Tips to convert a layout to DCC

Dual-gauge HO track plan

Model Railroader®

January 2010 • www.ModelRailroader.com

NEW SERIES

How to build a great layout!

Learn essential techniques as we build this small railroad from the ground up

WIN $2,000 TO BUY TRAINS
See page 18

HOW TO

- Carve rock scenery from foam board
- Model meat-packing plants & operations
- Install a DCC sound decoder

PLUS

- Add flair to operations by modeling fusees
- Build a rural river scene on your layout

N scale trains meet on *Model Railroader*'s new project layout.
See page 36

$5.95

0 09128 46784 9 01

Vol. 77 • Issue 1

Zephyrs across the prairie

The Burlington Route's best trains run on the HO Brookfield Division

By Dick Wolter • Photos by Lou Sassi

1. The *Mark Twain Zephyr* pulls into the station at Easton, Mo., on Dick Wolter's HO scale Brookfield Division. The Chicago, Burlington & Quincy RR during the transition era inspired Dick's 26 x 36-foot layout.

My HO scale Brookfield Division lets me revisit some of my fondest memories. As a youngster in Quincy, Ill., in the late 1930s, I spent a lot of my free time watching Chicago, Burlington & Quincy RR passenger trains make their way across the Mississippi River and head to the depot. I vividly recall the beautiful silver streamliner, the *Mark Twain Zephyr,* and the smells of milk cans from the baggage car and diesel fumes from the idling engine.

After moving to St. Joseph, Mo., my fascination with the Burlington Route grew. On bicycle trips outside town I watched gas-electric "doodlebugs" and steam locomotives working on a rural branch line, as well as manifest freights and CB&Q's signature varnish in town on their way to Omaha or Kansas City. An unforgettable ride on the stainless steel *Silver Streak Zephyr* when I was 12 capped off my railroad memories, and at that point I knew that I'd someday build a scale model railroad based on my favorite prototype.

During the years that followed I met the demands of the transition from youth to adulthood, including dating, college, U.S. Air Force pilot training, and starting a family. I didn't get back into the hobby until 1987. My first attempt at a layout was limited by space constraints, but a move to a new house provided a 26 x 36-foot basement to build my dream layout.

Layout planning

The large layout room gave me the space for a 200-foot single-track main line and broad 36"-radius curves, which was important for running 85-foot passenger cars, articulated *Zephyr* streamliners, and 4-8-4 Northerns. I designed a point-to-point, once-through-a-scene track plan. At the door to the layout room, there is a liftout section that allows for continuous running.

My track plan is inspired by the Burlington Route main line that ran

2. Dick operates his layout with an NCE Corp. Digital Command Control system. He uses car cards and waybills to dictate car movements. He installed cradles for DCC throttles and boxes for car cards on the fascia.

southwest out of Galesburg, Ill., to St. Joseph and Kansas City, Mo. I added some freelanced elements, such as the town of Brookfield as a division point on the line, a branch line from Brookfield to Maryville, and a Rock Island branch line that runs from the staging yard to Easton.

The visible, double-ended staging yard has seven tracks from 10 to 18 feet long. The yard also incorporates a reversing loop.

My overall goal was to design a model railroad that I'd be able to complete and enjoy in my lifetime. I chose to do all the work myself, but I wasn't shy about asking for advice. I'm grateful for the all resources offered by the National Model Railroad Association and the Operations and Layout Design special interest groups.

Building the right-of-way

Layout construction began in 2002. For the most part the train room was finished when I bought the house. The basement already had a vinyl tile floor, sheetrock ceiling, concrete block walls, and enough electrical outlets for the layout's power needs.

I did have an electrician run wiring from the main circuit-breaker panel to the train room to accommodate the four-foot-long fluorescent light fixtures I hung from the ceiling. I use one cool white bulb and one warm white bulb in each fixture. After the lighting was in place, I removed some shelving and painted the walls off-white, then began the benchwork.

I used L-girders for most of the layout's benchwork. My friend Jeff Ward made open-grid tabletops for the staging yard and the city of St. Joseph.

The roadbed is ½" Homasote on ½" plywood supported by risers every 18". I spiked down code 83 flextrack for the main line and code 70 for the branch line. I used both Micro-Engineering and Shinohara flextrack, and all the turnouts are Shinohara.

