Pic 11 below). Now turn the door over and repeat the steps to frame the other side, then let it dry thoroughly.

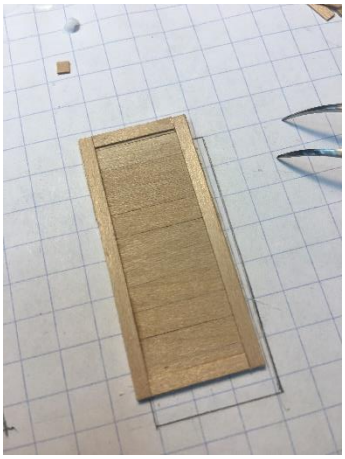
Pic 6: A Shay Wood Miter Tool that cuts by slicing, not chopping, which gives you a much more precise cut.



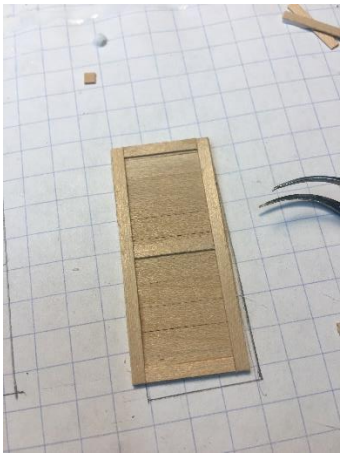
Pic 7: A previously built door so that you can see what we are making. Notice the first outside bracing along the edge.



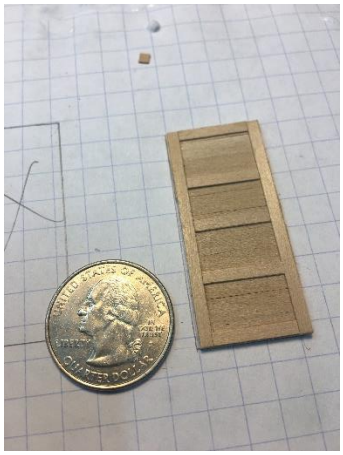
Pic 8: Glue the first inside board at the bottom and make sure it fits snug with no gaps.



Pic 9 Glue the top inside board in place and you will have a nice frame around the edge of the door.



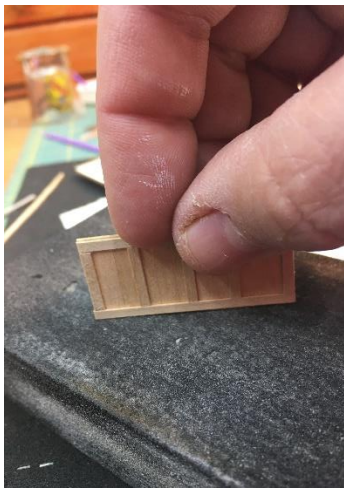
Pic 10: Using a ruler find the center of the door and test fit the center board. Trim if needed and glue into place.



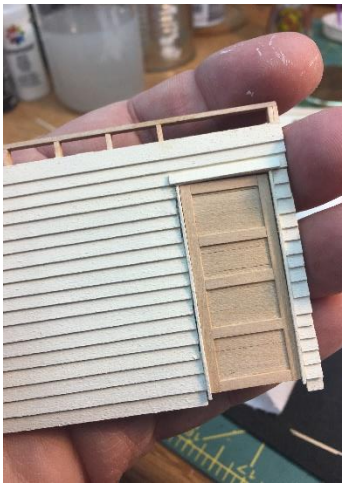
Pic 11: The door is small, not much bigger than a quarter. Flip the door over and frame the other side the same way.

Sand the rough edges (Pic 12 below) using a fine grit sanding block and go all the way around to finish the door, then test fit it into the door frame (Pic 13 below). Sand and trim if necessary, to make a light tight fit. I painted my structure Ivory (Pic 14 below) using Ceramcoat acrylic paint but you can stain the door or choose another color. The paint was thinned slightly with water and applied with a 1/8" sable brush (Pic 15 below). It is better to water down the paint and paint it twice to be sure to get the best finish. I often sand it between coats, but I wanted this door to look a bit rough. I like the hand applied look on an older building. The wood is not treated or coated so it will need two coats. Using an old blow dryer (Pic 16 below), blow dry the door so the paint sets quickly which speeds up the work. For some reason it also seems to make the finish surface harder. Once dry, repaint the door using less thinned paint for a smoother coating (Pic 17 below). Once the door is dry and you want to mount the door closed, glue it into the door frame. If you

want the door open, install the door after you install the doorknobs. You can make it open or closed as you like but be sure to later mount the doorknob on the opening side of the door.

