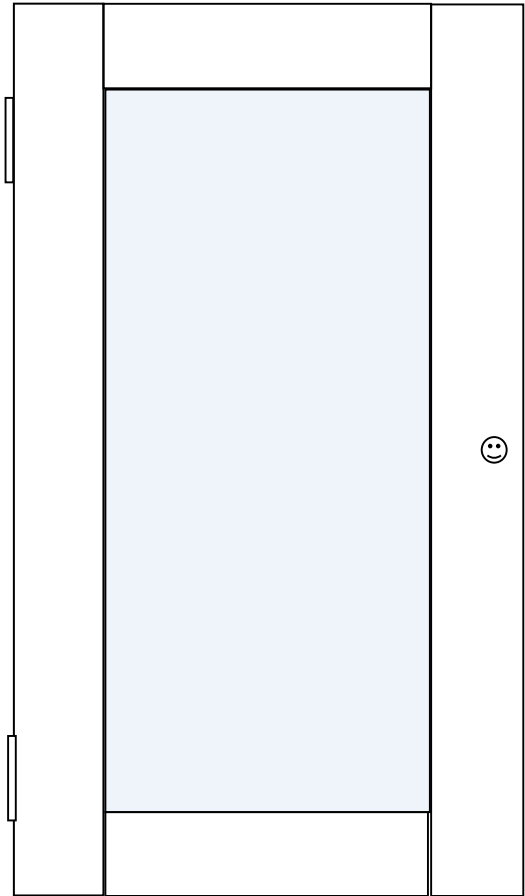
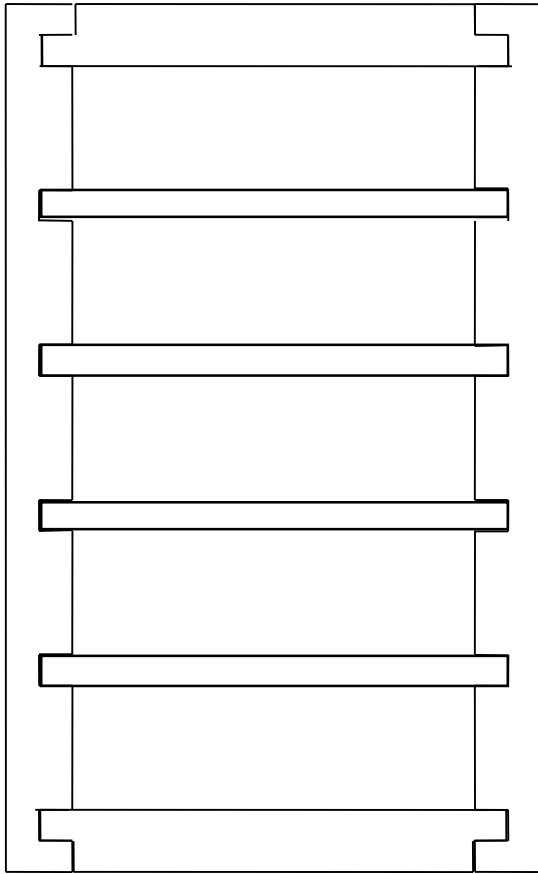
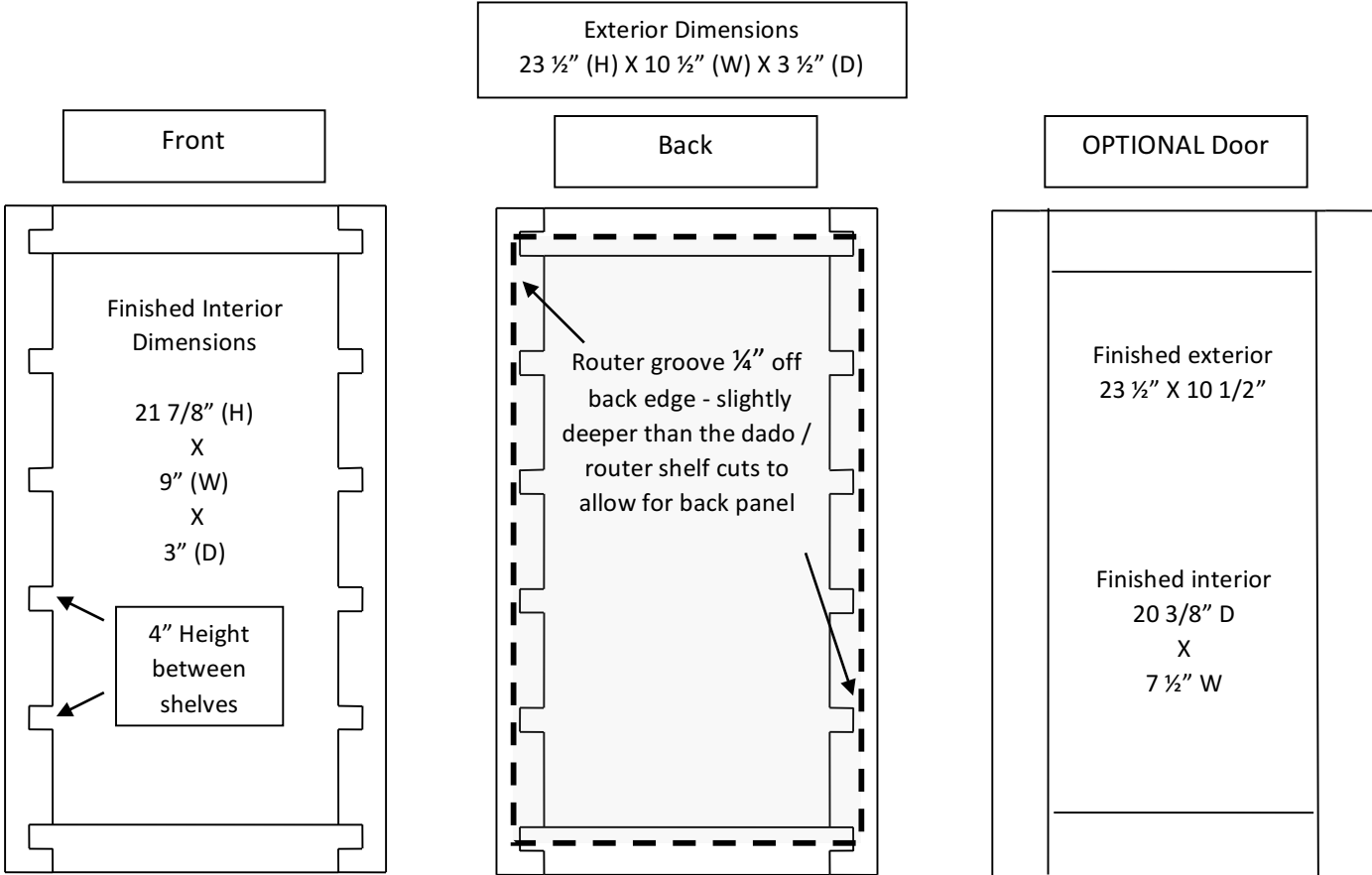


