YEAR OF THE MMR
PART 4

Structures AP Certificate

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One Step at a Time

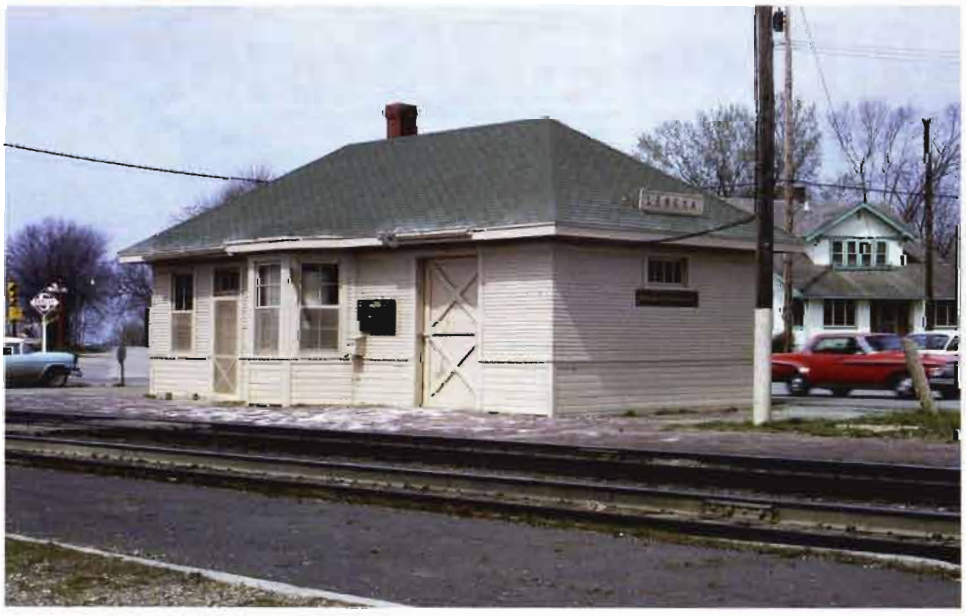
As a reader of *Scale Rails*, I am confident you are aware of the NMRA Master Model Railroader program. Congratulations to those already engaged in the program. You are learning new skills that will last a lifetime along with some sweet, unique models for your layout. If you are not in the program, I encourage you to start on that first certificate. You already have one MMR requirement completed — you are a member of the NMRA.

A glance at the MMR requirements can seem daunting, making a root canal more appealing, but never fear. Every MMR I know concentrated on one certificate at a time, keeping their immediate goals well within reach. They carefully read the requirements for each certificate and completed the documentation without reading more into the requirements than what was written. The paperwork is critical to receiving Merit Awards and completing each certificate. The MMR candidate must record the work completed so the judge can verify the work and assign a score. You don't have to be a great writer, just record the work you did. Finally, consult with an MMR if you need advice on requirements or the paperwork. I haven't met one who is not willing to help a fellow modeler out.

An Introduction

This is about the place in the article when you start wondering, "Okay, so who is this guy and why should I listen to him?" I am Rick McClellan and there is nothing extraordinary about me or my modeling skills. I am a regular guy who had a paperwork phobia, but overcame it to become MMR No. 380 in August 2006. I have served as Turkey Creek Division (Mid-Continent Region) Pay Master, Superintendent, and Area Meet Chairman. In 1998, I was the Pay Master for the NMRA National Convention in Kansas City, Missouri. I model the Frisco in the late 1970s in HO, and I regularly host operating sessions on my layout.

Although I received my MMR in 2006, I decided to pursue the Structures Certificate to sharpen my structures skills and to motivate me to complete the signature structures required for my layout. Knowing that my models will be reviewed closely by others makes me do the best job possible. Almost all the models I built for the AP program have a home on my layout. I consider it a double bonus to get AP recognition for the models I have made and have unique models for my railroad.



George Filkins photo, Rick McClellan collection

Master Model Railroader Requirements

Program Overview

Let's review the AP requirements so we know what we are getting into. The Master Model Railroader program consists of 11 categories of proficiency. The modeler must complete seven of the 11 certificates with at least one from each main category to become a Master Model Railroader.

