

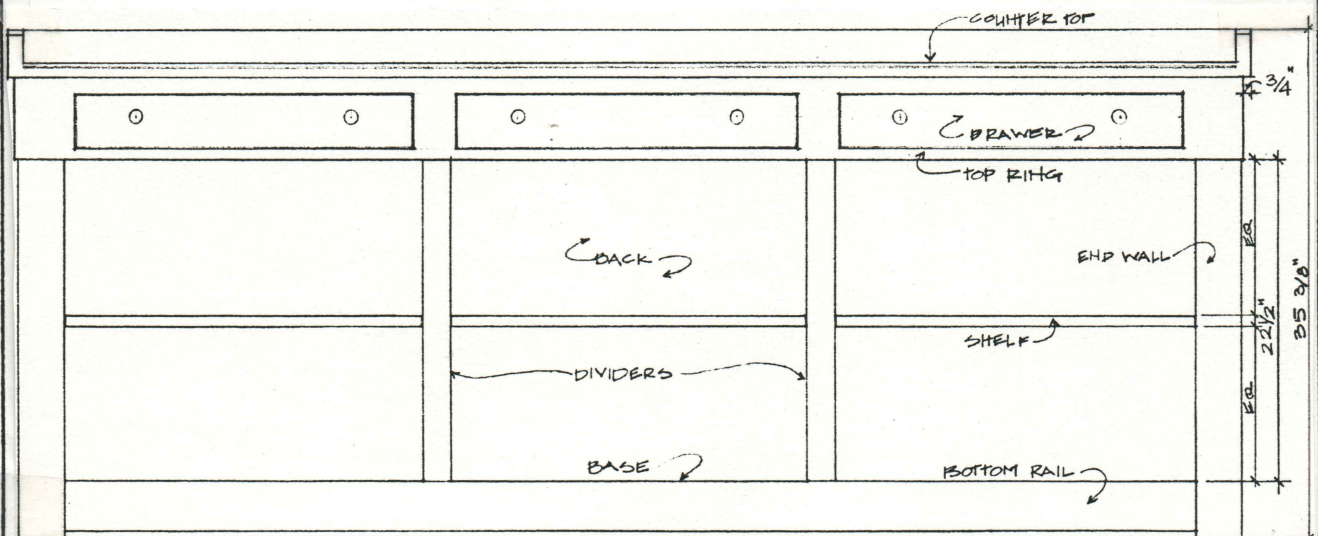
HERMAN MILLER FURNITURE SYSTEMS

THE CONSTRUCTION PROCESS
ENGINEERING RATIONALE, DESCRIPTION AND SPECIFICATIONS

LOW BOOKCASE

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LOW BOOKCASE



ELEVATION.

The Low Bookcase is a simple elegant piece of furniture designed to be used as a divider within a room or to line a wall. It is available in five different lengths ranging from a minimum of four feet to a maximum of eight feet and has been specially engineered to prevent racking when fully loaded even at its maximum length. The bookcase is finished in acrylic lacquer and is available in a range of colors.

The construction of the bookcase is described as a series of six sub-assemblies as follows.

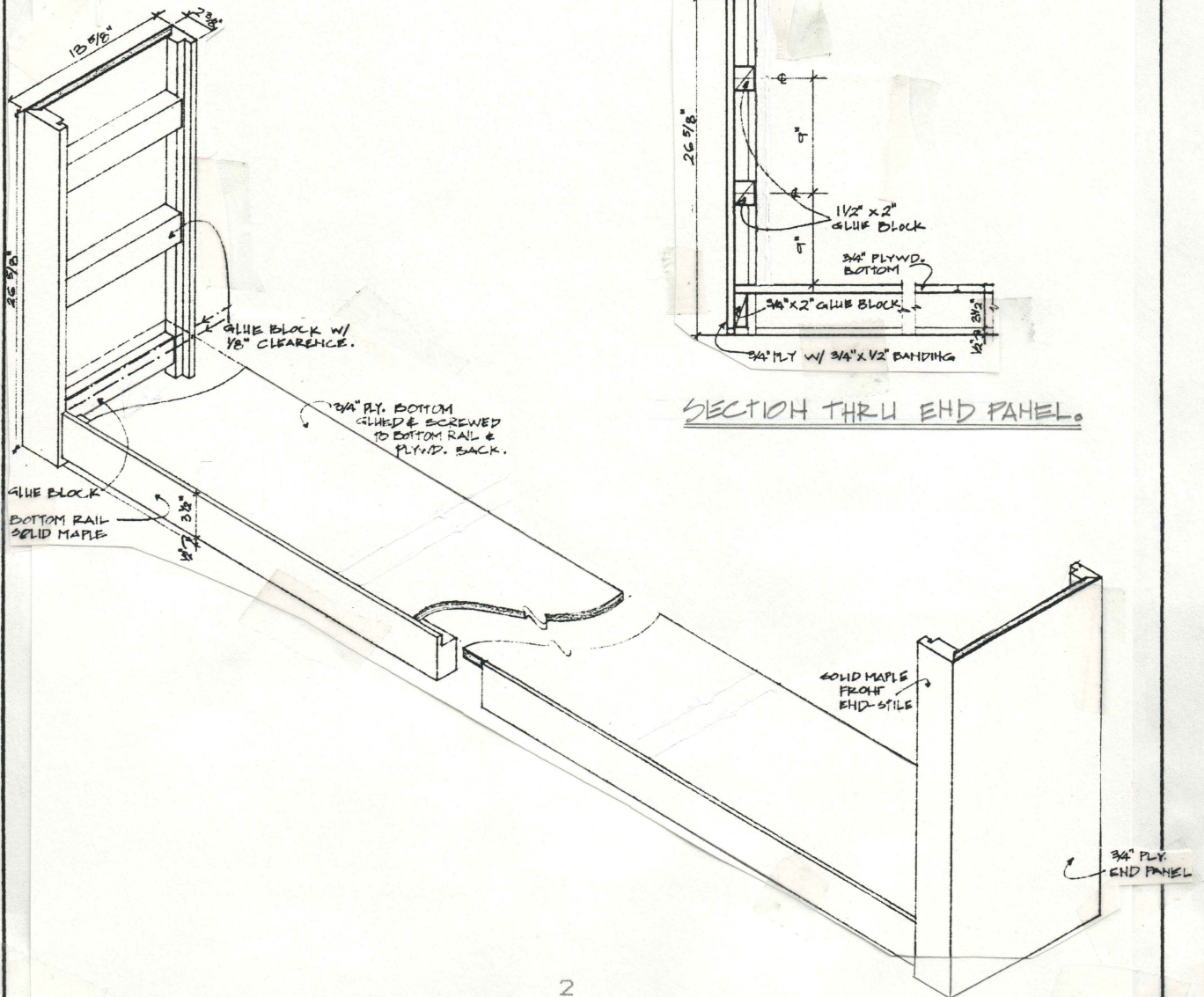
1. Base and End Walls.
2. Dividers and Back.
3. Top Ring.
4. Drawers and Shelves.
5. Counter Top.
6. Final Assembly.

