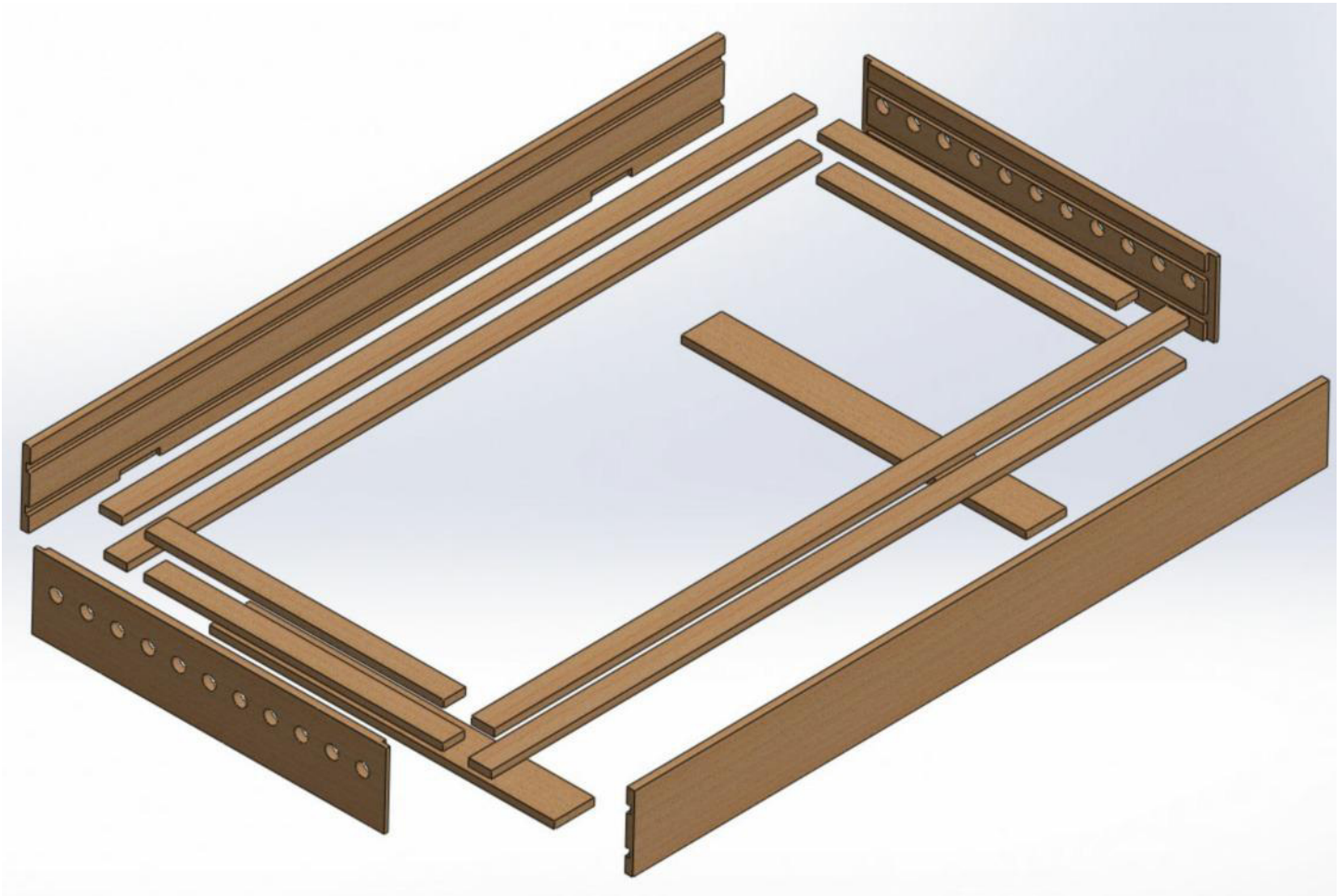
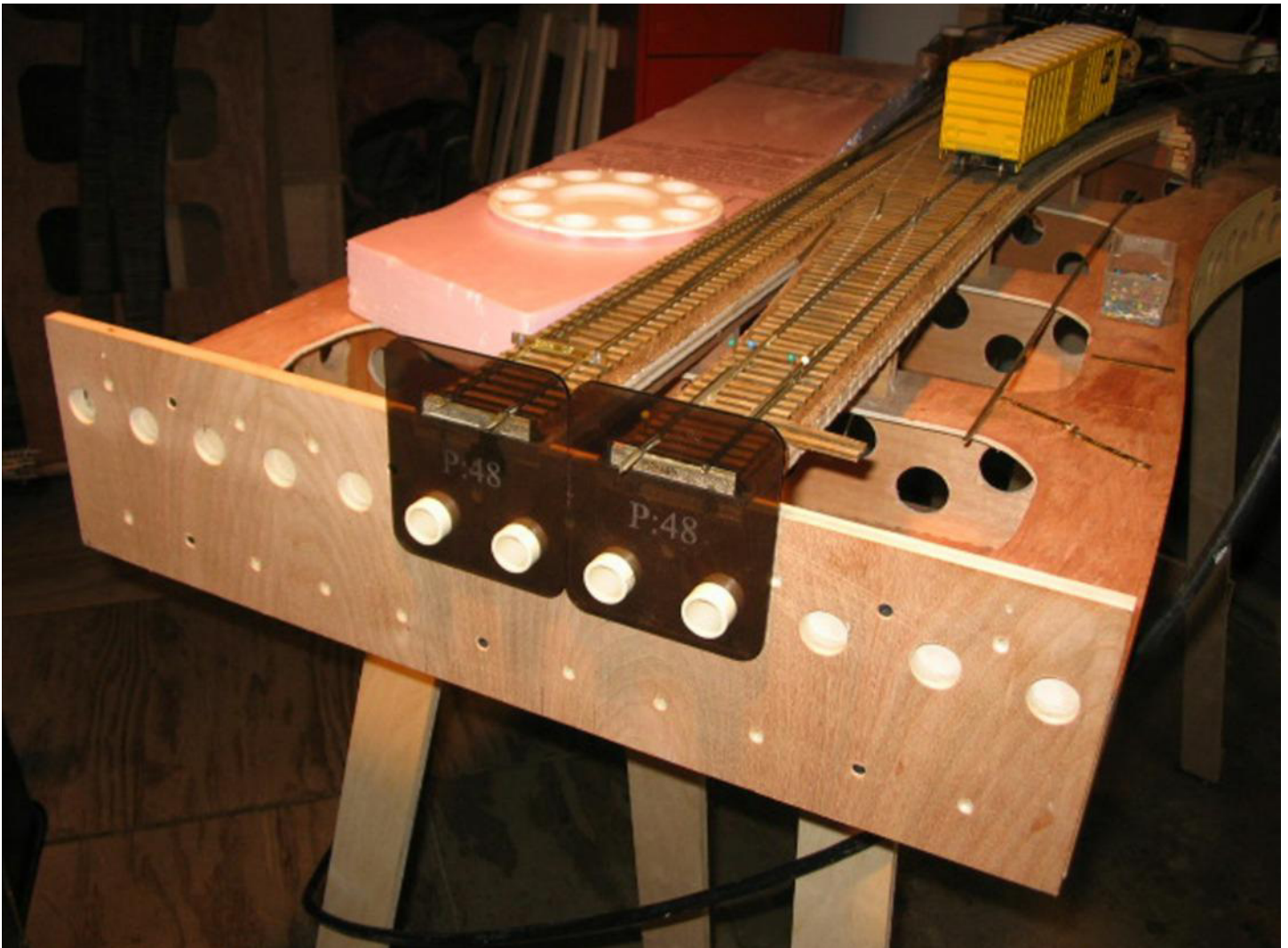


