

The Modeler's Journal

A Free Journal for Today's Modeler

VOLUME I

www.TheModelersJournal.com

JULY-SEPTEMBER 2018

Modeling European Castles and Cathedrals

Modeler's Showcase

- Yuri Kovalev's Amazing Dioramas!
- Featuring Geno's Corner!

Be Sure To Check Out Columns From
Harry M. Haythorn, Jack Hykaway,
Ron Marsh, The Track Planner,
Geno Sharp, and Blayne Mayfield

Cover Photo Courtesy of Yuri Kovalev



Editor's Note...

Welcome to the second issue of *The Modeler's Journal*. In this issue, our main feature is a pictorial essay about the amazing dioramas of European castles and cathedrals created by the very talented modeler Yuri Kovalev from Moscow, Russia. We think you will enjoy this departure into his unique modeling work.

Starting with this issue we have added another column: Geno's Corner. Many of you in the modeling community and those of you who had subscribed to our legacy publication are quite familiar with Geno's work and his column. Please welcome Geno to *The Modeler's Journal*. He begins his series with an article about building a structure using a small shipping box and some foam board. Bill Baranek - The Track Planner provides an in-depth discussion about working with a professional track planner. It is an excellent article to read even if you are not contemplating a professionally designed track plan because Bill gives some excellent advise about pre-planning a layout and walks the reader through mistakes often made by not only newbies but sometimes also by experienced modelers.

Ron Marsh shows us how to create and use your own Ground Goop to build your modeling base and Harry Haythorn tells us about some history of the UP #5174, the Lynn Nystrom car and shows us how he built his version of it in his column *Harry's UP-Hub*.

Jack Hykaway gives us a breakdown of EMD's SD-70 series of engines in Part I of his series *Today's Heavy Haulers*. In the next issue, Jack will provide us a breakdown of EMD's competition engine, so be sure to read his current Part I article and to follow up for Part II of his article in his column *Jack's Junction*. Finally, Blayne Mayfield explores the pecking order of structures and structure building in his article *Paper or Plastic? (or Wood?)*. I have heard the phrase "Paper or plastic?" but wood? Well, you will just have to read the article to find out exactly what Blayne is talking about!

We hope you enjoy reading this issue.

Happy Modeling!

– **Loggin' Locos**
Editor-In-Chief



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A night view of the **Castle by the Sea** diorama by Yuri Kovalev of Moscow, Russia. Every room in the castle has lighting.

It is a fictitious castle that Yuri designed to showcase the beauty of European castles.

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Castles and Cathedrals

By Yuri Kovalev



A corner view of the Castle by the Sea diorama.

All photographs by Yuri Kovalev unless indicated.

In this issue, we feature Yuri Kovalev's amazing dioramas of European castles and cathedrals. Yuri has been creating these unique models for approximately six years. His work on these fantastic dioramas began as a hobby and he now has turned his love of creating these models into a production studio and workshop appropriately named the Yuri Kovalev Workshop. Most of Yuri's dioramas are based on European castles and cathedrals, but he also builds dioramas of imaginary old-style castles and of rural village life in an older European era.

Yuri, along with his small and creative team of assistants have currently created about 60 dioramas of different scales (most are 1/87 scale). After carefully designing the model, Yuri and his team use materials such as plastic that is painted and weathered (aged), carved foam for the base, static fibers for grass, gypsum for the formation of rocks, dry branches that mimic trees, and model trees and figures available from [NOCH](#) and [FALLER](#) to complete the dioramas. Yuri also adds internal and external lighting to most of his dioramas, giving them a unique look in the dark. He also adds a decorative nameplate mounted on a wooden frame on the base and a transparent acrylic box on top to cover and protect the meticulously built dioramas. It takes Yuri from 30 to 60 days to design and build each diorama. For him, it truly is a labor of love!

We hope you enjoy the following pictorial essay showcasing Yuri Kovalev's beautiful castle and cathedral dioramas!

About Yuri Kovalev



Yuri is a 58 years old native of Moscow, Russia and has two children: his daughter Oksana and his son Igor, who support and help him with his work. You can check out more of Yuri's amazing work on his [Facebook page](#) and on his [YouTube channel](#) by clicking on the underscored links herein.



Castle by the Sea

Yuri has conjured up this beautiful castle out of his artistic imagination. His goal with this diorama is to showcase the beauty of a European castle by the sea on a summer day with all the blooming flowers showing off their bright colors.

It took Yuri approximately two months to build this stunning diorama. All interior rooms have lighting as well as the outer pillars.

Diorama Size: 64 cm x 54 cm (25.20" x 21.26").



A night view of the Castle by the Sea diorama.



It's wedding day at the castle and the best man is ready to perform his duties. Above him, the birds chirp and the window flowers bloom in all their rich colors.



Above: A full view of the castle rear.

Below: The marriage vows have been taken and the ceremony is just about complete.

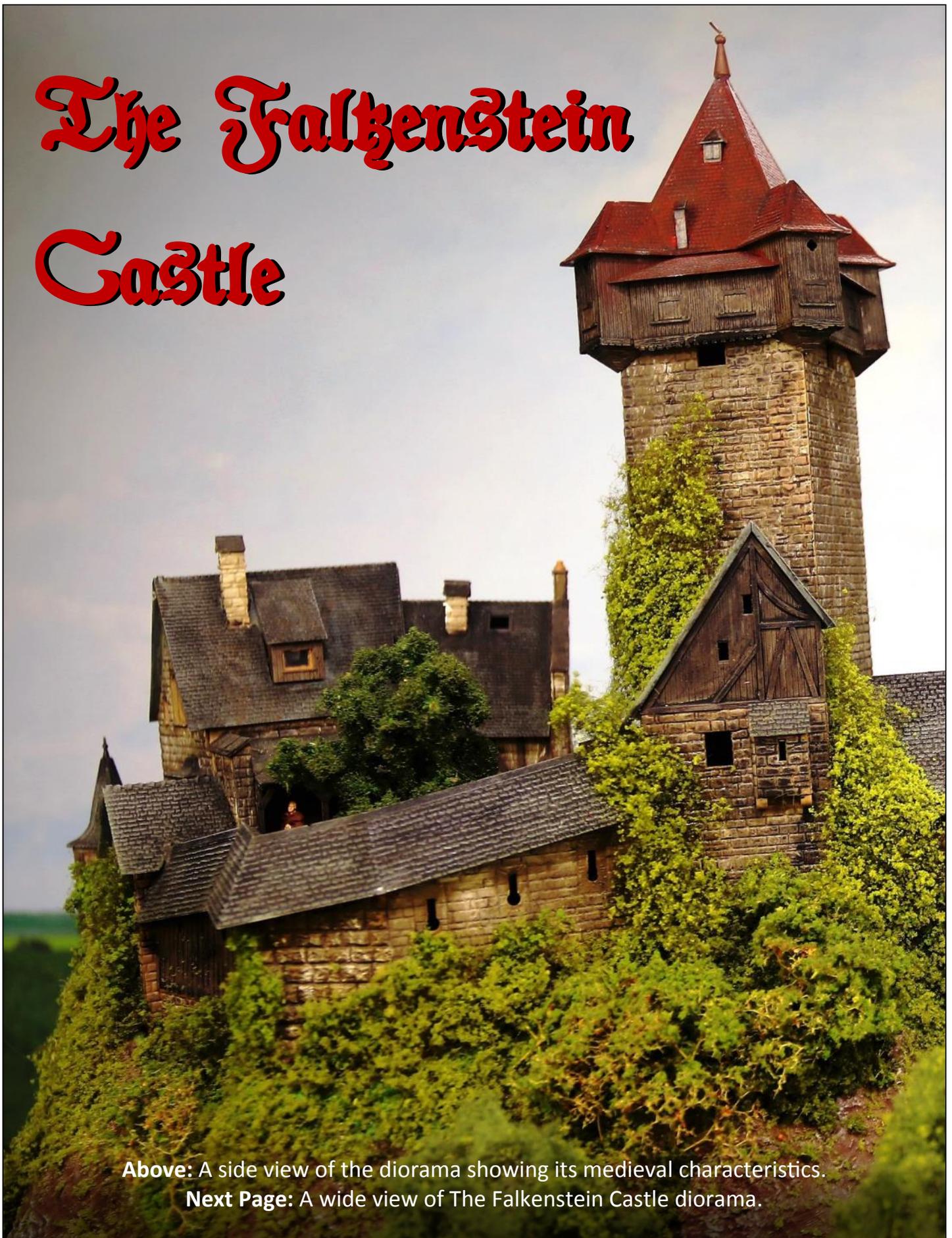




Above: A full view of the castle front. **Below:** The Duke and Duchess take a short carriage ride past the main gates of the castle for a luncheon with friends in the village below.



The Falkenstein Castle



Above: A side view of the diorama showing its medieval characteristics.
Next Page: A wide view of The Falkenstein Castle diorama.

This diorama is a copy of the Falkenstein castle which is a medieval castle located in Carinthia, Austria near the town of Obervellach in the valley of Möll. The castle sits 2,766 feet above sea level on a rocky headland in the Hohe Tauern mountain range.

The Falkenstein castle was built in the 11th century and is first mentioned in a deed in 1164. The square tower built into the cliff is typical of 11th-century structures. The castle has changed ownership many times over the centuries and has been restored twice, once in 1905, and then again in 1969.

For more information about and photographs of castle Falkenstein please visit the following links: [Wikipedia: Falkenstein Castle \(Niederfalkenstein\)](https://en.wikipedia.org/wiki/Falkenstein_Castle_(Niederfalkenstein)) and <https://masterok.livejournal.com/2599385.html>

It took Yuri approximately two months to build this diorama of the medieval castle and all interior rooms have lighting.

Diorama Size: 64 cm x 50 cm (25.20" x 19.69").





Above: Another wide view of the backside of Castle Falkenstein. **Below:** A close-up view of one end of the structure; notice the hand-made bridge in the far left corner.





A few moments of peace, solace, and prayers as the monk takes in the fresh morning air and contemplates the beauty of nature and the power of the roaring waterfall next to him.



Watch Video

Castle

Neuschwanstein



This diorama is an excellent copy of Castle Neuschwanstein which is located near the town of füssen that is in Bavaria, Germany, not far from the Austrian border. The name “Neuschwanstein” translates to "New Swan stone (rock)."

The castle was commissioned by King Ludwig II of Bavaria around 1868. Ludwig II entrusted stage designer Christian Jank to design this picturesque castle and embody the architectural fashion referred to as *Burgenromantik* (castle romanticism). The design was also influenced by Ludwig II's love for the operas and musical mythology of Richard Wagner. King Ludwig II was involved in every aspect of the design and employed court architect Eduard Riedel to draft the design. The design went through many modifications with multiple additions to the castle. Construction began on the castle in September of 1869.

Construction of the castle employed well over 200 craftsmen and took 400,000 bricks, 565 metric tons of Salzburg marble, 1,550 metric tons of sandstone, and 2,680 cubic yards of wood for the scaffolding. King Ludwig II finally moved into the still unfinished castle in 1884. The king's continuously evolving wishes and demands for the construction increased the expenses. Since he had borrowed funds to finance the construction of the castle, Ludwig II was in significant debt. The king died in 1886 and had only slept a total of 11 nights in the castle. After Ludwig II's death, the castle was eventually finished, but not to the extent envisioned by him. The castle was opened up to the public in order to pay off the debts. Today, it is one of the most visited castles in Europe.