All dimensions given here are for a bookcase 86.5 inches in length.

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I. BASE AND END WALLS.

The loads from the counter top and the bottom shelf are transferred through the bottom rail to the two 'C' shaped end walls which consist of a plywood end panel and front and back stiles. The joint between the bottom rail and the front end stile is lapped to prevent rotation. All connections are glued unless specified otherwise.



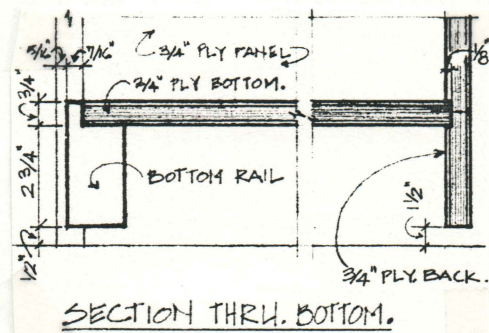
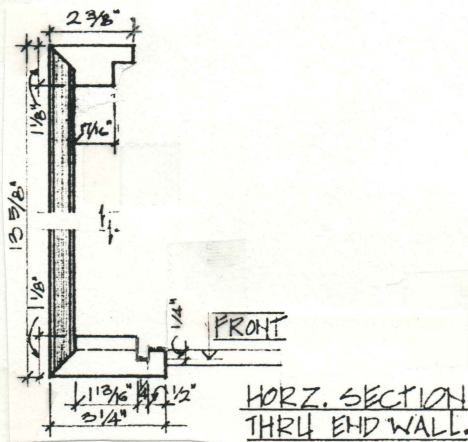
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1. Mill the sections for the two end stiles and bottom rail from solid Maple and cut the pieces to length.

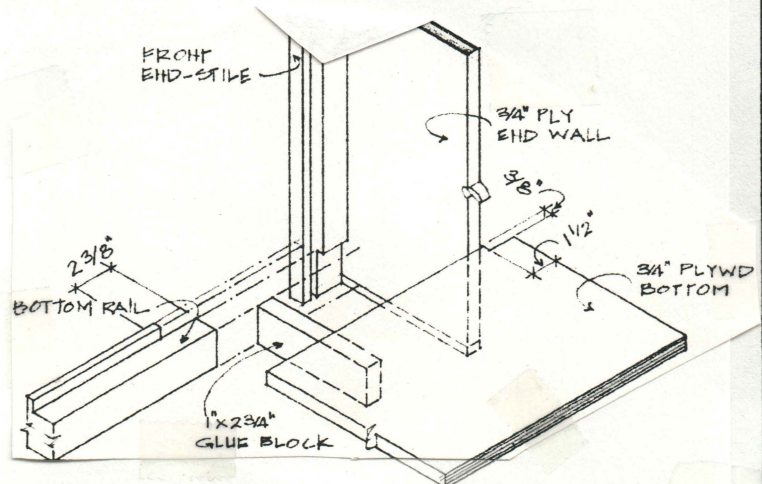
2. Cut the two end panels out of 3/4 inch shop Birch plywood using a 45 degree miter along the vertical edges as shown. Attach a 3/4 inch X 1/2 inch banding to the bottom edge of each panel as shown. Cut the bottom shelf also out of 3/4 inch shop Birch plywood.

3. Assemble the two front end stiles and end panels and connect the bottom rail to the stiles as shown. Attach the pieces of blocking to the two end walls. Lower the plywood shelf onto the bottom rail and blocking and attach it with glue and screws. Glue the two back end stiles in place.

4. Prime all the surfaces that will be visible in the finished piece with two coats of high build primer and finish with acrylic lacquer.



