

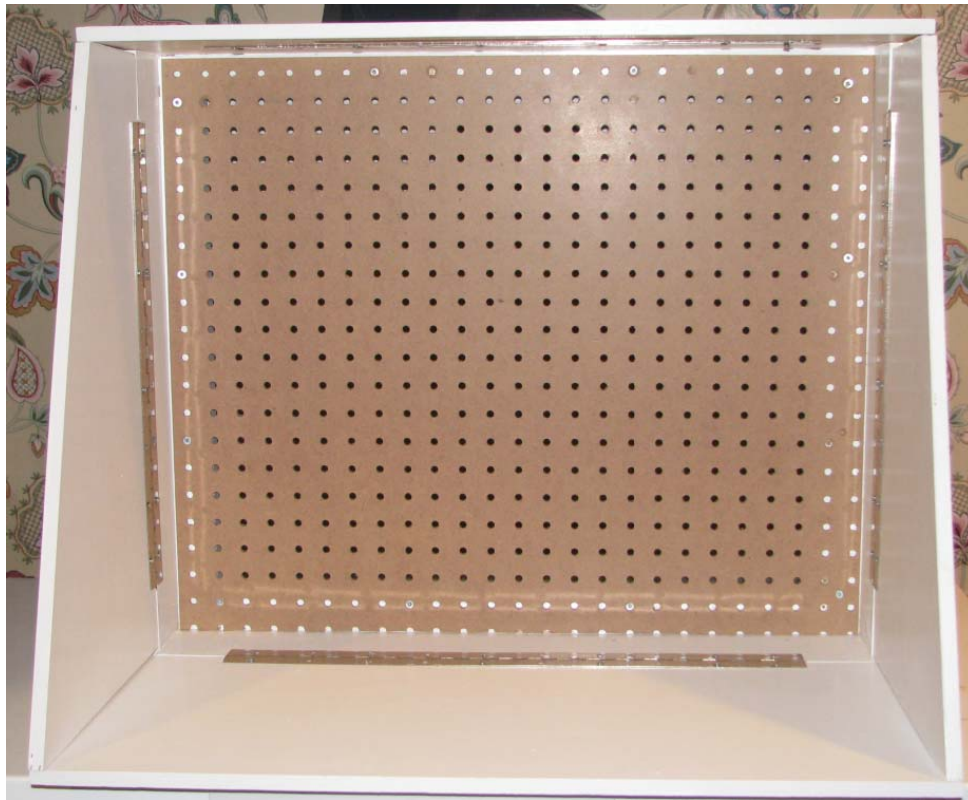
Ideas for Airbrush Spray Booth Cabinet

For those of you who are looking to construct an airbrush spray booth cabinet, the following may provide some ideas for your design. Due to potential liability issues, no pictures or discussion on fan selection and installation are included in this document.

Disclaimers

- Users must select an appropriate fan design for the type of paint being spray. Please remember, some acrylic paints are not water based and contain alcohol and other flammable solvents.
- Users should always wear an appropriate respirator suitable for spray painting when using a spray booth.

Figure 1
Airbrush Spray Booth



Ideas for Airbrush Spray Booth Cabinet

Background

- The spray booth is designed to accommodate a 25" wide x 20" high filter. The size was selected to accommodate typical 1/32 scale models.
- To equalize the air flow, the design uses a plenum design to draw air across the filter. Peg board is used as a filter backer to assist in creating a uniform air flow.
- The spray booth is intended to be stored when not in use, so folding components were incorporated to minimize the required storage footprint.

Construction

The airbrush booth is constructed primarily from 1/2" finished plywood. Since fastening and gluing into the end grain of 1/2" plywood, does not always create a strong joint, 3/4" x3/4" mounting strips are used as the primary means for fastening and gluing components except for the fixed top.

Thicker 3/4" plywood and biscuit joints can be used as an alternate approach, but this will increase the weight of the spray booth by approximately 50%. Some dimensions will require changes if this alternate option is used.

