# Contents

*When you enter my layout room, you have to pass through two simple gates. My first idea was to make a lift-out section with scenery so it could be a part of the layout. I built the section from plywood, but it became obvious that it was too heavy and difficult to handle, so I scrapped it and made the gates instead.*



*The gates swing up and attach to the valance with magnets.*



*All operations of the layout take place via a turnout control panel and two Lenz connector panels mounted on the fascia on the layout's center section. Via a small monitor on the valance, I can monitor the hidden staging.*
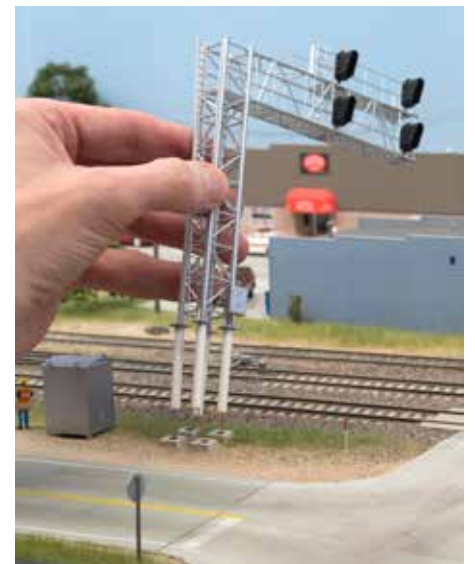


*Each gate is attached to the benchwork with a small hinge. To power the tracks on the gates, I soldered a small feeder wire between the gap between the rails.*
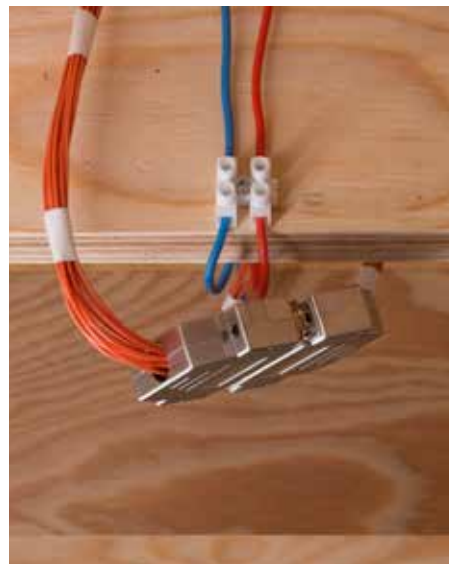


*25-pin connectors connect all the wiring between the layout sections except for the buzz wires, which are connected via screw terminals.*



*I made a socket system for the signals on my layout, so they can easily be pulled out if needed.*

Each gusset consists of three pieces of wood. I first attached 1 x 2s to the wall. I then fastened a horizontal 1 x 2 to it. I attached a temporary support leg to the other end. I then clamped a 2 x 2 diagonal support beam to the vertical 1 x 2 and screwed it to the 1 x 2 on the wall first and then to the horizontal 1 x 2.



I designed a sectional system using standardized rectangular layout segments. I made them from ½" plywood. Each segment consisted of two longitudinal and four transverse plywood sheets. I assembled each layout segment with both screws and glue.



I made shelves for storage under the layout. It is easier to keep the room clean if you don't have too much stuff on the floor.



To make benchwork stable when assembled with only screws places a high demand on exact sawing. A 45-degree cut has to be exactly 45 degrees. The slightest deviation will create both visible and construction problems.



I made two types of layout segments: a rectangular type for regular sections and another for corner sections. The holes in the transverse plywood sheets are for the wiring.



The layout segments are attached to each other with two bolts and wing nuts. If you need to remove a section, you just have to loosen the bolts in each end and pull the segment out.



I attached an L-girder frame to the triangular gussets. Again, I used 1 x 2s, but if you have a larger span between the supports than I do, you might want to use 1 x 3s or larger supports. The shelf against the wall is for the staging which will be hidden behind the backdrop.



