

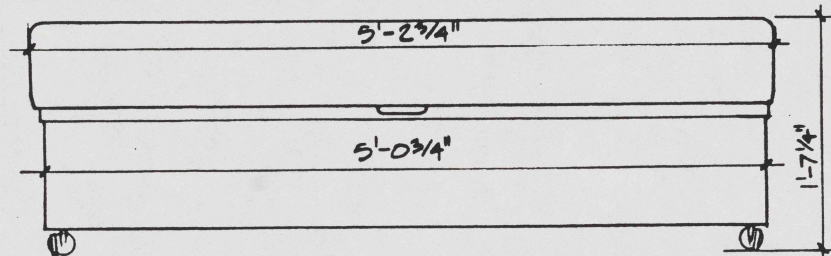
**HERMAN MILLER FURNITURE SYSTEMS**

**THE CONSTRUCTION PROCESS**  
**ENGINEERING RATIONALE, DESCRIPTION AND SPECIFICATIONS**

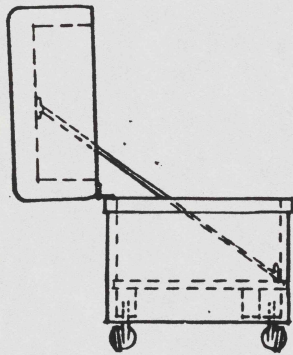
**STORAGE BENCH**

## HERMAN MILLER FURNITURE SYSTEMS

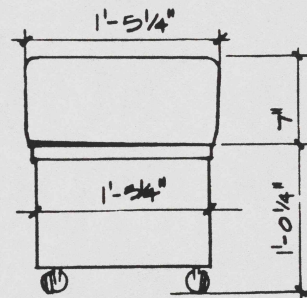
### STORAGE BENCH



FRONT VIEW



SIDE VIEW



SIDE VIEW

The Storage Bench is an upholstered rolling seat with a hinged top which allows for storage of bulk items. There are two technical problems associated with the design of this object:

1) To allow for complete access to the storage compartment the lid must be hinged so that it swings fully out of the way as shown in the side view. With the lid in the open position the weight distribution is such that an unloaded box will tend to tip over.

2) When the bench is used as a seat, it is necessary for the casters to be pushed as far apart as possible to prevent rocking. Even a half inch change in the present position of the casters will noticeably alter the stability of the bench. It is also necessary that the casters fit extremely tight in their sockets. The Shepherd ball casters specified here are the best that we have found in this regard.

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The Storage Bench will be available in two types of finish and various upholstery materials:

- 1) Acrylic lacquer or melamine
- 2) Aniline dye with varnish.

The bench is available in three different lengths, ranging from three feet to six feet.

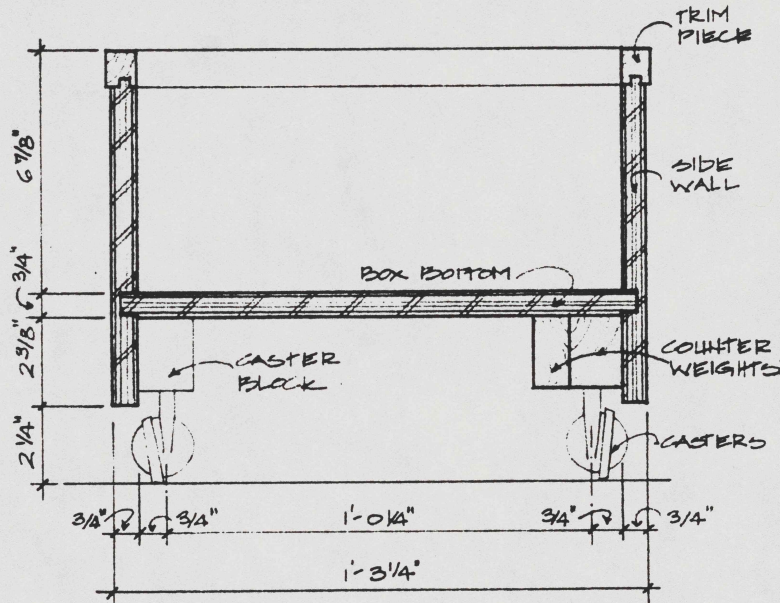
The construction of the bench is described as a series of sub-assemblies:

- 1) The Box
- 2) The Lid
- 3) Final Assembly.

