



MAKING AN INSULATED ROMAN SHADE

Housing Fact Sheets

One way to reduce heat loss through windows and make the room more comfortable is to use Insulated Roman Shades.

Insulated Roman Shades are one of the most popular and practical insulating window treatments for home construction. They consist of two layers of fabric, insulation and a vapor barrier. They are fastened to the top of the window frame, or to the wall above the window to allow for a completely exposed window are when the shade is up. The bottom is sealed by using weights or Velcro and the sides are clamped with strips of 1" x 2" lumber. A tight and effective seal is possible if the shade is properly made and installed. If the shade is tightly sealed at all edges, very little moisture will condense on the window and will evaporate when the shade is opened.

Insulated shades have some definite advantages over other insulative treatments.

- They:
- do not require storage space,
 - are easy to construct,
 - do not require woodworking skills,
 - are easy to seal at edges,
 - usually are translucent,
 - are easy to operate.

A major disadvantage of insulated shades is their bulk and weight, making them difficult to use with conventional window hardware. In addition, they usually have a non-conventional appearance.

Energy saving window treatments are most effective when they meet the following conditions:

- all edges are tightly sealed,
- contain insulative material and a vapor barrier,
- fit within 4/4" - 1 1/2" from the window glass,
- are used properly.

Insulating batts used in the construction of flexible window treatments such as Insulating Roman Shades have varying R-values. Bonded fiberfill is R-2 and Thinsulate (made by 3-M Company) is R-4 per inch of thickness. Bonded fiberfill is preferred over other fiberfill because it is more stable and easier to handle. Thinsulate may be difficult to find and is more expensive than fiberfill. However, price may not be a major disadvantage, as one layer of Thinsulate equals two layers of fiberfill in insulative value and is less bulky.

The vapor barrier in Roman Shades should be 4-mil plastic and should be placed directly behind the face fabric on the warm side of the insulation. This placement is critical because it is very important to prevent the moisture in the warm room air from passing through the shade and condensing on the window. Inexpensive builder's quality plastic is sufficient for this use.

Side clamps made of 1" x 2" lumber and fastened to the molding with spring loaded hinges give a tight seal at the sides. The clamps should extend from the top of the shade, to the sill or floor. For windows without moldings, cabinet hinges may be used to fasten the 1" x 2" to the wall beside the window. Weather stripping glued to the

wood strip may give a better seal against the shade. The wood clamps may be painted, stained or covered with fabric to blend with the room's decor.

STEPS FOR CONSTRUCTION OF SHADE

- Determine the length and width of the shade by measuring the distance from the top to the sill or floor, and between the center of the molding or wood strips. Draw to scale on graph paper.

- Allow 1/4 inch more material for each row of tufts, as the stitching draws the materials together, and for 1/2 inch seam allowances on both sides, top and bottom. If more than one layer of insulative material is used, it may be necessary to allow more than 1/4 inch per row of rings because of the thickness of the layers.

- Pre-wash the fabric (cotton/polyester blend is best). A tight weave has low air permeability and is easy to sew on because of its stability.

- Cut the materials to required cutting dimensions. Lay the face fabric and lining together (right sides together) with lining on the bottom. Then place plastic sheet on face fabric; and from one to three layers of bonded fiberfill or Thinsulate. Pin the layers together (place pins only in the seam allowance) and sew sides and bottom seams 1/2 inch from edge, using 8-10 stitches per inch. Trim fiberfill or Thinsulate to stitching. Turn right side out.

- An alternative method for assembling the layers would be to baste the insulation to the wrong side of the lining fabric, using just enough long running stitches to hold it in place. Next, pin the vapor barrier to the wrong side of the face fabric, pinning only in the seam allowance. Place the right sides of the two fabrics together, place pins in the seam allowance then stitch the sides and bottom.