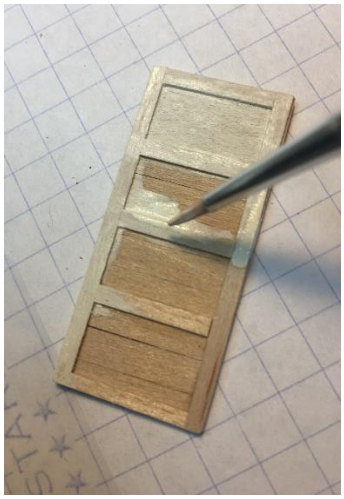


Pic 12: Carefully sand the edges of the door checking to make sure they are smooth.



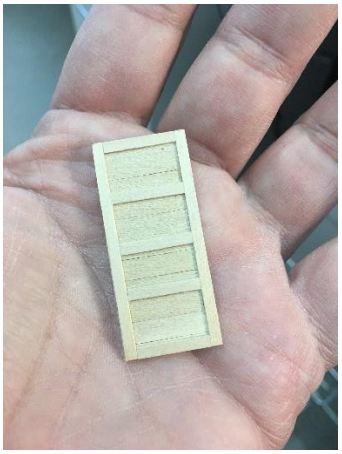
Pic 13: Test fit the door to the frame, re-sand and fit as necessary.

Pic 14: My building was painted in Ivory craft paint but use any acrylic paint you prefer. I paint with a sable brush about 1/8" wide.



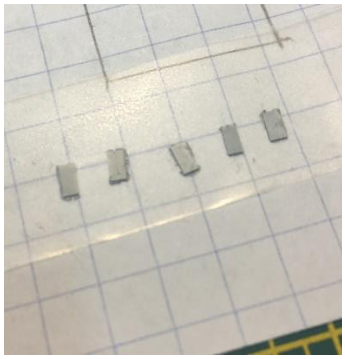
Pic 15: Paint the first coat onto the door on both sides.

Pic 16: I used an old hair dryer to speed up the drying of the acrylic paint.

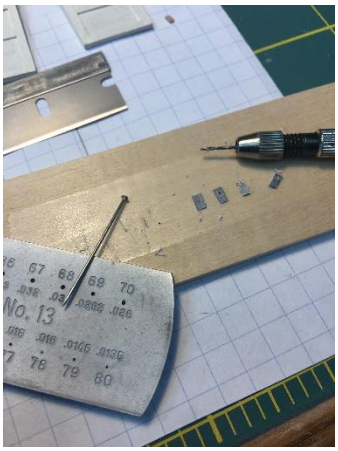


Pic 17: Once the second coat is thoroughly dry, check for fingerprints which can be sanded off lightly.

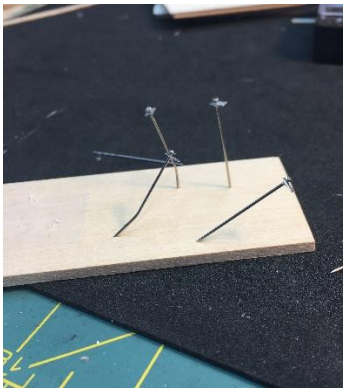
That was easy right? Ok, lets step up our game and scratchbuild the doorknobs! Yes, you can do this so stop complaining. You'll need some sewing type pins and some very thin plastic stock from the scrap box. Cut the plastic stock into small 4" x 8" scale squares. Paint them with a metal color such as brass or silver (Pic 18 below). Using a drill gauge to measure the pin and see what drill you should use for the doorknob hole. Mine was a #70 so I chucked one into my smallest, most light weight pin vise (Pic 19 below). Using double sided clear tape, I put tape on a small block of basswood, stuck the plates onto the tape, and very lightly and carefully drilled a hole in the upper center of the plate. You may want to make a couple of extra as I had some break. Then you gently push the pin through the hole on the painted side of the plate and go almost all the way to the head of the pin (Pic 20 below). Secure with ACC/Super Glue and let them dry thoroughly.