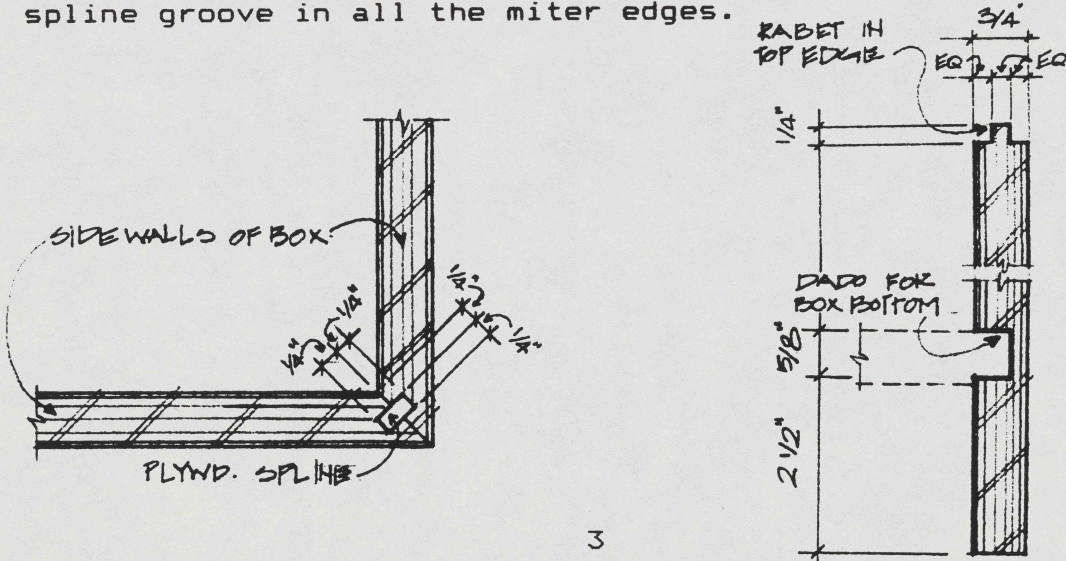
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## I. THE BOX

The box is fabricated from 3/4" finished Birch plywood. The side pieces must be of plywood which is 'good' both sides since both sides will be visible in the finished product. The bottom piece must be 'good' one side and used with the good side facing inward.

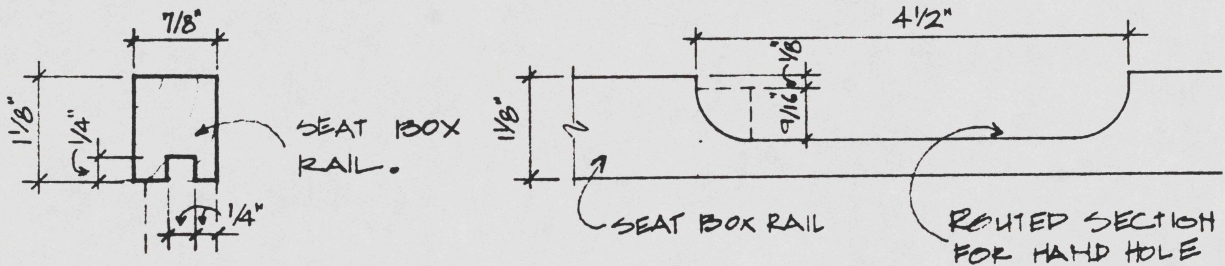


1. Cut the four side walls of the box using a forty five degree miter on all the vertical edges. Cut a dado in the four sides for the bottom of the box, and cut a tongue in the top edge of each side for the rail. Cut a continuous spline groove in all the miter edges.