Yuri's diorama beautifully captures a snow scene of this majestic castle. For more information about castle Neuschwanstein please visit the following links:

[Castle Neuschwanstein](#) and [Wikipedia: Neuschwanstein Castle](#).

Diorama Size: 56 cm x 36 cm (22" x 14.17").

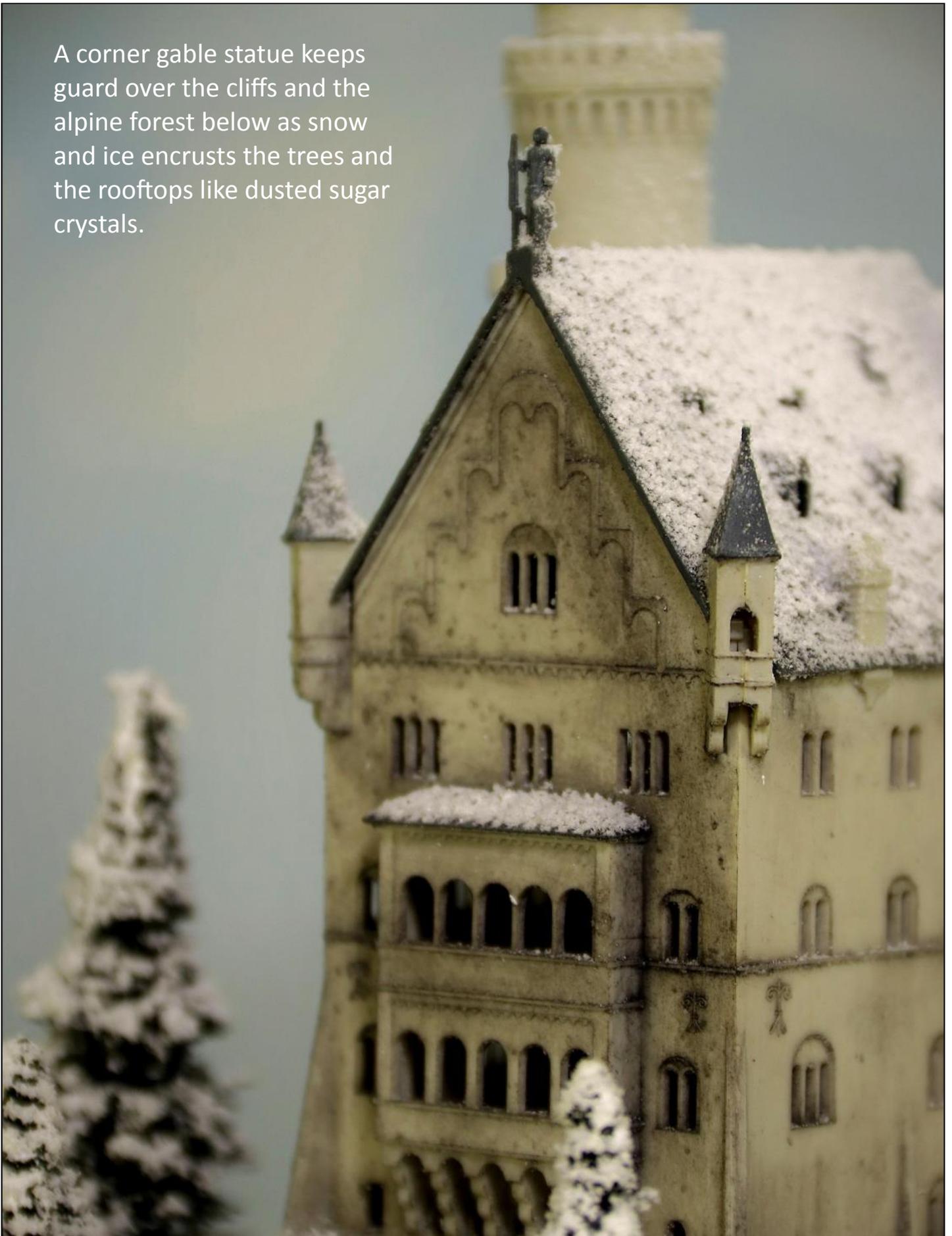




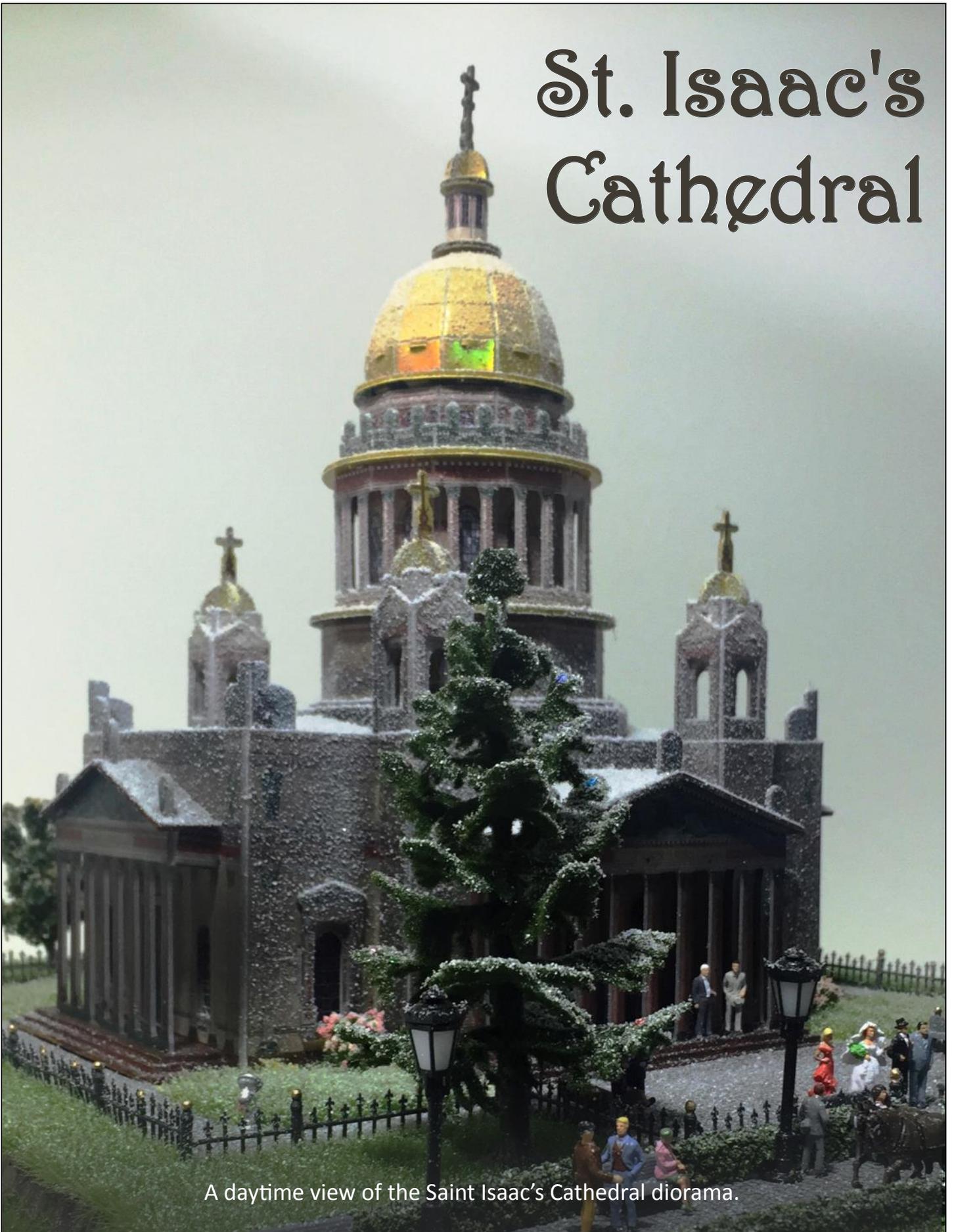
Above: The majestic main gate wall in red brick is a stark contrast to the cream tones of the castle and the white shades of snow. **Below:** The rear view of the full castle resting on a cliff top. The diorama is constructed over a foam base surrounded by a decorative wooden frame.



A corner gable statue keeps guard over the cliffs and the alpine forest below as snow and ice encrusts the trees and the rooftops like dusted sugar crystals.



St. Isaac's Cathedral



A daytime view of the Saint Isaac's Cathedral diorama.

The official name of St. Isaac's Cathedral is the Cathedral of St. Isaac the Dalmatian as it is dedicated to Saint Isaac of Dalmatia, and is located in Saint Isaac's Square in Saint Petersburg, Russia. It is the largest Russian Orthodox Church in St. Petersburg and the fourth largest cathedral in the world by volume under the cupola.

The cathedral was commissioned by Tsar Alexander I and took 40 years to construct (1818 - 1858) under the direction of the French-born architect Auguste de Montferrand. In order to provide a stable base for construction, over 25,000 posts were driven into the soft un-secure foundation. Innovative techniques and methods of construction were developed in order to erect the massive columns of the Portico. The cost of construction soared to approximately 1,000,000 gold rubles.

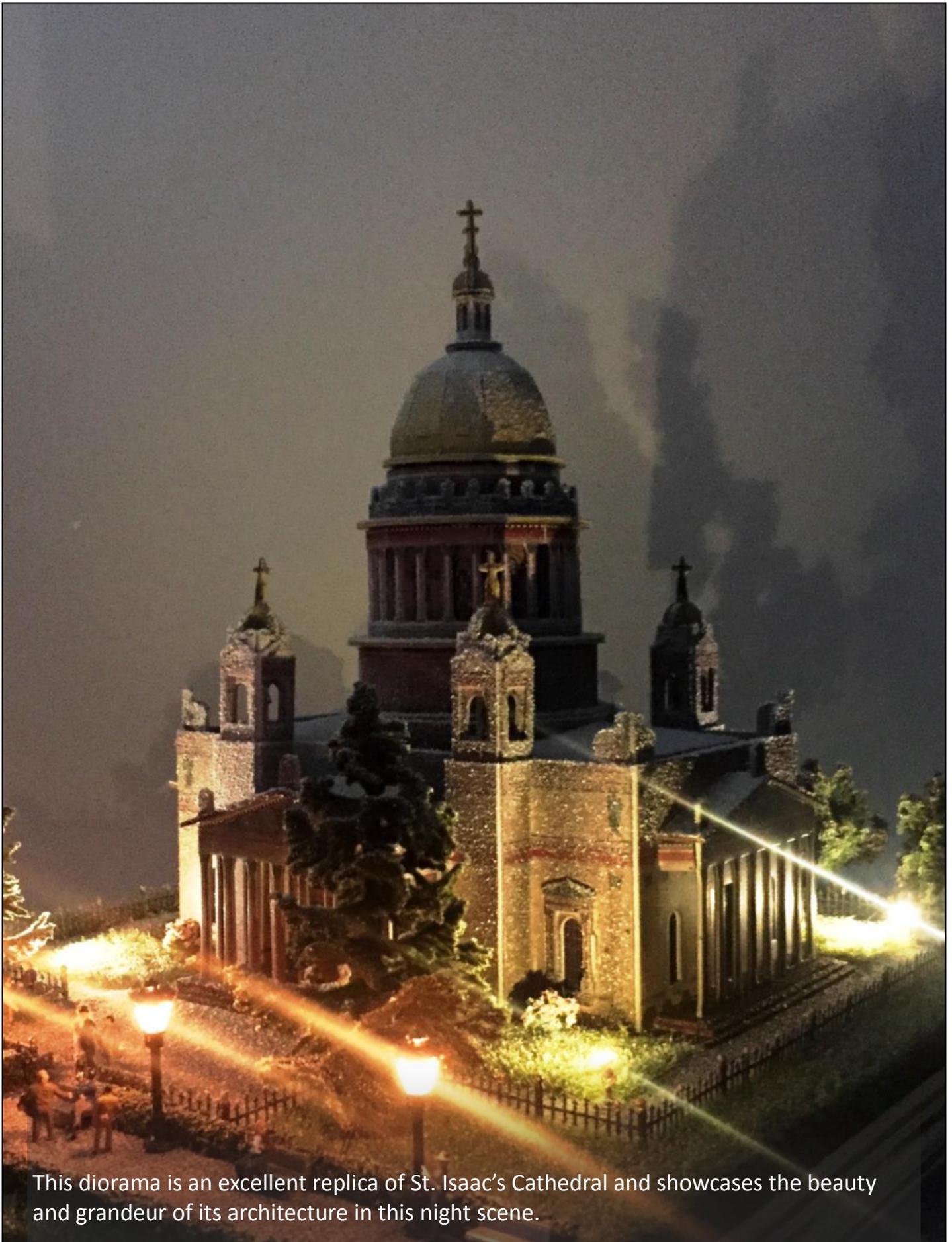
From 1858 to 1929 the building served as the Cathedral of the diocese of St. Petersburg and in 1931 was turned into the Museum of the History of Religion and Atheism. After the fall of communism, the cathedral was restored for worship activity. It now serves as a Russian Orthodox Church. For more information and to see a 360° view of inside the cathedral, Please visit the following links: [360° View](#) and [Wikipedia: Saint Isaac's Cathedral](#).