Depending on their location, turnouts are controlled one of three ways. Tortoise switch machines control turnouts that are more than two feet from the fascia. Where the benchwork prohibited me from installing a Tortoise, I installed scratchbuilt fascia-mounted push rods connected to the switch rod. All other turnouts within comfortable arm's reach are controlled by Caboose Industries ground throws.

Midwestern scenery

I formed basic scenery contours by laying Woodland Scenics plaster gauze over wads of newspaper. Where I wanted smoother terrain, I glued red rosin paper over the newspaper with a hot glue gun before applying the gauze. After the plaster hardened, I brushed on a thin layer of soupy Hydrocal.

Once the Hydrocal dried, I worked in four-foot sections to complete the ground cover. First I painted the area with Benjamin Moore 1040 Spice Gold, which is close to the color of Missouri clay. Next I sprinkled on Woodland Scenics fine earth and sifted sand onto the wet paint.

The layout at a glance

Name: Chicago, Burlington & Quincy Brookfield Division
Scale: HO (1:87.1)
Size: 26 x 36 feet
Prototype: Chicago, Burlington & Quincy RR
Locale: Missouri and Illinois
Era: 1953
Style: linear walkaround
Mainline run: 200 feet
Minimum radius: 36" main line, 30" branch line
Minimum turnout: no. 5 (main) no.4 (spurs)
Maximum grade: 1½ percent
Benchwork: L-girder and open-grid
Height: 48" to 52"
Roadbed: ½" Homasote on ½" plywood
Track: code 83 (main line) and code 70 (branch line) flextrack
Scenery: hardshell
Backdrop: ⅛" hardboard
Control: NCE Corp. Digital Command Control