Railroad Equipment

Master Builder – Motive Power
Master Builder – Cars
Railroad Setting
Master Builder – Structures
Master Builder – Scenery
Master Builder – Prototype Scene

Railroad Construction and Operation

Model Railroad Engineer – Civil
Model Railroad Engineer – Electrical
Chief Dispatcher

Service to the Hobby and the NMRA

Association Official
Association Volunteer
Model Railroad Author

Detailed information about the Achievement Program including all the necessary forms can be found on the NMRA web site at http://www.nmra.org/achievement/. Go ahead and bookmark this site because you will be consulting it often. Surf through the NMRA web site during those armchair moments when you are not working on projects for your certificates. It is a virtual library at your fingertips, taking you through the latest news, upcoming conventions/events, model railroading standards, and a whole lot more. If you don't have access to the web site through the Internet, ask

a MMR or a friend to print off the MMR information and forms. Model railroaders are a pretty friendly bunch, and I am confident they will be happy to help.

Master Builder – Structures Certificate

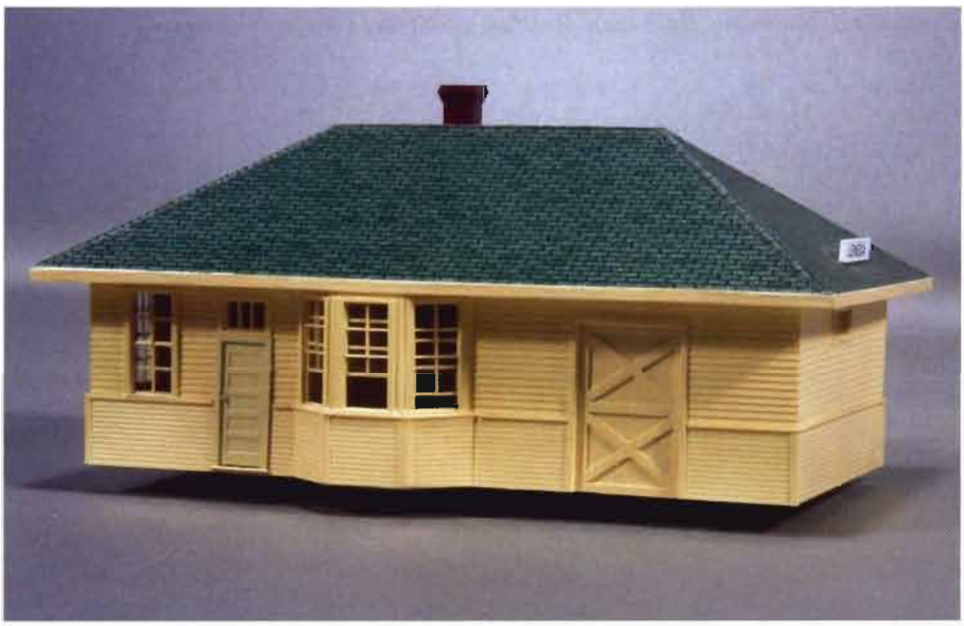
In this article, we will review the requirements for the Master Builder – Structures certificate. The NMRA definition of structures is anything man-made that is not motive power or rail cars. Structures include residential buildings, commercial buildings, bridges, signal, signal towers, docks, power line towers, cranes, ships, and so forth.