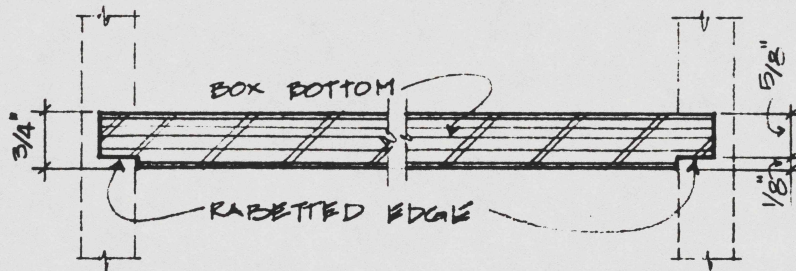


## HERMAN MILLER FURNITURE SYSTEMS

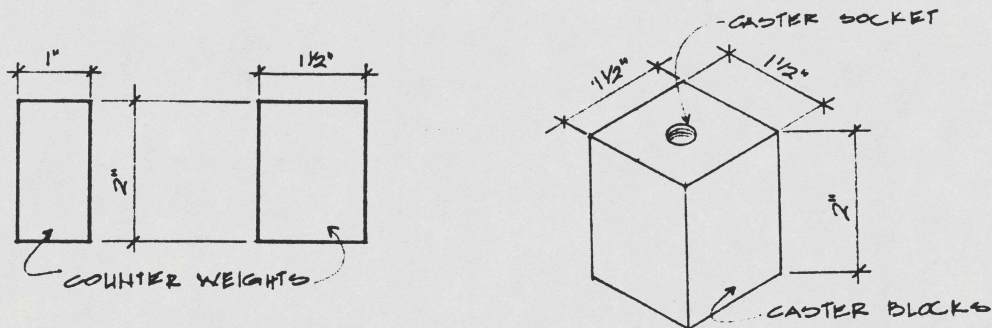
2. Mill the section for the seat box rail from solid Maple as shown. Cut each piece to length using a forty five degree miter. In the center of the front rail piece, rout out the section for the hand hole as specified.



3. Cut the bottom of the box to size with a 1/8" deep and 1/2" wide rabbet in all four edges, keeping the 'good' side of the plywood inward.