Pic 18: Paint the door facing a metal color like brass or silver in this case. Let them dry very thoroughly because they will get some rough handling.



Pic 19: Using a drill gauge, measure the size of one of the pins. This one was the equivalent of a #70 drill bit.

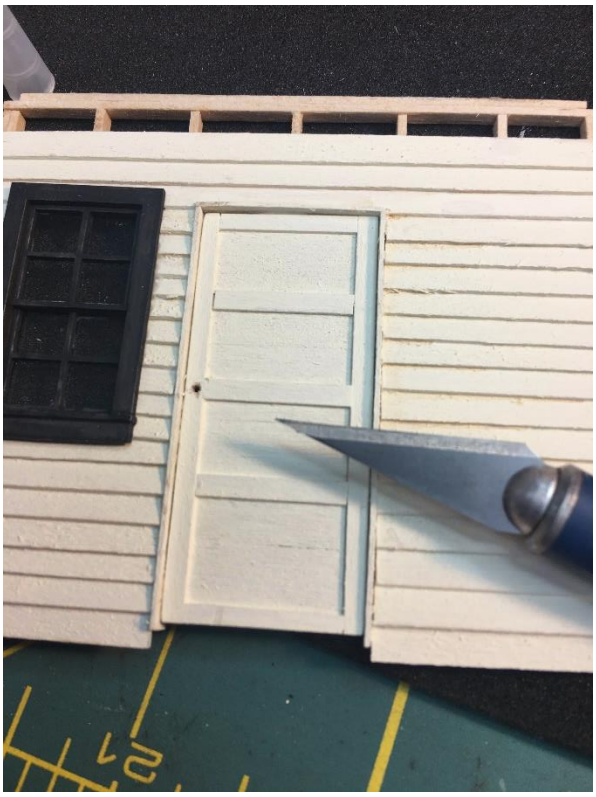


Pic 20: Insert the pin into the painted side hole and push gently all the way through until it is almost touching the lock plate. The head of the pin is the doorknob.

One shop trick I use is to wad up a paper towel in a clear 16 oz plastic cup. You need to be wearing safety glasses for this next step! Using a pair of flush cutting pliers (Pic 21) or a Xuron cutting tool cut the pin off as close to the back of the plate as you can while holding the part and pliers inside the cup. Let the parts fall into the cup. The paper towel helps prevent the parts from flying and bouncing all over the place. You don't want to be on your knees looking for doorknobs!

Pic 21: Use safety glasses when cutting the pins! The cup and wadded paper towel are used to catch the bouncing part and the sharp flying pin.

Even though I cut them very close to the plate there was still a small nub or bump from some of the remaining pin. I drilled a #72 hole through the door and cleaned the hole on both sides with a very sharp hobby knife (Pic 22 below). This worked to help align the doorknobs on both sides. Using Elmer's Glue I glued the doorknob/plate assemblies to both side of the door. One final touch was to take a 10/0 (10 zeros) super-fine paint brush and some flat black acrylic paint and paint key holes on both sides (Pic 23 below). Use your magnifiers! If you were making your door open, go ahead and glue it to the door frame.



Pic 22: To better align the two doorknobs, front and back, and allow for the pin bump I drilled a #70 hole in the door.

Pic 23: Glue both the front and back doorknobs in place. Once the glue dried, I used a 10-alt (super small) brush to paint the keyhole with black acrylic on both sides with the aid of a very good set of eye magnifiers.

We're done! Making a door is not that hard, and even easier if you make a dozen at one time. You can change the frame and style to make any type you want and can even add a window! Challenge yourself on your next kit to give it a try. Don't be afraid to toss the first couple away or use them in the trash heap behind the building. Practice and you'll get the hang of it because next time we make working hinges!

CLOSING PAGE BONUS

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