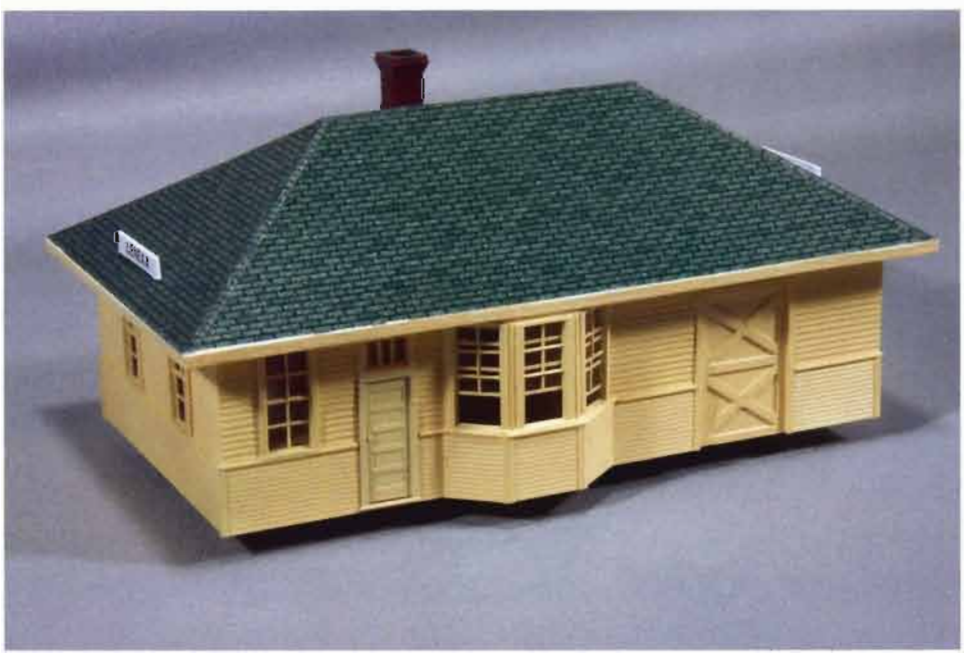
Below are the requirements to complete the Master Builder – Structures Certificate.

Complete 12 scale structures

At least six different types of structures must be completed. The modeler needs to demonstrate the ability to construct a variety of structures mirroring the variety of structures in the prototype environment. Most of the models can be buildings, but they must be completed using different construction methods. A wood -frame depot and a stucco depot would count as two different types of structures because their construction methods are different. Structure selection should be easy for most MMR candidates. The structures can be in any scale and any era.

One of the six types must be a bridge or a trestle. Bridges include rail, automobile, and pedestrian bridges. There is no requirement for a minimum size. The idea is to demonstrate that you know how to build a bridge that looks like it can support its intended load. There is no requirement that the bridge be installed on your layout.





At least six of the structures must be scratchbuilt. Scratchbuilt means that 90 percent of the model's components were sized and fabricated by the modeler. The modeler purchases basic wood, metal, and plastic shapes and forms them into the parts for the structure. The only commercial parts allowed for the Structures Certificate are light bulbs, paint, decals, figures, and the basic wood, metal, and plastic shapes. In essence, you are making a craftsman kit, assembling it, and finishing it. If you make your own plans, be sure to document that so you can earn the points for it.

The remaining six structures can be scratchbuilt or a kit that is super-detailed with scratchbuilt or commercial parts. Today's great structure kits coming out these days can use more detail and can be modified to new configurations. Photos of the prototype structures can reveal things like electrical boxes, signs, lights, vents, window shades, air conditioners, and the like. Buildings can have the interior detailed with furniture, equipment, crates, figures, lighting, and anything else you might see inside a building. Scratchbuilt parts should be documented because they will increase your overall score.

Six of the 12 models must earn a minimum score of 87.5 points in a NMRA-sponsored contest or in AP Merit Award judging and receive a Merit Award. The remaining six are not required to be judged or earn a Merit Award. Typically, modelers will scratchbuild six models for Merit Award judging and kit bash and/or super-detail kits for the remaining six models. Judging can take place in a model contest or judges can travel if the structures are already installed on your layout or a club layout. Your Area AP Chairman can arrange for the three required AP judges to come to judge your structures.

When you have completed the requirements, earning at least six Merit Awards, you are ready to apply for the Master Builder – Structures certificate. Submit a completed Statement of Qualification (SOQ) to your Area or Regional AP Chairman. The SOQ can be found at http://www.nmra.org/achievement/pdf/2006-soq-mbs.pdf and includes:

- A detailed description of all 12 models

- Identification of all scratchbuilt features on all models
- All commercial parts used
- All materials used to build the models
- Operational features of the models
- Kit manufacturers (if applicable)
- Copies of at least six Merit Awards (or the signed Judging Forms)
- Photos of the models are helpful, but not required

Merit Awards

A Merit Award is presented to each model that earns a minimum of 87.5 points out of 125 possible points spanning the five categories of model making. Each of the five categories is judged exclusively of the others and the five scores are combined to get the final score. The modeler will need to complete a narrative on each category describing in detail how the model was constructed and completed. This is considered to be the most critical part of the judging process. Judges cannot assume anything on their own. Their job is to validate the work that the modeler documents and then provide the score.

