DO IT YOURSELF CORNELL SIZE SPECIMEN DRAWERS

by V.A. Brou

Goal: To fabricate specimen cases which are pest and moisture resistant and are aesthetically superior than those commercially available today for a fraction of the usual purchase price.

Supplies needed: wood glue, wood filler, nail hole filler, masking tape, varnish or polyurethane, white latex paint, coarse, medium, and very fine sand paper, wire brads 5/8" and 1½", nails 1½", brass drawer pull handles.

Tools required: table saw, belt sander, electric drill and various bits, hammer, miter saw, nail punch, a good quality plywood or veneer table saw blade.

Parts required for each drawer:

A. drawer base 20 19" X 3/4" X 2 3/16", 20 16½" X 3/4" X 2 3/16"
B. drawer lid 20 19" X 3/4" X 1", 20 16½" X 3/4" X 1"
C. glass retaining strip 20 16 7/16" X 3/8" X ½", 20 14 7/8" X 3/8" X ½"
D. glass, single strength 10 15 5/16" X 17 7/8"
E. bottom foam sheet 10 18 3/16" X 15 11/16" X 1/8"
F. bottom bagasse panel 10 18 3/16" X 15 11/16" X ½"

Begin by cutting on the table saw, six foot lengths of 1" X 4" quality pine lumber into two lengthwise strips 6' X 3/4" X 1" and 6' X 3/4" X 2 3/16". Keep matching cut pieces together during entire fabrication process. If building a large batch of drawers at a time, many cuts can be made at a single saw setting. This also standardizes the size of each component for all the drawers in the batch. Further cut or groove pieces to dimensions listed for drawer base (part A) and drawer lid (part B). See drawing.
Miter cut (45°) matching lid and base 6' strips into 19" pieces for front and back and 16½" pieces for sides. Form rectangular Cornell size box 16½" X 19". Glue and nail ends of base pieces together using 1½" finishing nails (4 nails per corner of base). Align base pieces using upper ½" edge as a level guide. Using two nails per corner, form lid by gluing and nailing pieces together. Align lid pieces by placing upon base when attaching corners.

In order to obtain a high quality end product, special attention to certain areas of the drawer often overlooked is required. Drawers can be greatly improved aesthetically by painting the internal surfaces with white latex paint. Bright-white, regular or texture finish indoor paint works best. Two coats are needed, and should be applied before attaching bottom foam covered bagasse panel to frame base.

Before installing bottom panel to frame, glue 1/8" foam sheeting to upper surface of bagasse panel.
Apply glue to 100% of surface. Apply uniform pressure over foam sheet for 24 hours and allow to dry at room temperature. Then attach foamed bottom panel to base using 1/2" nails.

Moisture enters specimen cases by absorption through pinning bottoms. This is especially so when commonly used composition bottoms (bagasse) are used. Sealing these bottoms with a moisture barrier is mandatory. Also external edges of the bottom should be sealed and contoured with a fillet of wood filler, and when dry, sanded smooth. Two coats of indoor latex regular or texture paint should be applied to the external surface of the bottom panel, including overlapping 50% of the width of the bottom 3/8" edge of the drawer base. When dry, apply two coats of indoor varnish or polyurethane over the entire bottom surface.

Smooth outer surfaces of drawer with belt sander. For lid areas, hand sand before installing glass. Finish all sanded surfaces using very fine sandpaper or very fine steel wool.

Install glass and glass retaining strips which have been painted white on three sides. Attach retaining strips using one 5/8" wire brad several inches from each strip end.

Moisture entering specimen cases through ill-fitting or loose glass is a common occurrence. Glass tops are best sealed, not by glue as on many commercially available drawers, but rather by applying varnish or polyurethane finish to the outer lid area at the point it intersects the lid frame. Excess varnish on glass can be
easily peeled when dry using a razor blade. Cut varnish film along intersection point of glass and wood frame before peeling film from glass surface.

Two or three coats of finish should be applied to the outer surfaces of the drawer. Between each coat, allow to dry, then lightly sand with very fine sandpaper before next coat.

For a completed drawer, the whole process, start to finish, may and should take one to two weeks. All glued parts require overnight drying before painting or varnishing. Each coat of wood filler, paint, and varnish require overnight drying. Some steps require separate positional drying times to coat all six external surfaces. For these reasons, fabricating a large batch at a time is advantageous. Considering the current market value of ±$45.00 each for these specimen drawers, one can expect to save about 75% by doing it yourself. Also, skilled woodworkers can expect the very finest drawers if instructions are followed.

Dos and Don'ts: Don't be in a rush! Drill pilot holes for nails, and countersink nail heads. Don't use poor quality or inferior materials (lumber, nails, coatings, glue, etc.). Don't use shellac. Use a quality varnish or polyurethane, or a combination product, semigloss or high gloss. Be sure lumber is seasoned and dry. Best selections are: hard pines, medium to soft pines, basswood. Poor selections include: fir, redwood, cypress.