Figure 2
Basic Construction

- Cut out bottom, sides and vertical back
- Cut 3/4" x3/4" mounting strips
- Rip 45 degree bevel on vertical back top mounting strip and cut to length
- Glue & fasten back top mounting strip
- Glue and fasten back and side mounting strips to base
- Glue and fasten sides and back to base
- Cut, glue & fasten vertical mounting strips to back and side
- Cut, glue & fasten mounting strips to beveled portion of sides



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Figure 3
Sloped Back and Plenum Frame

- Cut sloped back with 45 degree bevels top and bottom
- Cut inlet hole for fan
- Glue & fasten sloped back to sides and vertical back
- Cut 45 degree bevel on upper plenum frame. Glue & fasten to sloped back
- Cut, glue and fasten side and bottom plenum frame members.



Figure 4
Add Top and Peg Plenum Intake

- Glue & fasten fixed top directly to sides with no fastening strips
- Cut peg board for plenum intake
- Note: if standard holes are too restrictive, increase diameter as required by drilling larger holes. Or alternately eliminate peg board and install filter directly to frame.



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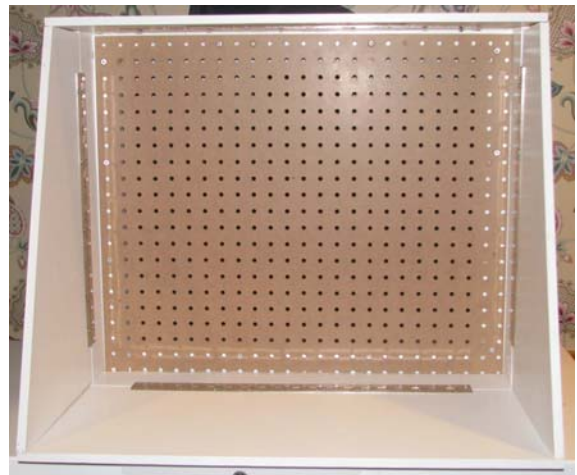
Figure 5
Cut Folding Components

- Cut folding bottom, sides and top
- Route grooves to accommodate hinge pins (hinge pins should be embedded in the components to allow components to fold inwards for storage)



Figure 6
Paint Components

- Paint spray booth
- Fasten peg board plenum to intake frame
- Install piano hinges