Here are some general tips that will aid in the completion of the documentation.

Assume the judges know nothing about your model or how it was constructed. This will enable you to write an effective narrative of how it went together.

Include as many prototype photographs as possible to validate the Conformity category.

As you build the model, carefully record all the commercial material and detail part numbers to list under the Construction and Detail categories. It's pretty easy to record the stock numbers of the material and parts when their packaging is at hand.

It is helpful to understand how the categories are judged so you can maximize your score. Here are the categories on the Judging Form

Construction (40 points) – The emphasis with this category is workmanship and quality. Be sure that joints are smooth and seamless, that windows and doors fit properly, and that lines are square and straight. Tell the judges the materials you used, how it matches the prototype, and how you assembled the model in detail. The more you tell them, the better. This is the place to include a copy of the plans for the structure. If you drew the plans, include it so you will be given credit for that effort.

Detail (20 points) – In modeling, details can make the difference between an average model and a great model. Keep in mind the judges are looking for quality and quantity in this category. Detail is all the commercial or scratchbuilt parts that make your structure look real. It includes signs, electrical boxes, window shades, gas meters, barrels, crates, and so forth along with furniture and appliances for models with interiors. Include all commercial parts and their manufacturer numbers. Scratchbuilt parts should be listed along with a description of how the parts were made. Ensure that the details are installed neatly with no excess glue showing.

Conformity (25 points) – This category determines how close the model resembles the prototype. Prototype photographs and blueprints, if available, should be included in this section to demonstrate that your model is an accurate reproduction. Clearly explain the extent to which the model conforms such as

- placement of windows and doors,
- materials used to simulate siding, roofing, concrete, and
- colors to simulate brick, concrete, wood.

Finish and Lettering (25 points) – With this category, judges are looking at the general appearance of the model. This includes how well the model is painted, lettered and weathered. Most models are finished with paint, so use appropriate colors to make sure that bricks look like bricks and concrete looks like concrete. Another key element is a smooth finish for all painted surfaces. Many otherwise worthy models failed to get a Merit Award due to paint overspray, runs, or rough finish (paint drying before it hits the model).

The prototype often uses signs and lettering to identify the purpose of the structure as well as to advertise to potential customers. Adding appropriate lettering to your structure will get more points from the judges in this category.

Weathering is the icing on the cake because it makes our models look more realistic, and it will earn more points for the model if it is appropriate and well done. If the model is supposed to look old, make sure it is weathered. Weathering can be as simple as applying soot-colored paint around the top of a chimney or as extensive as peeling paint on Grandma's house.

Scratchbuilding (15 points) – Just about every model needs special parts that the manufacturers don't make. It could be a special sign for a depot or a window to fit a specific location on a building. The character of a scratchbuilt structure is almost always defined by the special parts we make for it. The judges are looking for the quantity and quality of the parts we make and how well they are applied to the model.

Documenting the creation of the scratchbuilt parts is as important as the parts themselves. Judges are not allowed to assume that parts are scratchbuilt, so describe how you made them and get the points you deserve.

Howard Killiam photo, University of Kansas collection

One More Thing – The Record and Validation Form

The AP program created a form called the Record and Validation Form. It is an optional form used only by the modeler to track progress on the Structures certificate.

