

# The Santa Rita mini layout



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## FERNANDO BELLINI BUILDS A SMALL LAYOUT AS PART OF A STORAGE CABINET SYSTEM ...

### I LIVE WITH MY FAMILY IN A SMALL HOUSE IN

Buenos Aires, Argentina. Lack of space is a constant challenge, even more so as the kids grow. I love model trains, but this lack of space is a real constraint.

After years of armchair modeling and planning, I finally built a 5'-5" x 3' island-style layout that I could store behind a bookshelf in the dining room. I kept the structures, trees, and vehicles stored in boxes. When I wanted to operate, I would place the layout base on the living room table, set up everything, and play the whole weekend.

I was quite happy operating the layout this way for a couple of years, but then we needed to make changes to the house. We got rid of the bookshelf and, unfortunately, the layout had to go, too. Fortunately, I was able to sell the layout and save the money for the next.

Since I did not have a dedicated space for a layout or a place to store it, I thought about putting a small layout inside a piece of furniture that would fit with the decor of our house. I found a wall in the dining room where with space for a hanging shelf up to 6'-8" wide.

My wife and I also needed more household storage space, so we came up with a design for a new set of wall cabinets. Our design added storage and fit the decor of the dining room. Most importantly, a shadow-box layout was part of it [1].

## CONSTRUCTION

The furniture and walls in the room are red and white, so I decided to build the new cabinets with white  $\frac{3}{4}$ "-thick melamine boards. I had them cut to size in the Argentinean version of Home Depot.

I wanted the layout to be on the lowest shelf, and this required some planning. I wanted it to be relatively high and out of the way, but I did not want the top shelf to be out of reach. I decided that the lowest shelf would be five feet from the floor [2].

I made the shelf 6'-8" long by 8" wide for the base of the layout and set the next shelf 10" above it [3]. I spaced each of the other shelves at 8" up [4]. I patterned the length of each successive shelf to match the rise of the staircase [5].

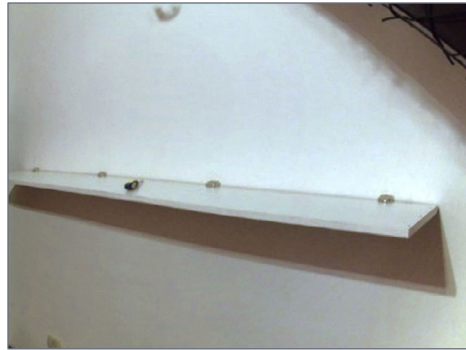
Once I completed the basic shelf structure, I added the doors. I chose a vertical design, with the hinges on top [6]. I used a pneumatic shock system to hold the doors open.



**1. Our dining room layout. I chose colors and materials that blended with existing trim.**

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2. At 5' off the ground, this lowest shelf will hold the layout.



3. I set the second shelf 10" above the first, which provided me with 2" for the layout benchwork and an 8" ceiling for the layout.



4. I made the remaining two shelves each 8" high. I set the length of the successive shelves to match the rise of the staircase behind them. I used screws to assemble, and drilled pilot holes, which made assembly easy.



5. The completed shelf structure. It matches the rise of the stairway, and the top shelf is reachable.



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6. The doors are in place. I painted them brick-red and white to match the rest of the room.



With shelves and doors in place, it was time to start the benchwork. I used 1" x 1.5" pinewood strips to frame the sides, back, and joists, and a 1"x2" strip for the front to serve as a fascia. I glued them together and reinforced with small screws. The final step was to carve channels into the tops of the joists to accommodate cables [7].

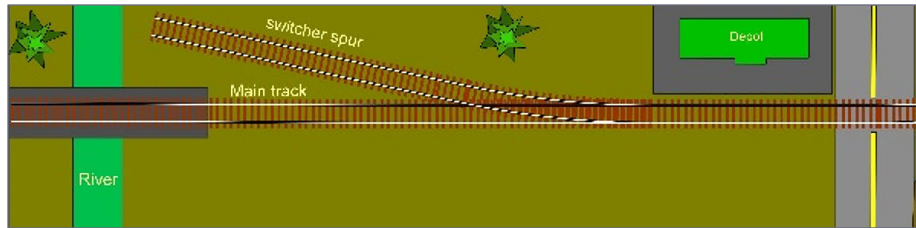
I cut a 1/8" thick sheet of MDF to size for a baseboard, and glued it to the frame, reinforcing it with nails. Once the board was in place, I tested the layout's level with a piece of flextrack and a boxcar [8].