# Pinewood Derby Display Case

Optional Door



# SAFETY – GOGGLES, PAINTERS / DUST MASK



# SAFETY – GOGGLES, PAINTERS / DUST MASK

## Materials List

Medium and fine sand paper / sponge. Two 12" wood clamps, wood glue.

### Cabinet Frame - Lumber

Nominal Size 1" X 4" X 72"

Actual Size  $\frac{3}{4}$ " X  $3\frac{1}{2}$ " X 72"

### Shelf - Lumber

Nominal Size  $\frac{1}{2}$ " X 4" X 48"

Actual Size  $\frac{7}{16}$ " X  $3\frac{1}{2}$ " X 48"

### Back Panel

Nominal / Actual Size  $\frac{1}{4}$ " X 12" X 30"

(Consider **Menards**® SKU: 4794561)

**Notes:** Think about the type of wood you would like to use. Mahogany, oak, cherry and pine could be some popular choices. Each type of wood has its own characteristics. Start thinking about how you want your finished product to look before you start purchasing lumber. Choose boards that are not warped. Longer boards tend to have more warp to them, inspect your lumber well before you go to the register. The back panel can be made from a plywood veneer however I found it difficult to find a piece that was "clean" and ended up using a cabinet end panel. Depending on your choices a finished product can range from \$15-\$35.

