

UMG

(Un-named Modular Group)

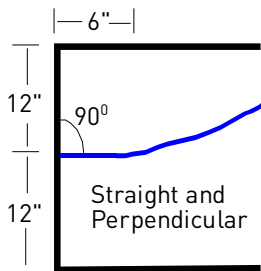
Modular Layout Guidelines – May, 2005

Definition

A UMG module can be a single module or several modules that are built with UMG Ends and conform to the UMG standards.

UMG Ends

A UMG standard end is required whenever a module connects to other UMG modules. If a UMG module is made up of several smaller modules, only the ends of the overall unit must be built to *UMG End* standards.



A UMG End is 24 inches wide. The track centerline must be 12 inches from the front and rear edge (centered on the end) and must be straight and perpendicular to the edge for 6". Track must be stopped 1.5 inches from the edge to allow for 3-inch joiner sections to be used to connect modules.

UMG Ends may be constructed with either one or both edges 90, 45 or 22.5 degrees to the front edge of the module. This will allow for rambling and curved layouts. Other UMG standards, such as minimum curve radius, can affect the design of a curved UMG module and must be considered when designing an angled, or curved UMG Module. Doug Whitman uses CadRail to design modules for the UMG layout and can be contacted for assistance.

Module height

The UMG layout is built to expose existing and potential model railroad enthusiasts to model railroad operations. Therefore, the layout will be set at a comfortable operating and viewing height of 48 inches from the floor to the top of the railhead. Legs must be built to accommodate this - plus or minus 1 inch.

Legs

Legs should be constructed for solid vertical and horizontal support of the module. Legs must include a method to raise and lower the module for track alignment and leveling purposes (plus or minus 1 inch). T-nuts and matching 2-inch bolts are one method for allowing vertical adjustment

Several methods of leg construction can be found on the Internet.

Construction Methods and Materials

You may use whatever construction materials and methods you wish to construct a module with a solid sub-roadbed that will not distort (warp) over time.

Dimensional lumber (such as pine, fir and spruce) should not be used for module construction since it is prone to warping and shrinkage. Plywood is recommended since it is less prone to these problems.

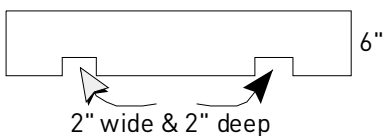
Frame

The frame should be constructed using plywood for greater structural stability. Plywood used for the frame must be 4 inches wide. Plywood thickness depends on the construction method used. If a standard box frame is used the thickness of the plywood should not be less than ½ inch. Other construction methods incorporating **waffle** or **honeycomb** patterns allow for the use of thinner plywood.

The frame should be cross-braced at least every 16 inches for added strength.

Connection of Modules

Modules must be constructed in such a manner as to allow connection of modules by clamps or screws. If a module frame is to be raised or dropped for scenery considerations, the frame must be constructed so that the bottom edge matches up with the frame of a standard module.



For example, 2 x 2 inch deep notches can be made in the ends of the module if its frame is dropped 2 inches to allow for the construction of a river.

Joining Track

Track will be joined using 3-inch joiner sections of flextrack and rail joiners. Please bring your own joiner sections to UMG set-ups to be certain there are enough to go around.

Track

All track shall be nickel silver, Code 100, either flex or hand laid for main lines, and any code for spur line or industrial track.

Track Location

As mentioned previously, UMG Ends will have main line track located 12 inches from the front edge and it must be straight and perpendicular to the edge at least 6 inches from the end.

Track can be located anywhere between module ends, provided that it meets all other standards outlined in this section.

Turnouts

Turnouts off the main line must be no less than #6 and constructed using Code 100 rail. Turnouts on spurs, sidings, and industrial track must be no less than #4 using a rail code appropriate for the rail used.

Turnouts must incorporate a mechanism to assure proper point rail movement and position lock. For example, Peco turnouts incorporate a spring locking mechanism and Caboose Industries ground throws assure positive position lock for just about any turnout.

To keep wiring and operations as simple as possible, turnouts should not be thrown using electrical switch machines.

Minimum Radius

The minimum radius on the main line shall be no less than 36 inches. On branch lines and sidings the minimum radius should be no less than 24 inches.

Where curves change direction creating an S curve, there must be a minimum of 12 inches of straight track between each curve.

Track must be straight and perpendicular to the edge of the modules for at least 6 inches from the edge of the module.

Maximum Grade

There should be no grade on the main line. Spur line or industrial track may have a grade up to a maximum of 5%.