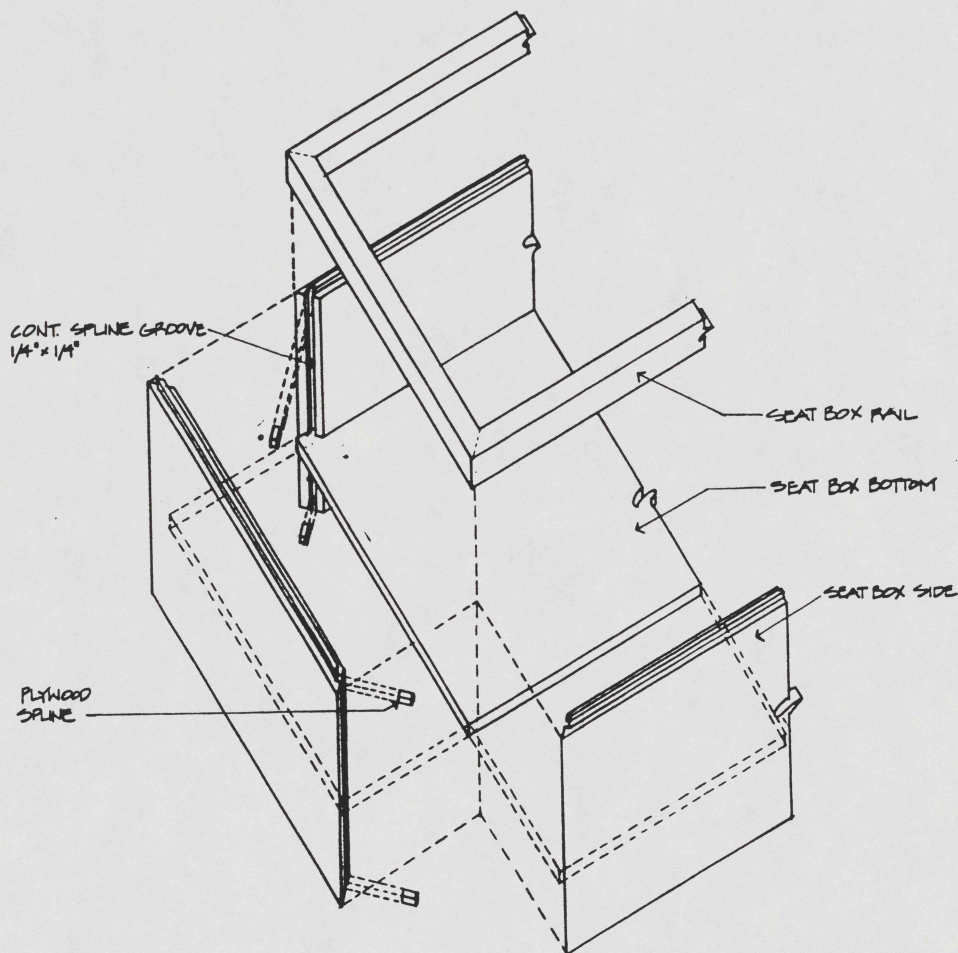


4. Cut the caster blocks and the counter weights to size out of solid Maple.



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5. Assemble the box and rail with aliphatic resin.

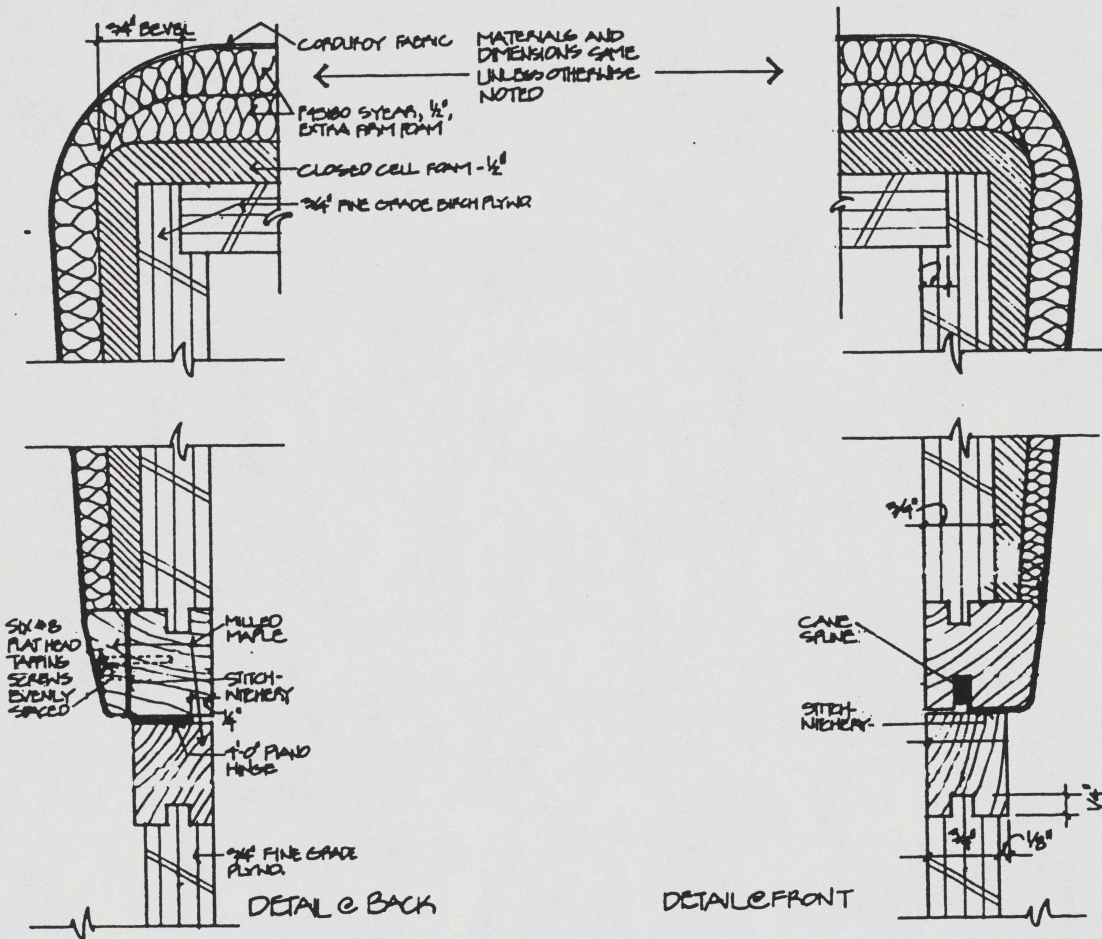


6. Spray all the inner surfaces of the box with two coats sanding sealer, and three coats clear lacquer. Finish the exterior surfaces of the box with: two coats polyester primer surfacer, two coats acrylic lacquer primer surfacer, one coat Dupont Velva Seal sealer, and three to four coats acrylic lacquer color. (These specifications apply only in the case of an acrylic lacquer finish. Materials and process in case of aniline dye or melamine to be specified.)

