



Housing Fact Sheets

INSTALLING AN ENERGY EFFICIENT ROLLER SHADE

A correctly mounted roll shade made of non-permeable material is an efficient and cost effective energy saving window treatment. Two types of installations are described in this fact sheet: an inside mount and a sealed outside mount. The inside mount is an easy installation that is very cost effective because the shade is the only expense. It is installed inside the window frame, close to the glass, with no more than 1/4" gap between the shade edge and the frame. A shade installed in this manner will reduce heat loss by about 25%.

The sealed outside mount is somewhat more complicated and requires the use of materials that increase the cost, making this installation less cost-effective. All four edges of the shade are tightly sealed, thus reducing heat loss by about 45%. Tracks are added to the sides and weather stripping is added to the bottom and the top. An unsealed roll shade, mounted outside or over the window frame (also called the casing) is nearly as effective as one mounted inside. For further increased effectiveness install two shades, one mounted inside and one mounted outside the window frame. These may both be unsealed for an R-value of about 1.8 or; inside unsealed and outside sealed for a total R-value of 2.3.

Should You Install an Inside or Outside Mounted Roller Shade?

The type of window is an important factor in choosing between an inside or outside mounting position. A casement window that opens inward or a window with protruding hardware may make an inside mount roll shade impractical. An outside mount should be used if the window is not square. This is determined by measuring verticals, both horizontal, and both diagonals, which should equal each other. A window with a deep frame should have an inside mounted shade if possible as it will be more effective. A shallow air space of less than 1-1/2" is an effective insulator, but a deep air space permits air circulation and reduces effectiveness. Windows with curved, ornate casings are not suited to an outside type mount. Broad, flat window frames are ideal for this type.

The shade fabric must be non-permeable. It should also be flexible with some horizontal rigidity so that it does not curl at the edges when unrolled. Curling becomes more evident as the material ages. Any shade material to be used with side-tracks should have a smooth

texture to minimize friction as the shade is rolled and unrolled. Either vinyl, polyester, or polyethylene may be used. A reflective material such as Foylon (Duracote Corp.) may also be used, with the reflective side facing the glass. The reflectivity slightly increases the R-value. This reflective material should not have a plastic coating on the reflective side as this reduces the R-value. It should have a vinyl backing for durability and to provide a vapor barrier.

INSIDE MOUNTED ROLLER SHADE

When buying a new shade for an inside mount or when changing one from an outside mount, it is necessary to choose a shade with a larger than needed tip-to-tip measurement to insure that the shade material fits tightly within the window side jambs. Be sure to compare the purchased fabric width with the needed width. Always remove the shade from the roller before cutting. The roller and the shade material can be cut to fit inside the window jambs by following these instructions:

1. To insure that the shade material is no more than 1/4 inch from the window jambs, the material and the roller should be cut separately.
2. Remove the material from the roller before cutting it.
3. The roller must be shortened at the end with the round pin.
4. Measure the distance between the window jambs. This will be the tip-to-tip length of the roller.
5. Starting at the spear end of the roller, measure and mark on the roller the tip-to-tip length.
6. Remove the pin and cap. If the roller is wood, use pliers to remove the pin from the cap, then remove the cap. In cardboard rollers, the pin and cap are one assembly.
7. Subtract the length of the pin from tip to pin shoulder, (for wood roller) or the length of the pin and cap assembly (for cardboard roller) from the marked tip-to-tip length of the roller. This will determine where to cut the roller.
8. Mark this measure and cut the roller, and then replace the metal cap and pin.
9. Measure the width of the shade to allow no more than 1/4 inch gap between it and the window jamb (1/2 inch total both sides). Usually this will result in the shade material extending to the outer edge of each metal cap, allowing only the pin and spear to extend.
10. Carefully mark the correct width on the shade and cut, using a mat knife and a straight edge.
11. Staple the shade material on the roller. Most rollers have a line for squarely attaching the material. Position the material to this line and staple. If the roller has no line, draw one to use as a guide.

