Building Basics

Past issues of the newsletter have documented jigs for holding modules at the correct height or allowing one person to easily install the uprights that support the handrail. This issue covers jigs that simplify building the modules (or frames) that will become the ramp.

Module Assembly Jig

While most beneficial for regions and/or teams that build a lot of ramps every year and pre-build the modules, even if a team only builds a few ramps each year, a module assembly jig can be very helpful and it's relatively easy to build one.

The primary objective for the jig is to hold the cut lumber pieces on edge and in the correct orientation to each other. In addition, the jig can provide a work surface that holds screws, drills, mallets and any other items needed. There are a few designs in use from simple and flexible, using a sheet of plywood with short blocks around the edge to hold the module's perimeter boards in place, to more complex approaches that also support the interior module structure during assembly.

The interior area of this jig is left completely open which allows for custom module lengths and easy changes to the module structure as new approaches are identified or custom needs arise. Standard locations for the interior boards can be marked directly on the plywood to speed assembly. Note that this design even allows for building modules with the lumber "flat" to create a 1 ½" thick module as opposed to "on edge" for a

standard 5 ½” thick module. On the con side, it can be challenging to have screws rolling around on this surface when getting the boards positioned and having the module being assembled directly on a flat surface leaves little working room for the drill handle and battery when attaching the interior joints.

A variation of this design includes blocks for all of the module structure components with the one shown below being setup for standard 4x8 and 4x4 modules.

Now, just like the “inverted module” at the end of a TRP ramp, another jig design puts the jig on top of the plywood as shown in the following pictures.

One of these jigs can start with a module that has already been built however, it is best to use untreated 2x4 or 2x6 lumber to minimize shrinkage of the jig. This jig “module” is then attached to plywood and the short support blocks added as needed where two pieces of a module will be joined. This design is not as flexible as the open plywood jig but it does allow more working room for drills or other tools and screws can be scattered in the open areas for easy use without interfering with the module assembly process. There can be blocks correctly positioned for several different module sizes, i.e., 4x8, 4x4, 4x2, etc. but it won’t be as flexible as the first jig design described in this article and won’t easily accommodate laying the lumber flat for a thinner module.

Some items which apply to all of the jig designs:

- The base can be custom built or the jig can be set on top of sawhorses or a table
- The blocks only need to be about 1 ½” high to support a module while it is being built
- The blocks should be about 1/8” thinner, above the jig, on the surface that will support the module being assembled to allow for some variation in the treated lumber straightness and thickness. Without this relief, the assembled module will often be too tight in the jig.

- No matter which jig design is used, it is helpful to have cutouts in the jig to allow for easier removal of an assembled module

- The number of support blocks and their surface area should be minimized which, along with the 1/8” relief, will reduce the chances of a newly assembled module getting stuck in the jig. In any case, it is a good idea to have a pry bar handy when using a jig to build modules.

Summary

There are many opportunities to apply jigs to ramp construction to simplify the process for all volunteers involved and improve the consistency between different volunteers or volunteer groups.

If you have a jig for building the modules and/or a jig for repeatedly cutting the pieces of lumber to length, please send pictures and a description of what you like (or don't like) and anything else that might be helpful to others when building their own jig. Send to texasramps.roy@gmail.com

Do you have other tips or suggestions to share?

There are a lot of very good ideas developed by ramp builders across the state. Please send any questions, comments or potential ramp construction topics to texasramps.roy@gmail.com to help others build ramps better, stronger and faster.