HOMEOWNER REPAIR GUIDE

SELF-ADHERING MODIFIED BITUMEN

Roll roofing for flat roofs

Over the last decade or so, manufacturers have been making new and improved roofing materials for do-it-yourselfers. The latest product is the easiest yet – essentially a "peel and stick" roofing material that, installed correctly, should last many years. **Self-adhering modified bitumen roll roofing** is designed for "flat" roofs with a pitch of 4/12 or less, typically found over shed-type garages and second-floor porches. As with other types of modified bitumen materials, the cost may be a bit higher than traditional asphalt roll roofing, but the additional price is justified by how easy the product is to install and how long it will last.

THE MATERIALS

Several companies make self-adhering modified bitumen products, and you can usually find them at retail home centers and building supply stores. The system is designed to have at least two layers. (Both layers are self-adhering.)

MATERIAL	DESCRIPTION
Base sheet	A special "base sheet" designed for the self-adhering material.
Cap sheet	Installed over the base sheet. For residential roofs, get the granulated cap sheet that requires little maintenance (the smooth type is primarily used for commercial roofs, and must be coated periodically). The cap sheet comes in a variety of colors, so you can match the shingles on your house roof.

The manufacturer will usually offer a guarantee on the membrane if the application requirements are followed exactly. If you contract the job, you'll want to make sure the roofer you use is familiar with the product to be installed, is experienced with the installation methods that will keep the warranty in force, and promises to use those methods in the written contract.

GUIDELINES FOR ANY INSTALLATION

Whether you do the job yourself or contract it, there are a few guidelines to follow:

GUIDELINE	DETAILS
Permit	A permit may be required; check with the Building Department in your community. (In Cleveland Heights, you'll need a permit for this job if it involves replacing any of the supporting structure of the roof – joists, beams, etc. – or if all the sheathing will be replaced. No permit is required for a job where you roof over an existing layer or replace only part of the roof sheathing.)

Weather	It's best to install self-adhering modified bitumen roofing in warm, dry weather; if the roofing is applied in cold weather, it may not adhere adequately and develop humps or ridges (due to expansion) when temperatures rise.
Strip the old roof	You'll get the best result if all the old roofing material is stripped off before the new roofing is installed. The seams and old nails from a previous layer can cause bumps and ridges in the new layer, and – especially if the seams of the new roofing are directly over the old ones – you'll end up with dams that hold puddles of water.
Recover board	You must install **recover board** (two-sided fiberglass-faced 1/2" Polyiso insulation board) if you don't strip off the old roofing. (You screw the recover board down to the surface with metal plates.) Even if you remove the old roofing, however, installing the Polyiso board will add insulation if the roof is over a living area; you can get thicker 1" boards, or double-up the 1/2" boards to add R-value.

IF YOU PLAN TO INSTALL THE NEW ROOFING YOURSELF

PREPARE THE AREA

The first step is to prepare the area. If you are re-roofing a walk-on porch roof, take down the handrails and posts to minimize protrusions through the new material. (If you try to wrap the roofing around posts, it just creates a potential leak problem.) On garages, remove the shingles that form the ridge cap. Then, strip the roof. A roof removal tool, flat edge shovel, or heavy ice scraper will clear the deck area quickly. (You'll spend much more time bagging up the debris!) Use a pry bar and hammer to get out any leftover nails. Be sure to clean up all the debris from the ground. Some tool rental stores have magnetic "brooms" to collect the roofing nails that have strayed into the driveway and yard. If you won't be able to install the new roofing immediately, place tarps over the exposed wood sheathing (especially if rain seems imminent).

INSPECT THE DECK

Once the deck is clear, inspect the wood carefully. If some of the planks are rotted or missing, replace them. If the entire surface is poor, re-deck it with 3/4" CDX (exterior grade) plywood. If the roof is not a walk-on deck, you are permitted to use 1/2" CDX or 1/2" OSB (oriented strand board). We suggest that you stay away from OSB for a walk-on deck, because it can weaken significantly if it becomes wet. (Plywood is much more forgiving.) Replace or "sister" any joists or rafters that no longer provide solid support to the deck, or that sag and allow water to puddle.

INSTALL THE BASE SHEET

Start the installation of the new roofing by installing the first piece of the base sheet. Although you can carry the entire roll of this material up to your roof deck and cut it there with a utility knife, you might find it easier to pre-cut pieces a few inches wider than your roof and carry one piece up at a time.

1. **First (half-width) piece.** The first piece you install will be only a half width, so the laps in the base sheet will be "staggered" with the laps in the membrane on top of it (to minimize puddles that could occur if the two seam joints were directly over one another). Measure up 18" from the gutter board at the lower edge of the roof, and position the seam edge of this piece at that height. (You can snap a chalk line, if desired, to make sure your row is straight.)
2. **Tack the corners.** Drive a **1" cap nail** into the selvage at one top corner. Pull the piece taut and, at the top corner of the other end, pull off a bit of the release paper on the back side, just enough to expose the adhesive surface. Stick that corner down and drive another cap nail through it.