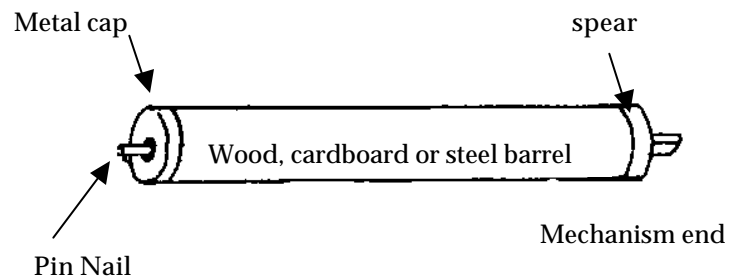
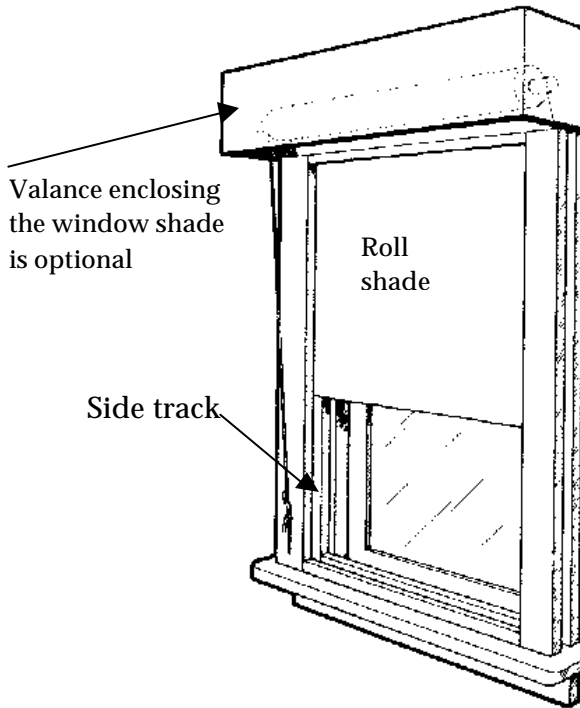


Figure 1

12. Add a length of foam weather stripping to bottom edge to insure a close fit. Remove the protective plastic pull if present.
13. Install the shade hardware inside the window jambs in a position to place the shade near the glass, and as close to the top as possible. Then insert the shade.

SEALED OUTSIDE MOUNTED ROLLER SHADE



A higher R-value and increased energy savings can be achieved by sealing the roll shade. However, this procedure requires additional materials and a substantial time investment. Simple carpentry skills and good craftsmanship are necessary; and the consumer is cautioned to balance the investment against the expected energy savings. Sealing the roll shade will increase the R-value from 1.35 to about 1.6 with typical roll shade material and to as much as 2.25 with a reflective material

The steps for making a sealed roll shade are: prepare roller and shade fabric, prepare bottom edge of fabric, pre-assemble side tracks, and install side tracks.

Figure 2
Front view of window shade and side-tracks

Materials needed are:

- 1/4" thick tempered hardboard such as Masonite (whole or half sheet - depending on window size).
- Sandpaper
- Yellow wood glue
- V-strip weather stripping, available from building supply or hardware stores
- Roll shade¹
- 3/4" - 1" nails or screws
- Paint or other finishing material

¹ Roll shades typically contain a spring roller mechanism

- For shades wider than 3'6" or longer than 4'6" a positive pull type roller mechanism (operates by pulling a cord or chain) is necessary because of the friction in the side tracks.

A. Prepare Roller and Shade Fabric

1. Measure distance from outer edge to outer edge of flat window casing, or--for dorm-shell or ranch type molding--from points where moldings begin to slope. This is the tip-to-tip measure for the roller. Align mounting brackets with these measuring points. Install brackets.
2. Roll shade material width should always equal the measured tip-to-tip roller length from step #1. This allows extra fold material necessary to turn side hem. It may mean buying a longer than necessary roll shade and cutting it to fit.
3. Remove fabric from roller.
4. Cut roller to desired tip-to-tip length using directions on page 2, steps 3 and 5 through 9.
5. Remove wooden insert from bottom hem of shade.
6. Make 1/2" single turn hem on each side of shade material. Stitch close to fold (1/8" or less).
7. Attach hemmed shade to roller by stapling or gluing material to marked line on roller. If roller has no line, draw one to insure that material is mounted straight.
8. Install this modified roll shade on window using brackets provided. Fabric should roll toward window.