Structures Certificate? Not In My Original AP Plan

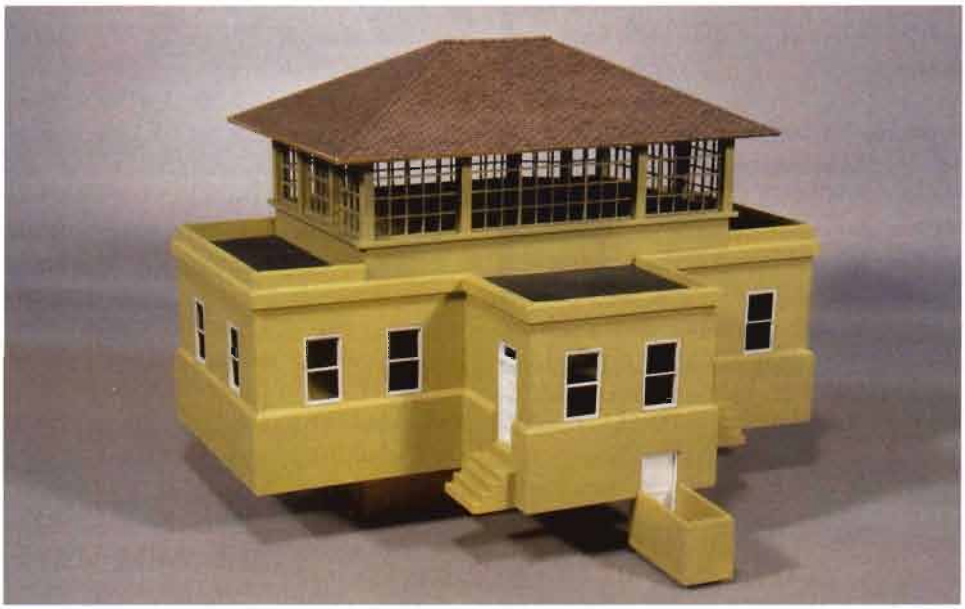
The Structures AP Certificate was not among the seven certificates I completed for my MMR. I decided to work on the Structures certificate because I needed several "signature" structures for Kansas City on my layout and I knew that the AP Program would motivate me to do the best job possible. Signature structures are structures that conform in size, color, and shape to specific prototype structures in the area being modeled. Signature structures are a key element in my formula to help operators on my layout feel like they are really working in Kansas City in the late 1970s.

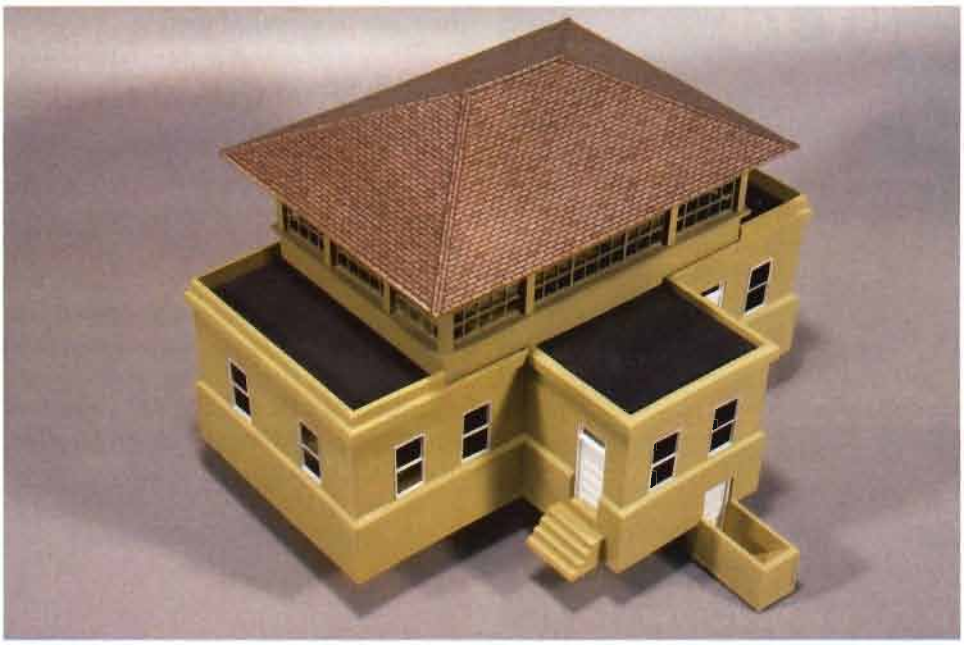
While many of the prototype structures I need are long gone, they can be brought back to life with styrene, glue, my hobby knife, and some paint. Important tools needed to scratchbuild a structure include:

Photos – Photos are valuable in that they tell us the configuration of the structure as well as size. I usually choose something to scale the balance of the structure from like a door and size the rest of the model proportionally. Color photos are best, but black & white photos are a close second because they can provide some sense of color in the contrasting shades of gray.