# Some Thoughts On Modules

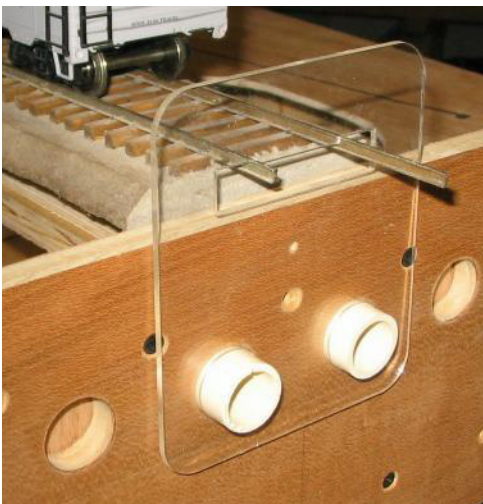


By Glenn Guerra

About 8 years ago Jerry Huth from Rippon, Wisconsin came to discuss module standards with me. Jerry builds furniture and custom cabinets and is inclined to think “out of the box” as they say. His concern was that all module standards are based on the overall dimensions of the module. Along with this the track is located with reference to the edge or center line of the module. Jerry had been looking into the Free-Mo concept of module layouts at the time also. The Free-Mo concept allows any shape or form to your module but the ends must be a set dimension and the track is located relative to the center line of the ends. You can learn more about Free-Mo at <http://www.free-mo.org/>. This to Jerry was still too confining. What he wanted was some way of indexing the end of the module relative to where the track is and not the other way around. For instance what if you wanted the track for your module to be at the back of the module. Your option was to build two transition modules and then your normal module with your track at the rear. There was another item that Jerry wanted to get away from and that was the short section of track you usually put between the module for final alignment. So we started going around about it. The first thing we came up with was to align the modules with pins. The pins would be positive alignment and that would keep the track aligned. We saw this idea in Bill Pistellos’ module switching layout in the March/April issue of the O Scale Resource. The idea here is, all that really matters is if the rails line up. So we had that problem solved but what about making the different modules mate? Jerry wanted complete freedom of module end and track location. As we talked the idea came up that we should index the track to some known mounting pins. We thought that most O Scale people use 4” track center