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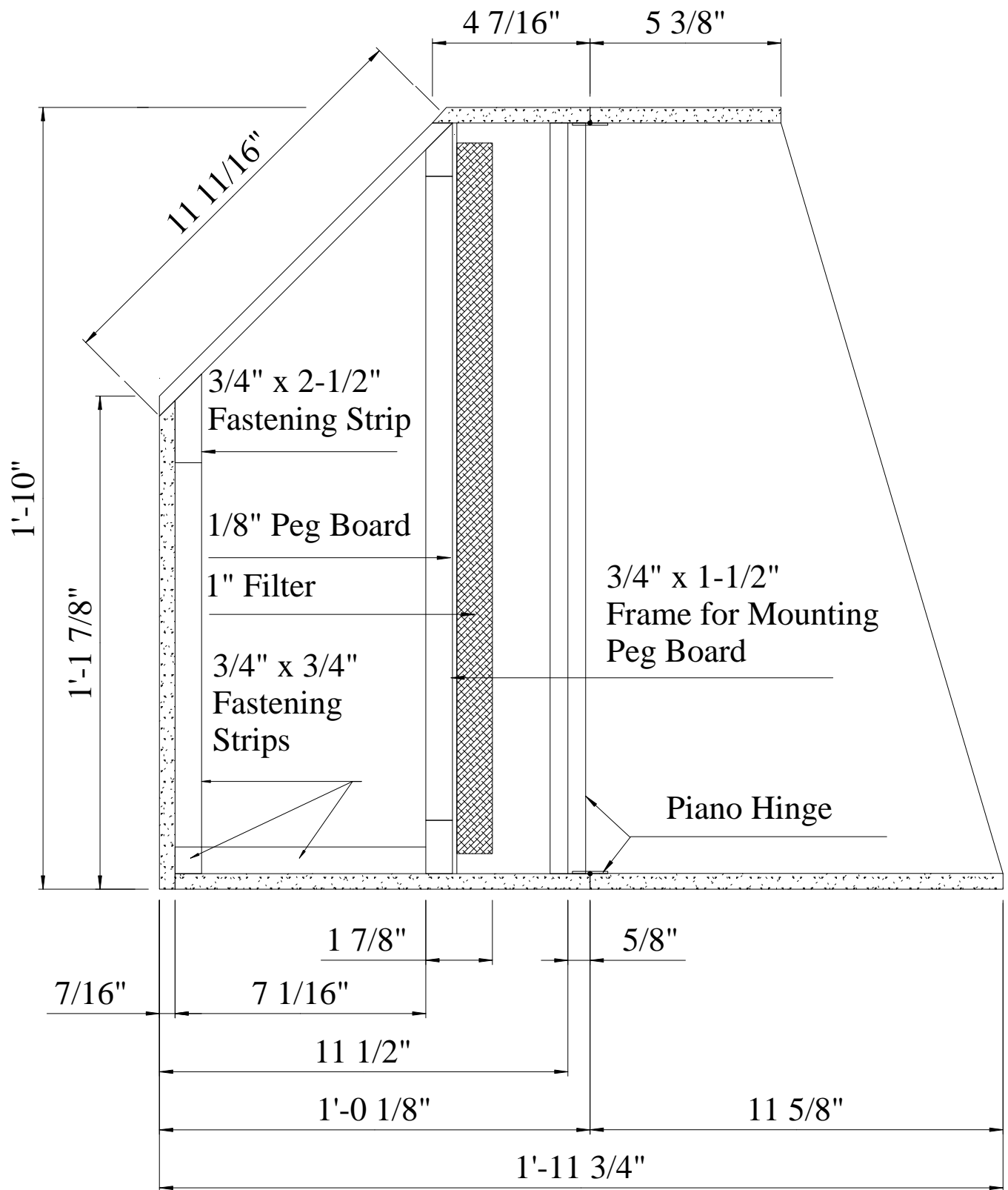
Figure 7
Completed Spray Booth Cabinet



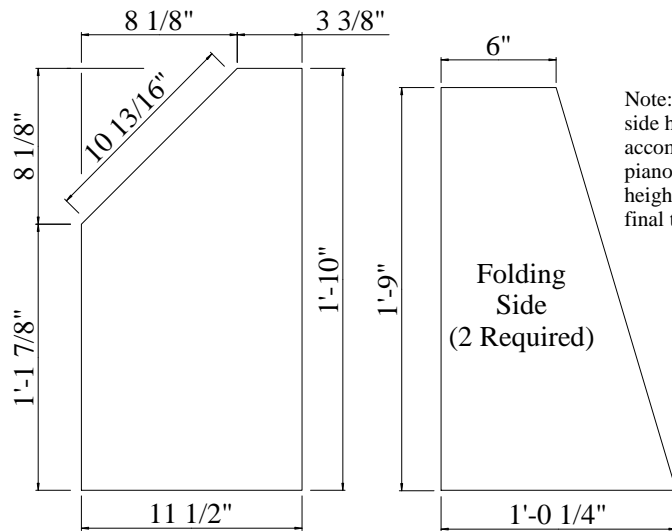
- Install filter using corner brackets to ensure filter frame is snug against peg board.