Once I had confirmed that the baseboard was level, I laid 1/4"-thick white foamboard to serve as the layout surface. I used foam-friendly glue, weighted the foam with books, and allowed it to dry overnight [9].

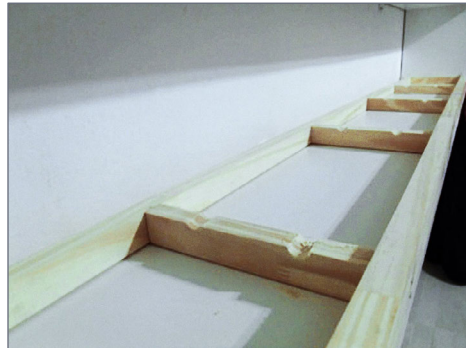
### LAYOUT DESIGN AND CONSTRUCTION

With an available space of only 6'-7" x 8", I had to come up with a simple design. Initially, I thought about doing a small switching layout with a runaround but set that idea aside because it would have consumed too much space.

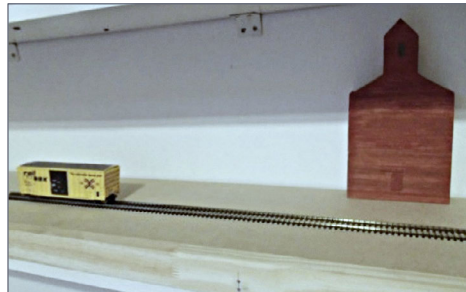
An inglenook design looked like a good option, with one variation. Because there was no space for a runaround, I added a spur at the opposite end of the inglenook to allow a switcher



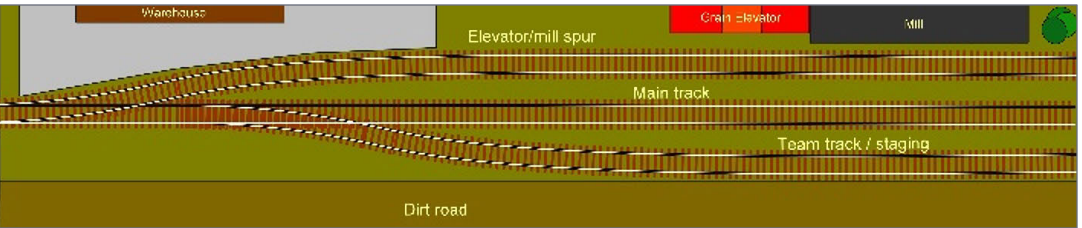
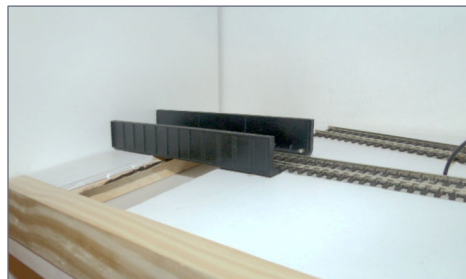
7. The completed benchwork framing. Note the grooves I carved into the joist tops for wiring.



8. With the MDF board added, the project began to take shape. I tested the level using a couple of flex tracks and a box car. The boxcar didn't move, so the board was level.



9. I laid 1/4" foamboard over the 1/8" MDF sheet. I chose these thin materials so the layout surface would be below the top of the fascia. I made the cut shown here to model a river under the bridge.



10. The final design. My goal was to create something simple to make switching moves in a prototypical fashion. This turnout configuration gives more room than the traditional ladder, and allows the main track to be in the center.

to negotiate the job if the incoming train is approaching the turnouts facing the points [10].