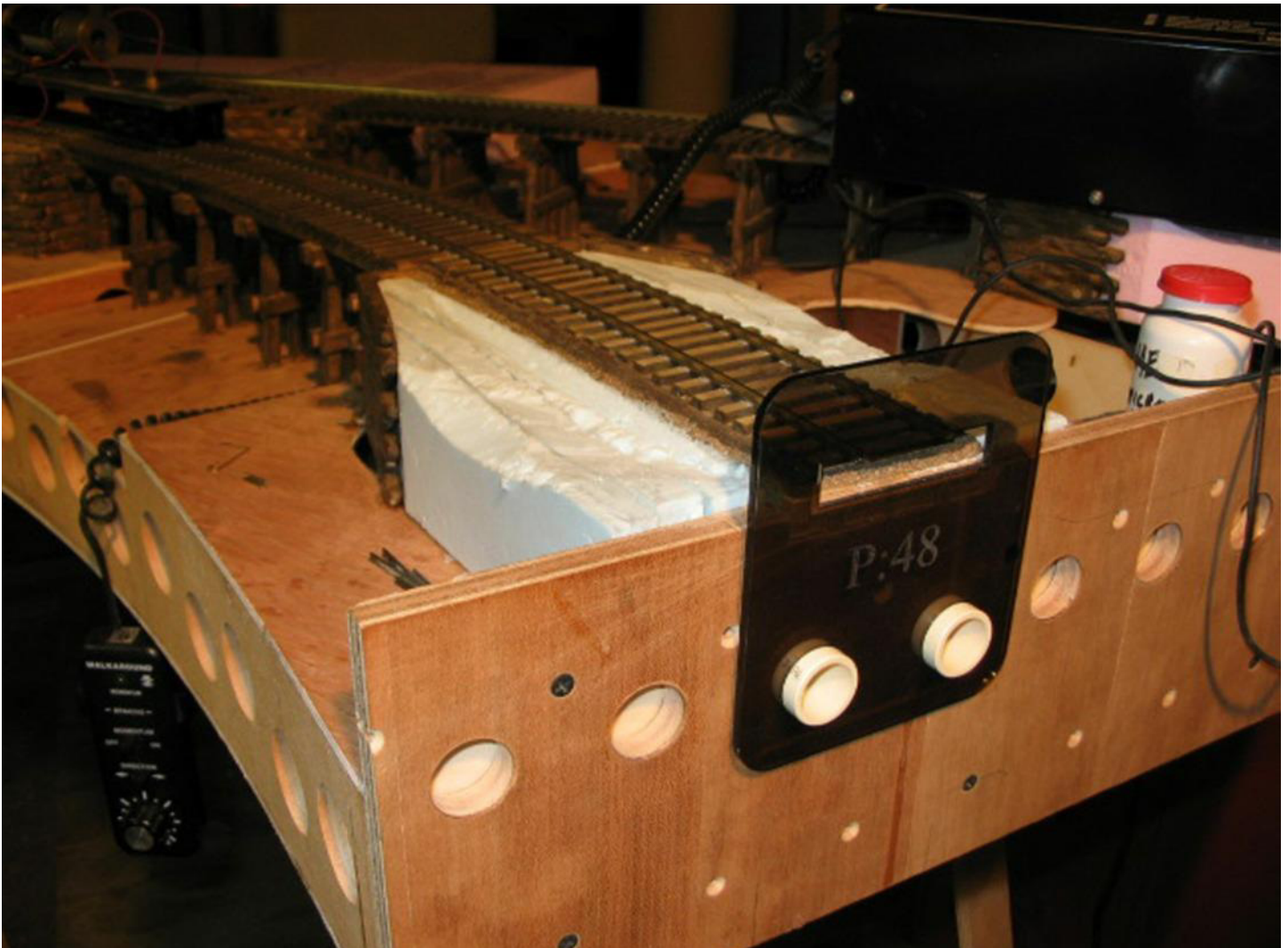


*This was the first trial of the end plate and pin mating system. Jerry built some modules using the end plate and templates. You can see how the templates work. Also at this time Jerry was experimenting with making the module as light as possible. This type of construction is called a torsion box. The top and bottom skins are 1/8" door skins that Jerry cut holes in to lighten them even more. Then he made 1/4" ribs and drilled holes in them to lighten them more. Notice also that the edge of the module is not straight but has a free flowing form like a home layout would. This came from the Free-Mo ideas that Jerry was looking at. Three modules were built and they were strong enough for Jerry to sit on. Life and all it's obligations got in the way of progress on this layout, as it so often does, and Jerry had to disassemble the modules.*



so we would go with some multiple of 4 for pin locations. Then we started talking about some form of a template that could be used. What we came up with was a row of holes on 2" centers. Our template would locate on any two adjacent holes. The template would then locate where the track was relative to any two holes. As long as you did this any other module built the same way would mate to yours and the tracks would line up. What we were doing was using the pins to line up the track and not rail joiners. The effect is the same. As long as the rails line up the

*This was the very first template we made. You can see how it works in this photo. Jerry has placed the template on the pins and is shimming the track to fit the template.*



*This photo is of another module that Jerry built using the first version of the end plate, pin, and template joining method. Notice that the module construction is a torsion box type of construction with many holes for lightening it. This was to be the start of a branch line and the layout would take off in another direction from here.*



trains will run. The only restriction was that the tracks must meet the end of the module at a right angle. Now we went back to the alignment problem. We wanted this to be as cheap and simple as possible. Jerry did some checking and found that one size of PVC water pipe was 7/8" diameter on the outside. We drilled some 1/8" diameter holes in some wood and checked the fit. It was a good snug fit. So for less than \$10 you could have about 100 locating pins. Now we went back to the template. We used my laser machine and cut some templates to try. When you cut these templates the dimensions I give in this article are what you want the final size of the template to be. The laser machine



*This photo shows two of the modules Jerry was building in the early stages of construction. Note the torsion box construction and all the lightening holes. The scenery was to be made with light insulation foam to keep the weight down. The legs are Jerry's idea also. They are very simple to build and fold very flat for easy transporting.*



will cut a slot of some width. This width must be taken into account. We did some trial cuts until we got the final product right on the dimensions.