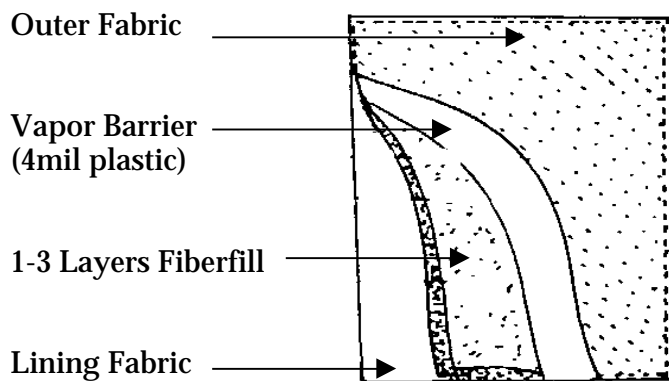
- A dowel may be placed inside the bottom edge of the shade to give added stability and a firm, straight edge. Before the stitched shade is turned right side out, measure the distance between the side stitching and cut the dowel to that length. Turn the shade right side out. Place the dowel inside the shade at the bottom, in the center of the layers. Top stitch just above the dowel, using a zipper foot.

- Top stitch 1/2 inch around remaining edges, turning in the 1/2 inch seam allowance at the top. Additional stitching is not recommended because needle holes permit air leaks and reduce the efficiency of the shade.

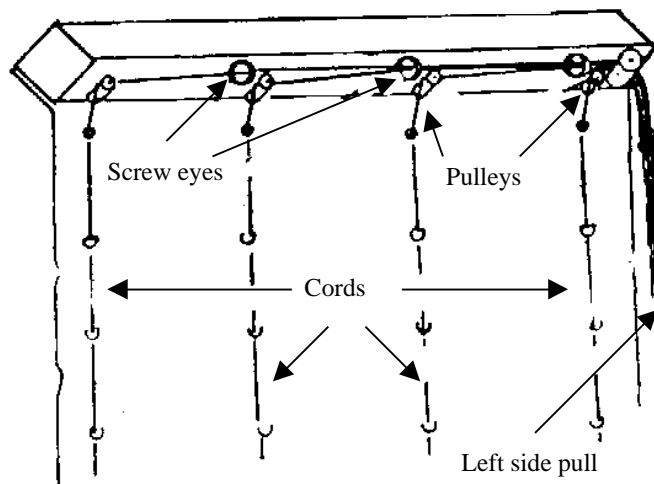
- Plan placement of rings in at least three rows to insure proper operation of the shade. Rows should be 8 or 10 inches apart and should be parallel both vertically and horizontally. Leave three or four inches of shade below the bottom row of rings and four or five inches beyond the last row on each side. Lay fabric on flat surface and mark with pencil to indicate the placement of each ring.

- Using sturdy crochet cotton, tie double quilting knots through all layers attaching 5/8 inch plastic rings on lining side. Make one stitch for each ring; cut yarn, leaving about two inches,

Layers of Fabric (Right Side Out)



2" x 2" mount board



Back of insulated Roman shade

then tie on the ring. Or rings may be sewn on by machine.

- If snap or Velcro tape is to be used to attach the shade to the top of the window molding, stitch one

side of the tape to the back of the shade at the top. Tacks or staples are another alternative for attaching the shade to the molding.

- Attach screw eyes in upper edge of window frame or to lumber strip, to correspond with rows of rings on back of shade. Attach tie-down cleat to inside of window casing about 8 inches above the sill and close to the window sash. Place another screw eye directly above the cleat and in line with the other screw eye. This helps to reduce stress on the cords. For shades wider than approximately five feet, it is recommended that small pulleys be used instead of screw eyes, using larger pulleys as the number of cords increase across the top.

- Another alternative for very wide triple sliding glass doors would be to use a very small pulley above each row of rings, and a screw eye beside the pulley. The cord from each row goes through the pulley but the cords from previous rows go through the screw eye. The screw eyes increase in size to accommodate the increasing number of cords. The pulleys are all the same size except the one or two larger ones at the end. At the end where all the cords meet, one large or two medium size pulleys should be used to hold all the cords.