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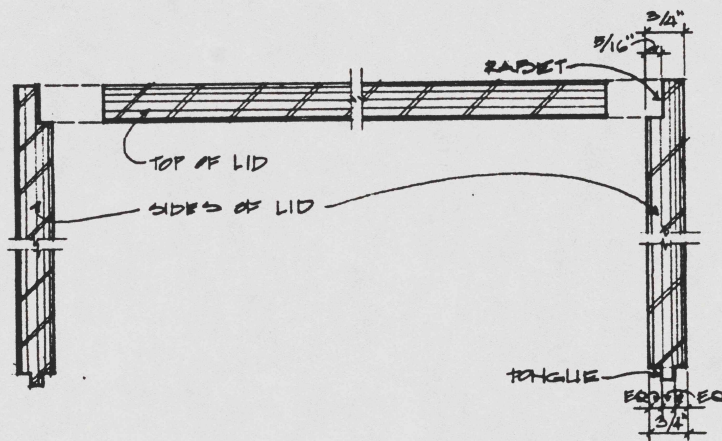
II. The Lid.

The lid of the storage bench is built up in three layers: the plywood sub-structure, multi-density foam padding, and the fabric. The plywood sub-structure has an edge trim of solid Maple to which the fabric is attached with a cane spline. The trim on the back edge of the lid is built-up from two separate pieces to allow for easy attachment of the fabric.

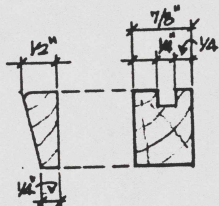


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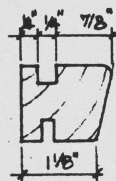
1. Cut the sides and top of the lid out of 3/4" finish grade Birch plywood 'good' on one side with the good surface facing inward. Cut a rabbet in the top edge of each of the sides and a tongue in the bottom edge. Miter all the vertical edges and cut the spline groove exactly as for the box.



2. Mill the trim piece for the front and sides of the lid out of solid Maple. Mill the two pieces of back trim as shown. Cut each piece to length using a forty five degree miter.

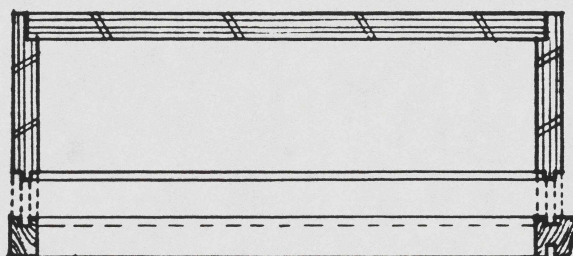


BACK TRIM PIECES



FRONT & SIDE TRIM PIECE

3. Assemble the top and sides of the lid and attach the trim pieces (only one piece of trim on the back edge as shown) with aliphatic resin.