Diorama Size: 50 cm x 40 cm (19.68" x 15.75").



A painting of Saint Isaac's Cathedral by the Russian painter Vasily Surikov.

This image is available in the public domain.



This diorama is an excellent replica of St. Isaac's Cathedral and showcases the beauty and grandeur of its architecture in this night scene.

The Reichsburg Cochem Castle



A corner view of the Reichsburg Cochem castle.

The Reichsburg Cochem castle is one of many castles in the German state of Rhineland-Palatinate. It was built by count Ezzo of the Palatinate at the beginning of the 10th century in the year 1000. It is located on a remote hill overlooking the Moselle River in the town of Cochem in the Cochem-Zell district of the Palatinate.

The castle stayed within the ownership of various counts of the Palatinate until 1151, during the Staufer dynasty, when King Konrad III converted it to an imperial castle by occupying it and the town of Cochem with troops. In 1294, King Adolf of Nassau pledged the castle, the town of Cochem, and other surrounding villages (all imperial property) to Boemund I of Trier in order to pay for his coronation as the German emperor. King Adolf and his successor King Albrecht I of Austria could not pay off the pledge and the castle fell under the control of the archbishops of Trier.

In 1688, French King Louis XIV's troops invaded the Rhine and Moselle areas in the war of Palatine Heritage and the castle was destroyed, like most castles of the region, by the troops. In 1868, Louis Ravené, a businessman from Berlin, purchased the ruins and the castle grounds for 300 gold marks to use as their summer residence and restored the castle over the course of nine years in the then in-vogue Neo-Gothic architectural style.

In 1942, the descendants of Louis Ravené were forced to sell the castle to the Prussian Ministry of justice. After World War II, In 1947, the property was transferred to the Federal state of Rhineland-Palatinate. In 1978 the town of Cochem purchased the castle and grounds. Today it is one of the more picturesque castles to visit in Germany.

For more information about the Reichsburg Cochem castle, please visit these links: [Reichsburg Cochem](#) and [Cochem Castle Guide](#).

Yuri has done an amazing job at capturing the old-style charm and the intricacies of this castle in his diorama.

Diorama Size: 69 cm x 49 cm (27.17" x 19.30").



These photographs show the detailed and intricate artistry of Yuri's work including the old stone and white-washed plaster walls, the wooden half beams on the structure fascia, the roof tiles, and all of the lush landscaping.





In this replica, the Reichsburg Cochem castle sits on top of a large carved cliff.



Above: It's time for a casual horseback ride through the castle grounds on a warm summer's day. **Below:** Ivy grows up the sides and around the walls of the castle structures.





Geno's Corner

Building Big Earl's Wine & Spirits in O Scale



By Geno Sharp



Watch Video

All Photos by Geno Sharp

Hello, gang! We are back in the corner again! No, we are not in trouble. We are in a new place with a new look, but still the same ole corner. I would like take just a minute to thank the *The Modeler's Journal* for inviting me to be a small part of their new venture, and I look forward to continuing to share the hobby with all of you.

O scale 2-rail modeling seems to get lost between HO scale and the O scale 3-railers in the hobby world. Except for a few modeling resources dedicated to 2-rail, there is just not much out there. In the upcoming issues, I hope to bring more attention to this often overlooked section of the hobby and encourage other O-scalers to do so as well. So, welcome to Geno's Corner and let's get after it!

In this issue, I'm going to show you how I built Big Earl's Wine & Spirits on the cheap using a free shipping box, dollar store foam core board, acrylic craft paint, and some custom-made, as well as a few commercial detail parts. So, come on and follow along and let's get Big Earl in business.

The idea for this project started out with me poking around in my scrap boxes looking to create a structure for my new South Dixie layout. Now, as you O-scalers out there know, you can spend a small fortune in just structures for your layout, and a lot of O-scalers (myself included) try to model on a budget - and a small one at that. Most of the time that means scrounging items wherever

you can. The rivet counters and the fine scalers out there probably will raise their eyebrows at this project, but if you can settle for a simple, yet reasonably-detailed structure for your space, this project is right up your alley.

Anyway, while flipping through various scrap pieces, a shipping box that was laying around the Train room caught my

Figure 1. Your basic, government-issue building block.





Figure 2 (left). The foam core sides of the structure.

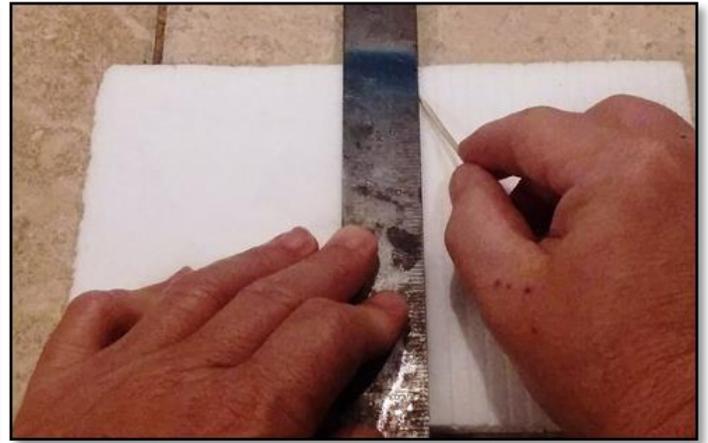


Figure 3 (right). Scribing mortar lines into the brick walls.

eye. (See Figure 1.) I get these boxes free from the postal service for my eBay business.) For whatever reason, I began to see it as the basic footprint of a structure, and I decided this would be my starting point.

As you will see in some of the pictures for this project, I do my scratch builds in a kind of random fashion, not exactly in a step-by-step form. Be advised: I have tried to arrange the photos in a step-by-step order so that it will be easier for y'all to follow.

I really had in mind a large, brick structure for my space, so I began by tracing the outline of each side of the shipping box onto a piece of foam core board that had the paper peeled off of one side. (I get poster-board-sized sheets of foam core from the dollar store for a buck apiece.) We will use the foam core to achieve the building's brick facade. Then, with a sharp hobby knife and a straight edge, I cut out the sides for the structure. (See Figure 2.)

Once I had the walls cut out, I began to emboss the brickwork into them; for this, I used a straight edge and a toothpick. (See Figure 3.) I chose to eyeball the measurements for the mortar lines, but if you want finer detail on your structure, you could measure off and mark guidelines. But that was a little more than I wanted to put into this project. If you look at older buildings, you'll

notice that much of the brickwork is not perfectly formed, anyway.

When all of the embossing was complete, it was time to start giving the structure direction and purpose – its “arms and legs,” if you will. My plan was for this to be a working industry, so I needed to give it characteristics to match its purpose. The industry would be rail served, so I needed to provide ways to receive and ship freight; this included service doors and a loading dock.

I placed a full-size boxcar on the track and measured the height from the layout base to the boxcar door opening to determine the correct height of the loading dock. Using these measurements, I cut

the dock door openings and painted the outer walls with a burnt umber acrylic craft paint thinned with a few drops 50% rubbing alcohol. (The reason I use 50% alcohol when working with foam core board is that stronger alcohol could melt the foam; you could use water to thin the paint as well, but I have found that the alcohol blends with the acrylic paints much better and dries very quickly.) Once the paint had dried, I added overhead bumpers (cut from drinking straws) and side trim (styrene strips) to the dock doors. (See Figure 4.)

I cut one of the ends off of the shipping box and then firmly hot-glued three of the brick walls to the box, leaving off one of the end walls for now to allow me to work from the inside and to posi-

Figure 4. The painted, rail-side wall with dock doors cut and trimmed.



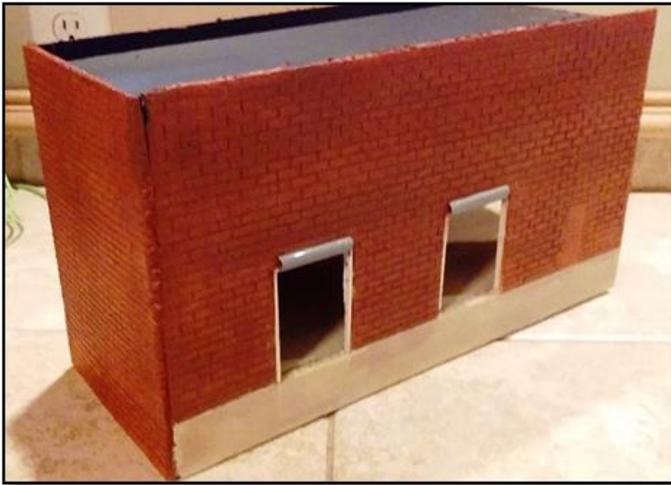


Figure 5 (left). The first three walls are glued to the box. Figure 6 (right). Here, we can see the open end of the box, the false floor, and the ceiling supports.

tion a (foam core) false floor, in case I decided in the future to model an interior. (See figure 5.) I also used some balsa wood rods to support the cardboard roof to keep it from sagging once roof details were added. (See Figure 6, which shows the open end of the box later in the construction process, but before the wall was sealed up.)

I cut the foam pieces for the dock to match the height of the boxcar floor and the length of the building, and then I glued the dock together (Figure 7, left), adding some supports to help keep the dock surfaces flat. Once the glue was

dry, I sanded the edges smooth and painted the dock with a tan acrylic craft paint mixed with the 50% alcohol and a drop of black paint. I then mounted the dock to the building (Figure 7, right).

I used two scrap pieces of ribbed styrene to make the dock doors and painted them silver; after the silver paint dried, I applied a wash (made up of black acrylic craft paint and alcohol). I then mounted them in place. (See Figure 8, which shows the building later in the construction process).