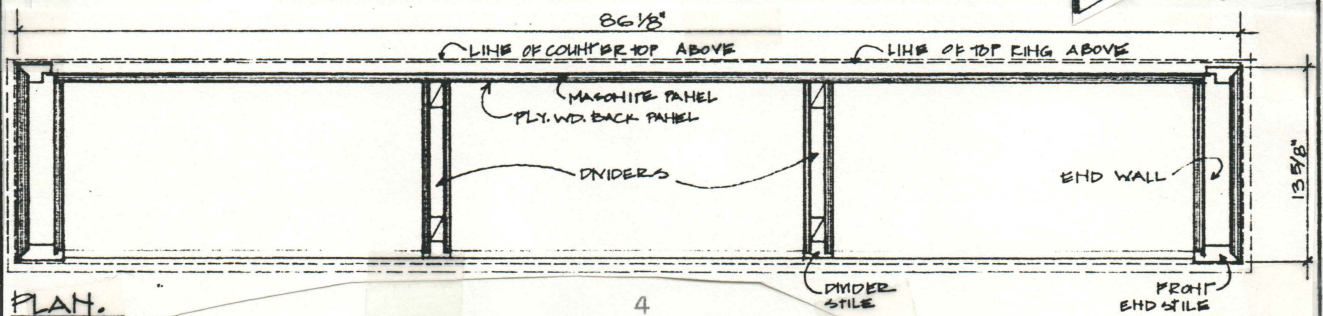
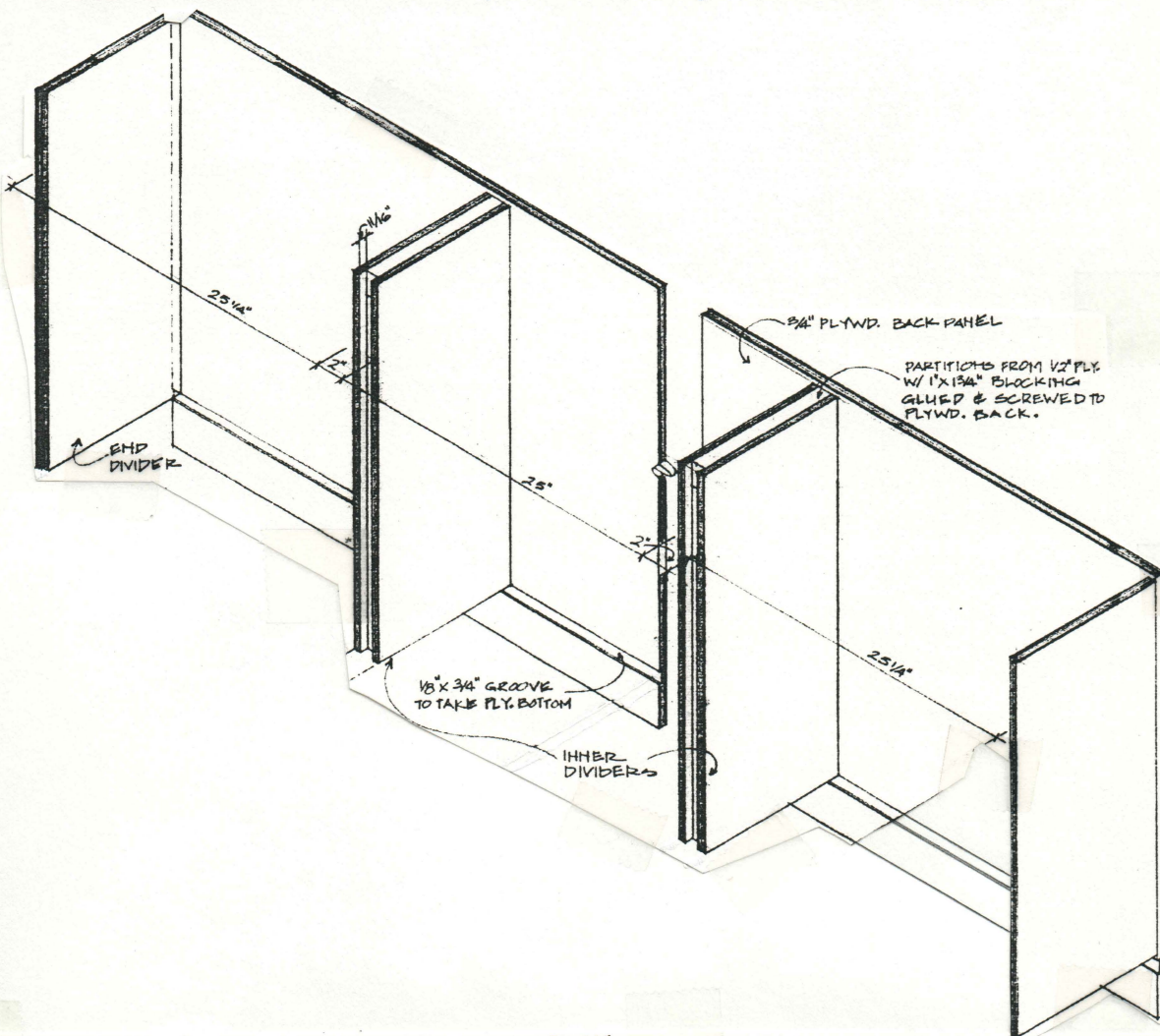
FRONT END-STILE & BOTTOM RAIL CONNECTION.



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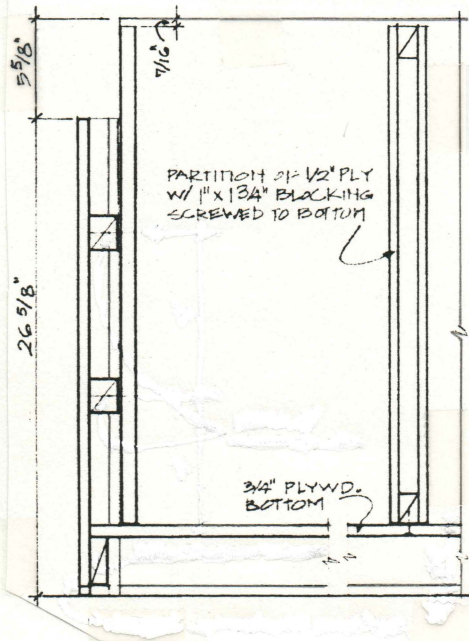
II. DIVIDERS AND BACK.

The back panel acts as a shear wall to take the stresses that will occur when a loaded bookcase is moved or pushed against laterally. The load from the shelves is also transferred to the back panel through the dividers.