## Optional Door

### Door Frame - Lumber

Nominal 1" X 2" X 72"

Actual  $\frac{3}{4}$ " X  $1\frac{1}{2}$ " X 72"

### Plexiglas / Acrylic

$\frac{1}{8}$ " X 12" X 24"

Note: Actual thickness will be around 0.118". Small sheets can be hard to find, and you may need to buy a larger sheet.

### Hinges (non-mortice) & Screws

Many hinge choices are available but consider Rockler part #028670 which are very low profile and help prevent door binding. Four  $\frac{1}{2}$ " wood screws & clasp or hook to secure door shut.

# SAFETY – GOGGLES, PAINTERS / DUST MASK

## Equipment Needed

### Not necessary but helpful

Table saw with dado blades (up to ½” stacked blades for wide cuts)  
(You can use a table, miter, circular or hand saw for the rough cuts.)

### Necessary

Router table with 1/4” bits for back panel groove. NOTE: 1/2” and 3/8” router bits are required if you are not using table saw dado blades. Optional Door requires 1/8” router bit and table saw laminate blade or laminate razor (cutting Plexiglas).

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## Order of Operation / Rough Cuts

Use a table, circular, compound or hand saw.

Do not assume the factory ends are straight – make a fresh / straight - clean cut.

### Cabinet Frame

Using Nominal 1” X 2” X 72” – cut two 23½” pieces and cut two 10” pieces.

### Shelves

Using Nominal Size ½” X 4” X 48” - RIP board reducing Actual depth from 3½” to 3”. Cut four 9½” pieces. A table saw will make this easier.

### Back Panel

Using Nominal / Actual Size ¼” X 12” X 30” cut down to 22½” X 9 7/8”.

### Optional Door Frame

Using Nominal 1” X 2” X 72” – cut two pieces 23½” (stile) and two 10½” pieces (rail). Using 1/8” X 12” X 24” Plexiglas / Acrylic - cut to reduce to 8 1/16” X 21 1/16”. Note: be sure to use a blade or knife approved for Plexiglas.