Being in the south, a majority of the old-

er, commercial buildings had some type of awning to help deal with the summertime heat. I decided to add an awning to this structure to capture the feel of the area. I cut another piece of foam to the length of the structure; I then cut the width of the foam so that the overhang of the awning would closely match that of the loading dock. I glued it in place above the dock. I used pieces of green floral wire to make the awning supports and bent the ends so that the wire would angle up from the top of the awning to meet the wall surface. (See Figure 9.) I then glued them in place. (See Figure 10.)

Figure 7. (Left) The top and front pieces of the dock are glued together. (Right) The dock is mounted to the front of the building.



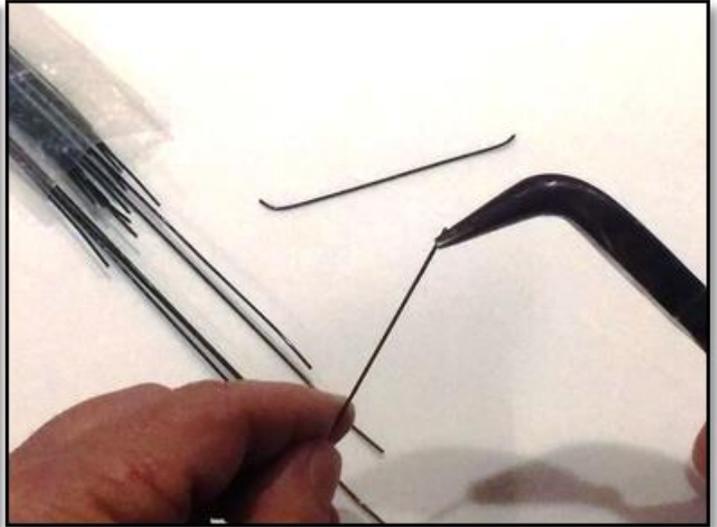


Figure 8 (above left). Here we see the dock doors mounted in place. Figure 9 (above right). Bending the awning support wires. Figure 10 (below left). The awning and support wires in place, but the awning still looks a little rough. Figure 11 (below right). The awning surface is painted and styrene trim is added.

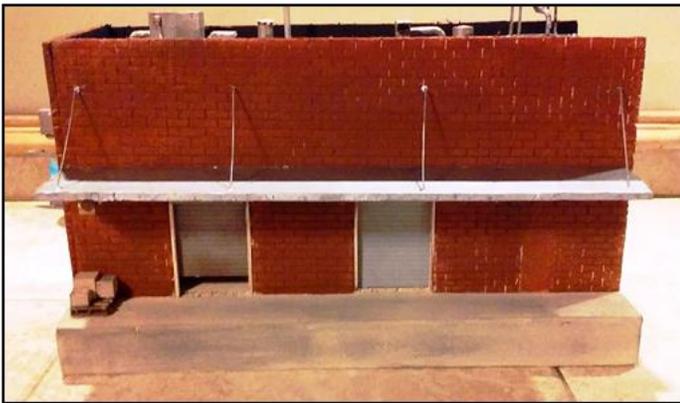


Figure 12 (left). Detailing the window edges with styrene strips, then sanding them smooth. Figure 13 (right). Building and trimming a styrene door. A glass bead is used as the doorknob.

I painted the top of the awning with acrylic aluminum and dressed the edges with styrene strips to give the edges a clean look (See Figure 11).

With all the basics of the structure now

in place, I began to work on some of the details for the structure. I took several old factory windows from my scrap box and cut styrene strips to trim out their edges (see Figure 12); I also scaled and cut out doors and trimmed them with

styrene strips (see Figure 13).

Once the doors and windows were complete, they were painted aluminum silver with rattle-can spray paint. I then secured some gloss backing to the rear

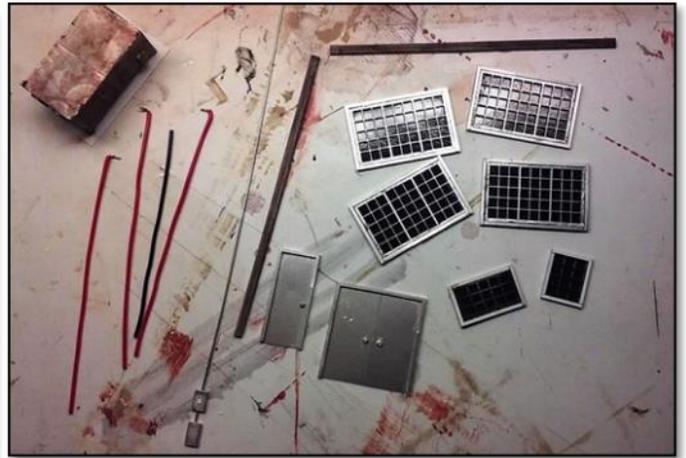


Figure 14 (above left). Affixing gloss black backing to the windows to represent glass and a dark interior.
 Figure 15 (above right). Details ready to be affixed to the structure. Figure 16 (below left). Here we see a door and window affixed to the building. Figure 17a (below right). A bird's eye view of the roof details, along with the second story windows.



Figure 17b. (Left) Another close up view of the roof details and the second story windows.

Figure 18 (right). The completed structure.

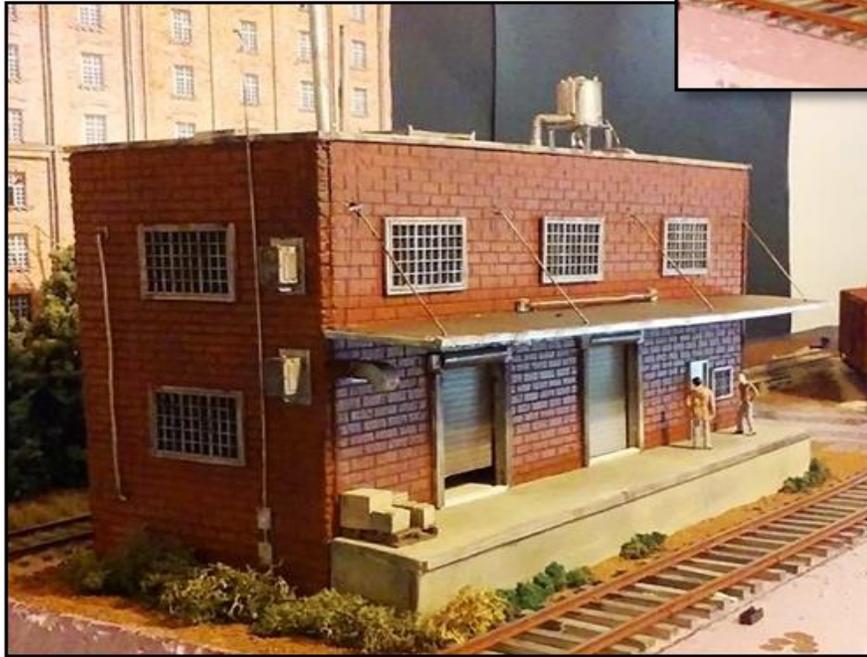


Figure 19 (left). Another view of the completed structure.

of the windows. (See Figure 14.) I used scrap styrene and several pieces of insulated wire to replicate conduit and an electrical meter and painted them. (See Figure 15.)

When everything had dried, I secured the doors and the windows to the model with hot glue and also added the detail parts and roof details. (See Figures 16, 17a and 17b.)

With all the details in place, I secured the last wall to the model. After that, I added scrap styrene strips to the top edge of the structure to act as a cap and painted them with the same acrylic craft paint mix used on the dock. At this point, you could call the structure complete. The only other thing I did was to

weather the building with several acrylic washes and some oil paint to achieve the level of aging I desired. (See Figures 18 and 19.)

This truly has been a “dollar store build.” Everything – with the exception of the commercial detail parts, which were picked up from swap meet scrap boxes – was purchased from the dollar store. A custom-built and detailed, O scale structure for a total price of under \$12. Momma’s homemade biscuits don’t get any better than that!

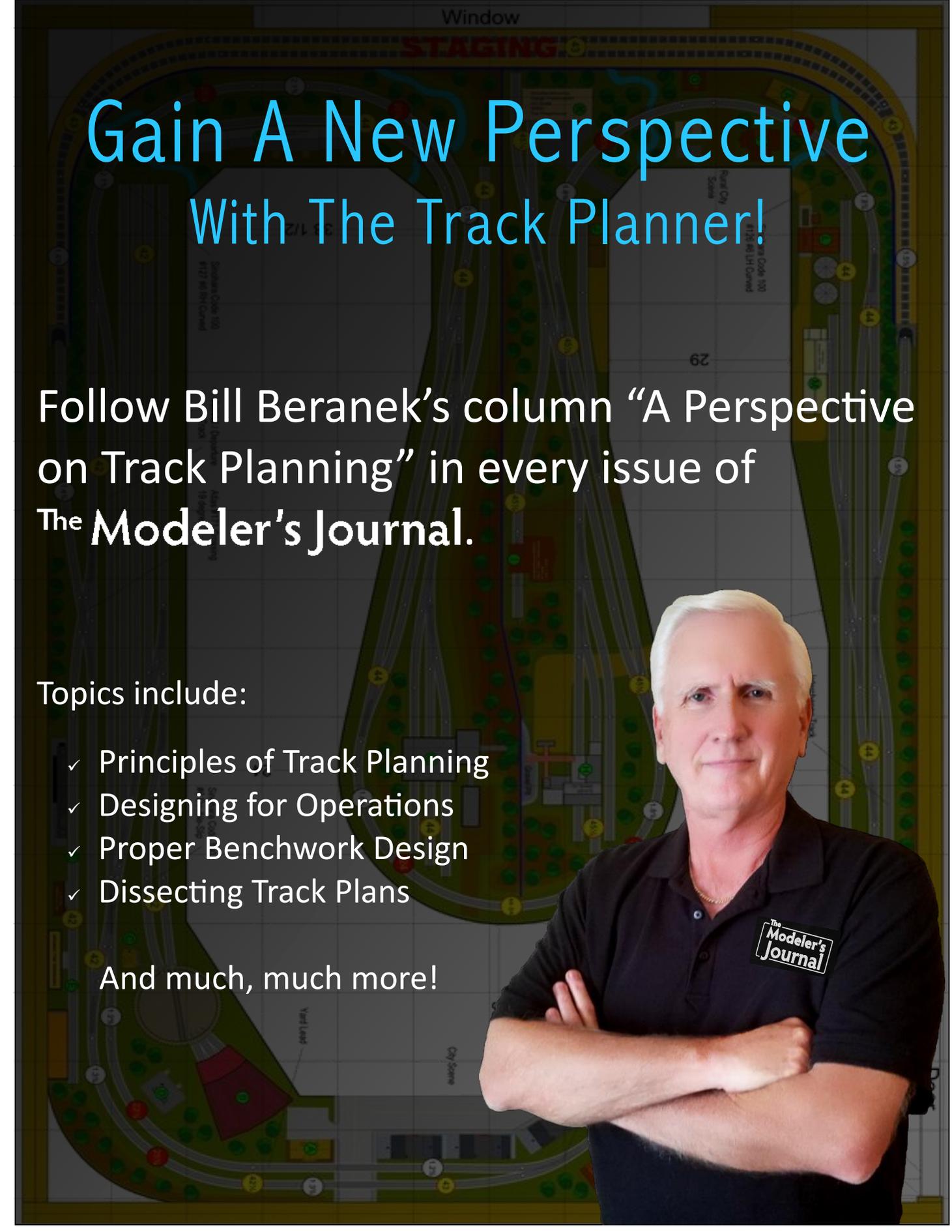
That’s gonna do it for this edition of *Geno’s Corner*. I hope you enjoyed following along on this build and find some tips and techniques you can use in your

modeling. Keep those rails shiny, and I’ll see you next time, back in the *Corner*.