B. Prepare Bottom Edge of Fabric

The bottom edge will rest against the window sill or bottom casing molding.

1. If purchased shade has bottom hem and wooden insert, remove insert and cut it to fit loosely between side tracks. (tip-to-tip roller length minus 3").
2. Replace wooden insert in bottom hem.
3. If shade does not have a bottom hem and insert, make on by gluing two

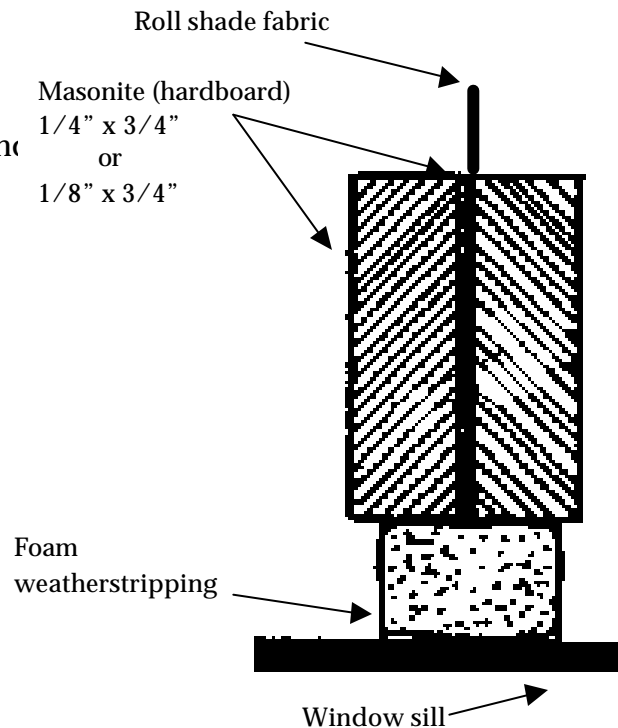


Figure 3
Section view

3/4" wide strips of hardboard over the lower edge of the shade. Attach a strip of foam weather stripping to the side that will touch window sill or bottom frame.

C. Preassemble Side Tracks (Two per roll shade)

1. Determine the length of tracks by measuring from the top edge of the window to the bottom edge of the casings or from top edge to window sill, if present.
2. Cut hardboard into strips. For each roll shade cut two each of 1-3/8" width and 3/8" width.
3. Cut length of strips to equal the measurement in step #1.
4. Sand one side of each wide strip until smooth. This will face the inside of the track. (Some materials may be smooth when purchased.)
5. Glue narrow strip to wide strip as shown (Figure 4) using yellow wood glue and C-clamps. Note that the rough side of the wide strip faces out. Clean off excess glue. Let dry.
6. Sand where necessary.
7. Drill pilot holes every 6"-8" for attachment screws. Size and type of screw or nail will determine size of hole. Sand holes.
8. Finish as desired. Do not paint inside surface.
9. Clean all paint and glue from inside track. This surface must be smooth.
10. Attach V-strip weather stripping at open edge of track as shown in above illustration.

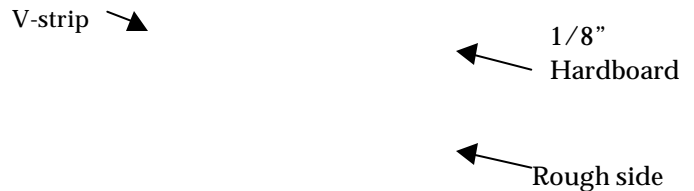


Figure 4:
Exploded section view of side track

D. Install Side Tracks

1. Align top edge of side tracks with roll shade as shown in illustration. The bottom edge of the track should touch the window sill or align with the bottom casing.