# SAFETY – GOGGLES, PAINTERS / DUST MASK

## Design Cuts

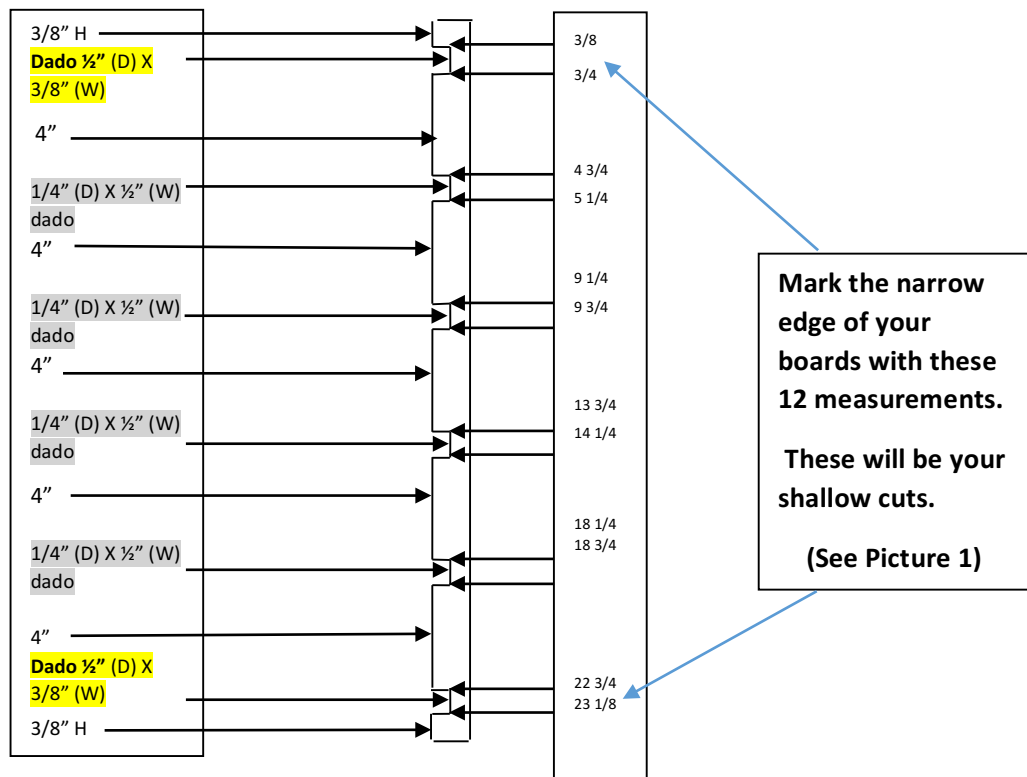
### Cabinet Frame

Make the following cuts on both 23½” Cabinet Frame Side Pieces using a table saw with a dado blade or router.

### Notes

- The top and bottom cuts are different than the others in both size and depth than the other cuts.
- The piece is symmetrical. Once you have your table saw dado blade or router table set up for the right width and depth you can simply swing the board around to make the same cut on the opposing end AND other board.
- Make the same cuts on both pieces before changing bits / blades or depth.
- Remember measure twice and cut once, be precise.
- Blowout (tearing of wood fibers) can frequently occur when cutting across the grain of the wood. Putting a piece of tape over the back of the cut (end of cut) can help reduce the severity of the blowout. Sand cuts clean.

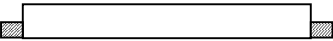
Looking at the left column, top cut below (see highlight) “Dado ½” (D) X 3/8” (W)” means using a 3/8” dado stack or 3/8” router bit wide (W) set at ½” depth (D).



# SAFETY – GOGGLES, PAINTERS / DUST MASK

## Cabinet Frame cont.

Make the following cuts for the top & bottom of Cabinet Frame - using a 1/2" table saw dado blade or 1/2" router bit. Take the two 10" pieces and remove 1/2" W X 3/8" D wide off each end of board. Sand cuts clean.



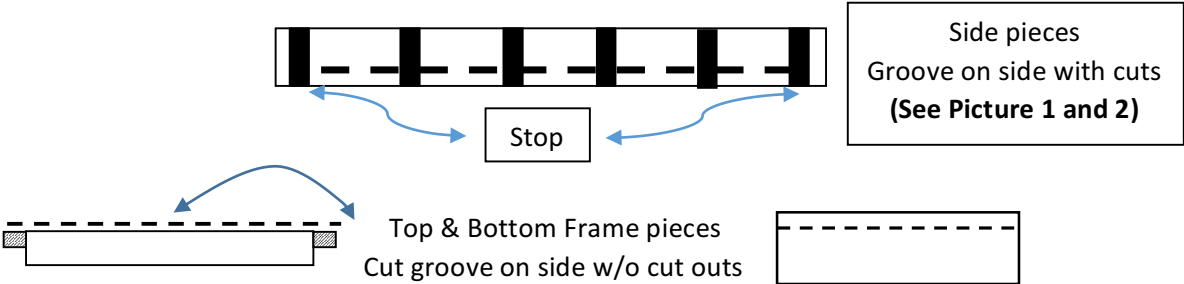
See Picture 2

NOTE: Blowout can frequently occur when cutting across the grain of the wood. Putting a piece of tape over the back of the cut (END OF CUT) can help reduce the severity of the blowout.

## Router - Groove for Back Panel

After completing all of the cuts above on all four pieces use a router (table) and run a groove down one side of each board with 1/4" bit at 1/2" depth, centered at 5/16" off back edge (leave 1/4" off back edge). NOTE it might be easier to make several shallow passes working up to a 1/2" depth.

**IMPORTANT:** Do not router starting or ending 3/8" on the Cabinet Frame side pieces - stop in the cutout.



Optional: if you would like to hang your display case you can use a keyhole cutter router bit on the back of both pieces, set depth of cut 1/4".