About the Author

Geno Sharp, a retired deputy sheriff, has been a model railroader for over 30 years. He has built several layouts in various scales during that time and currently is building a new two-rail, O-scale switching layout, the *South Dixie Beltline*, an urban-based layout set in the mid-to-late 1970’s. You can follow the layout build on his YouTube channel, <http://www.youtube.com/gknosmodeltrains>.



Gain A New Perspective With The Track Planner!

Follow Bill Beranek's column "A Perspective on Track Planning" in every issue of **The Modeler's Journal**.

Topics include:

- ✓ Principles of Track Planning
- ✓ Designing for Operations
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And much, much more!



The Modeler's Workshop

WITH
RON MARSH
RTNT



By Ron Marsh



All photographs by Ron Marsh.

Building Your BASE

One aspect of modeling that is nearly universal to all types of modeling is scenery. Whether you're building a model railroad, military models, or fantasy model scenes, chances are good that scenery will be part of your model building process. Realistic scenery can

really make the presentation of your primary model subject stand out.

When we think of model scenery, we tend to think about grass, trees, structures, roads — all of which are important parts of the colorful, finished product. But, before skipping to the finished product comes the base for our scenery. The base can

make or break not only the shape of our scenery but the weight and the ease of construction as well.

For years, I have built most of my scenery base with a cardboard lattice covered with plaster-soaked paper towels and Plaster of Paris. (See Figure 1.) This process makes a very strong base, but it has two draw-

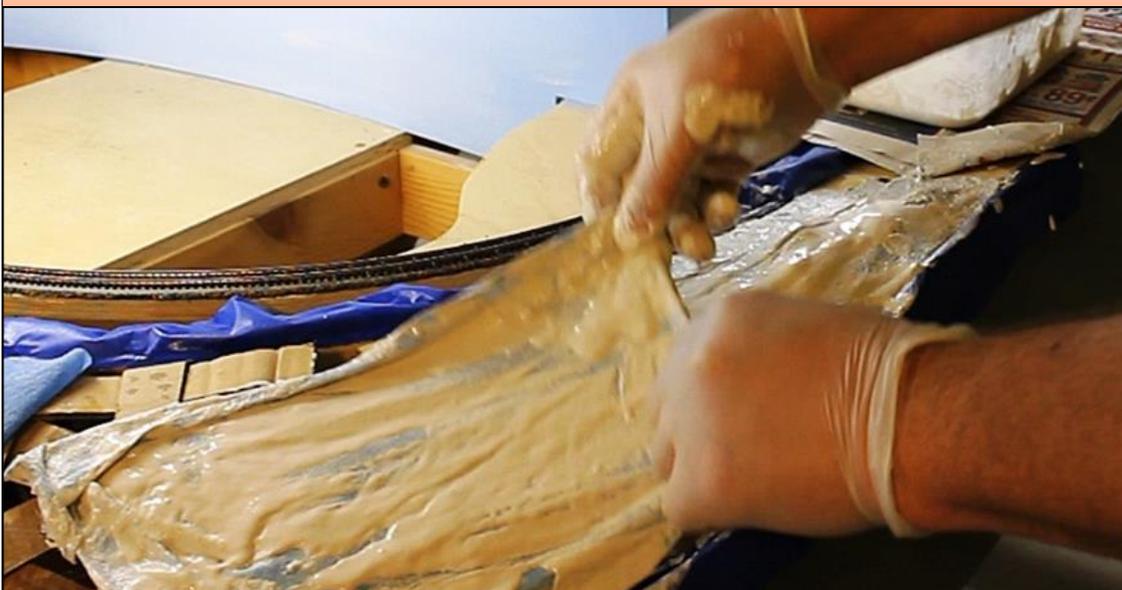


Figure 1. Plaster-soaked paper towels over a cardboard lattice or screen wire structure is a tried-and-true method of building scenery base that many modelers still stand by today.



Figure 2. Un-tinted plaster base makes a strong support structure for scenery, but the stark white plaster really stands out if scratched or cut beyond the painted surface.

backs. The first con is that it is very heavy, making it less than ideal for modules, dioramas, or any other model projects which are meant to be portable. Secondly, the plaster is bright white, meaning that if the surface is scratched or if you drill into it to attach other scenery you have to deal with all of that white powder falling over your finished scenes. (See Figure 2.)

One solution to the white plaster problem is to color the plaster as you mix it. Plaster can be colored with dry tempera paint to closely match the scenic ground color you desire. This leaves any scratches or cuts in the plaster showing only the ground color — a great solution. The problem remains, however, of the weight of the plaster. If weight is

a serious issue for you, an alternate base material is probably your best bet.

Perhaps the most popular alternative material being used for scenery base today is extruded foam. Foam sheets made for construction purposes can be purchased in 4x8-foot sheets in thickness from ½ inch to two inches and more. The foam is very lightweight, easy to cut, and sheets can be stacked and carved to make hills, mountains, and other scenic forms. (See Figure 3.) The foam takes latex paint fairly well, so it can be used alone as a base material.

I prefer a little more texture than foam tends to supply. I also prefer to be able to fill in any gaps or holes with some material before applying

scenery material to the foam. A layer of plaster cloth can be added on top of the foam to accomplish this purpose, but again you have a layer of white material that I prefer to avoid.

Recently, I have been experimenting with a homemade material that has been around for many years. That material is called Ground Goop. Lou Sassi first developed Ground Goop years ago and popularized it in model railroad circles. It is a mixture of CelluClay (a recycled paper material), Vermiculite (a material used in potting soil), latex paint (your preferred ground color), white glue, and water. A cap full of household disinfectant may also be added to retard mold and mildew growth if you plan to keep your Ground Goop



Figure 3 (above). Stacked and carved extruded foam provides a sturdy foundation for scenery that is easily carved and takes a variety of scenery materials well.

Figure 4 (below). Ground Goop—a mixture of CelluClay, Vermiculite, latex paint, and white glue—provides a sturdy, light-weight top surface for scenery base that is colored all the way through.



for a long period of time. Many variations of the mixture of these materials have been tried over the years, but I personally found that one part CelluClay, one part Vermiculite, one part paint, one half part glue, one half part water, and a cap of disinfectant worked well. (See Figure 4.) Any Ground Goop that is left over can be kept for a long time, as long

as it is stored in an air-tight container.

I first experimented with applying the Ground Goop over an area that I had built with plaster. This gave me an opportunity to practice applying the Ground Goop before trying to work it over bare foam. The Ground Goop spread well with a

gloved hand over open areas. When I had the thickness close to what I wanted, I dampened my glove with water and rubbed it gently over the surface to smooth it out. (See Figure 5.) In tight areas around rocks and along the base of my backdrop, I used an artist's spatula to apply the material. (See Figure 6.) This worked great for getting it up close



Figure 5. Ground Goop is easily applied with a gloved hand in open areas. Dampening the glove and rubbing the surface lightly provides a very smooth texture.



Figure 6. An artist's spatula works great for applying the Ground Goop close to rocks, backdrops, and other scenic materials.

to these objects without making a mess and getting it all over them.

I allowed the Ground Goop to dry overnight. When dry, it left a hard, sturdy surface that was easy to drill in to and was colored all the way through, leaving no white particles behind on the finished scene. The texture is a little rough for my taste in N Scale, but with a little light sanding and scenery material applied, I believe the texture will be unnoticeable. If you are looking for an easy, light-weight scenery base material, extruded foam and Ground

Goop may be exactly the solution you are searching for!

Happy Modeling, Ron. 🚂

About the Author

Ron Marsh is a pastor in Southwest Missouri. He grew up in West Central Missouri where he became a railfan of the Gulf, Mobile & Ohio and Missouri Pacific Railroads at an early age. Ron has been a model

railroader for over 20 years and has modeled 1970s Missouri Pacific and contemporary BNSF. He is currently working on his third layout—the Texas, Colorado & Western—depicting BNSF operations in North Texas and Colorado in 2008. He is a member of the [N Scale Enthusiasts](#) – a national organization for N scalers. Ron posts model railroading videos weekly to his YouTube channel, [Ron's Trains N Things](#).



A Perspective On Track Planning



By William (Bill) J. Beranek - The Track Planner

Working With A Professional Track Planner

Before retiring in 2001, I spent over three decades running a retail service business, dealing with customers' wants and needs. In many ways, being a professional "fee-based" track planner is not that much different. First, you identify the customer's needs, then you set in motion a series of events that fulfill those needs.

Wants vs. Needs

In my previous profession, many customers "needed" my services. This raises an interesting question: do my current customers "need" my track planning services or do they simply "want" my services? Based on the thousands of published track plans available in the public domain, you might think the answer is that customers "want" my services. But cus-

tomers who contact me usually have specific needs and wants that published track plans cannot address. In those specific situations, yes, they do "need" my services.

Let's ask the question in a slightly different way: should individuals "wanting" to build a model railroad use the services of a professional, fee-based track planner? Now, here is a question that does not have a simple yes or no answer. From my perspective, if you are new to the hobby, you absolutely want to hire a track planner! The monies spent with a professional track planner pay dividends throughout the construction phase and operating life of the layout. A professional track planner can eliminate 99% of the design errors and construction miscalculations that a newbie invariably will make. But if an individual is building

his or her fourth or fifth layout, he or she may already have learned from mistakes on the previous layouts; such an individual may not need the services of a professional.

I know of no official statistics that show the number of model railroaders who have used professional track planners, but my gut feeling is that probably less than 1% have done so.

Accountability

There are a few designers out there who do not charge a fee. I assume that they enjoy designing layouts and view it as a hobby within a hobby. If you are one of those designers, I commend you; it takes a lot of time and effort, but without the monetary compensation. It is my opinion that the main difference between a fee-based designer and one who does

not charge a fee is accountability. In my opinion, designers who do not charge a fee *conceptualize* model railroad designs. On paper, these layouts look great, but has the designer taken the time to make sure all the critical elements that go into a track plan will work as drawn? Keep in mind, designers who charge no fee are under no obligation to guarantee you anything.

I have studied numerous non-fee-based plans. Many are very good, but I've also seen plans that won't work as conceptualized. Why? The most obvious problem areas are grades that are too steep, curves that are too tight, and distances between multi-level layouts, resulting in lower levels that are set too low. Such problems can cause the builder serious headaches during and after construction. The designer who charges no fee has the advantage of designing what the modeler wants, but many times what the modeler wants is not the best approach.

A fee-based designer, on the other hand, has an obligation to design a plan that works; simply conceptualizing is not an option. Fee-based designers must deliver a workable product. They must understand how real railroads operate and how to incorporate real railroad operations into a miniature transportation system. The fee-based designer also must understand all of the limitations associated with designing and building a model railroad.

Preplanning

Based on the average number of plans I design in a given year and extrapolating that out over the number of fee-based designers who serve the

hobby and approximating the number of layouts that are started each year, my earlier estimate of 1% who seek professional advice may be too high.

Many of my clients have started designing and building layouts but have never taken one to completion. Why? There can be numerous, sometimes unavoidable reasons: lack of funds, health issues, relocation, or simply loss of interest, to name just a few. If none of the above apply, one must wonder why the layout wasn't completed. Usually, it is because of poor pre-planning and/or a seriously flawed design. Add to that the overwhelming desire (by the modeler) to get trains running as soon as possible, and you have a recipe for failure. Poor pre-planning and a flawed design usually happen because the modeler doesn't have a good, basic understanding of how real railroads work and how to translate that to a model.