Jerry went home and started constructing some modules. The first attempt looked real good to me but Jerry thought it still needed work. The pin

*This view from under the modules shows how the legs are held on and how the pins work when the modules are separated. There only needs to be two pins and they can be in any two holes.*



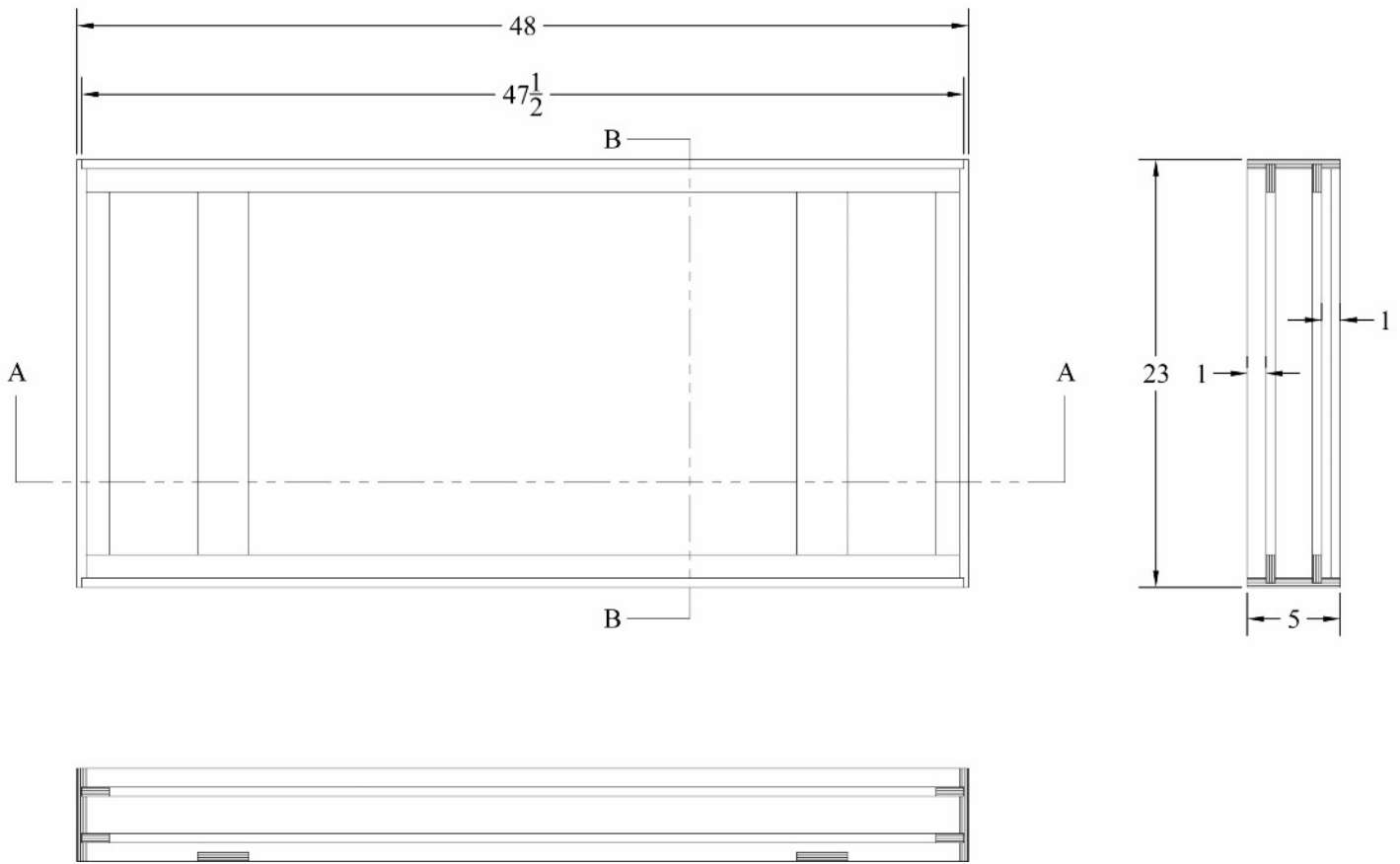
*This is the latest design from Jerry. The idea was to keep it simple with as few parts as possible. Jerry built this one and brought it over to me. I modified some of the dimension to optimize the number of parts we could get from a 4' X 8' piece of plywood.*

and template idea worked great but the modules still seemed heavy to Jerry.