Rail Connections

Rails should be stopped 1.5 inches from each edge of the module. Three-inch sections of track will be used to connect modules. We will experiment with various methods of pre-ballasting these joiner sections.

Ends of rails should be soldered to screws through the sub-roadbed to solidly anchor them in position.

Scenery

Backdrops

UMG modules can be viewed from both sides, so there will be no backdrop required.

Theme and colors

This is a very difficult area to specify, since even though colors and shades can be specified, everyone has different styles which will make each module very different. So, this area will be left relatively open with the following suggestions.

Ballast should be a 60/40 mix of Woodland Scenics medium gray and light brown.

Grass should be Woodland Scenics Turf.

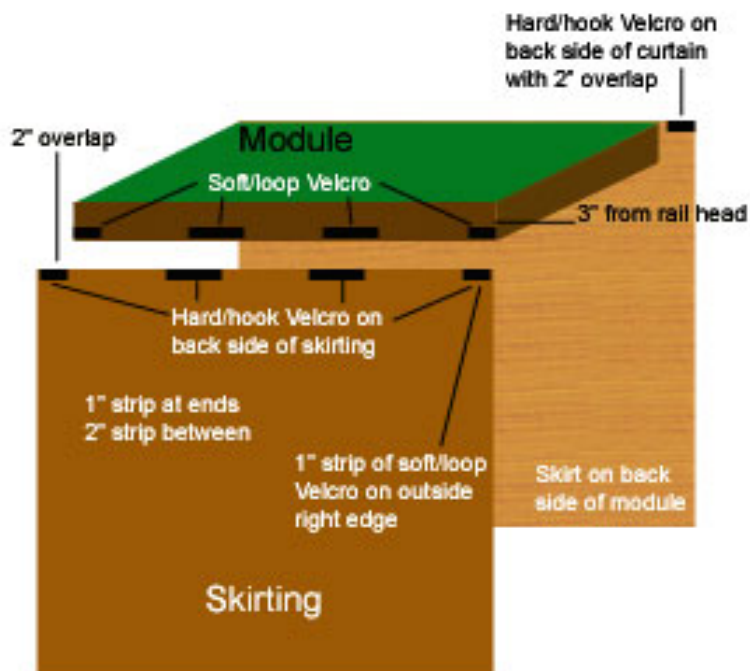
Fascia

The framework should be painted Home Hardware's colour A089 in a semi-gloss finish for easy cleaning..

Skirting

- Skirting material is to be dark brown in color (close match to the fascia), 44 inches wide (top to bottom), and 3" longer than the module to create an overlap with the next module (2" overlap + 1" for hems)
- The ends of the skirting must be double hemmed (folded twice) by 1/4" (each fold)
- Top and bottom of skirt should not require hemming (factory edge)
- Skirting is to be fastened to the module 3" below top of rail head
- Fasten loop (soft) Velcro to the module just below this mark using staples or good quality glue (don't rely on factory applied sticky backing)

- You must attach at least a 1" strip at the ends of the module and at least a 2" strip every 12" of module length between the ends
- Sew the hook (hard) Velcro at the very top of the backside of the skirt material - at least 1" strip at each end and at least 2" strip every 12" of module length
- Velcro strips on the skirt must mate with the Velcro strips on the module
- Sew a 1" piece of soft/loop Velcro on the outside in the upper right hand corner to facilitate overlap
- Trim skirting material to allow 1" of exposed side frame (where possible) around cut down areas such as rivers. Apply Velcro strips to maintain a 'neat' look to the skirting in these areas.
- Have extra Velcro hook and loop on hand at shows in case of emergency.
- Skirting for module sets (modules that are always connected together) can be made in one long piece with consideration given for 2" overlap on the left side and sufficient Velcro strips to hold the skirting taut.



Wiring and Control Standards

Control

The layout will be controlled using DCC. A control bus attached to modules is not required.

Control wiring will be separate from the modules. A control bus will be pre-wired in such a way that it can be added to the layout after assembly

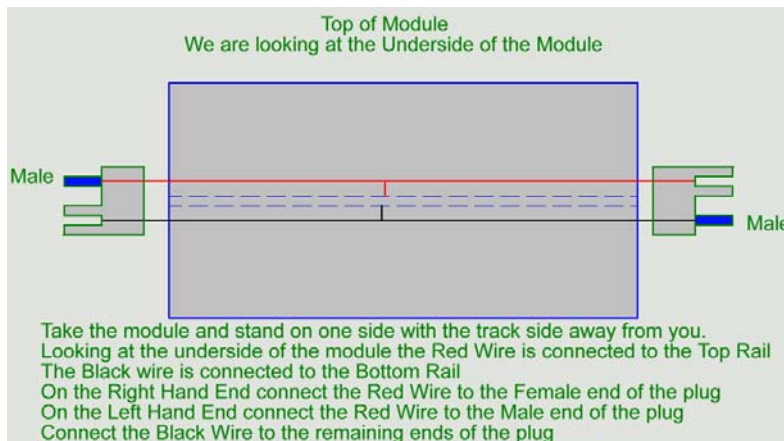
One of the issues around control is that we must ensure someone will bring the necessary equipment to run the layout. This must be confirmed with the Setup Organizer at least 2 weeks prior to set-up.