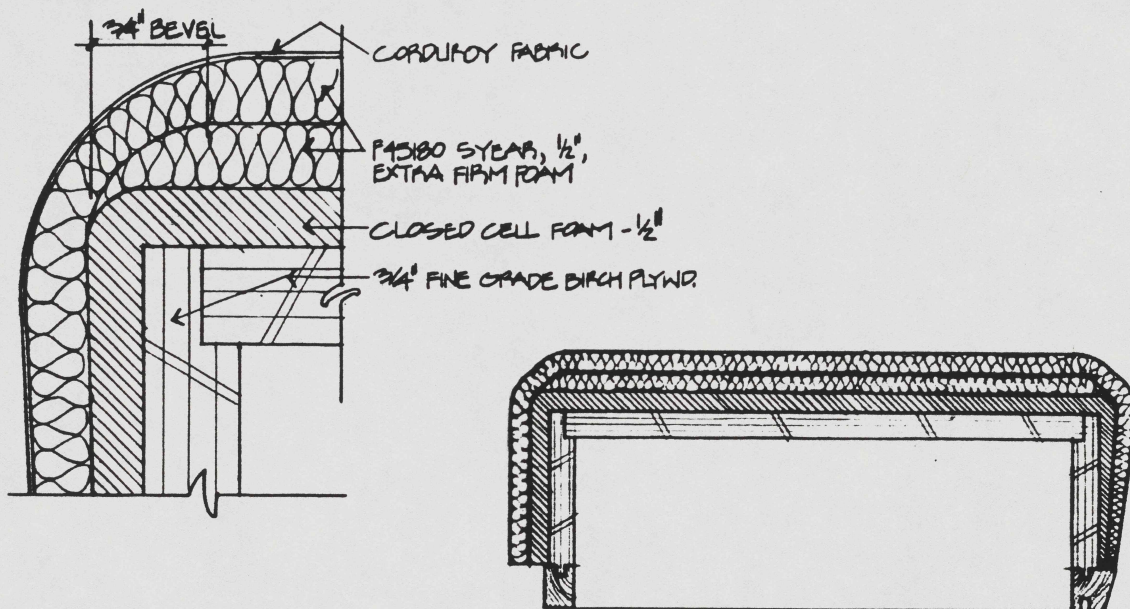




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4. Spray all the inner surfaces and the attached trim of the lid with two coats of sanding sealer and two coats clear lacquer. The unattached back trim need not be finished since it will be covered by the fabric.

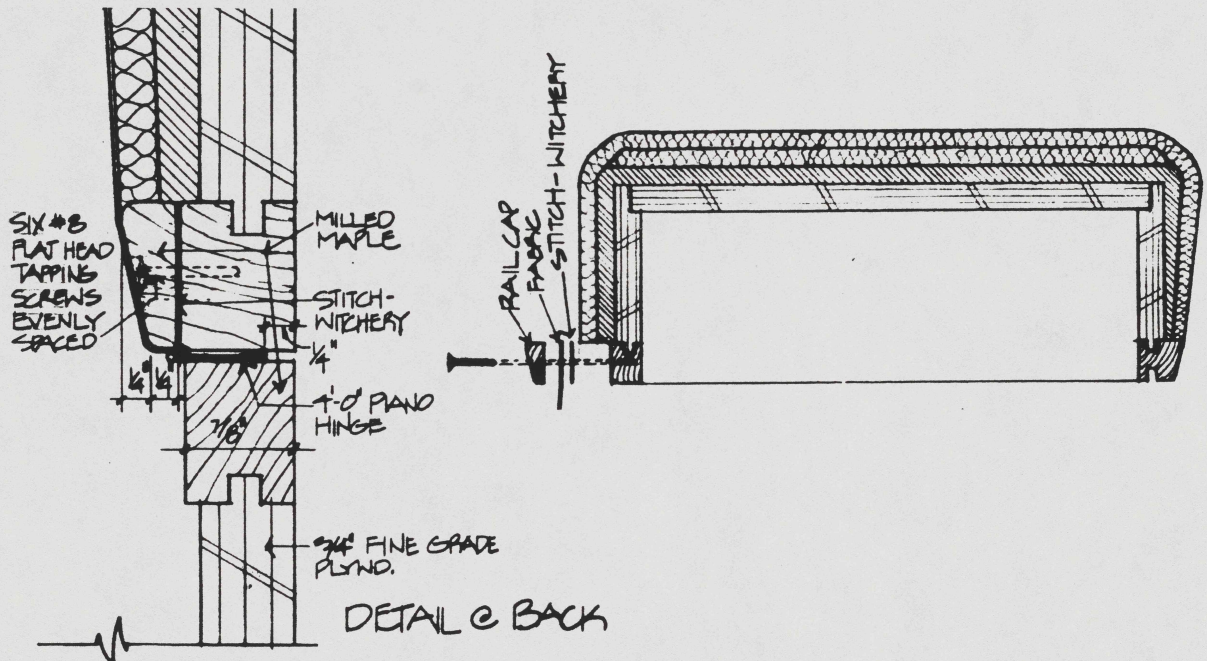
5. Cut and glue the three layers of foam in place as shown. The innermost layer is 1/2" closed cell foam, and the top two layers are F45180 1/2", extra firm foam. The edges of the middle layer of foam must be beveled.