See Picture 3

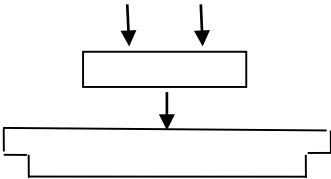
Be sure to cut at the exact same location on both Cabinet Frame side pieces.

# SAFETY – GOGGLES, PAINTERS / DUST MASK

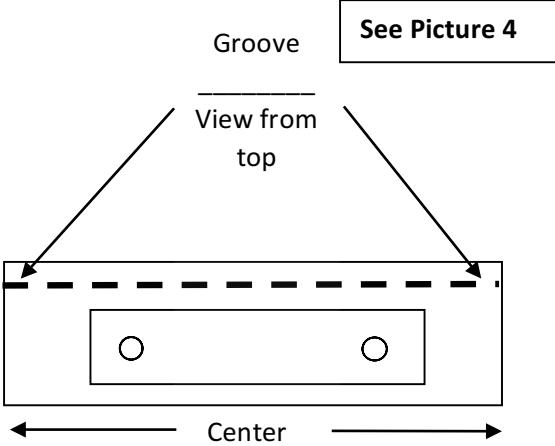
## Cabinet Frame cont.

**ONLY if you are building the Optional Door** - the door frame will obscure part of the PWD car on the lowest shelf. To correct this you can add a riser using a 7" remnant of the 1" X 2" lumber from the door frame.

Screw the riser to the Cabinet Frame bottom piece with two 1 ¼" wood screws. Center left to right and front to back of groove.

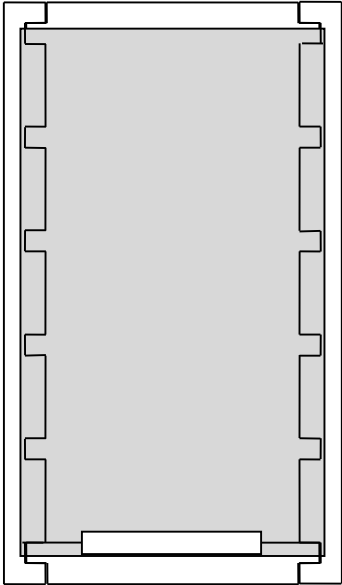
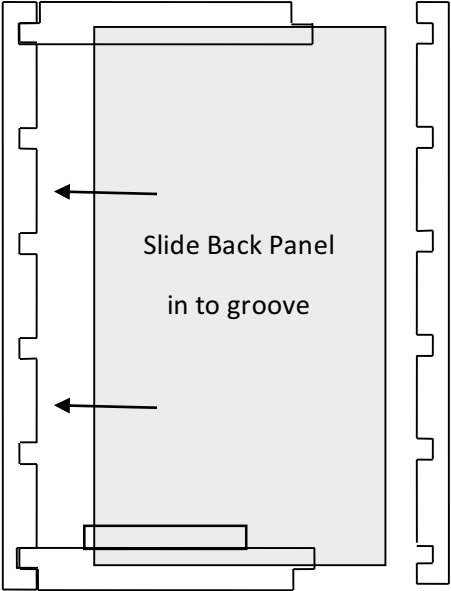


View from side



## Cabinet Frame Assembly

Add wood glue to all FOUR FRAME corners - clamp until glue sets.



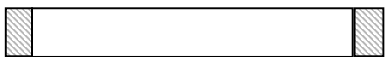
See Picture 5-8

# SAFETY – GOGGLES, PAINTERS / DUST MASK

## OPTIONAL: Cabinet Door - Cuts

Use pieces mentioned on page 4 - **Order of Operation / Rough Cuts** - two 23½" (stile) and two 10½" pieces (rail). To prevent blowout tape end of cut.

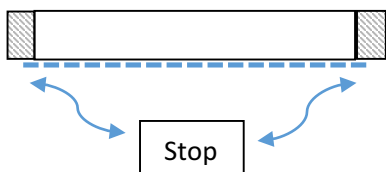
Remove 1 ½" X 1 ½" X 3/8"D off each end on all 4 pieces (8 cuts in total) to create lap joint. To do this you may need to make several passes on your table saw with dado blade or router table. To keep your cuts uniform, pass each side - of each piece thru your saw or router before moving the fence for the next cut.