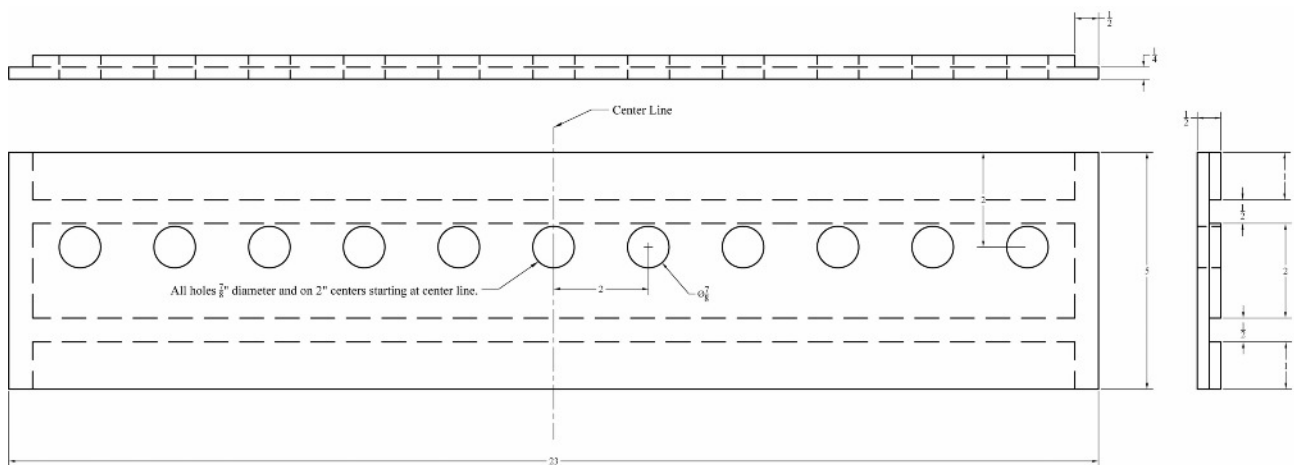
These original modules were taken apart and Jerry got busy with work. About 4 years ago we were asked for some data on the idea and took a second look. Jerry, always the perfectionist, wanted a simple and very light module. This time we were looking at the idea of a standard size that could be used in a conventional module layout and be easily brought to the location. What we came up with was a 4' module length and 23" width. The 4' length would fit in most any automobile. Jerry went back to the shop and built one. He brought it to me to see. I sized it up and pushed the idea a little farther altering the dimensions so we could get four modules from on sheet of 1/2" MDO plywood. We would recommend using the MDO plywood because it has more plies than normal and the paper coating minimizes tear out when cutting as well as providing a good surface to paint. You can get MDO plywood at a lot of locations. Now we think it looks good.

What you have here is a module concept where any size or shape of module will mate with any other module. Your track can be anywhere on the module as long as it lines up with the pin holes. Lastly your module can be built to fit your layout in size or shape. If you want to take your module to a meet just pull the pins and remove your section to take to the meet. If you are part of a group and want some conformity in over all dimensions I would recommend the 4' module length. This will allow more people with smaller cars to participate. The people with vans that can handle 6' or 8' sections will still be able to participate. For example two 6' sections makes 12' which is three 4' sections. The sides of the oval are still the same length. One 8' section is two 4' sections. If there is a group getting together that just wants to assemble some modules and run you can participate in that. You may not be able to make a loop but you could still assemble a point to point layout.

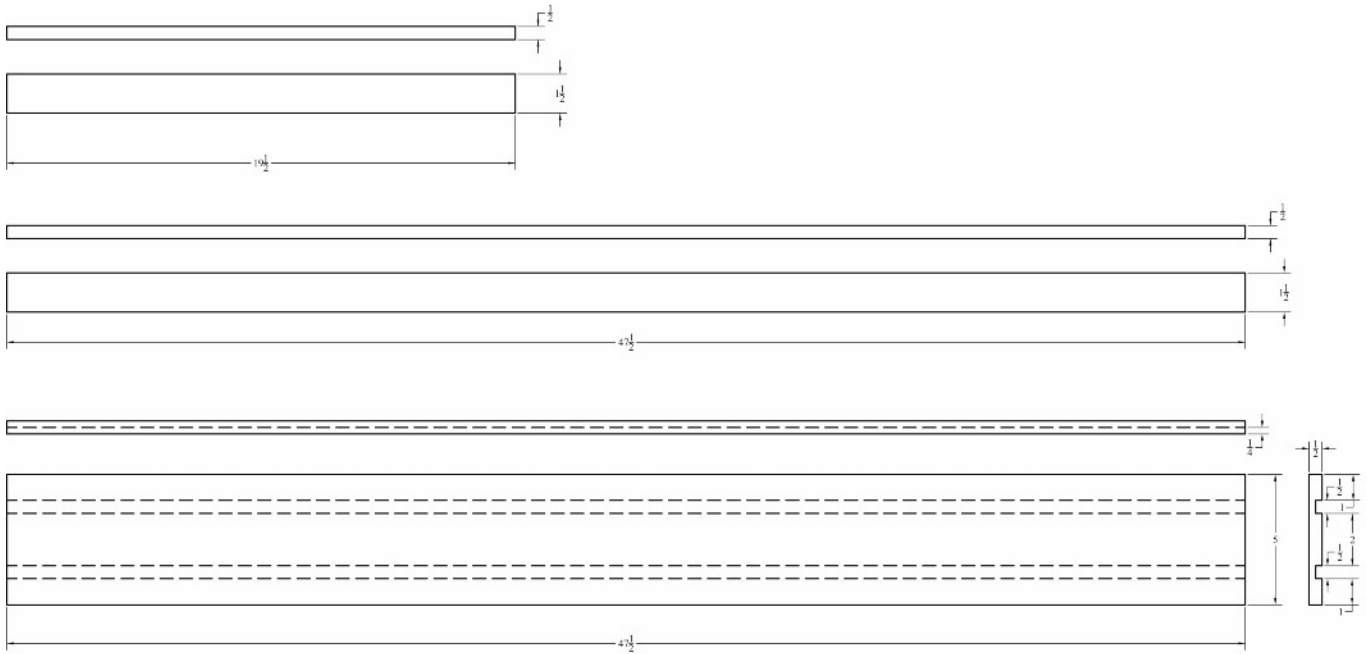
So take a look and see what you think. The drawings are free to use so help your self. Just remember that the critical part is drilling the 7/8” holes on exactly 2” center and they must be horizontal. Lastly the track must meet the end of the module at a right angle and be located on any two adjacent pins.