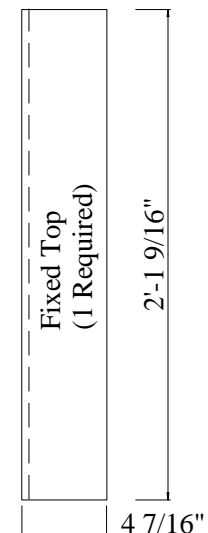
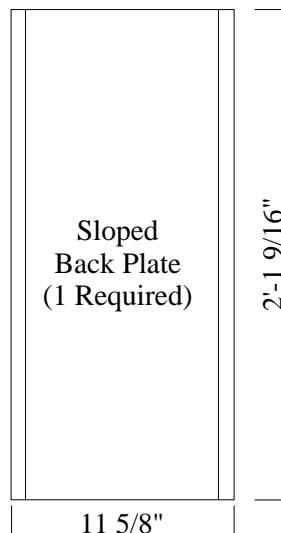
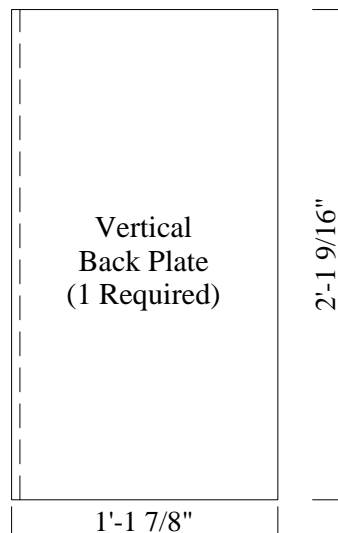
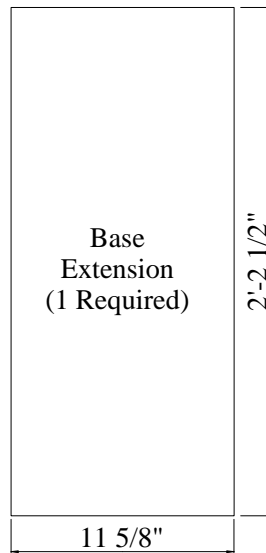
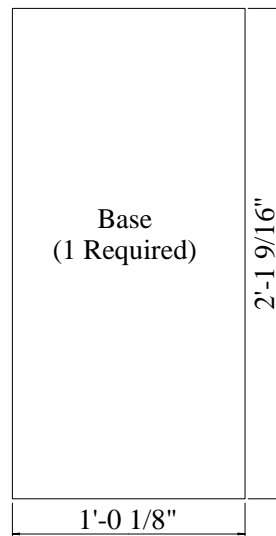
- Note: If a light is installed in the folding top, a clear protective cover should be installed on the underside of the top cover opening to prevent paint or paint vapours from coming into contact with the light fixture
- Corner “L” brackets are used to retain the folding base