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Sand clean when you are finished with all 8 end cuts.

Using a router create a groove down center of all 4 pieces with 1/8" bit - ¼"D. Do not router groove in starting or ending 1" of board (you will make a partial cut into the lap joint). This creates the gap for the plexiglass.

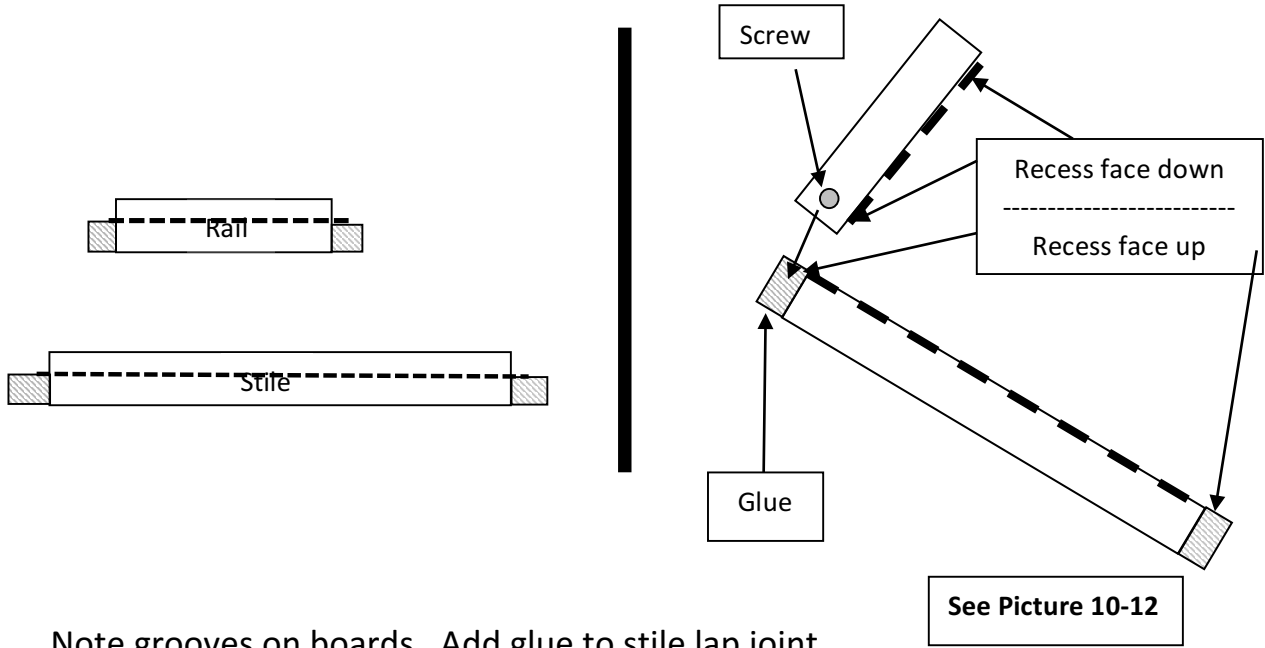


See Picture 9



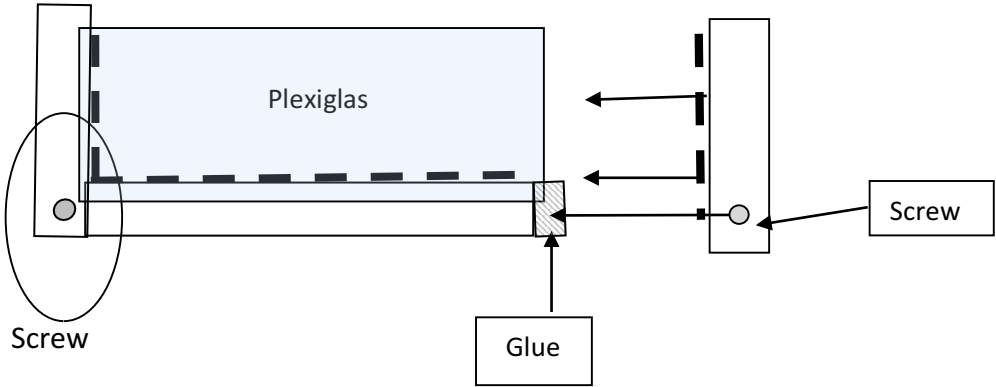
**SAFETY – GOGGLES, PAINTERS / DUST MASK**