“Santa Rita” is the chosen name for my layout and the town it serves. First it is the name of my neighborhood here in Buenos Aires. Second makes a nice fictional town in Southern California.

I chose Peco Streamline code 100 track, since it is readily available locally. I needed only four flex tracks and three turnouts. I used a Dremel rotary tool to cut the flex track to size.

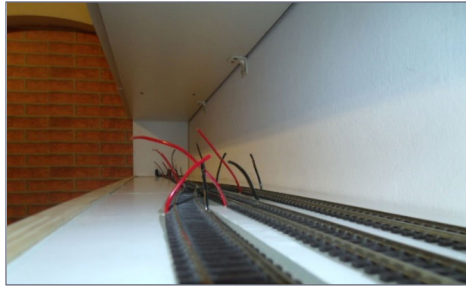
After testing with a discarded piece of flex track and foamboard, I found that gluing the track with white glue and then ballasting was enough to hold it. Laying track is probably the most critical step, so I gave it my best effort. After all, if trains don't run smoothly, the rest is useless [11].

With the track laid, I was ready to wire the layout. I decided to add feeders to each segment of track to maximize continuity. I attached the feeders and ran them through holes to the underside of the layout.

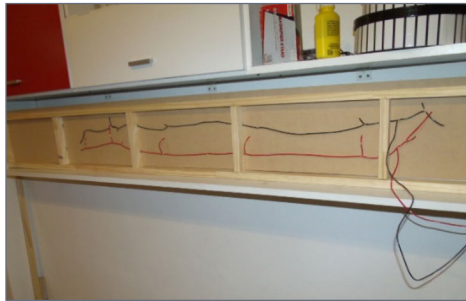
Tilting the layout onto its side, I added two bus wires running the length of the layout, through the grooves in the tops of the joists. It was not difficult to access the underside of the layout; I simply had to tilt the benchwork on its side in the shelf and get to work. With the last feeder soldered, I had an operational layout [12].



11. Track glued to the foamboard and about to be wired.



12. The shelf was tall enough to allow me to set the layout on its edge for easy access to the wiring. Shown here are the rail power buses. Lighting power buses will come later.



13. I cut cardboard the thickness of the ties to size and laid it on the foam. This created the image of buried track.



14. A little ground foam used, nearly buried branch line.



15. The Santa Rita depot.



16. The interior of Santa Rita Depot. The furniture are printings from Wentworth model. The rest are real pictures scaled down.



The beauty of my benchwork design is ease of access to the underside. I could add more busses—to light structures, for example—simply by tilting the layout on its side and feeding the wires through the groves. With each pair of buses on plugin connectors, the layout is entirely self-contained and easily movable.

I wanted to model a lightly trafficked branch line with tracks nearly buried in the weeds. I cut pieces of cardboard the same thickness of the ties and laid them over the foam to achieve this look [13]. A coat of light earth-colored paint on the cardboard, plus some ground foam, and the effect was complete [14].

I scratchbuilt all the structures, including a variation of the Southern Pacific depot Tony Thompson presented in the November 2012 *MRH* [15]. It was impossible for me to get the exact windows and doors Thompson used, but a local manufacturer had some that worked nicely. I used wood strips instead of styrene for the construction [15].

I wanted to light the building interiors. As discussed, I laid a second set of bus lines under the layout to power the buildings. To make the buildings readily removable, I used a plug for each set of wires.

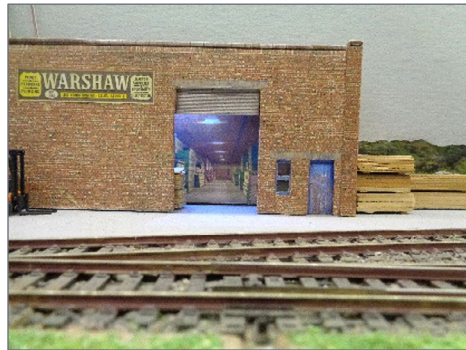
Lighting the buildings meant adding detail and highlights to the interiors. I accomplished this using furniture created from scaled-down photos on card stock. For the station, I accented the walls with photos I scaled and printed [16].