Unfortunately, in their rush to get trains running, thoughtful pre-planning takes a back seat. In many cases, they don't understand the importance of setting minimum standards for grades, radii, etc. These can lead to avoidable mistakes that don't always show up until well into the construction phase. Using a professional, fee-based track planner will eliminate those kinds of mistakes. A high percentage of my clients realize – sometimes too late – that poor pre-planning and a flawed design were the real problems; a house without a good foundation eventually is going to collapse. The same can be said for a poorly designed model railroad.

The Trials and Tribulations of a Professional Track Planner

Now let's take a look at some of the trials and tribulations that almost all of us fee-based designers run into and how we deal with those and with client expectations.

Not Allocating Sufficient Funds

Compared to those in other hobbies, many who are new to the hobby of model railroading – for whatever reason – tend to try to do things “on the cheap”. Please understand that I'm not demeaning anyone; we all like saving money. But, this is something that doesn't seem to be as prevalent in other hobbies. A good example is photography: you don't normally see the photography enthusiasts going out and buying the cheapest camera. I also could probably name a half-dozen other hobbies, where trying to do things on the cheap doesn't happen.

That said, many model railroaders don't think anything about spending \$300 on the latest-and-greatest, sound-equipped locomotive. But, suggest to the same modeler that they should spend their dollars on a custom-designed track plan, and a high percentage will resist. For whatever reason, they see value in the locomotive, but they don't see similar value in a well-designed track plan. I firmly believe that a well-designed track plan can save a modeler hundreds of dollars over the lifetime of a layout.

How does someone like me get them to change their minds? I don't; you can't tell someone how to spend his or her hard-earned money. The

best that I can do is to try and educate them.

Expectations That Are Too High

Before starting any design, I have the client answer approximately two dozen questions. The way the client answers those questions gives me insight into his or her thinking. Is the client being realistic in his or her wants? Does the client understand the complexities involved when designing a custom track plan? Does the client know what is possible and what is not? Is the client letting emotional decisions override common sense?

These are the things I need to understand about my clients. I never start a plan until I'm comfortable that the client and I are on the same page. The fee-based designer must take emotions out of the equation, knowing that most model railroads are built for emotional fulfillment. Doing it for emotional fulfillment is fine, however, problems start popping up when emotional fulfillment supersedes reality. I wish I could count the number of times I've heard the phrase, "but I like it and I want it."

Fee-based designers cannot let a client's emotions dictate or determine the direction of the project. Fee-based designers need to deliver a product the client will want, but the designer must always base the design on tried-and-true practices.

Clients Cannot Measure

This is one of the more unusual trials and tribulations designers deal with. When beginning the design process, I let the client know that the number one, most important element for

starting the design is getting accurate floor plan measurements. The basic style of the track plan and the shape of the benchwork are secondary issues as compared to accurate room/space measurements.

Of all the of track plans I've designed over the last few years, there have been fewer than a half dozen for which the client gave me correct measurements on the first try. Many clients think if their measurements are close, everything will work out. Not true! In most cases, I need measurements to be accurate within 1/4-inch!

Compounding the measurement issue are obstructions: stairways, doors, windows, support posts, sewer pipes, electrical boxes, sump pumps, foundation jut-outs, etc. It is vital that I get accurate location measurements for all obstructions. Obstructions – as their name implies – invariability affect benchwork, aisle widths, and track routing.

How do I solve the measurement issue? In extreme cases, I suggest the client go to her or his local hardware store and purchase a digital laser measuring tape. That always solves the problem!

Visualization

This is one of the harder elements to deal with. Some clients have trouble visualizing three dimensions when viewing a two-dimensional drawing. And adding railhead heights and grade percentages at key points on the drawing doesn't always help.

"I'm having trouble visualizing the design," is a comment track planners don't like to hear. This is where 3-D

renderings really help. The software that I use has steadily improved its 3-D rendering capabilities over time. With the latest version, I now can capture a 3-D rendering and send it to the client. In many cases, that solves the visualization issues.

For example, one of the hardest areas for a client to visualize is tracks that cross one another at different elevations. Recently, I had a client add on a 20'x12' extension to his layout room. He envisioned the extension containing a double track mainline running through various mountain scenes, with the mainlines separating and crisscrossing back and forth over themselves three or four times.

When I explained to him the amount of linear distance needed to have tracks crisscross over and under each other, the client was mildly upset, stating, "with all this additional space, I thought I would be able to have three or four places with elevated crossovers; this is very disappointing!"

The problem was two-fold. First, the client was standing in his newly-enlarged, empty space, thinking he could do whatever he wanted with it; empty space always looks bigger until you start adding benchwork and aisles. Also, the client did not have a good understanding of how grades affect track routing. After explaining and physically showing him the problems, he still wasn't happy, but he understood.

Grades and Track Routing

Getting clients to understand the effect that grades have on track routing is not easy. The example



With a 2% grade, it will take a total of 37.5 linear feet (18.75 linear feet on either side of the crossover point) of track in HO scale in order to achieve a crossover with a clearance height of 4.5". A 4.5" clearance (includes the sub-roadbed) allows modern rolling stock to pass under the crossover.

given above is a case in point. The additional space the client added was larger, in square footage than most clients have for their whole layout. But, as soon as he asked for double mainlines that would crisscross three or four times, the available space shrunk exponentially. Realistically, he would have needed almost twice the square footage to get that effect! Let me explain what I mean.

When tracks need to crisscross over one another in HO scale, I allow clearances of 4.25" to 4.5", taking into account sub-roadbed; this assures that modern rolling stock have the necessary clearance under the elevated crossovers. To get to the 4.5" height – and assuming a normal 2% grade – the elevated track needs to start rising 18.75 linear feet from the crossover. If we drop the clearance to 4", the distance gets reduced by about two feet to 16.67 linear feet. So, for the mainline to rise and then return to its starting height, we need a total of 37.5 linear feet (with 4.5" clearances) or 33.33 linear feet (with 4" clearances). It's easy to see why the 20' x 12' room got smaller very quickly.

Remember, the client's original thought was to have mainlines crisscross over themselves three or four times; and he also wanted to include mountain scenery and add several rural towns with industrial switching sidings.

The bottom line for this client was this: it simply wasn't possible to include all of these features and still have the layout operate correctly.

Final Thoughts

So, should you retain a professional, fee-based track planner? In my opinion, absolutely!

If you chose to use a non-fee-based designer, keep in mind that you are receiving a "concept" plan; I doubt the designer can afford the time and effort to exchange 40-60 emails with you or to make the numerous version changes that invariably are requested by the client. One cannot expect a designer who charges no fee to devote the time and energy required to deal with all the issues, concerns, changes, and questions the client will have.

It is not unusual to have 60+ emails travel between the client and myself during the design phase. In isolated cases, I have spent as much time answering client questions as I have spent designing the plan. While it's a big issue, it is an essential part of the design process and one of the reasons I charge the fees I do.

As I stated earlier, fee-based designers are obligated to deliver a product that works as designed, and if it doesn't work, the fee-based designer is obligated to adjust the plan to the satisfaction of the customer.

In closing, my major wish is that someday model railroaders will see the value in hiring a professional, fee-based track planner; my second wish is that model railroaders will understand that in the long run, they will be saving money. 🚂

About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, traveling, and of course designing "prototypical operations" focused track plans. He has been a member of a local 135+ member model railroad club since 2003 and has served twice as the club's president, twice as a board member, and is currently serving as the club's treasurer.

Bill is currently working on his latest triple-deck HO scale layout depicting the SP&S (Spokane, Portland & Seattle Railway) in southern Washington and the OTL (Oregon Trunk Line) on the upper level in northern Oregon in the mid-50s.

You can find out more about Bill—The Track Planner at:

www.thetrackplanner.com.



All Photos by Harry M. Haythorn

Harry M. Haythorn, UPHS #4043

Modeling UP #5174 The Lynn Nystrom

Well, guys and gals, we are going to keep the Union Pacific (UP) steam support car theme going here in the UP-Hub. In this edition, we take a look at a car with a long history in the UP steam fleet: #5714, a light-weight baggage car. The car was built in 1957 by American Car and Foundry. It is a common sight on many trips and excursions, and it is a favorite among the excursion trip riders; with its open half-doors and smooth ride, it makes for great sightseeing and a gives you a place to stretch your legs if you have been sitting in a coach seat for a few hours. I have ridden in it many times over the years and absolutely love the experience of it.

Warm weather and long days take many of us away from our layouts and train projects, as it does for me with my summer ranch work, such as putting up hay and branding calves. Alas, I still try to get a few modeling things done here and there, so follow me on this relatively easy and quick build of the UP #5714.

The Prototype

Union Pacific #5714 has a length of 73'10"; it was built as a postal storage car in August 1957, in Lot #4896, as part of a 20-car order. This car has had a few different names over the years but has always kept its number, 5714. It continued in postal storage service for about 12 years before being transferred to the steam shop in the early 1970s, after the US Mail contracts ended with the railroads. At that time, the car began to appear on many fan trips and excursions, including the

UP Old Timers trips and the annual Cheyenne Frontier Days trips. During those days, the car had a different door arrangement than it does now. On a great many trips it had the baggage doors completely open and a screen supported by two big slats over the door so people could stand in the door and look out. The half-doors that we know today weren't used as much then as they are now.

In 1990 the car was given the name *Western Lodge* and was used in ski train service to Sun Valley during the winter months; it retained this name

*Figure 1. The Lynn Nystrom, as it appeared in 2015
(photo by Harry Haythorn)*





Figure 3. This sequence of cars on which I currently am working illustrates the evolution of the project from an original model (on the top) to a finished product, my personal car (on the bottom).

most of the time. This requires a good, sharp blade, some patience and skill, and bit of high-quality masking tape. First things first: remove the combined roof/glass by squeezing the tabs under the floor and pulling the roof off the car at the same time. At this time, I also remove the Riva-rossi trucks and “whale harpoons” that are used as couplers so that I can replace them with Walthers trucks and body-mounted Kadee couplers.

The opening for a half-door is cut just below the window frame on the baggage door. (See Figure 4.) To do this, I tape across the door right below the window, giving me a straight line to mark my cut with. I use many repeated strokes of the knife – not bearing down too hard – to cut through the plastic at this area, and then I repeat the cut on the top of the door and along the sides to open it up. After the top half of the door

Figure 4. In this photo, you can see that I have cut one of the baggage door windows to make it a half-door, followed up by a coat of yellow paint.