Here, the layout segments are placed on the framework. Note that I made the segments in two heights. The ones on the left are for the flat town area, and they are covered with plywood sheets. The ones on the right are lower and have an open frame for a more hilly terrain. Yours truly is studying the track plan and preparing for the next move.

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I didn't glue my flextrack but only attached it with spikes. Push the spikes in the roadbed at an angle when you attach your flextrack to a soft material like cork. It holds the rail better than if you push the spikes down vertically.



The track on each layout section is cut exactly where the section ends. The track continues on the adjacent section, but it is not connected with rail joiners. I leave a little gap between the rails to compensate for expansion.



It becomes a little more tricky when two sections join in a curve. When flextrack is cut diagonally in the middle of a curve like this, it is not easy to align the rails between two sections. I spiked the rail ends as close to the edge as possible to keep them in place.



I use different sizes of rail on my layout depending on the type of track it represents. For mainline track I use code 83 rail, for sidings I use code 70 rail, and for spurs I use code 55 rail. Spurs often have wider-spaced ties than track that handles more traffic, so I cut the web between the ties on this Micro Engineering flextrack and spaced out the ties more.



The joints between the different sizes of rail were connected using the classic solution of squeezing a rail joiner flat in the end where the smallest rail connects and soldering the rail to it.



I superelevated the curves by pushing bits of styrene under the ties. I started with .010", then .020" and .030", and ended with .040" at max elevation. The transition from the base level to max elevation takes place over a distance of 12"–15". I didn't glue the styrene bits in case I needed to remove or adjust anything.



Here, you can see track applied to two straight layout sections and one corner section. The staging tracks to the left will be hidden behind the backdrop.

*One way to check if your scene looks realistic is to place a camera on it and take a picture, as I did here.*

trips through Iowa and Nebraska on the Lincoln Highway, I noticed many small, often private, grade crossings which I had

good use of when I wanted to stop and watch the trains passing by. I also wanted to include one of those in my scene.

## Soil and dirt



Dirt from my backyard, baked and sifted

Monster Modelworks Diorama Dirt

The next step is to compose the scene. With the track already in place, I placed the rest of the elements in relation to the tracks' position. First, I marked where I wanted my highway to be and then the fields. As corn seemed to be the dominate crop in Iowa and Nebraska, I decided on two cornfields and one soybean field.

An important issue is choosing scenery materials. The scenery materials are what bring a scene to life, so your choice of types and colors is essential for a good outcome. I started with the ground cover. For a basic soil, I simply used some from
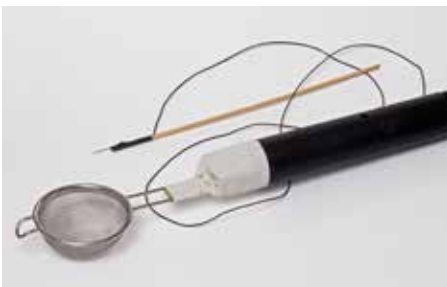


*I used these homemade shakers as dirt applicators. I drilled the small holes in the lids, and the smallest applicator has smaller holes for applying very fine dirt.*



*For applying static flock grass, I used this homemade grass applicator that is made from an electric flyswatter. It was a present from Kim Nipkow, a talented young modeler from Switzerland.*



*Small private grade crossings are very common in rural areas, and they add to the authenticity of the scene. I made the signs and crossbucks on my computer and printed them out. The poles are stained stripwood.*

# Model a soybean crop

Although I model the Corn Belt, I needed another crop besides corn to add a little variety to the scenery. Soybeans are a common crop in the Corn Belt, and it turned out to be a very easy crop to model. All you need is MiniNatur grass strips, 3M Spray Mount, and some Noch Medium Green leaves.



*My HO scale farmer seems to be very pleased with his new soybean field.*



**1.** I trimmed the MiniNatur grass strips to a narrower width and then placed them on a piece of cardboard. The strips have a sticky back so they easily stick to the cardboard. I then sprayed them with 3M Display Mount.