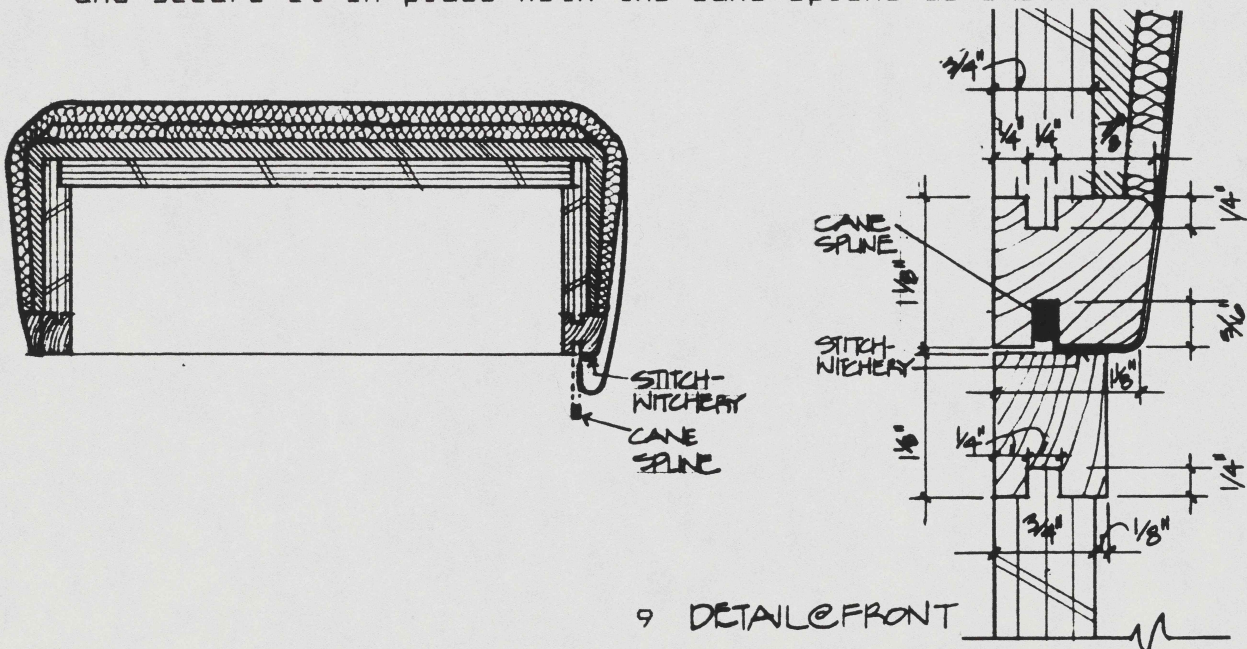
6. Prepare the fabric by shaping and stitching the four corners to form an open-bottomed box. Leave just enough allowance at the edges to secure with the cane spline.

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7. Attach one edge of the fabric to the back trim piece with the rear rail cap using #8 flat head tapping screws evenly spaced. The edge of the fabric must be reinforced with fusible tape prior to this operation.



8. Stretch the fabric over the front and sides of the lid and secure it in place with the cane spline as shown.

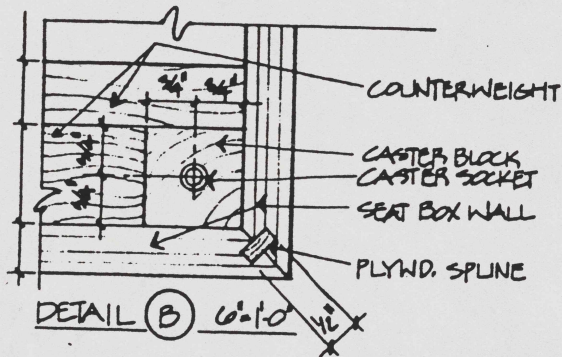


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III. FINAL ASSEMBLY

Prior to this stage the box and lid of the bench are assembled and painted, inside and out.

1. Attach the caster blocks with aliphatic resin (with the sockets for the casters already inserted) to the underside of the box as shown. The casters are 2" Shepherd ball casters for carpets.



2. Attach the counter weights to the bottom of the box as shown.

(NOTE: Steel or some other material may be more appropriate for this step. The essential specification is that the counterweight in the position shown should weigh about fifteen pounds.)