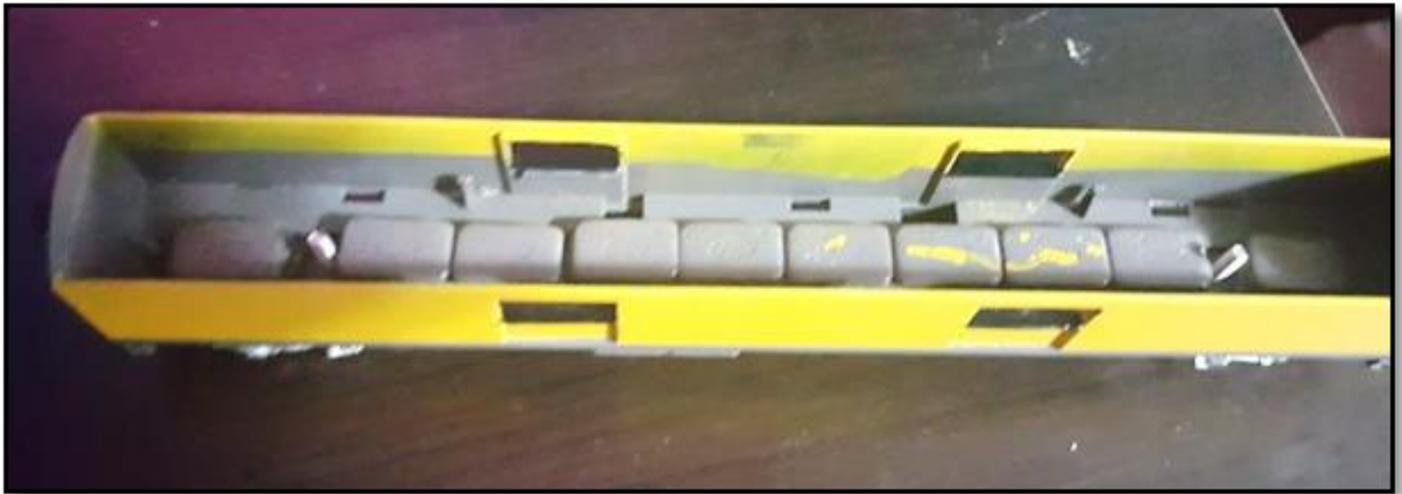


Figure 5. Auto tire weights are installed to make the car heavier.

is removed, file the rough edges smooth with a high-quality file. (I have found that the cheap nail files from your local big box stores, such as Walmart, actually are nice for this type application; instead of going to the hobby shop and spending \$8 to \$10 on each file, you can go the big box store and get nail files for about \$2.) Repeat the process on the other side of the car.

Now that you have the half-doors opened up, you must cut the corresponding door glass from the roof;

these also are multi-pass, scribe-type cuts. Once the doors and windows are cut, it is time to add the armrests in the doors. I use .040" styrene sheet to make them, cut them 4mm wide and 13mm long; then, I file the piece shorter to fit the door opening (this comes to about 12.5mm when finished). I spray these gloss black and set them aside until the car is painted.

As the original trucks and couplers on these cars are "train set quality," they should be replaced. For the

trucks, I use Walthers GSC 41-NDO, outside-swing, 4-wheel passenger trucks (part #920-2101). To mount them, I use Walthers truck mount adapters (part #920-2310) with a long screw, a washer, and a nut on the inside, much the same fashion that brass cars have their trucks mounted. I also body-mount Kadee #5 boxes and couplers with 2-56 screws holding the boxes in place. I use the old Roundhouse metal coupler box covers between the car floor and the coupler box so

Figure 6. Figures and armrests installed. (We also see UP Power car 2066 Serial #03 in the background.)



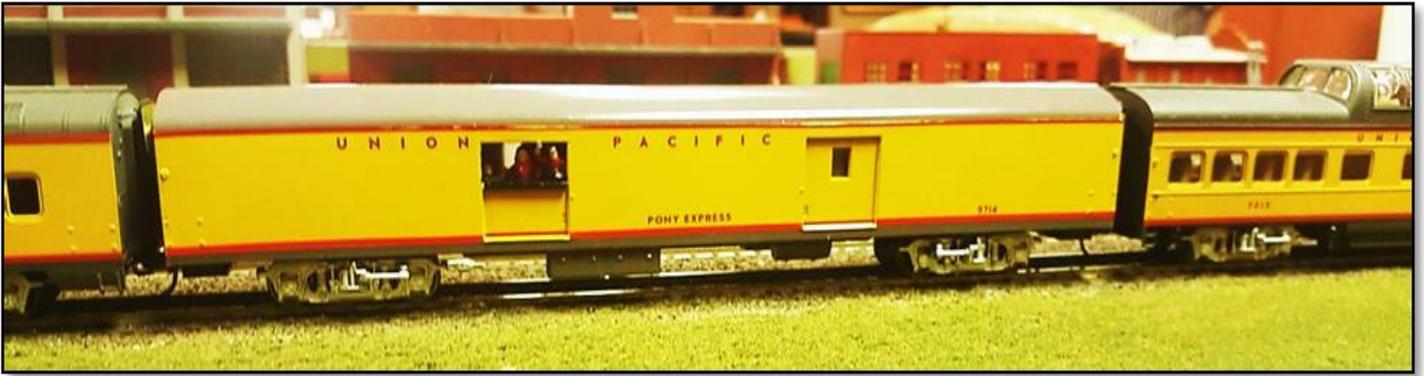


Figure 7. My personal UP #5174 car running on the club layout. This side says Pony Express, and the opposite side says, Lynn Nystrom. (The first time I rode the actual car it was named Pony Express.)

that the box is flush-mounted at the correct height. After the trucks and couplers are mounted, I add weight to the car to improve reliability; I do this with 1/4 oz., stick-on tire weights that you can get from most auto parts stores. I add 10 weights (a total of 2.5 oz.) to bring the car up to a reasonable weight of 5.75 oz. (See Figure 5.)

This is the point where good quality masking tape comes in handy. If you started with a UP car, then you can skip this step; just glue in your armrests, add passengers inside the open doors and reattach the roof to the car. But if you are like me, you had to strip off a different paint scheme and now need to repaint the car. The ends and bottom of your UP car will be Harbor Mist gray. When I paint these cars – or any car, for that matter – I always paint the lighter color first; in this case, that means the yellow goes on before the gray, I use Scalecoat paint on all my builds, but you can use whatever paint you are comfortable with. I airbrush the paint, but you can use a spray can, instead.

After the paint is dry, it is time to add the armrests and people to the

car; you want the armrests mounted flush with the surface of the car side. After they are fixed in place, add your passengers and install the roof. (See Figure 6.)

Once the roof is in place, it is time to decal the car. I use Microscale decals for the Union Pacific Lettering and red stripes. Depending on which car name you are going to add to the side, use either the Microscale UP Business Car decal sheet or the UP Car Name sheet from Circus City Decals. The final details include adding diaphragms to the car ends and a firecracker antenna on the roof. (See Figure 7.) All that's left now is to add this great car to your excursion fleet and enjoy those waving people in the half-doors, as UP locomotive #844, #3985, or #4014 slugs away up front. Check out this video to see this and other custom cars rolling in a UP consist.

Conclusion

I hope you have enjoyed this and my other builds in the UP-Hub! I have a few more coming, and they will be done in due time. Next time we will look at the UP power car #2066, which recently was highlighted by

James Wright when he was a guest on the very well-known YouTube video podcast, *What's Neat This Week*, hosted by Ken Patterson ([episode #38](#)). 

About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1,500-head of mother-cow, ranch. Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930s to the 1960s, in central and western Nebraska. Harry is a Sustaining Member of the Union Pacific Historical Society and a member of the UPHS Streamliner 100 club. He is a National Model Railroad Association member currently working on his Master Model Railroader Certificate. Harry regularly posts videos on his YouTube page. You can follow Harry as he works on his 7th layout at <https://www.youtube.com/channel/UC6-MPHmYU3Cc2uEVfjZDIcQ>.

Today's Heavy Haulers

Part I



By Jack Hykaway

The EMD SD70-Series

All photographs by Jack Hykaway.



Travel westbound on Interstate 94 in North Dakota and one can't help but notice the vastness of the rolling plains. The old Northern Pacific (NP) mainline follows a meandering route around the hills while the highway undulates with the terrain.

Very little variation to this way landscape is noticed until one reaches Bismarck - the state capital - where the mighty Missouri River cuts through the plains at the bottom of a deep valley. The highway drops quickly down to the valley floor, while the NP mainline curves through downtown and crosses high above these waters on one of the city's most recognizable structures. Three enormous trusses provide for the BNSF what they did for the NP and the Burlington Northern: a reliable link between East and West.

Standing below the bridge, the blue waters of the river tremble in the breeze. The smell of creosote ties emphasized because of the day's 40-

degree (104-degree Fahrenheit) summer's heat wafts down from the bridge deck high above my head.

Suddenly, pigeons resting on the trusses above rush off of the structure, flying away just as the sounds of roaring EMD 710 prime movers overcome the sound of crashing waves from a passing boat. Two big locomotives emerge out of the trees on the opposite bank and move across the steel spans, which date back to 1905. Their angular noses are intimidating and their mean look accurately represents the sheer power and size of these locomotives. This pair of SD70ACe locomotives - two of EMD's most modern units - is still roaring in notch eight, slowly lifting a heavy unit coal train out of the valley.

As the locomotives pass high above, I can feel their immense sound shake my bones, and their immense power shakes the riverbank below my feet. These modern AC-traction EMDs are used by the BNSF and other

Class I roads on heavy unit trains, including on the many coal trains originating in the Powder River Basin in Wyoming, some of which pass via Bismarck.

SD70: The Rebound That Saved EMD

In the late 1980s, EMD was struggling. After the production and commercial failure of their unreliable SD50 locomotive series, EMD's once-polished reputation was severely tarnished. Once the dominant locomotive manufacturer in North America, the failure of the SD50 opened the door for rival manufacturer GE Transportation to step in and take over that prestigious number one spot.

EMD, scrambling to regain momentum and their customers' trust, launched the SD60 series of locomotives. These diesels were purchased by several roads and were much more reliable than their SD50 predecessors. The SD60s helped EMD

A BNSF SD70ACe crosses the Missouri River in Bismarck, ND





A CN SD70M-2 exits the tunnel at Ena Lake, ON. SD70M-2s are among the most modern in EMD's SD70 series of locomotives.

close the gap between its sales and those of GE.

However, it wasn't until the early 1990s when EMD released the first of the SD70 series of locomotives that the manufacturer started to regain steam. The SD70 (and its variant models), developed in response to GE's new – at the time – Dash-9 series of locomotives, was an immediate hit among North American railroads.

One large reason for their success was the introduction of EMD's HTRC radial (steerable) trucks. Instead of following the rail, the trucks could steer themselves around the curve. This reduced wear-and-tear on the rails and the locomotive's wheels, and it slightly increased tractive output around the corner. This steerable option – which GE does not offer (even today) – is still a significant reason that railroads purchase new EMD 70-series units over

their GE competition. Another important selling point is the new, easily-maintained computer and micro-processor systems on board.

The Variations

To cater to different preferences of North American carriers, EMD produced – and still produces – a number of spinoffs to their basic SD70. Though the mechanical and electrical aspects of these variations are nearly identical – with the newer SD70M-2, SD70Ace, and SD70ACe-T4 being exceptions due to significant technological advancements at the time of their conception and stricter emissions regulations – they all have subtle differences.

The SD70I model is unique to Canadian National. The "I" in the model name designates that these locomotives are fitted with EMD's isolated cabs, called Whisper Cabs. These cabs are isolated from the vibrations

and noise generated by the unit's prime mover. These cabs are a favorite among locomotive crews because of their smooth ride and quiet interiors, though, rather surprisingly, this feature has not been as popular with other railroads.

Union Pacific was a major purchaser of the EMD SD70M, which has a wide-cab fitted to its frame. The wide-cabs (sometimes referred to as comfort cabs) accommodated train crews more comfortably while the wider nose provided an increased level of crashworthiness in the event of a collision. This has been the most successful SD70-variant ever produced – even more successful than the base EMD SD70 model – with approximately 1,500 units manufactured (1,400 of which were purchased by the Union Pacific).