**2.** I immediately sprinkled Noch leaves on the tacky glue. I let the strips dry for 24 hours before planting them on the layout. The 3M glue stays soft so the strips preserve their flexibility.



**3.** Using white glue, I planted the soybean rows on a piece of dirt-covered land.



*This view shows the two corner sections that contain the farmland scene with corn and soybean fields.*

*I installed the railroad bridge and soldered feeder wires to the bridge tracks. Except for the two bridge shoes on the truss bridge resting on the pier, none of the sections were glued to the abutments and pier.*



*The walkway between the tracks is the only addition I made to the truss bridge.*

*Although the resin layer is only .080" (2mm) thick, it is not easy to tell how deep the water is. I applied some deadfall along the riverbank before I poured the resin.*

# Painting concrete streets



**1.** I gave the concrete sidewalks and streets a coat of a extra-light concrete color mixed from Humbrol 147 Light Gray, 34 White, and 121 Pale Stone in a 2:2:1 ratio. I used a light color because the streets will receive a dark wash later that will darken the surface. I made the paint pretty thin, almost like a wash. Because the paint is so thin, the plaster will absorb the first layer which will act like a primer and seal the plaster surface.



**2.** After the first layer had dried, I sanded the surface lightly with very fine sandpaper. I then gave streets and sidewalks a second layer of the thin concrete color. I applied four layers to the streets before I was pleased with the look. I sanded between each layer. You get a more realistic-looking surface by giving plaster streets several layers of thin paint instead of one or two layers of a thicker and more opaque paint.



**3.** I sanded the painted streets and sidewalks and cleaned the surface of dust. I then gave the surface a dark wash (a few drops of Vallejo Air 71052 German Gray mixed with water and a little rubbing alcohol). This will bring out the grooves and cracks in the surface but will also leave the gray color less uniform.



**4.** I masked the outside edge of the road markings and painted them by hand. Always rub the edges of the masking tape to prevent paint from creeping under it. I wanted the road markings to look old and faded, so I only gave them a single layer of paint. Newer striping gets two layers of paint.



**5.** I sealed the road surface with a coat of Vallejo Matte Varnish. I covered the backdrop with a piece a cardboard to protect it from spray.



**6.** I smudged the lanes with black and brown powdered chalk. I used a "weathering glove," a white butler's glove. I dipped my forefinger in powder and wiped it partially clean on a sheet of paper before rubbing it on the street. I then used the clean fingers to smooth out the powder.

*A look down the main street of Daneburg shows how a backdrop extends a scene far beyond the layout's actual physical space. Only seven of the buildings in the picture are models.*

# Modeling a Midwestern town

A small town, not to mention a city, takes up a lot of layout space, even if you only model part of one. On larger layouts, where you are not as restricted with space, it is easier to model an authentic-looking town than on a small layout like mine, but there are ways to limit the amount of structures used and still maintain an illusion of a town. My town only consists of a few stores and a small residential area with three homes.

Every town has a main street, and mine does too. Instead of having it run parallel with the tracks, I turned my main street 90 degrees and let it cross the track. That way, I only had to place a few buildings on each side of the street. The backdrop would compensate for the rest.

For the scene, I simply took a photo of a typical small-town main street, had it printed out, and applied it to the backdrop. On a photo, the illusion is perfect, but when you stand looking at the enlarged scene on the backdrop, you have to view it from the right angle for it to work best.

Even though Cornerstone, DPM, and other manufacturers offer a large selection of typical Midwestern small-town buildings to choose from, only a few of the structures in my town are commercial kits. The rest are scratchbuilt buildings based on prototypes I photographed on a research trip to Iowa and Nebraska. They are not all from the same town though. I stopped in many small towns and took pictures of buildings I thought would make a nice model. As I did, I also looked for main streets that I could photograph and use as a backdrop.