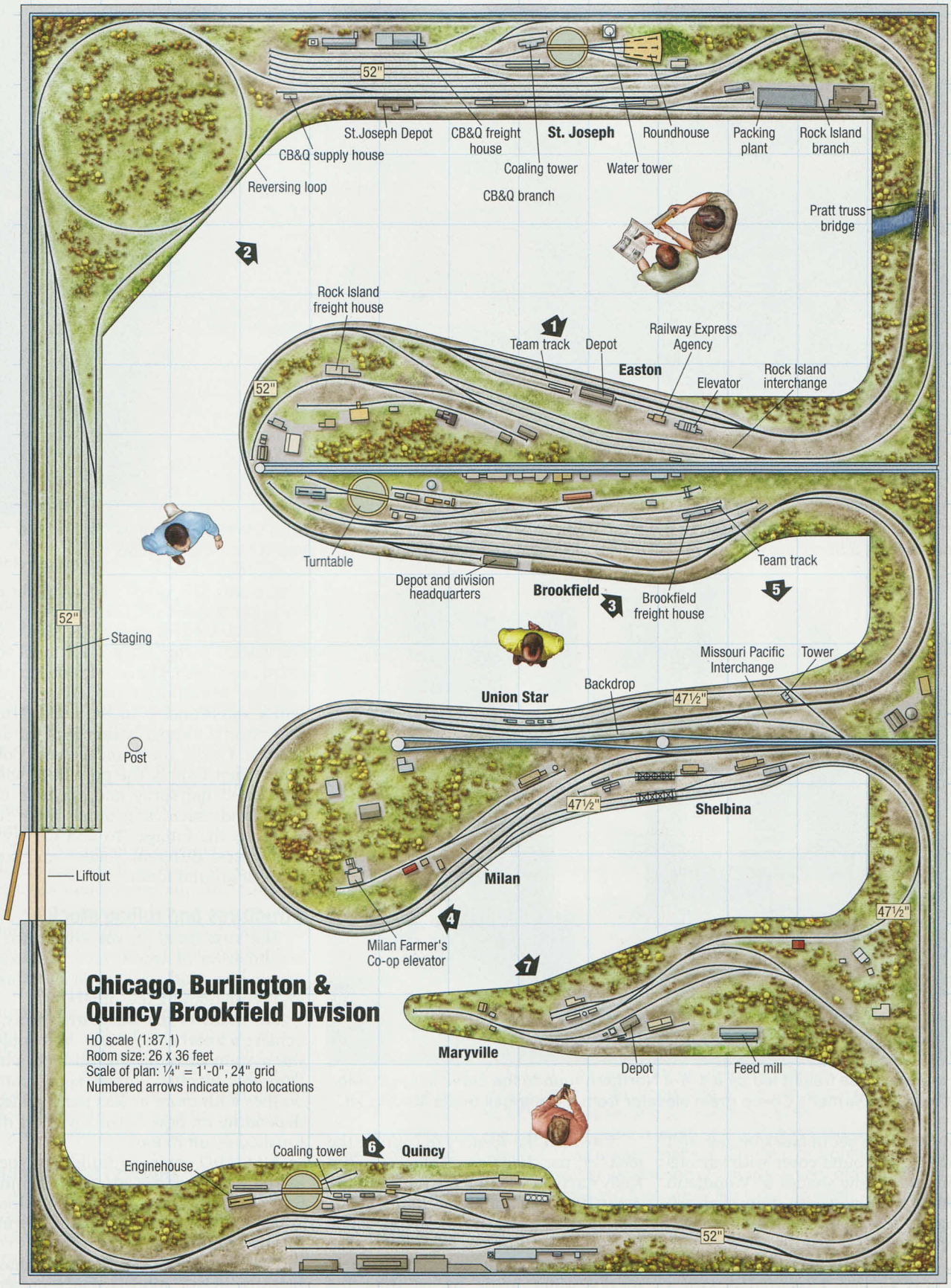


Illustration by Theo Cobb

3. An 0-8-0 spots a 50-foot boxcar at the team track in Brookfield. The locomotive is an Overland brass model and the boxcar is from a Sunshine Models resin kit. The structure in the foreground is the Brookfield freight house.

4. A merchandise freight led by a 4-8-4 Northern rounds the curve in Milan, Mo. Dick built the Farmer's Co-op grain elevator from a Campbell Scale Models kit.

My layout is set in late summer, so I finished the ground cover with various green and yellow shades of Woodland Scenics turf, along with spots of clump foliage to represent brush and secondary growth. After misting the turf with a 50/50 mix of water and 70 percent isopropyl alcohol, I secured it with a 50/50 mix of water and matte medium applied with a large eyedropper.

I wanted the scenery to capture the look of the Midwest. Following Jim Kelly's article "Ceiling tile rocks" in the April 1981 issue of *Model Railroader*, I installed limestone outcroppings made from layers of broken ceiling tile. The creeks on the layout have appropriately murky water made by painting the creek bed with dark brown latex paint followed by an 1/8" layer of Envirotex Lite resin. The creek bed is made of plywood covered with Hydrocal.

I modeled the deciduous trees on the layout using armatures made of dried sagebrush. I haven't found a more realistic material for modeling a tree trunk and branches in HO scale. After trimming the upper branches of the armature, I cover the branches with poly fiber. Then I spray the poly fiber with unscented hairspray and sprinkle on Woodland Scenics ground foam to build up the foliage. To add variety I use several different shades and textures of ground foam.

Structures and rolling stock

The structures on the layout are a combination of wood, Hydrocal, and plastic kits. I kitbashed some buildings and scratchbuilt a few others.

For many of my wood structures, I achieve a weathered look by first applying a stain of India ink thinned with isopropyl alcohol. I then apply paint washes with more or less paint added, depending on how faded I wanted the finished result to look.

All CB&Q company buildings, such as the Easton depot, are painted mineral red with bronze-green trim, which is the appropriate CB&Q paint scheme for my layout's era.

For my locomotives, I only purchase brass or plastic models that represent prototypes used on the Burlington in 1953. Bernard Corbin's comprehensive

5. A pair of Burlington F units crosses the Missouri Pacific RR at a junction outside of Brookfield. The Burlington train will pick up the cars on the interchange track before heading into Quincy.

book *Steam Locomotives of the Burlington Route* and publications of the Burlington Route Historical society have proven invaluable guides.

My passenger cars include brass, resin, and plastic models based on various heavyweight and lightweight prototypes. Models of Burlington-specific prototypes, such as 6100-series heavyweight coaches, have been difficult to find, so I've had to use "close enough" stand-ins.