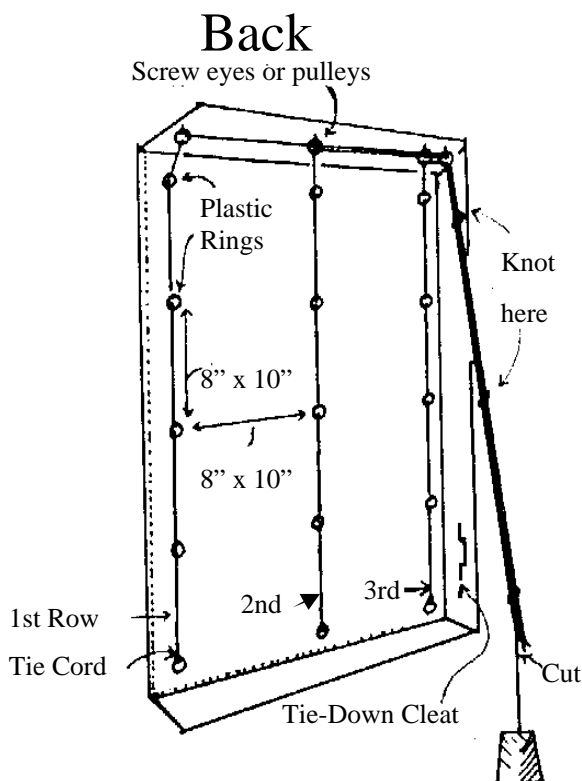
- For sliding glass doors it is important for the shade to stack above the window areas to permit full use of the door. A shade 8 feet long easily stacks in 18" of wall space. Attach a 2" x 2" piece of lumber to the wall up against the ceiling. Place the pulleys and screw eyes in the bottom edge of the lumber. If stacking above the window is desired for smaller windows, attach a smaller piece of lumber 5" to 6" above the top of the window.