The high percentage of scratchbuilt buildings gives the town an authentic look. Had I only used commercial kits, the risk is that the viewers would recognize them and see Cornerstone and DPM buildings rather than the small Midwestern town of Daneburg.

I scratchbuilt my buildings from a variety of materials. Most of them are

*Although my grain elevator facility is heavily compressed, it still looks impressive as it dwarfs the hoppers.*

# Building a signature structure

A grain elevator of some kind is a must when you model the Heartland, and my plan was to have the grain elevator be the signature structure on my layout. I dedicated almost an entire layout section to the grain elevator scene.

You can purchase many nice grain elevator and silo kits, but I wanted my grain facility to be a little out of the ordinary, so I went on a research trip through Iowa and Nebraska following U.S. 30 in hopes of finding a prototype that I could base my model on.

Every town I went through had a grain elevator, and they were all so big that any I modeled would have to be compressed quite a bit to fit on my layout. Especially when you model tall structures such as grain elevators, you can get away with

selective compression without it being too obvious. That's because your eye is pretty good at seeing horizontal spaces but not very good at judging vertical spaces, so when you looking at an actual grain elevator, it seems smaller than it really is.

I ended up choosing the grain facility in Lexington, Neb., as an inspiration for my model. What made that facility more interesting than others was that you could tell it had grown over the years. A cluster of concrete silos represented the original grain elevator. Then at some point, a couple of corrugated steel storage bins had been added to the facility. A third addition featured two fairly new, modern concrete storage silos. I thought that a grain elevator like that, which had been expanded over the years, would be an

interesting model for my modern era layout.

When I built a cement plant for my previous layout, I learned how time consuming it can be to build large structures from scratch, so this time, my thought was to do as much as I could using commercial kits, either by using them as they were or by kitbashing.