I wanted my main industry to be a grain elevator and a flour mill. I used photos found online and in magazines to create

**17. The mill has a lighted interior with printed images. As in real life, not all windows are illuminated. The mill and elevator's corrugated roofs are made of painted and weathered styrene.**



**18. This warehouse from Scalescenes was the final building. Note the interior and other surrounding detail.**



generic, low-relief models of these buildings using wood strips [17].

The elevator, mill, and station were my first attempts at scratchbuilding. Although they are not perfect, I learned a lot, and am satisfied with the results. I'm already dreaming up future projects.

I completed the layout structures with a low-relief warehouse built of cardboard from Scalescenes, and a bridge over a creek [18]. This was plenty. Living in a crowded city, I liked the idea of looking at an open landscape.

## BACKDROP

For the backdrop, I began with cardboard. I cut to size to fit the three back sides of the shelf. I painted it a light bluish-gray and overlaid it with landscape images I found on Google.

I wanted to model a small town in wide-open space, so I looked through quite a few photos to find elements I could use to create forced perspective and the illusion of depth [19]. Once I had the photos, I processed them with Photoshop to stretch the images and adjust their lighting so they blended together.

Finally, to hide the wall brackets, I printed cloud images on cardboard, glued small magnets on the back, and placed them in position.

## LIGHTING

Lighting presented another issue to resolve. The top of the layout casts a shadow from the room's lighting. My solution was to light the layout with LED strips [21].

I placed three strips – two warm-white on the front and back for daylight, and one blue in the middle to simulate night lighting. I designed a device to independently control each strip, and added another switch to illuminate the structures [22].



My original idea with the two warm-white strips was to get an even light and avoid shadows in the background. I discovered that by combining the lights that I had different options to represent different times of day.

19. The road crosses the railroad tracks and passes through Santa Rita, eventually disappearing into the plains in the distance. Forced perspective in different places gives depth to the layout, which is only about 8" deep.



20. To give the illusion that Santa Rita was only one small town on a long branch line, I used the perspective function on Photoshop. It took some effort and several attempts to achieve the right angles for the illusion.



21. I used three LED strips for lighting, two warm-white and one blue. Each strip has an independent switch, giving six different lighting configurations.



22. Night at the mill. Originally the blue LED strip was too intense, so instead of replacing it, I attached white duct tape over it, giving it a soft quality. Operating at night with this lighting is fantastic!



## OPERATIONS

Due to the lighting configuration, I decided the front of the layout would be east and the back west. The trains would run north-south. Trains coming from the north are oriented to do the switching themselves. Those coming from the south need the help of the switcher. There are no hidden tracks or staging, so I have to build the trains on the main track. Generally, trains have a maximum of three cars, sometimes with one or two in transit [23].

Instead of operating randomly, I think it's more interesting to have a work routine. Having a team track is great, since any type of car can be spotted there. I have routines that cover about a week of work. Each "mini session" involves dropping one or two cars and pulling or respotting another one or two. Working at a slow pace takes between 15 to 20 minutes, which is great for my needs. The cars stay in position till the next "day" of operations.

## CONCLUSION

For those of us who do not have the luxury of a devoted room, it can be a challenge to design a layout that does not look like an intrusion in the room. A shadow-box layout like mine offers the opportunity to integrate a layout with the aesthetics of the house. This allows me to have and enjoy a layout for now, rather than just dream about a future layout I can't have yet. ✓



23. A typical train arrives with a single engine and three cars, ready to do some switching.



## FERNANDO BELLINI



Fernando started in the hobby at the age of four when he received an AC Märklin train set. Later in his childhood, he switched to DC with an eclectic mix of European and American trains.

Fernando left the hobby at age 14 but resumed 11 years ago, aiming to play with his kids. Soon he got hooked again and decided to take it seriously, modeling only American trains.

Fernando lives in Buenos Aires, Argentina with his wife, two kids, and a rescued greyhound. He teaches mathematics and physics. He also plays bass with his country music band, No Bull. ■

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