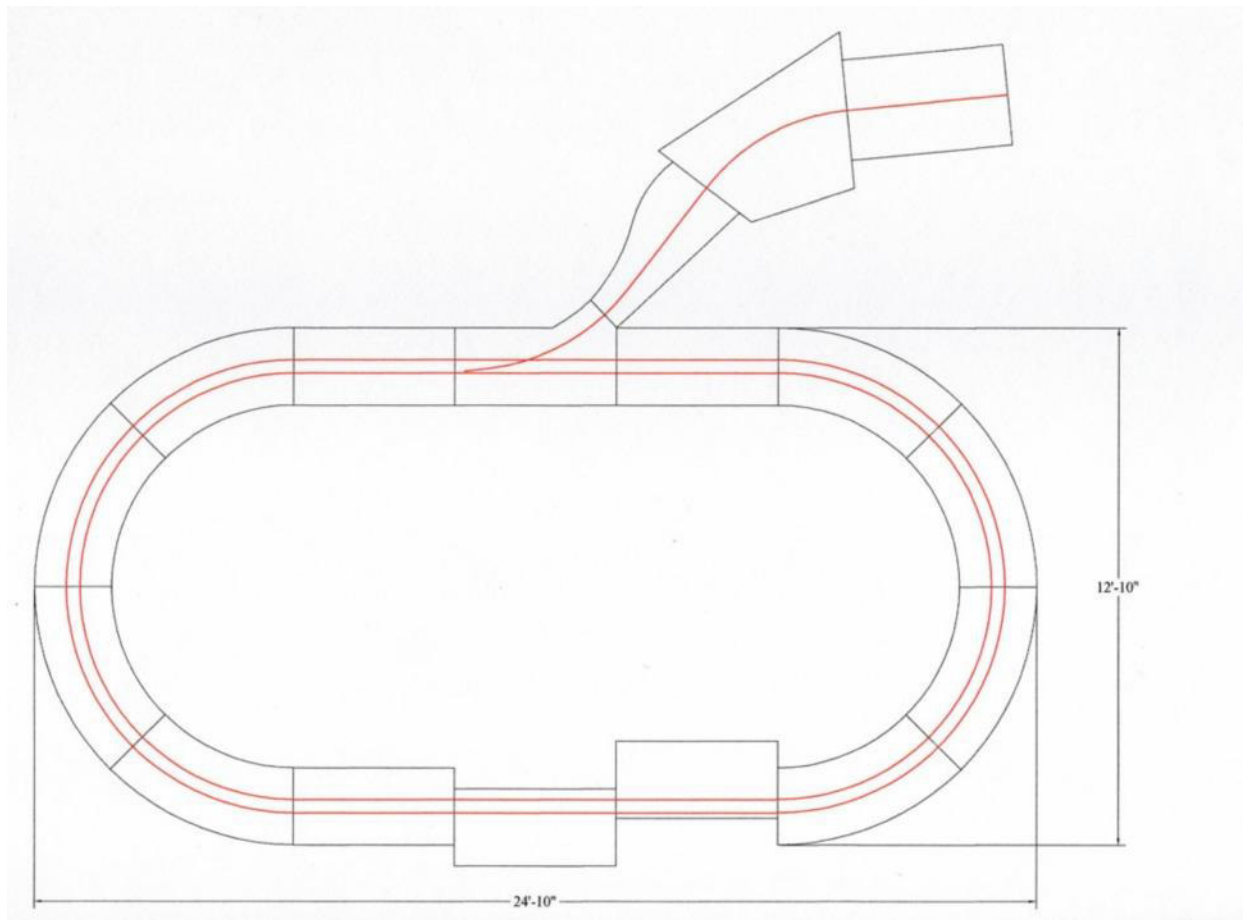
*This was the basic module that Jerry came up with. It's simple to build and very light. The sections show the dados in the wood which make stronger joints.*