**OPTIONAL: Cabinet Door - Assembly**



Note grooves on boards. Add glue to stile lap joint.  
Screw lap joint of rail and stile together (slightly countersink).

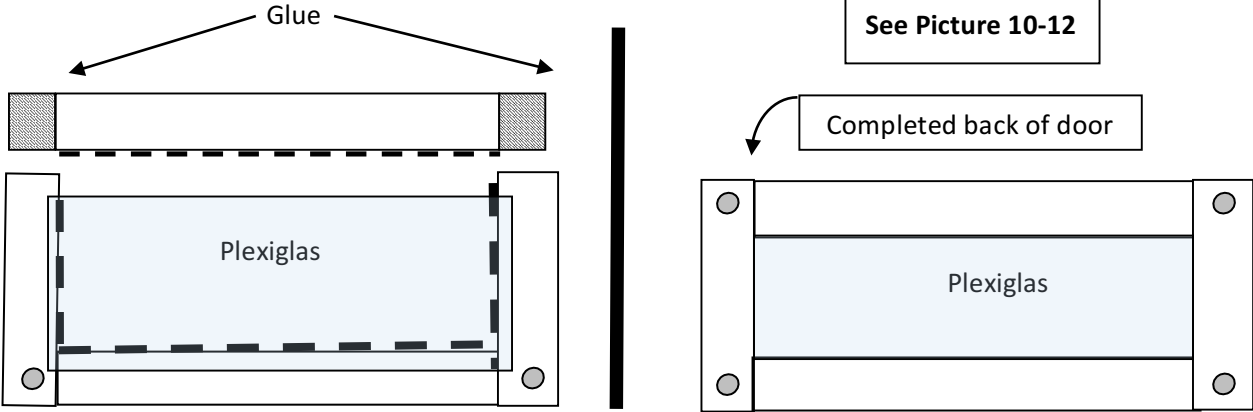
Slide Plexiglas into groove.  
Add glue to stile lap joint, secure additional rail with screw.



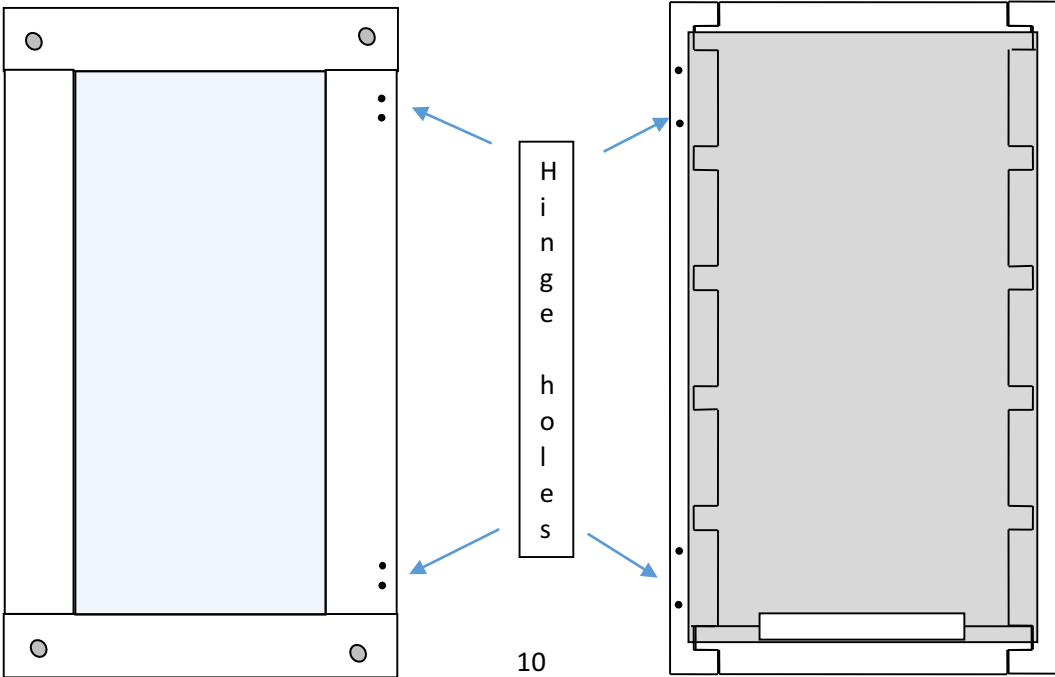
**SAFETY – GOGGLES, PAINTERS / DUST MASK**