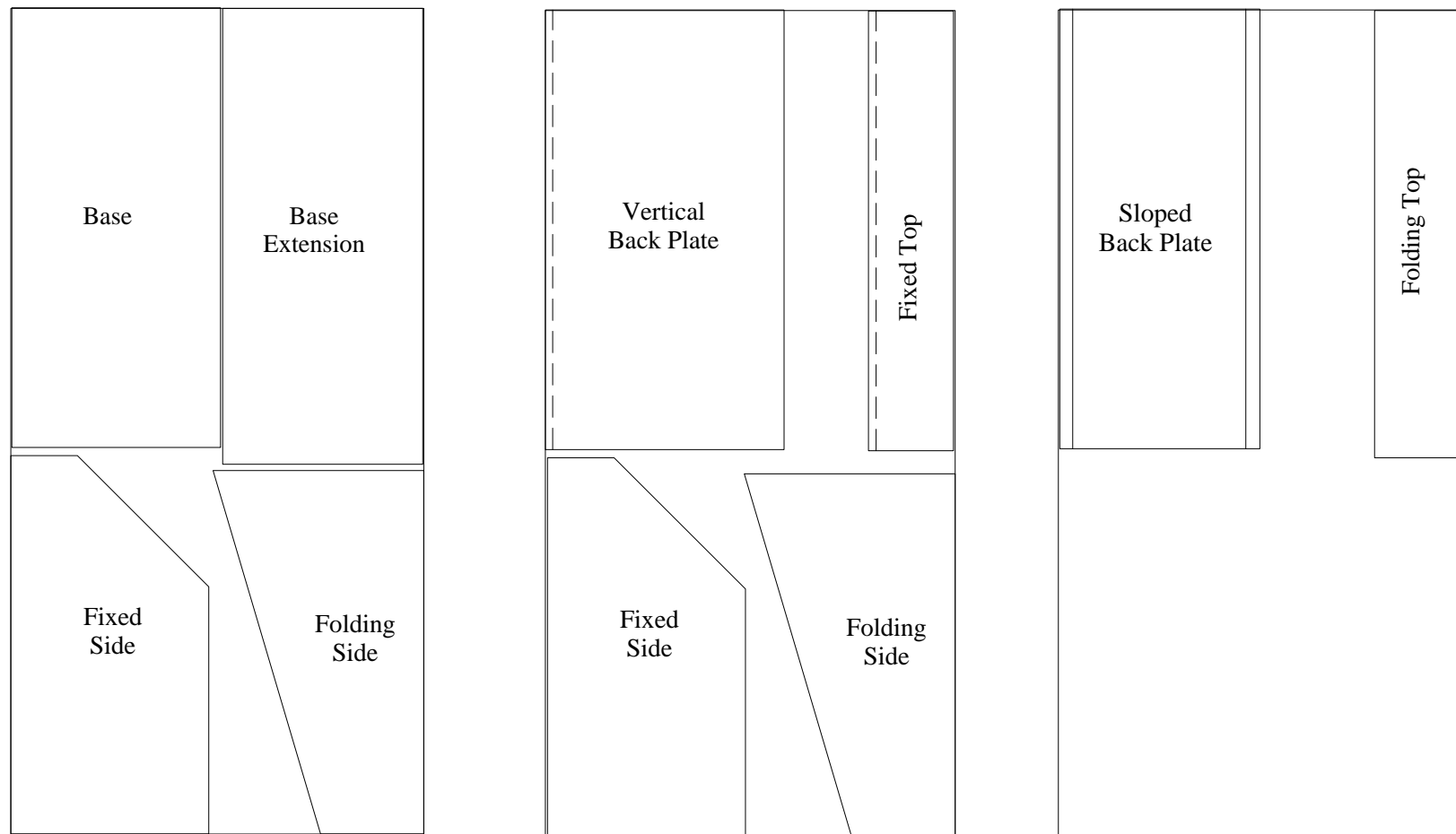


Finished Overall Dimensions
26-1/2" W x 22" H x 23-3/4" D



Note: Minor trimming of folding side height may be required to accomodate surface mounted piano hinge. Alternately shorten height by 1/8" in lieu of final trimming.





Cutting Layouts Using 2 ft. x 4 ft. Sheets of 1/2" Finished Plywood

Notes

1. Dimensions are based upon use of 25" W x 20" H air filter.
2. Sizes of plywood parts are based upon 1/2" sanded plywood which is 0.472" thick
3. Plywood parts should be glued and screwed to 3/4" x 3/4" fastening strips and 3/4" x 1-1/2" frame for peg board
4. Screw holes should be countersunk to allow screw head to be flush or slightly recessed
5. Router cut groove for piano hinge pin so pin is embedded in plywood to allow sides to fold properly.
6. Pegboard mounting frame sections should be sized and cut after plywood box has been assembled.
7. Cut hole in folding top to accomodate light source. Note light source should not be installed inside of spray booth for safety reasons.
8. Place plastic cover on inside of folding top to prevent paint and paint vapors from coming into contact with light.
9. Cut hole in sloped back to based upon fan inlet opening size.

Material

3 sheets - 2 ft x 4 ft x 1/2" sanded plywood
1 sheet - 2 ft x 4 ft x 1/8" peg board
8 ft - 1" x 2" pine for peg board mounting frame
3 ft - 1" x 3" pine for sloped back fastening strip

1 piece - 15" x 9-1/2" x 3/4" plywood (fan inlet adapter)
1 piece - 6" x 6-1/2" x 3/4" plywood (fan exhaust adapter)

6 ft - Piano hinge (cut into 4 pieces)
2 - Chest handles (lifting handles)

4 - Corner brackets (to clamp filter in place)
2 - 2" L brackets to retain folding bottom
2 - 1/4" "T" nuts for for attaching "L" brackets to fixed side
2 - 1/4" bolt to fastening "L" bracket to fixed side