I built most of my freight cars from plastic kits, such as those sold by Red Caboose and Intermountain. A few of the cars are resin kits. I've also purchased some of the detailed ready-to-run cars that have become available in recent years.

A quarter of my freight car fleet is lettered for the Burlington Route. The rest is lettered for other roads, which adds some realistic variety to the traffic on the layout. Whatever the road name, all of my cars are weathered. [See "A system for weathering rolling stock" on the right. – *Ed.*]

Running the railroad

For walkaround operation Digital Command Control (DCC) is a necessity, and I especially enjoy the added realism of DCC-sound-equipped locomotives. I operate the layout with an NCE Corp. DCC system. I own two cabs, but members of my operating group bring more as needed.

A system for weathering rolling stock

A piece of rolling stock doesn't get placed on my layout until I've weathered it to some degree. Over the years I've developed my own weathering routine that uses a combination of techniques.

First I paint the wheels, trucks, and axles with a mix of grimy black and rust colored paint. The tread should be the only shiny part of the wheel. I use only metal wheelsets, and I buff the tread after painting the wheels.

I use the same mix of paint on the underside of the car. Since my layout is 53" high, details like brake cylinders and air lines are visible.

Next I weather the car body, using a wash of India ink diluted with 70 percent isopropyl alcohol. I use a wash that's a 10:1 ratio of alcohol to ink, and another with more ink for heavier weathering. To model a very old car, I spray the model with Testor's Dullcote and then apply the India ink wash. The alcohol in the wash causes the Dullcote to haze, making the car's paint look faded.

The final step is to apply Bragdon Products weathering powders in shades of rust, dust, soot, and soil. I find that applying the powders over the wash eliminates the need for sealing the powders with Dullcote. The soft brush from a cosmetics kit is great for applying powders without damaging details like hand grabs and brake wheels. – *D.W.*

6. Engine no. 2914, a 4-6-2 Pacific, slowly rolls off the turntable at the Quincy yard. On the track (at right) is waycar no. 13841, an American Model Builders LaserKit that Dick built, painted, and weathered.

7. Gas-electric no. 9816 arrives in Maryville at the end of its afternoon run from Brookfield on the branch line. Dick painted and decaled an Oriental Limited brass model to accurately depict this "doodlebug."

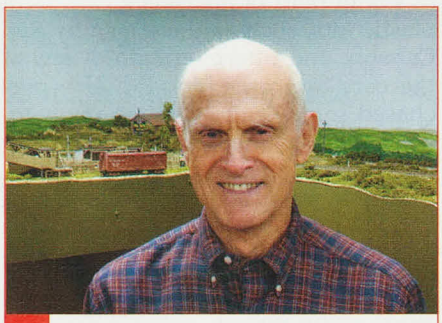
With seven cabs, 14 operators can comfortably run the railroad with two-man crews. We typically have from six to 12 operators at a session. Traffic runs east/west and includes through freights, way freights, a couple branch line turns, a fast mail train, and passenger trains. West is always on an operator's right, and I also provide each crew member with a simple schematic of the entire railroad.

For car routing, we use switch lists for passenger and express trains and car cards and waybills for freight trains. I enjoy the flexibility of the car-card-and-waybill system. Each operating session begins where the last one left off, and I don't need a specific number of train crews to run the layout. I even enjoy using this system to run trains by myself.

Before each session I establish the sequence of trains that will run and also act as the dispatcher. In the future, I plan to develop a timetable and use a fast clock for operations.

A typical operating session lasts 2½ hours. Afterwards, we enjoy some refreshments as well as a railroad video and bull session. It's a fun time and I enjoy seeing the railroad in action.

Model railroading is a hobby with many different facets, from building benchwork to wiring a DCC system to running trains realistically. I faced many challenges building my HO scale Brookfield Division, but it's one of the most rewarding things I've done. Every time I watch the *Mark Twain Zephyr* pull into the depot, I'm reminded that the finished result was well worth the effort. **MR**



Meet Dick Wolter

Dick Wolter has been a lifelong fan of the Burlington Route. He's been an active model railroader since 1987, and his other interests include tennis and classical music. A retired American Airlines captain, Dick lives in Connecticut with his wife Charlotte. They have one grown daughter, Caroline.