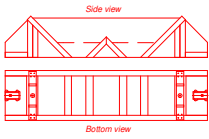
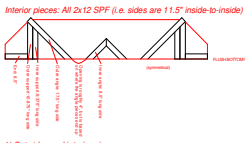


Part 1: General plan



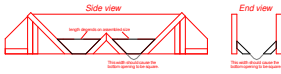
Part 2: Cut & Assemble frame



- 1) Cut sides and interior pieces.
 - 2) Dry fit all, beginning with ends & working toward center. (use clamps to squeeze sides & hold interior pieces)
 - 3) Assemble all, using exterior wood glue & deck screws.
- No need to get glue dry before proceeding.
 -- Important! Bottom edges must be flush with bottom edge of sides!

Part 3: Cut & Install side angles

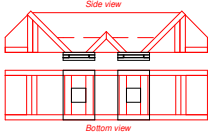
This is the trickiest part as the pieces have multiple compound angle cuts. There are a gazillion in all, and have roughly identical sizes & shapes, but dimensions will vary based upon how your interior pieces ended up. You may have to custom cut each side angle.



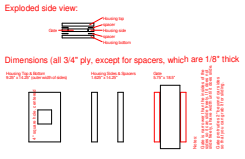
- 1) Cut & dry fit all pieces
 - 2) Affix all, using exterior wood glue & deck screws.
- Important! Bottom edges must be flush with bottom edge of sides!

Part 4: Cut & Assemble gates

The bottom now has a pair of roughly 4" square holes. This is where the ballast will flow out. We'll build & install gates to control the flow.



The gate housings are a sandwich of 3 layers of 3/4" plywood. Between the layers are 1/8" spacers, which allow the gate to slide. The gate itself is also a piece of 3/4" plywood.



Dimensions (all 3/4" ply, except for spacers, which are 1/8" thick)

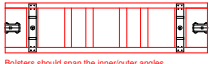
Sandwich and affix housings to bottom of car with screws & glue. (leave the gate out during assembly)
 Use 4-5 screws per side.

Ensure screws have decent purchase into inner/outer angles and sides, but ensure that screws DO NOT protrude into car interior.

Once housings are built, insert gate and ensure it slides freely side to side

Part 5: Attach bolsters & couplers

I used Cannonball couplers and trucks. Coupler pockets are part #41108. Bolsters are part #4803 (see note)



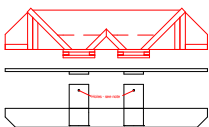
Bolsters should span the inner/outer angles. Pockets are flush on the bottom of the ends.

Note: I found the Bolster kits are VERY DIFFICULT to thread. What I did instead is buy a plain old bolt at the hardware store (the kind a few feet long with 1" of threads and the rest of the shaft unthreaded) and cut it to length. MUCH easier than threading the metal not supplied in the kit. Alternately, spend an extra \$20 and buy the RTRR kit, part #14803.

Part 6: Build passenger options!

I found that I wanted to be able to ride the car when not using it to move ballast. So I built a top and some footrests that can be swapped in/out.

TOP:
 Cut a piece of 3/4 ply that is as wide as the outside of the car and is as long as the pieces of the outer angles.
 Rip a 2x2 (really 1.5 x 1.5) on a 45 degree angle, and cut to length (11.5", to fit inside the sides).
 Affix 2x2s to to underside of plywood such that ply doesn't slide end-to-end.
 I rounded all upper edges, sanded the top side, and coated with polyurethane.



RUNNING BOARDS (footrests):
 Cut a piece of 1/2" decking wood, not plastic) to the full side length
 Bevel the ends (I did 3")
 Rip a piece of 3/4" ply the same width as the gates.
 Remove gates, install the running boards.
 Place decking against ply, aligning ends.
 Align outside of ply with outside of decking, screw decking to ply.
 Ensure running boards slide in/out of gate holes.

NOTE:
 After assembling running boards, stick them in the gate holes & tight against the sides.
 Drill 1/4" holes thru ply in the chute area inside car, pretty tight against the chute sides.
 To hold running boards in place, drop 1/4" x 2" wing bolts into holes.