Prototype Building Plans – Detailed structure plans are difficult to obtain, but they can help you create a structure that is dimensionally accurate. The best sources of detailed plans are railroad historical societies and modeling magazines. The most interesting source I have come across was the Missouri State Parks Department. They allowed Bret Overholtzer and me to copy the Boonville, Missouri, Missouri-Kansas-Texas depot plans. These plans were especially useful because they had all the elevation drawings and roof detail drawings as well. When floor plans are not available, you will need to work from photos.

My examples are HO models specific to Kansas City so they can be used on my layout. The Lenexa Depot is a completed model that demonstrates that a structure can be relatively simple and still receive a Merit Award. KCT Tower 4 is more complex and is still under construction. It is about 70 percent complete and is presentable enough to be placed on my layout. Merit Award judging will ensure the completion of this building. Achegas is a kit that was assembled and detailed and will not be entered into Merit Award judging.



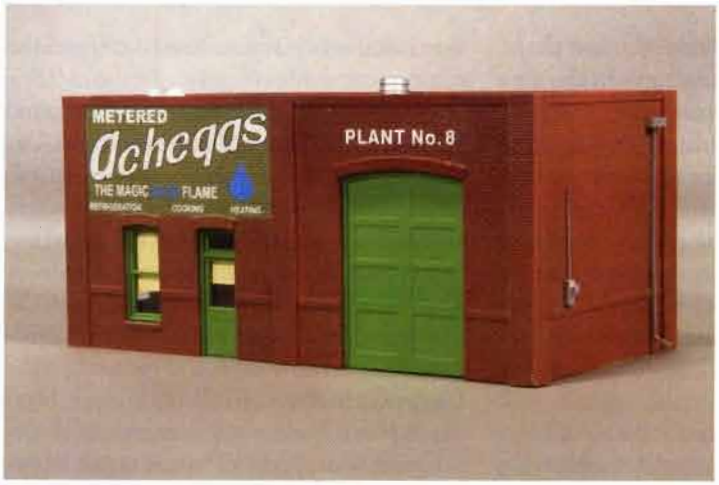


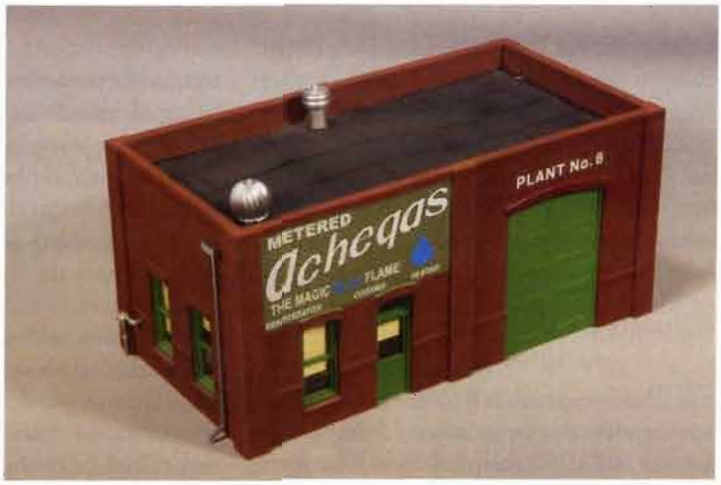
The Lenexa, Kansas Depot

Work on my Structures Certificate began with the Lenexa Depot. Working from photos and a floor plan, I was able to create a structure that not only captures the feel of the depot: It *is* the depot, just 87 times smaller than the original. No existing kit would have captured the look of the original structure. Operators and visitors to my layout will now know what the depot and the surrounding area looked like in the 1970s. The depot was judged at the Mid-Continent Region meet in Lenexa last August and received 95 points, well above the 87.5 required for a Merit Award.

