

MAKING THE PERFECT FLAT

by Anna Thompson

Making theatre flats is like making martinis. There are hundreds of ways and few of them are wrong. This basic unit of scenery uses a minimum of materials and tools. Take our tips for building and you will have a stock flat to use for years to come.

WHAT YOU WILL NEED:

TOOLS

Drill with phillips head screw bit
Circular or power miter saw
Framing Square
Staple gun and staples
Mat knife and sharp blades

MATERIALS

1 x 3" or 1 x 4" lumber
3/4" drywall screws
1/4" plywood scraps at least 9" wide
White glue and an old crummy brush
Natural unbleached 100 % cotton muslin
Scenic paint for priming or base coating
Nails and tight pin or loose pin hinges for joining flats

CONSTRUCTION TECHNIQUE:

1. CUT

Using the 1 x 3" or 1 x 4" lumber cut the rails of the flat to the width desired. Usually 4' - 6' wide flats are easiest to handle. Cut the styles of the flat to the height desired. Remember to subtract the combined width of the top and bottom rails from the length of the styles. Use your framing square to make sure the cuts are square. If you are building a stock of flats try to choose a common height for all your flats. On smaller stages 8' or 10' flats are adequate. On larger stages 12' or 14' flats are common. Cut the toggles subtracting the combined width of the styles from their length. On taller flats two toggles are recommended. Cut cross braces for the top and bottom corners of the flat. The ends will be cut at 45 degrees. When making several flats you may want to develop a cutting list so that all lumber can be cut at once. This may also help you when ordering lumber. Cut a supply of cornerblocks and keystones out of 1/4" plywood. Usually corner blocks are 9" right triangles and keystones are 9" x 2". Note the direction of the grain on the drawings at the right.

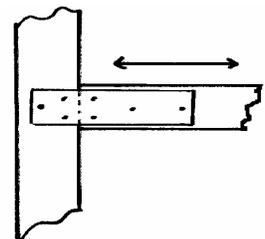
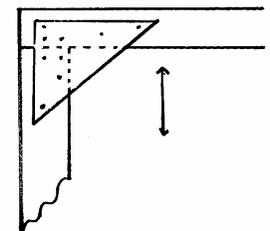
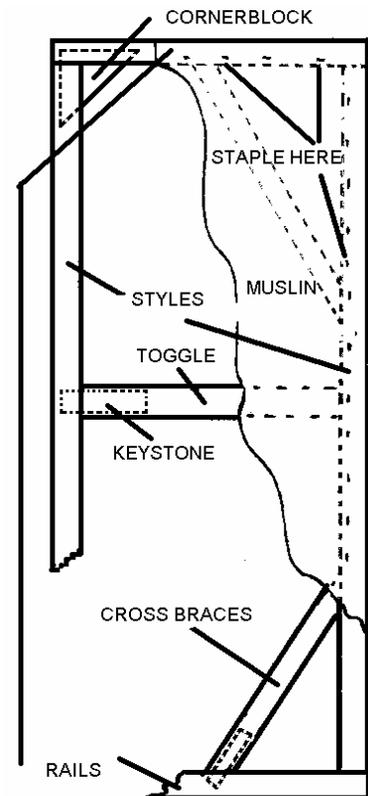
2. ASSEMBLE

Lay out the frame of the flat on a work table or floor. Using your framing square join the flats using the keystones and corner blocks. For extra strength use glue and screws in the pattern shown. Be sure to offset the corner blocks and keystones at least 3/4" from the edge of the flat. Use a block of scrap lumber as a gauge. This is very important for joining flats.

3. COVER

Cover the flat with muslin. Norcostco stocks muslin up to 10' wide. Using the width of the muslin to cover the height of the flats is usually most economical. Do not use polyester blends or bleached muslin for covering flats. All cotton muslin will shrink to

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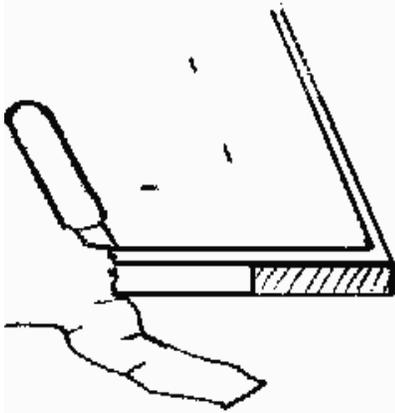


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fit the frame and bleached fabric is difficult to paint. Tear the muslin to approximately the right size with at least 6-12" to spare. Flip the assembled frame so that the corner blocks and keystone are down. From the center of opposing sides staple the fabric to the frame. Staples should be near the inside edge of the frame spaced about every 6-8". Since the fabric will shrink do not stretch the fabric tightly-leave plenty of slack in the middle of the frame. Don't be concerned with wrinkles but try to keep the fabric square on the frame so there is no bunching at the corners. Flip the edges of the muslin up to reveal the frame of the flat. Coat the rails and styles with white glue and smooth the muslin over them. A damp sponge will help pull the glue through the muslin for a stronger flat. Allow this covered frame to dry thoroughly. Using a sharp mat knife trim the muslin on the top of the frame. Set the knife about 1/4" in from the edge. Do not trim too closely to the edge or wrap the muslin around the frame. Both of these approaches will lead to frayed fabric which is impossible to repair and prevent the clean joining of flats.

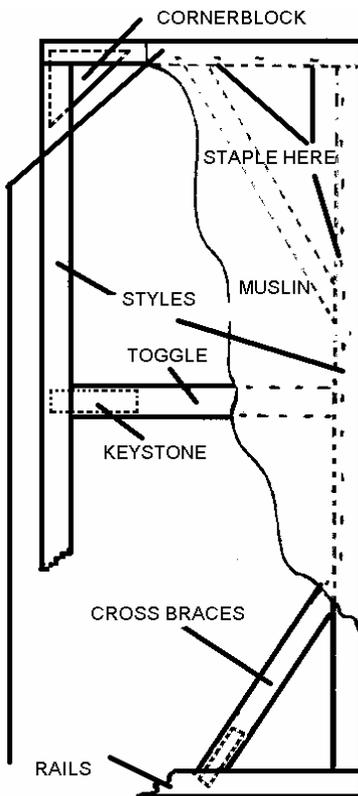


4. PRIME AND BASE

Prime with a mixture of 5 parts water to one part scenic paint or if desired flame retardant. Norcostco stocks Rosco C26 flame retardant which can be thinned with water for priming and P50 flame-retardant that can be mixed in with scenic paint. This will soak through the muslin, shrink it and prepare the surface for painting. Base coat with a neutral color or the predominant color of your set. ****Here is a great tip for using up paint from previous shows. Use one 5 gallon bucket for light colors and one for dark colors. At the end of your show or school year empty all mixed paint into them and cover the buckets tightly. You will always have a supply of neutral light and dark primer and base coat available.**

5. JOIN

Join flats by using tight pin hinges on the face for inside corners. Norcostco stocks economical loose and tight pin hinges sized for flat construction. Before final painting a dutchman or strip of torn muslin is painted or glued on to hide the hardware. These units are often left assembled as a "book" flat. Outside corners can be nailed or joined with loose or tight pin hinges. Joining flats with keystone and cornerblocks offset by 3/4" will allow for a nice tight outside corner and no dutchman will be needed. If you design corners into the set it will often be self supporting and a minimum of bracing will be needed.



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