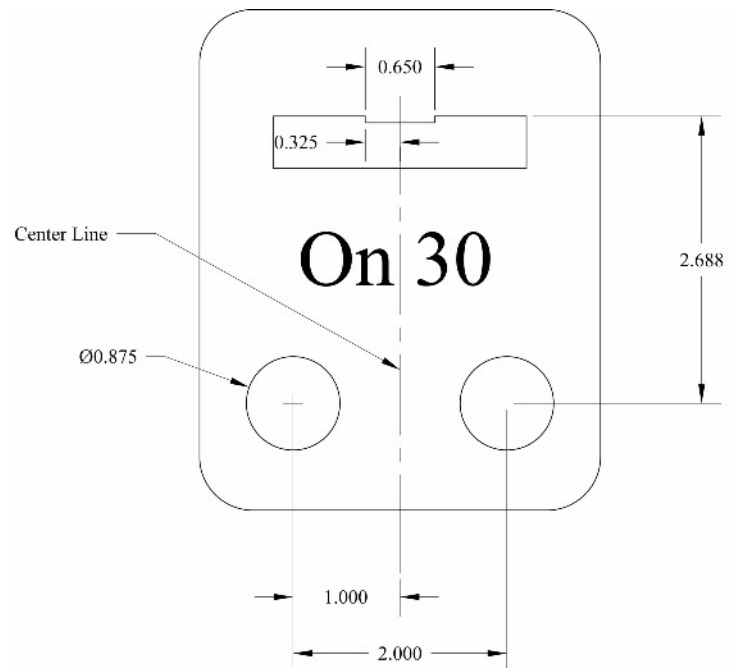
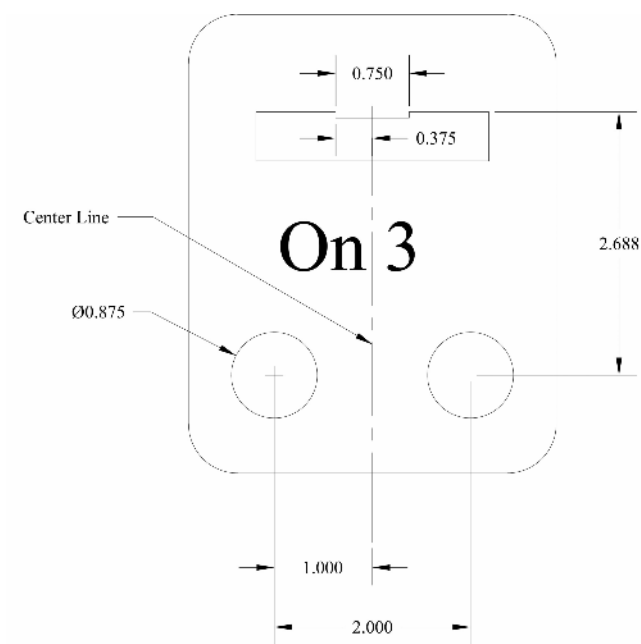
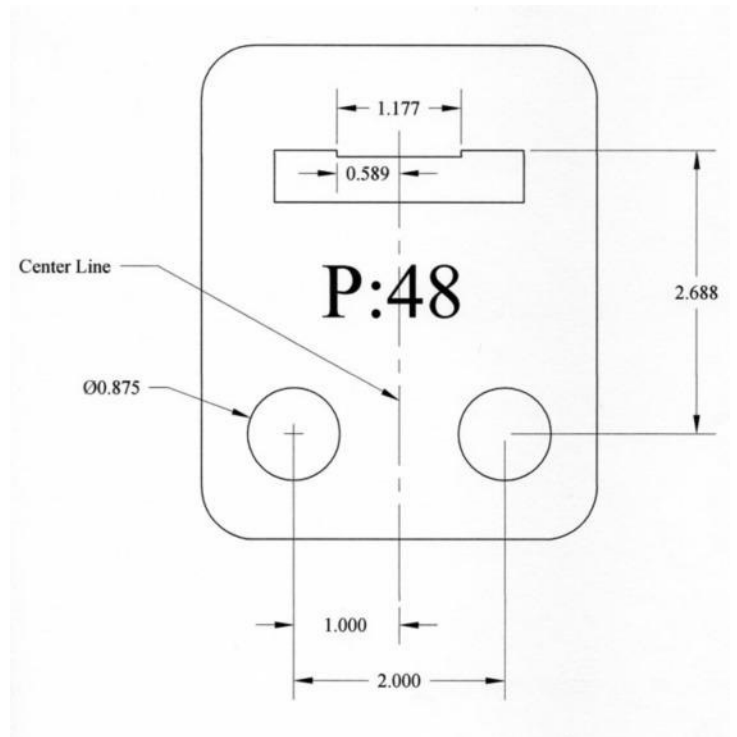
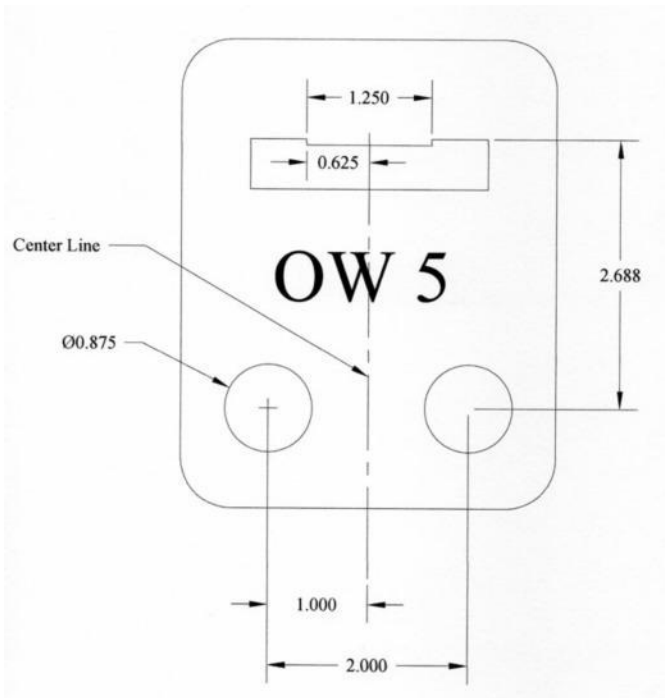
*This is the end plate for the standard module that Jerry came up with. This end plate can be used on any module, even an existing one. The only critical items are that the pin holes must be horizontal and on 2” centers. All other dimensions and shape are free to change. As long as your track is located with the template and any two pins you will be able to join any other module built to the same standard.*