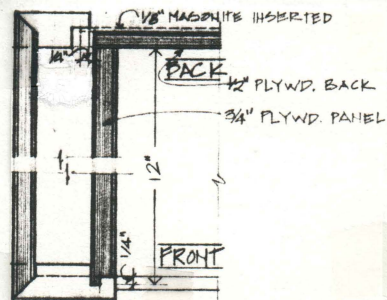
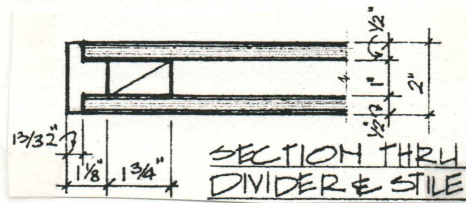


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1. Cut the two end dividers from 3/4 inch. finish Birch and the back panel from 1/2 inch finish Birch 'good' on one side. Run a groove in the back panel to receive the bottom shelf, and cut a rabbet in each of the end dividers as shown. This should be done such that the 'good' side faces inward.
2. Cut the four panels for the inner dividers from 1/2 inch finish Birch plywood. Cut the pieces of blocking and assemble the dividers to form two sandwich panels as shown.
3. Locate and pre-drill the holes for the metal shelf rail in each of the dividers. Prime the dividers and the back panel with two coats of high build primer.
4. Attach each of the dividers to the back panel using glue and screws. Finish with two to three coats acrylic lacquer.
5. Mill the section for the divider stiles from solid Maple and cut two pieces to length. Prime the two stiles and finish with acrylic lacquer.
6. Cut the masonite panel to size.



SECTION THRU DIVIDERS.



HORIZ. SECTION THRU END WALL.

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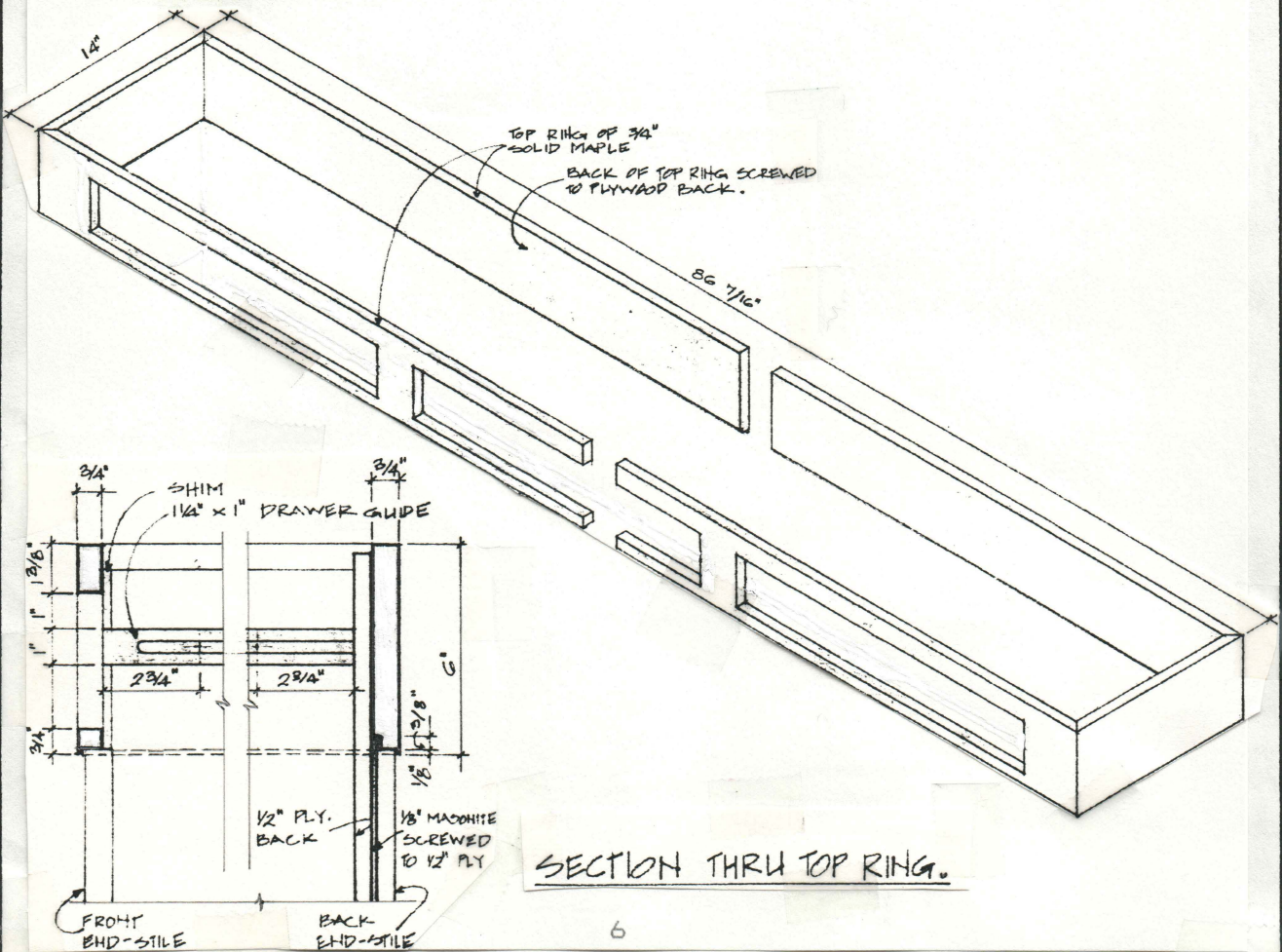
III. TOP RING.

The top ring of the bookcase transfers the loads from the counter top to the end walls and back panel on which it is supported. The front of the top ring acts as a truss spanning between the two end walls.

1. Mill the typical section for the back and sides of the top ring from solid Maple and cut each of the pieces to length using a 45 degree miter. The front of the ring is made up of two horizontal pieces and four verticals. (This may also be done by cutting openings in a solid piece).