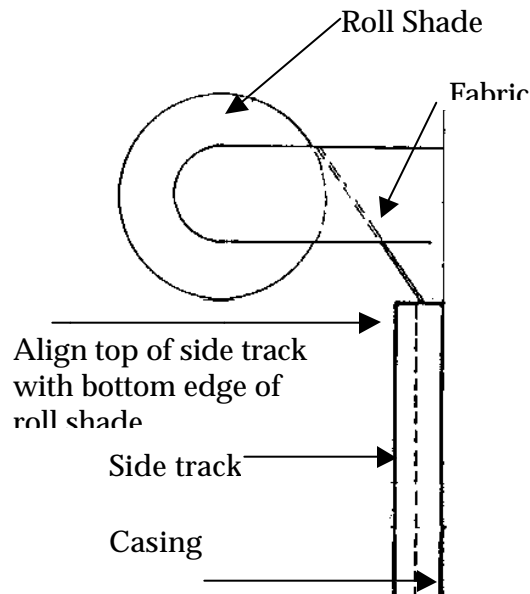


Figure 5:
Side view of Window

2. Position outer edge of side track to align with roll shade mounting brackets. This will align the edge of the shade fabric in the space between the narrow part of the track and the V-strip weather stripping. The shade fabric should not rub against the V-strip. If it does, move side tracks inward.

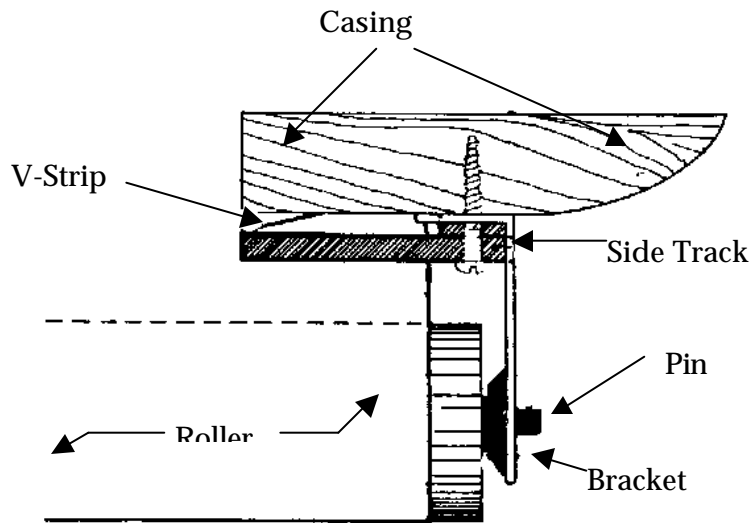


Figure 6:
Looking down from top of window

3. Prepare window frame by sanding window casing. Surface may also be waxed to further reduce friction where tracks will be mounted.
4. Attach side tracks with screws through drilled holes. Countersink screws if desired.

5. Pull shade material down into side tracks, using spatula or putting knife if necessary.
6. Check operation of roll shade mechanism. Too much friction will prevent smooth operation. Friction may be caused by rough inside surface, shade cut too small, or wood strip in bottom hem too long.
7. Install length of V-strip weather stripping along top so that one side rests against the roll shade material. Now the roll shade is sealed on all four edges. Small gaps or breaks in the sealed edges, if any, should be filled with V-strip, foam, or felt weather stripping.

SUMMARY

The procedure outlined in this fact sheet for assembling and installing the components to seal a roll shade are somewhat complicated. The careful detailing shown is necessary to achieve the desired R value. Good craftsmanship is essential. This is not a beginner's project. Commercially made window treatments are available if you prefer to purchase rather than make them. Window treatment manufacturers listed below sell their products at retail outlets throughout New York. Contact them to obtain names of stores near you that sell these products.

Willow Quilt, Phone: 1-800-257-4501

The Warm Company, Phone: 1-800-234-9276

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