I had the luxury of having the Frisco floor plan for this depot, which was built in 1906. In addition, the actual depot is now located in a Lenexa park. I made a rough drawing of all of the side elevations, noting window and door sizes and measured exactly where they were located on each side of the structure.

Armed with this information, I purchased my building materials and detail parts and went to work. I took a lot of care to trim the wainscot per the prototype. I also beveled the corners of the lap siding





to make a seamless joint and lined up the siding for a professional look. This structure was my first attempt at a hip roof, so I used my basic geometry skills and the floor plan that indicated a 1/3 pitch on the hip roof. This is a good place to say that there were a few things that didn't go well, so I rebuilt some components. An example was the angle bay used as the ticket window. The floor plan was not clear on the angle and size, so my original effort did not look right. My second attempt was better and looked more like the prototype. The lesson here is to do the best job possible and rework anything that is rough or doesn't look right.

I could have gotten more points by adding the screen door and the guttering over the office and freight room doors. I decided not to put the screen door on because I was not able to develop a good way to scratchbuild one before the date of the area meet. In my opinion, I would rather lose some points than put a substandard door on the model. The guttering was an oversight on my part, and I will add them when I find a good scale structural shape to serve as a gutter.

This was a fun model to make and gets good comments from operators running through Lenexa.

KCT Tower 4

Kansas City Terminal Tower 4 was a landmark building in between the two Frisco yards in Kansas City and protected the KCT/Frisco crossing. Like so many structures, it consists of mostly basic structural shapes along with a hip roof. I had a photo of the building supplied by Richard Napper, MMR, that I used to create my own rough drawing. I assumed that the doors were approximately seven feet tall and scaled the rest of the structure using my third-grade math skills. I have not completed this structure as of this article but can tell you about my thought processes during the basic construction phase.

This structure features concrete wainscot on the lower half of the first floor, concrete trim around the top of the first floor, and the tower. Standard 0.040-inch styrene was used for the first floor walls and the tower walls below the windows. I laminated the wainscot with additional 0.040-inch styrene that was beveled at a 45-degree angle on the tops and corners. The beveling was done by scraping the styrene with a hobby knife and sanded smooth when the basic shape was finished. The same method was used to complete the trim that runs at the top of the first floor behind the KCT Tower 4 sign.

I was able to modify commercially made windows to get some "close enough" windows. My "close enough" philosophy is that a commercial part within 12-scale inches of the prototype is close enough to retain the character of the structure. In this case, the windows are about six inches narrower than my calculation, but they look good on the model. I could have scratchbuilt these windows, but elected not to because of the number of windows needed and the fact that the commercial windows were so close to the actual windows.

The next steps on this model include completing the angle bay on the north elevation (KCT trackside), completing handrails on the stairways, and getting a sign on the ends of the building. Final details will include guttering and downspouts, electric meter, gas meter, and so forth. I am confident that the work completed and the remaining work will be sufficient to get my second Merit Award. Points over the minimum 87.5 is just icing on the cake.

Achegas – Merriam, Kansas

Achegas Plant No. 8 is one of the few non-prototype industries on my Frisco Northern Division. It is an adaptation of an actual Uregas dealer in Washington, Missouri, and named after famed KC modeler Dave Acheson.

This structure is the Design Preservation Modular Learning Kit with some extras added to give it more character. The kit was assembled per the manufacturer's instructions and painted maroon to approximate a brick color. Details were the fun part of this structure and include an electric meter, gas meter, window glazing, window shades, and roof vents. I cut two holes in the upper side of the ends of the building and added two scratchbuilt downspouts so they wouldn't have a swimming pool on the roof after a rain storm. The downspouts were made of scale 4x4 styrene with a 1x8 box built around the drain hole in the side of the building. I also painted black seams on the flat roof to simulate tar used to seal the seams in the rolled roofing.

This model is a great example of a model that can be one of the six non-Merit Judged structures.

Summary

As with other modeling certificates, Master Builder – Structures requires diligence, good (not great) modeling skills, and thorough paperwork. Twelve models will need to be completed, but only six need to have Merit Awards and most layouts, regardless of size, will require a gazillion structures. So why not get credit for those signature structures that you need anyway? It can start you on your own quest for the MMR, and it's quite an adventure.