2. Run the rabbet along the bottom edge of each of the pieces as shown.

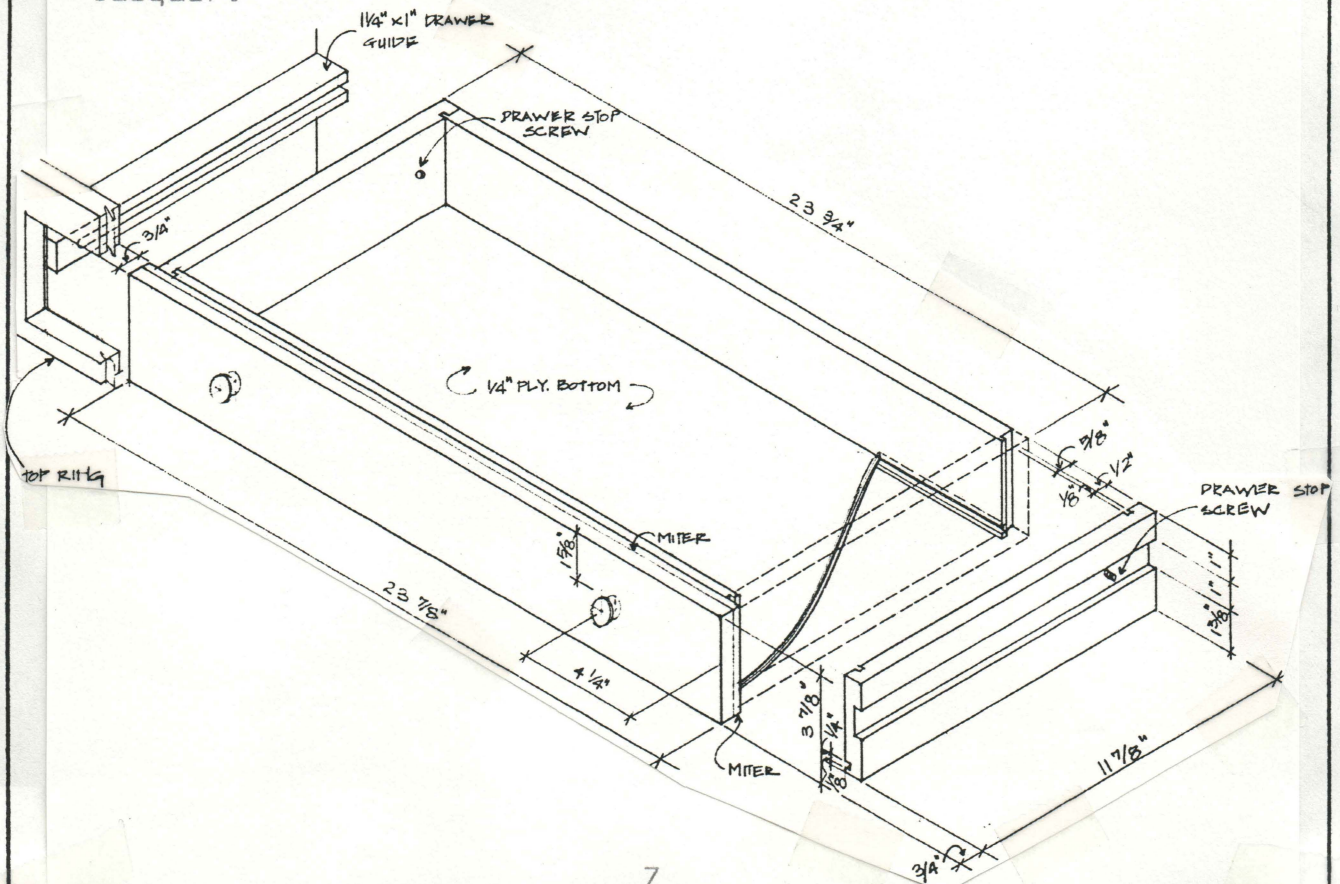
3. Assemble the ring using epoxy. Prime and finish with acrylic lacquer.



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IV. DRAWERS AND SHELVES.

1. Cut the four sides of the drawers out of 5/8th inch thick solid Maple. Run the grooves for the corner joints and the bottom of the drawer in the four side pieces. Pre-drill the front panel of the drawer to take the screws which will attach the front face to the drawer assembly. Pre-drill one hole in the left and right side of each drawer for the drawer stops.
2. Cut the bottom of the drawer out of 1/4 inch thick finish Birch.
3. Cut the front face of the drawer out of 3/4 inch solid Maple. All four edges of the front face should be mitered 4 to 5 degrees. Pre-drill the front face for attaching the drawer knobs. Prime with two coats high build primer.
4. Prime the drawer knobs and attach them to the front face of the drawer. Finish with two to three coats acrylic lacquer.