*This drawing has the sides and stringers for the module. The stringers are glued into dados and add strength to the module as well as a shelf to place the foam scenery on. All these joints can be cut with a table saw.*

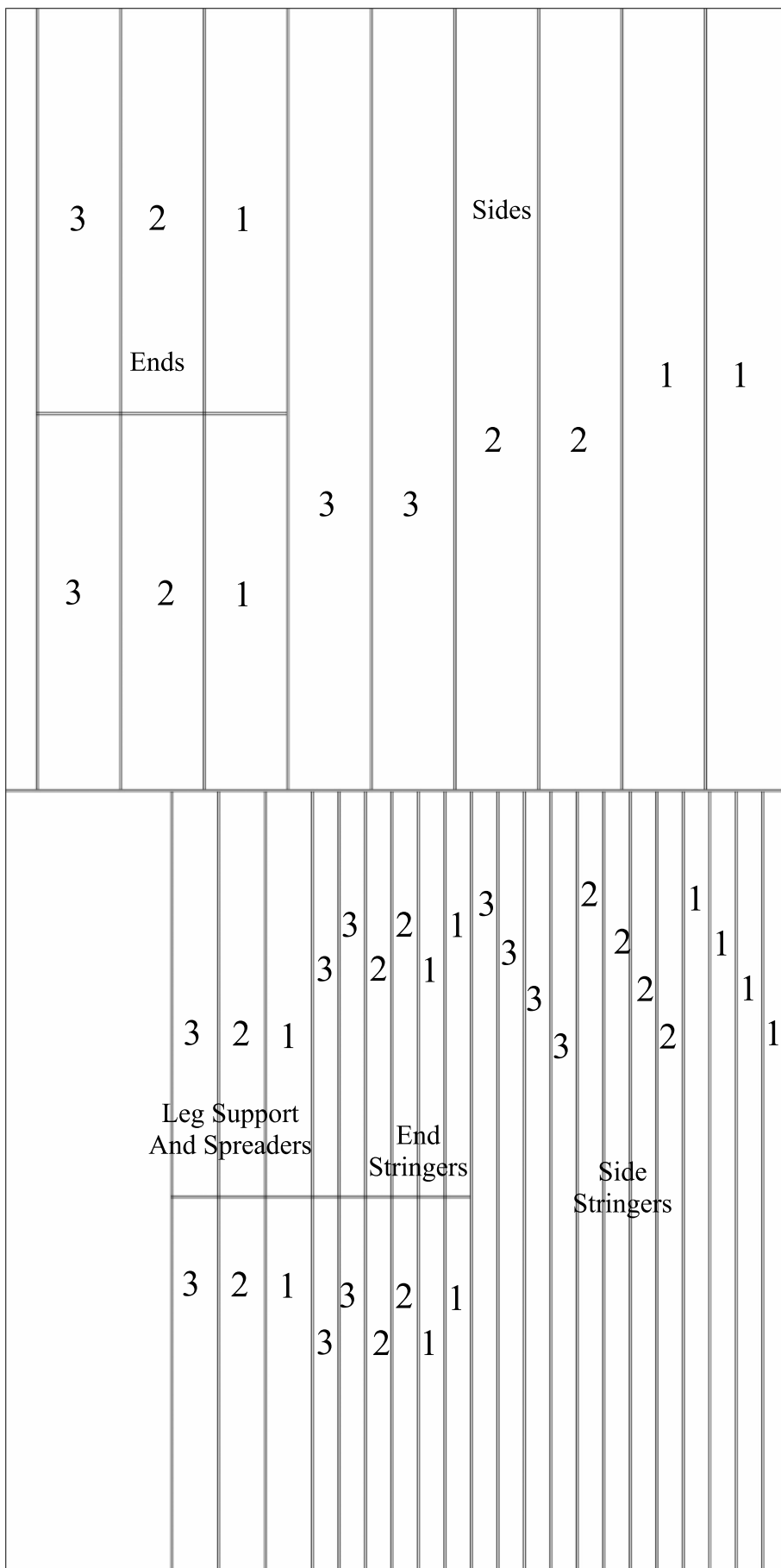


*This drawing shows a possible layout that could be set up. The branch like module follow the free form approach and could be parts of a home layout. At the bottom you can see some modules with the tracks at the front or rear of the standard module. Another benefit to the pin location idea is the whole layout*



*Here are some dimensions for some common templates. The dimensions not shown are not critical and can be what ever you want to make.*





*This cutting diagram will yield 3 modules from a 4' X 8' sheet of plywood. The parts are numbered with #1 for the first module, #2 for the second module, and #3 for the third module. The areas not numbered are extra wood for other use.*

*Make this cut first and cut the 4' X 8' Sheet into two 4' X 4' pieces. They will now be easier to handle.*