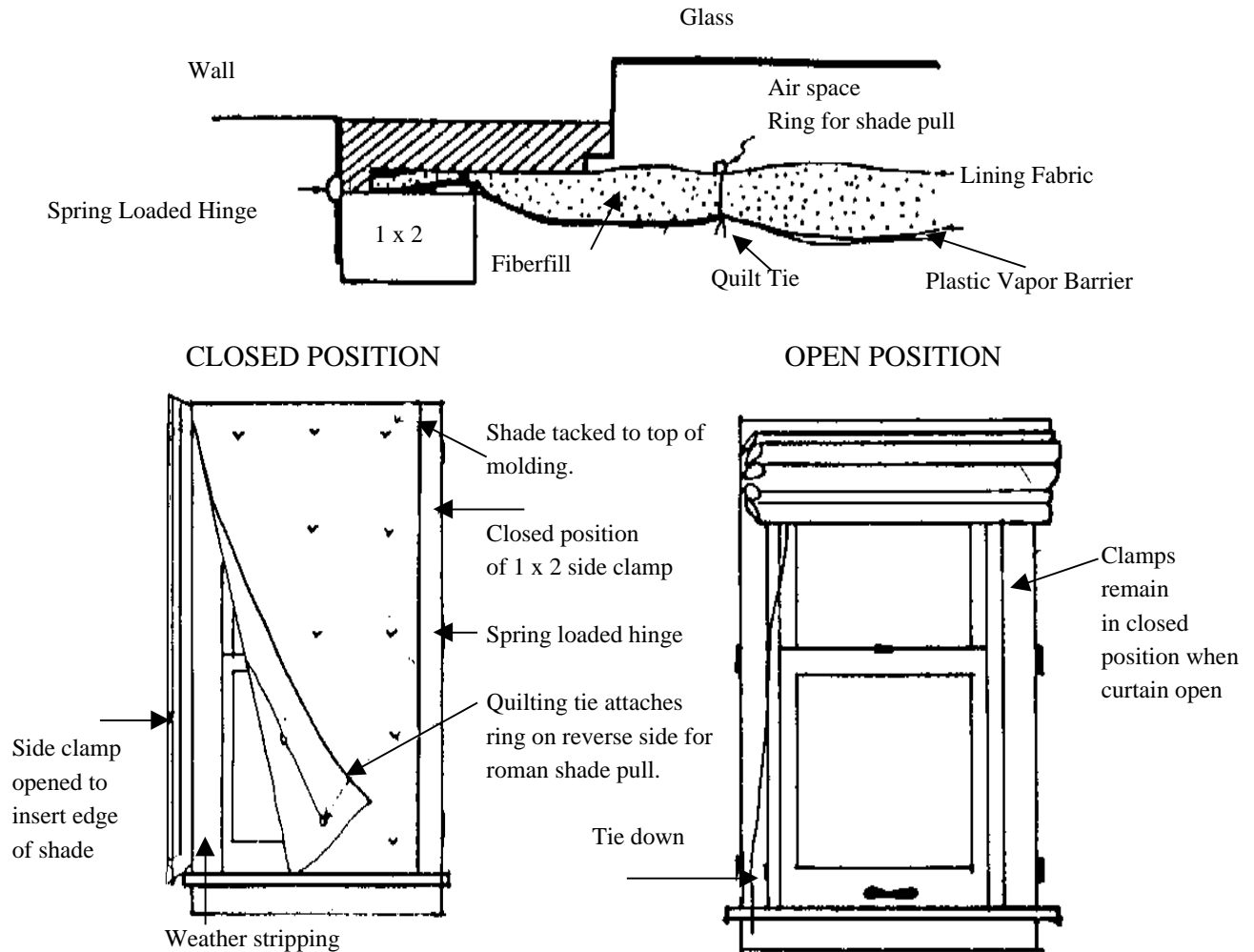
- String the shade by following these steps. Attach the shade to the top of the window. Place the spool of sturdy nylon cord on the window sill or floor on the same side of the window as the tie-down cleat. Take the cord to the top of the shade and through all the screw eyes or screw-eyes and pulleys, then down through the first row of rings to the bottom ring. Tie the cord securely to the bottom ring. Cut the cord off the spool 8 to 20 inches longer than the tie-down cleat. Repeat this procedure, starting with the same screw eye but taking the cord down through the second row of rings. Tie cord to the bottom ring. Repeat until all ring rows has been strung.

Pull all cords to the same tautness and knot together just below the common screw eye. Additional knots may be made at midpoint and at the end of the cords. Sear the ends of the cords over a match or candle flame to prevent raveling.

For small shade only, an alternative to using a tie-down cleat is to attach a heavy fabric covered counter weight such as a fishing weight, to the end of the cords. The weight holds the shade in the open position.

This shade could be rolled instead of pulled into folds. If rolled, it covers less of the window area when open, and it also requires less construction time as the quilting and rings are unnecessary. It does, however, make a bulky and rather unattractive roll at the top of the window.





CARE AND CLEANING OF SHADE

The shade should be brushed and vacuumed frequently to remove surface dust. When cleaning is necessary, the shade should be washed gently by hand in warm water and mild detergent. Let it soak for 15 to 30 minutes, then rinse until water is clear. Hang to drip-dry. Do not wring. A very large shade could be washed and rinsed in the bath tub.

Dry cleaning is not recommended for the insulated shade because of the plastic vapor barrier and the insulation material.

R-Value: Covering and air space: 3.0 - 4.5 depending on amount of insulation Cost/Foot²: \$2.00 - \$3.00 depending on fabric and amount of insulation Payback Period: 2-3 years.

To simplify information, trade names of products have been used. No endorsement is intended, nor is criticism implied of similar products not named¹.

¹ Adapted with permission from: What About Windows? Wisconsin Energy Extension Service, University of Wisconsin - Extension. Written by Clark Garner and Regina Rector, Department of Design and Environmental Analysis, Cornell University. Reviewed and revised October, 2000