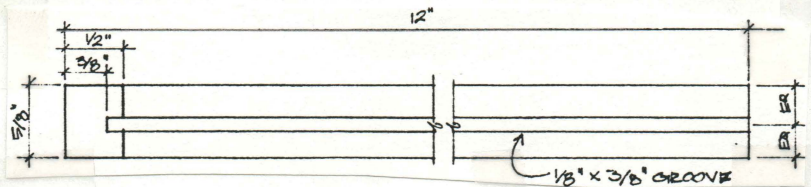


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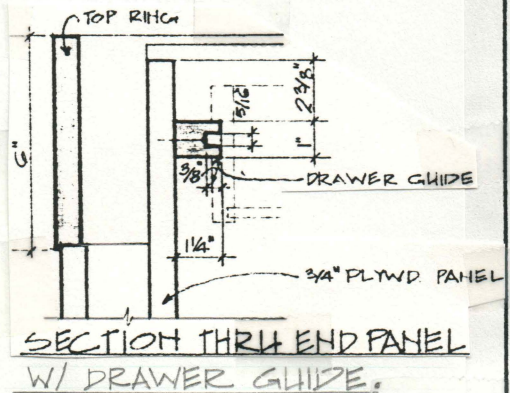
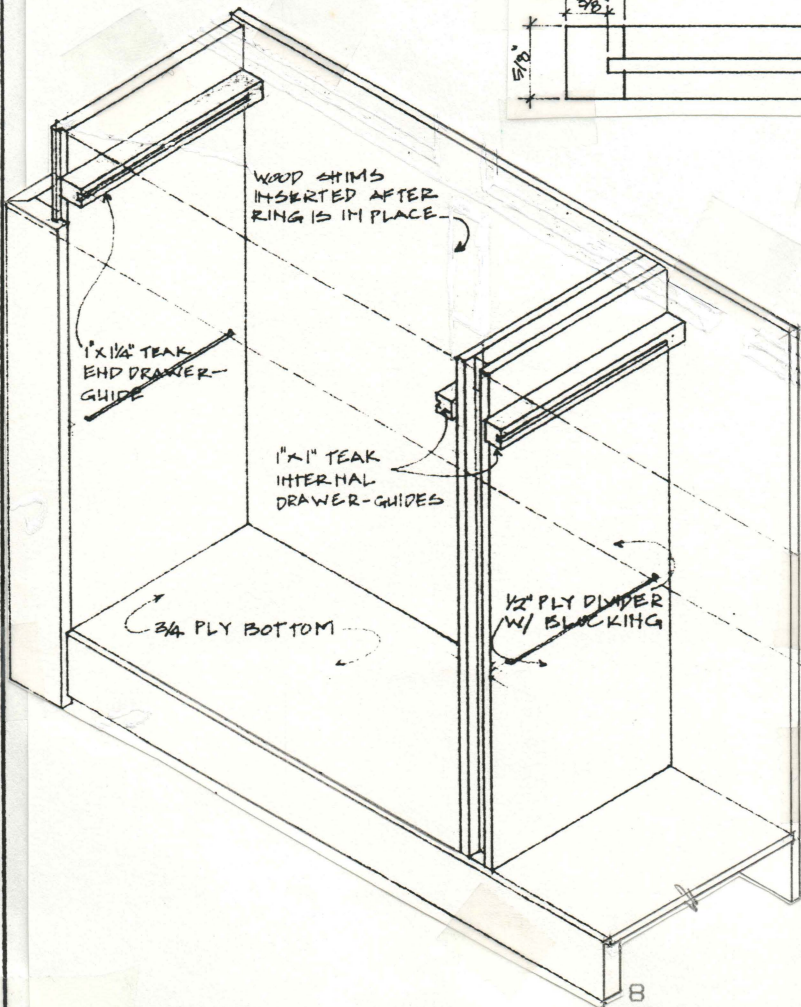
5. Assemble the four sides and bottom of the drawer and finish all surfaces with two coats of clear lacquer.

6. Mill the section for the four inner drawer guides and the two end guides out of solid teak. End guides are 1 1/4 inch X 1 inch and inner guides are 1 inch X 1 inch. Cut the guides to length. Run a groove for the drawer stop in each of the guides as shown.

7. Cut the shelves out of 5/8 inch finish Birch and bind the front edge with a piece of 1/2 inch X 5/8 inch solid Maple. Run a 1/8 inch by 3/8 inch groove in the two sides of each shelf as shown. Prime the top bottom and front surfaces of the shelf with two coats of high build primer and finish with two to three coats acrylic lacquer.



SIDE ELEVATION OF SHELF.



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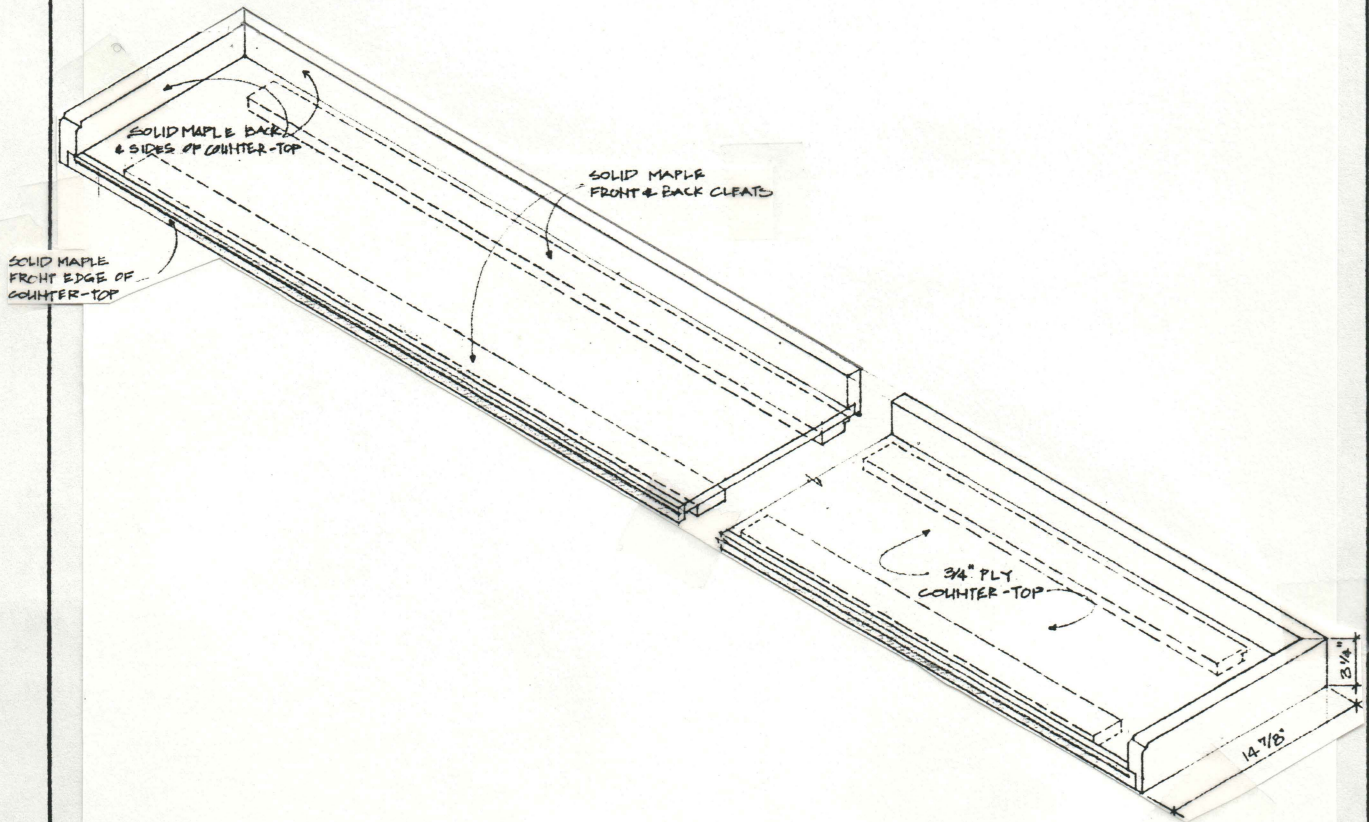
V. COUNTER TOP.