Track Power

Track power will be provided by a two-wire bus of 16 gauge, or larger, stranded wire with feeder wires of 20 gauge, or larger. Feeder wire may be solid and must be soldered securely to the outside of the railhead. There should be one set of feeder wires for every 4 feet of module length. Bus wires should be securely fastened to the underside of the module.

Sidings on modules should also have their own feeder wires attached to the main track power bus. No blocks are required for DCC. Please make certain that no shorts are created when wiring siding in this way.

Two conductor **trailer** type connectors will be used to connect track power between modules. The connectors must be rated for 16 gauge wire. Two suitable connectors that will mate with one another are Radio Shack #270-026 and Grote #82-1034. If you use other types of connectors you should bring two (2) spare connectors to your first show in case an adapter must be made to connect your module.



Please note that the connectors at each end are reversed. This is to enable modules to be rotated end for end, if needed, and still allow power to be properly connected.

Accessory Power

If accessories on the module require power, please assure you have adequate extension cords to feed power to accessory power packs.

Problem Modules

If any module does not meet UMG Standards it will be set aside until the problem is corrected. Such modules will be thoroughly tested before being allowed back into the setup.

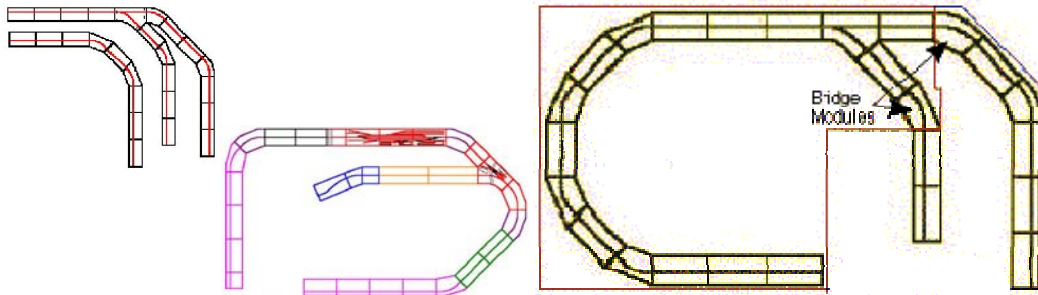
Layout Setups

A **Setup Organizer** will be responsible for:

- confirming attendance, module dimensions and shape
- designing the layout
- confirming a donor of DCC control equipment and throttles
- arranging for the space required
- maintaining a list of locomotive DCC addresses to be used at the setup (when duplication occurs the rule is first come first served)
- operations setup (car card, switchlist, or other scenario)
- organizing the set up and take down on the day of operations

Setup Configurations

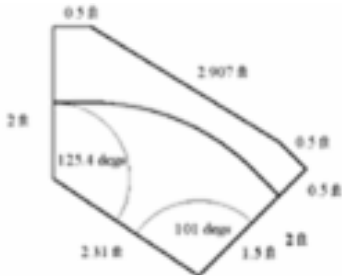
Doug Whitman used CadRail to draw these examples of setup configurations.



Some of these plans are very large setups using a mix of UMG modules and modules built to other standards connected using Bridge Modules. These drawings show the ability of this design to create large free-flowing layouts.

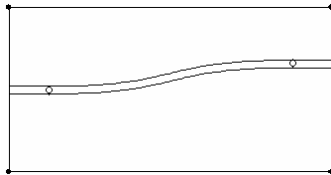
Other Module Standards

“Bridge sections” are a great way to connect modules built to other modular standards with the UMG layout. If these modules are to be connected to the UMG layout they must meet the UMG module height requirement and should meet other UMG standards. Examples of possible bridge sections can be found at the end of this document.



Bridge Modules

Here is an example of a curved bridge module that transitions from the UMG standard (left end) to a standard with the track 6 inches from the edge (right end)



Another type of bridge can allow for a straight path like this one that transitions from UMG (left end) to a module with track 8" from one edge.