**OPTIONAL: Cabinet Door – Assembly Cont.**

Add glue to both ends of stile, slide stile under rails and into Plexiglas.  
Screw together and clamp until glue sets.

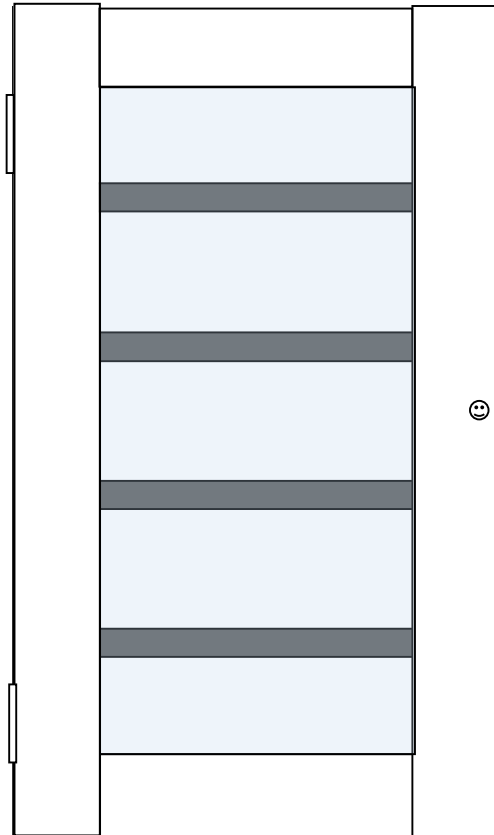


**Install hinges.** Consider predrilling hinge holes, these screws tend to be very small and break easily. If the unit is not wall hung, consider raising the door a 1/16" off the bottom of the cabinet so that it can be easily opened while sitting on a flat surface.



## SAFETY – GOGGLES, PAINTERS / DUST MASK

Stain or paint to match your taste. If you would like to leave it natural I do suggest a varnish or poly to prevent long term warping. Install knob – consider using a Pinewood Derby wheel and axel. Install Clasp to hold door shut.



**Load with your Pinewood Derby cars and enjoy your Pinewood Derby display case!**

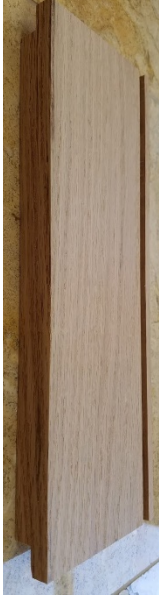
I would love to see your completed display – email to [neildfern@yahoo.com](mailto:neildfern@yahoo.com)

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Picture 1 – **Cabinet Frame side pieces** - Shown with frame cutouts, shelf cutouts and router groove for back panel.



Picture 2 - **Cabinet Frame top and bottom** – shown with frame cutout and router groove for back panel.



Picture 3 – **Cabinet Frame side pieces (side profile)** - Shown with optional keyhole cutout.



Picture 4 – **Cabinet Frame top and bottom** – shown with riser.



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Picture 5 thru 8– Cabinet Frame assembly.



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Picture 9 – **Door Frame** – shown with router groove for Plexiglas and pre-drilled for screws and hinges.



Picture 10 -12 – **Door Frame** - assembly



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