The top of the Bookcase is provided with a three and a quarter inch surround on the back and sides to prevent any things that are set on top from falling off.

1. Mill the section for the surround from solid Maple and cut the three pieces to length using a 45 degree miter. Cut a rabbet along one edge of each piece as shown. Shape the fronts of the two side pieces using a shaper.

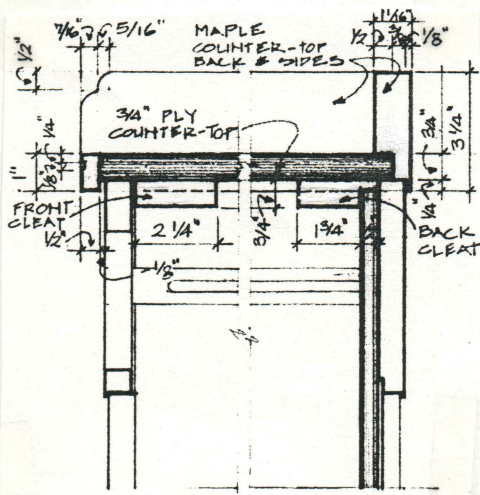
2. Mill and cut the front edge trim from solid Maple. Run a 1/8 inch groove in the front face of the trim as shown stopping short of both ends by 1/2 an inch.

3. Cut the top out of 3/4 inch finish Birch. Cut the front and back cleats out of solid Maple.

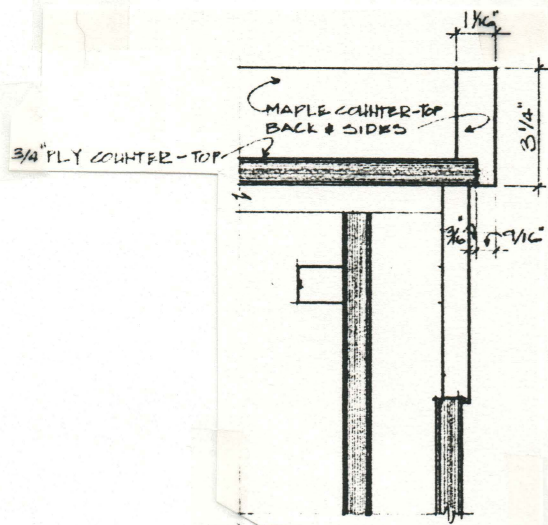


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4. Assemble the counter top using epoxy. Attach the cleats to the underside of the top with screws and epoxy.



CROSS SECTION OF
COUNTER - TOP.



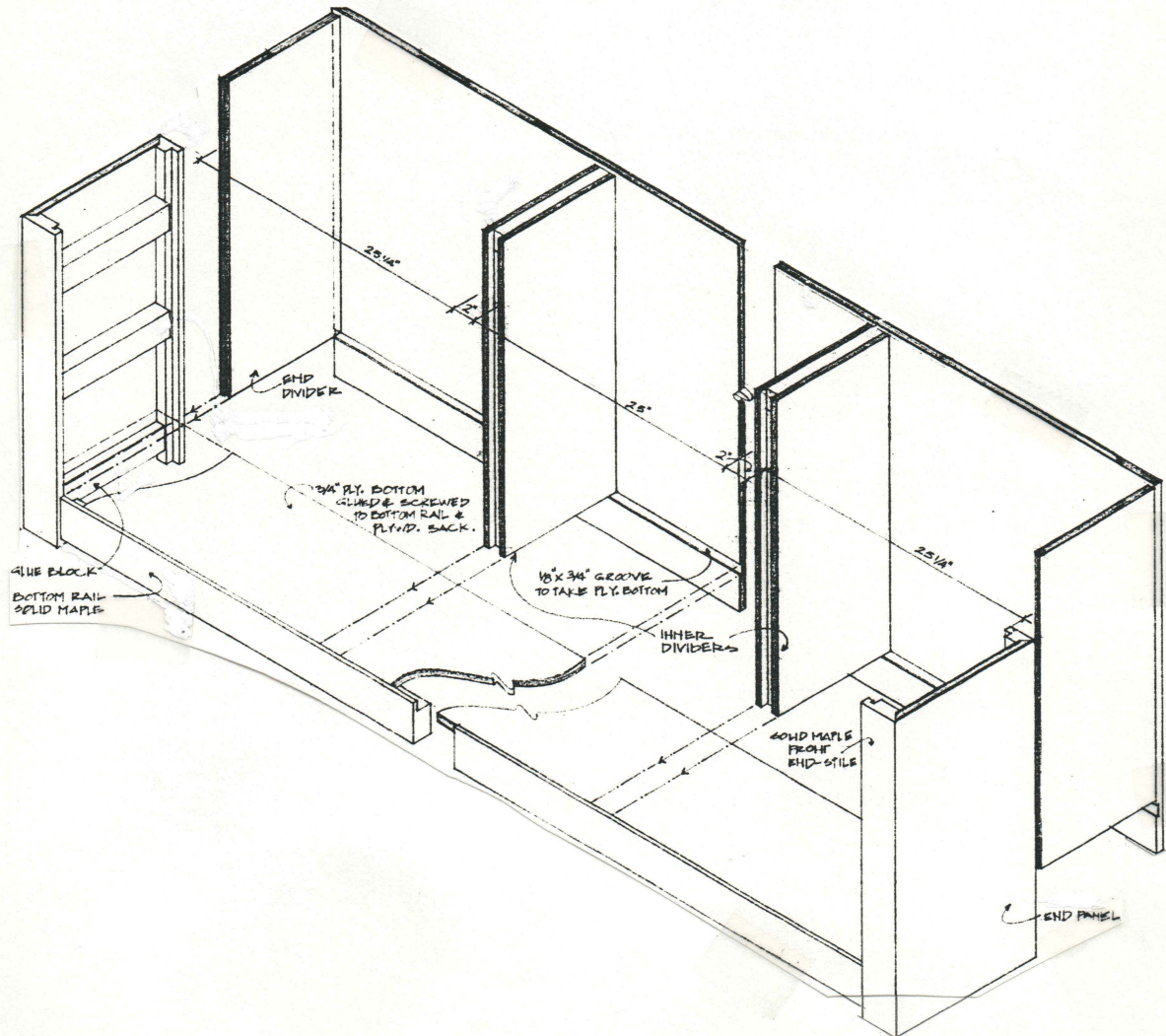
LONG. SECTION
THRU COUNTER-TOP.