This meant that my grain facility would not be an exact copy of the one in Lexington—a compromise I was willing to accept. After all, I was modeling a fictitious place and not Lexington It was not possible to build an authentic-looking grain facility from kits alone. Some of the structure sections, or parts of them, had to be scratchbuilt. But using the commercial parts, as well as parts from my scrap box (a
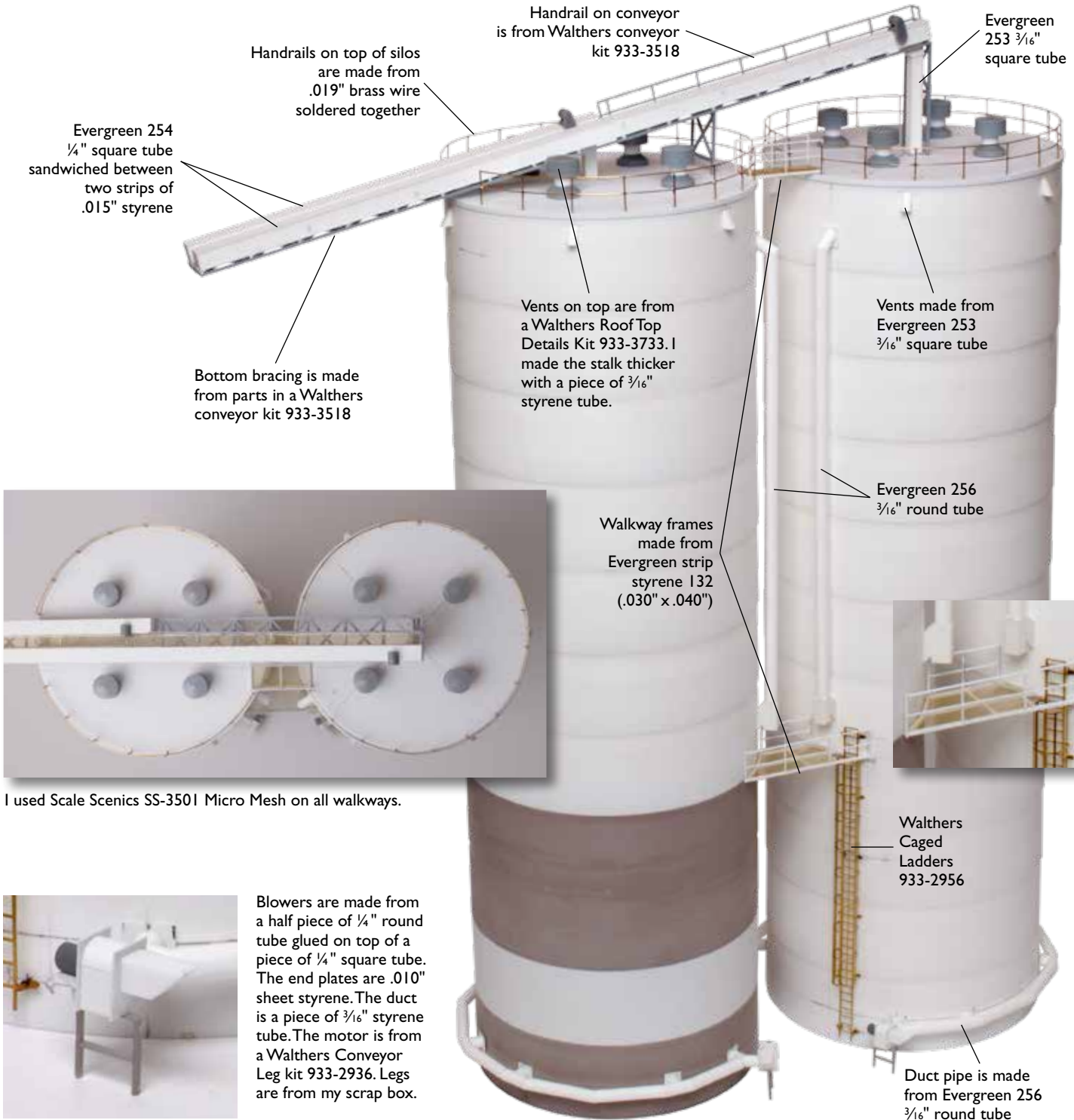
# Modern concrete storage silos

Walthers Corn Storage Silo kit 933-2975 seemed to be a good starting point for these modern concrete storage silos. I also added a few silo sections that were left over from a Walthers coal loader silo kit in my scrap box, which are the gray ones on the first silo.

I scratchbuilt the conveyors that connect the silos to the main silo section, using many of the same materials that I used for the conveyor on the steel bins.

The handrails on top of the silos were made of brass wire instead of styrene strips because they were going to be round. I soldered the parts together first and then bent the handrail in a circle. I drilled holes for the stanchions in the deck and glued the handrail to the silo with cyanoacrylate adhesive.

Handrail on conveyor is from Walthers conveyor kit 933-3518

Evergreen 253 ³⁄₁₆" square tube

Handrails on top of silos are made from .019" brass wire soldered together

Evergreen 254 ¼" square tube sandwiched between two strips of .015" styrene

Vents on top are from a Walthers Roof Top Details Kit 933-3733. I made the stalk thicker with a piece of ³⁄₁₆" styrene tube.

Vents made from Evergreen 253 ³⁄₁₆" square tube

Bottom bracing is made from parts in a Walthers conveyor kit 933-3518

Walkway frames made from Evergreen strip styrene 132 (.030" x .040")

Evergreen 256 ³⁄₁₆" round tube

I used Scale Scenics SS-3501 Micro Mesh on all walkways.

Walthers Caged Ladders 933-2956

Blowers are made from a half piece of ¼" round tube glued on top of a piece of ¼" square tube. The end plates are .010" sheet styrene. The duct is a piece of ³⁄₁₆" styrene tube. The motor is from a Walthers Conveyor Leg kit 933-2936. Legs are from my scrap box.

Duct pipe is made from Evergreen 256 ³⁄₁₆" round tube