The closest relative to the SD70M is the SD70MAC. Their only difference is found in their method of



A CN SD751 and SD701 roll past a church in Elie, Manitoba

propulsion; the SD70M uses DC current to drive its traction motors while the SD70MAC is fitted with AC traction motors on each axle, and therefore these locomotives use alternating current to power their wheels. The SD70MAC has been very popular for use in heavy-haul situations; their AC traction motors can handle slow speeds at full power while their DC counterparts are prone to burn-out under that load. Burlington Northern was a large purchaser of these locomotives for use in unit coal train service, and many still roam the rails under BNSF and PRLX ownership today.

As technology and locomotive efficiency improved, EMD released two models meant to succeed their aging SD70M and SD70MAC fleets. The SD70M-2 replaced the SD70M and featured an angular look with a rectangular nose and largely flared radi-

ators at the rear, the same features are found on the MAC's successor the EMD SD70ACe.

The only difference between these two models is (once again) found in their methods of propulsion; the SD70M-2 uses DC traction motors while the SD70ACe is fitted with AC motors. While the SD70M-2 had

only three major buyers (Canadian National, Norfolk Southern, and Florida East Coast Railway), the SD70ACe has been much more popular thanks to its more favorable AC-traction system. The SD70ACes, much like their predecessor, were quickly pressed into heavy-haul unit-train services across the continent.

Two BNSF SD70MACs (previously owned by the Burlington Northern) charge up Crawford Hill, Nebraska with a loaded coal train in tow





An orange BNSF SD70ACe leads two ex-BN SD70MACs and a coal train up Crawford Hill in Nebraska. This image shows off the SD70ACe's distinct, angular cab and largely flared radiators at the rear of the locomotive.

SD70s For The Future

In 2017, in response to strict new emissions regulations put in place by the EPA in the United States, EMD released the latest member of its SD70 family. This monstrous locomotive – named the SD70ACe-T4 – is EPA Tier 4 compliant and has been purchased only by the Union Pacific at the time of this writing. EMD-owned SD70ACe-T4 demonstrator locomotives have been testing on numerous Class I railroads across the United States and on both the Canadian National and Canadian Pacific in Canada.

EMD has seen large success from its line of SD70 locomotives, and, although not enough to secure them the spot of the leading locomotive

builder in North America (GE still holds that title), we're seeing shades of EMD's very successful past. Next time you're trackside, keep an eye out for the distinct lines of an EMD SD70 product; you never know which type of SD70 you'll see next!

For more information about EMD's SD70 series, please visit these links:

- <https://www.american-rails.com/sd70.html>
- <https://www.progressrail.com/en/rollingstock/locomotives/freight.html>
- <https://www.youtube.com/watch?v=w9w7AcICnsw>

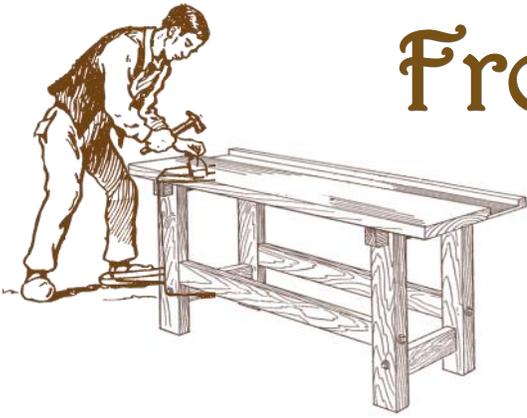


About the Author

Jack Hykaway is a student, currently attending a post-secondary institution in his hometown of Winnipeg, Canada. He is an amateur videographer and writer and enjoys exploring and documenting nearby railroads and railroad operations in both written and visual formats of his work.

Jack's main focus of late has been producing his column *Jack's Junction* for *The Modeler's Journal*.

Follow along with Jack's videography on his YouTube channel at <https://www.youtube.com/user/WinnipegRailfanner1>.

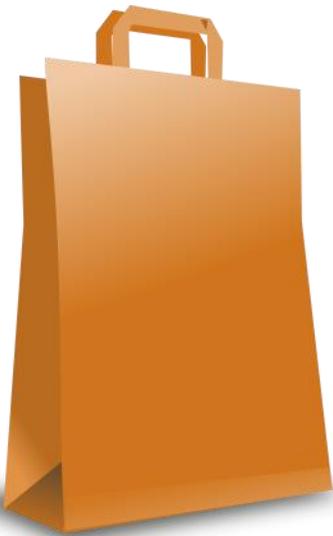


From My Side of the Workbench...



By Blayne Mayfield

Paper



Plastic

Or Wood?



On the shelves above my workbench, over to one side of my Frisco Railroad Fyan Branch (a.k.a. layout 2.0), you will find a collection of wood and styrene stock, unbuilt structure kits, and completed structures. Some of the completed structures are proudly displayed near the front of the shelf, while others find themselves toward the back, out of sight.

To me, structure building is one of the more fascinating facets of modeling. Perhaps this is because – with the exception of trees and other natural scenery elements – structures are some of the most common and prominent objects we see as we look around at our world.

Let me make a disclaimer: I do not (yet) consider myself an expert structure builder. But I also don't get overly-frustrated with the outcome of my efforts. I adhere to advice that was once given to me: "You have to take time to be bad at something before you can be good at it." With each build, I become more confident. I make mistakes, and doing so helps prevent me from making them again in future builds. I've also learned that working on less-expensive kits to build my skills makes me more likely to try out different techniques of building and weathering.

As with many things in the modeling hobby, there are a number of tried-and-true methods to build structures for your diorama or layout. And there are a number of ways you can classify these. For example, there are scratch-built, kit-bashed, and kit-built structures. You also can cate-

gorize them based on their primary construction materials. Today, that generally means laser-cut wood with resin/plaster castings (the so-called craftsman structures), plastic (usually styrene), and cardstock.

Like many of you, I enjoy watching videos, listening to podcasts, following online blogs, and reading publication articles. As I've done so, I've observed a tendency toward establishing a "pecking order" of structures and structure building. At the top are the "craftsman kits," that is, the laser-cut and sometimes built-board-by-board wood structures. The next lower tier is the styrene structures, usually kit-built or kit-bashed. And coming in third place we find the cardstock structures.

Unfortunately, it seems that structure builders sometimes get pigeonholed into the same pecking order based on their choices of building materials. It is sad when this happens! As I see it, each set of construction materials has its own place; it's not an "either/or" situation. I have seen excellent and convincingly-lifelike structures built from each of these materials (and sometimes a combination of all three).

Maybe the "craftsman snobs" should take another look at building plastic and cardstock structures. Each material (and there are more than just those mentioned here) has its own strengths and weaknesses, as well as its own set of best practices that

"I've observed a tendency toward establishing a 'pecking order' of structures and structure building."

must be mastered to create a convincing structure. In fact, it can be interesting, fun, and challenging to

see how far you can go toward realism with different materials and techniques than you usually apply.

So, remain open to different building materials and techniques than those you've tried before. (I recently heard Brett Wiley speak on the HO Scale Customs podcast of using microscope slides as the window glazing in his model structures; now I've got to try that myself!) Take down that structure kit from the shelf, open it up, and have at it. Or, buy one that is a little different than any you've tried before. Maybe even download a plan and scratch-build some structure. And share your results with the greater modeling community.

Who can tell where it will lead you?



About the Author

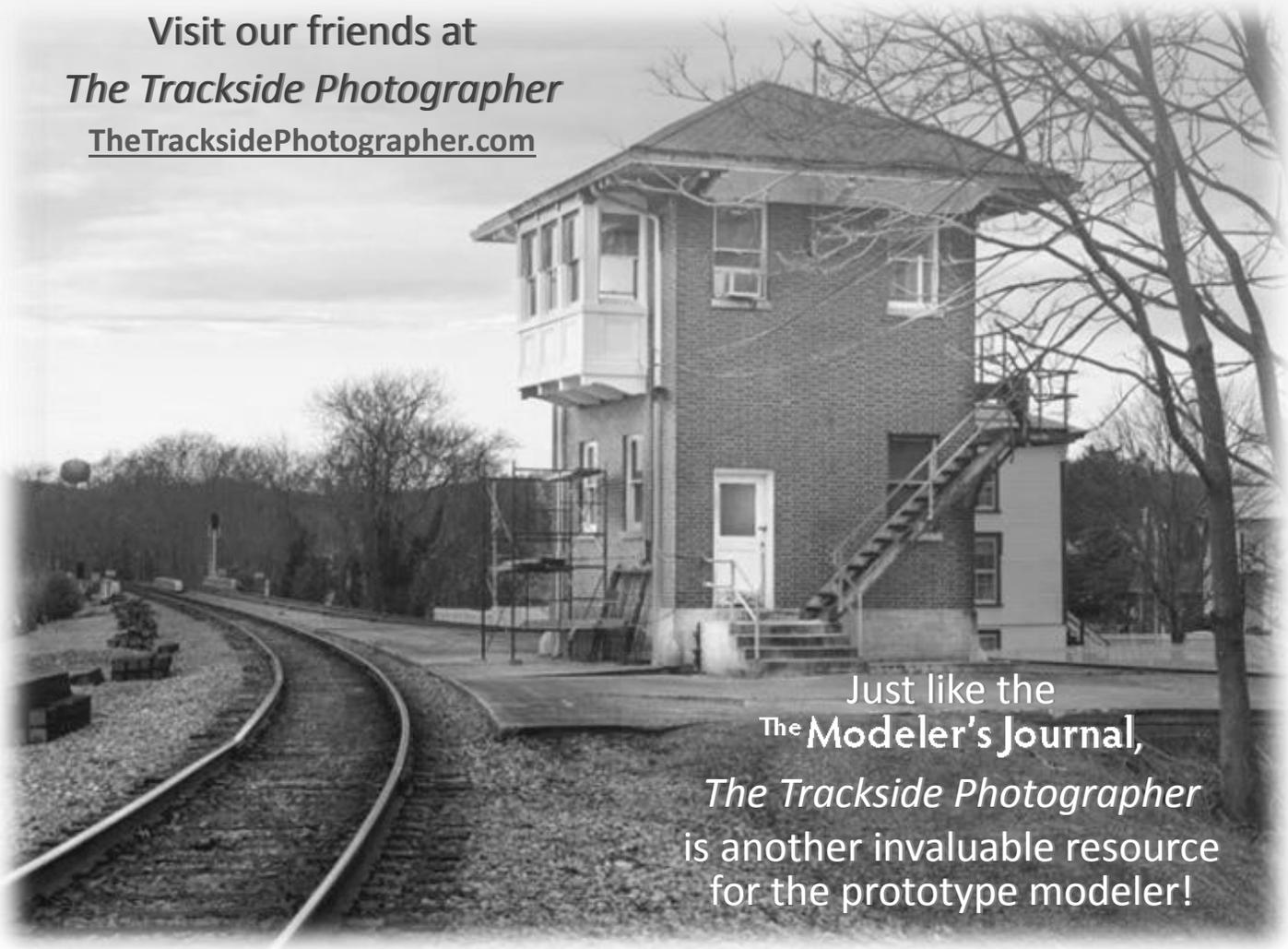
Blayne Mayfield is a university professor by day and an HO engineer by night. After a 20+ year absence from the hobby, he currently is working on a proto-freelance layout based on the [Frisco Railroad](#) in southern Missouri. Blayne lives in Stillwater, OK, and volunteers as a content editor for *The Modeler's Journal*. You can follow him on his YouTube channel by clicking [here](#).

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