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VI. FINAL ASSEMBLY.

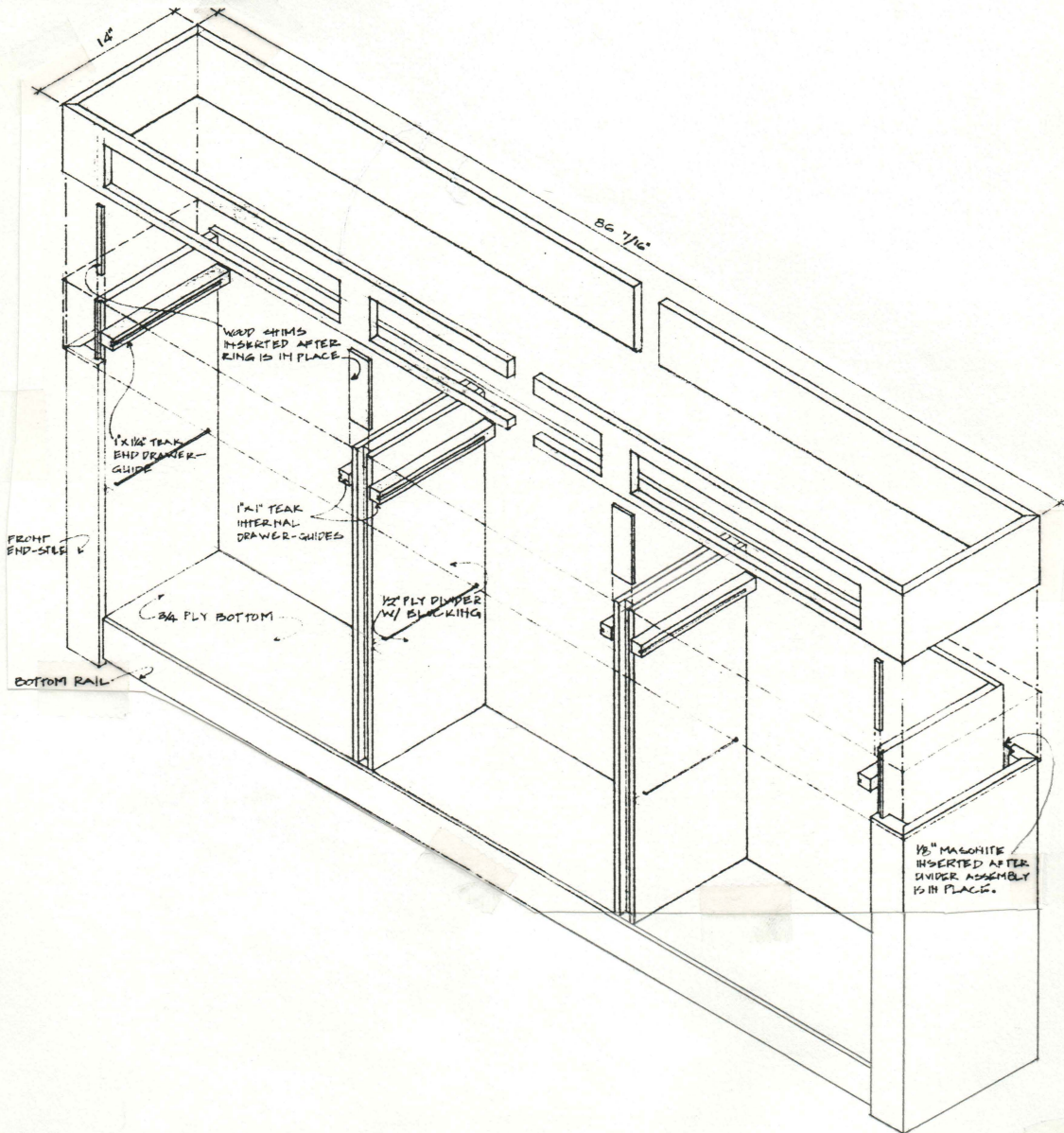
Prior to this stage each of the individual assemblies should have been completed and all visible surfaces primed with two coats of high build primer and finished with acrylic lacquer unless specified otherwise.

1. Slide the pre-assembled dividers and back into the end walls and base assembly. Connect the bottom shelf to the back panel and to the dividers with screws.



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2. Insert the 1/8 inch masonite panel into the space between the back end stile and plywood panel and attach it to the plywood back.
3. Position the top ring and insert shims to fill the clearances left between the front of the ring and the dividers.
4. Attach the drawer guides to the dividers with screws and insert the shelf rails.



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5. Put in the drawers and insert the screws that will act as stops. Position accurately and attach the drawer fronts. Insert the shelves.

6. Attach the divider stiles and the counter top.