3. **Remove the release paper.** Then, pull off the remaining release paper from the back side of the sheet; the release paper is split into two halves, so you can pull off the strip covering the top portion first and then the strip covering the bottom portion. (Make sure you get off all pieces of release paper.) Leave the release paper on the selvage edge until you're ready to stick down the next layer, to keep the adhesive free from dust, granules, etc.

4. **Press it down.** Press the base sheet firmly in place as you go; to ensure a firm bond, you can then roll the piece with an 80-pound roller, or just "step it in." Once you have this first layer installed, cut the bottom edge of the base sheet so that it overhangs the roof edge by 1".

5. **Next pieces.** Your next piece of base sheet will be full-width. You install it just as you did the first, with the bottom edge of this second sheet overlapping the selvage edge of the sheet you just installed. After you have stuck down the top half of this second sheet, strip off the release paper from both the selvage of the first sheet and the bottom half of the second sheet, so the surfaces stick firmly together.

6. **Finish the roof.** Continue this process for the rest of the roof, positioning each new piece of base sheet along the line at the bottom of the selvage of the sheet it will overlap. If you have a row where the material is not long enough to span the entire width of the roof, you can create a vertical seam by overlapping one piece over the other by 6". You don't need to nail along the seam; just stripping off the release paper will be sufficient. Stagger the position of any seams in adjacent rows.

> **HIGH-WIND AREAS**
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> If your roof is in a high wind area, you may wish to nail down the base sheet for extra security. Use 1" cap nails spaced 8" to 9" apart around the perimeter and along the lap-seams, and 16" to 18" apart in the field of the sheet.

INSTALL THE DRIP EDGE

After you have installed and pressed down the base sheet, nail **metal drip edge** atop the base sheet at the lower edge of the roof. Cut the drip edge to length using tin snips, and nail it down with roofing nails spaced 8" apart.

Next, unless you are roofing a garage with parapet walls (see special directions below), trim the base sheet flush with the sheathing along the rake (side) edges of the roof. Nail drip edge on top of the base sheet along the rake edges. If the drip edge isn't long enough to span the entire length of the roof, create a seam by overlapping the higher piece 1/2" over the lower piece, so water will not penetrate the seams.

Remove any pricing labels from the drip edge, and then spray it with a thin layer of **asphalt spray primer**, so the cap sheet will stick to the painted metal surface. Wear a protective mask and gloves, and use a piece of scrap cardboard to shield the adjacent siding on the house or garage from overspray. The primer will take about 30 minutes to dry.

> **TIP**
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> You may find it easier to prime the drip edge on the ground before you install it. The surface will be a bit tacky to the touch, but you'll avoid the risk of getting the primer where you don't want it.

INSTALL THE CAP SHEET

Now you're ready to install the cap sheet. It's important to roll the material out and let it relax for at least 30 minutes before you apply it to the roof. Sweep all debris off your driveway and lay the material with the granule side down, to keep dirt and grass from the adhesive surface (modified bitumen roofing will kill grass if you lay it on your lawn). Again, you can precut the pieces so that they extend a couple of inches beyond each side of the roof. For this

material, you will probably find it easiest to use a hook blade on your utility knife; puncture the middle and run your cut toward the top and bottom edges.

1. **First piece.** Measure the width of the cap sheet, and subtract 3/4"; snap a chalk line that distance from the bottom edge of the roof as a guide for the first piece. Position your cap sheet along that line with at least 3/4" extending on each side and at the bottom. At this point, a helper will make the job easier; while the helper stands on the cap sheet to keep it from moving, remove the release paper on the top half of the back surface and step the roofing down. Repeat with the bottom piece of release paper.
2. **Remaining pieces.** Install the rest of the cap sheet in the same way, again using chalk lines as guides.
3. **Vertical seams.** Where you have a vertical seam, overlap at least 6" and cut the bottom corner of the underside layer at a 45° angle to make sure that the top layer can adhere directly to the base sheet. If you have release paper on both layers, you can simply remove the paper from both pieces and stick them together; however, if one or both layers do not have release paper, you'll have to use **SBS flashing cement** to permeate the granules. The cement comes in a tube for use with a caulk gun; squeeze out a bed of the cement about 6" wide along the edge of the bottom layer and carefully embed the top layer in it. To camouflage any cement that oozes out along the seam, rub two pieces of scrap cap sheet together and let the asphalt granules fall into the cement.
4. **Roll and trim.** When you have the roof deck covered, roll over the entire surface with an 80-pound roller (plan to rent one at a tool rental). Then, use a straightedge and tin snips to cut the cap sheet along the bottom and rake edges of the roof, making sure that the membrane extends out over the drip edge by at least 3/4".

PARAPETS

If your garage has parapets along the sides, follow the manufacturer's instructions for how to install the membrane along the parapet. In general, if you have a clay cap, you'll use a termination bar with masonry fasteners every 6", caulking along the top. If your wall doesn't have a clay cap, you can run the roofing material up and over the parapet, and then place an aluminum coping cap on top. In either case, you'll have a better result if you insert a wooden cant strip at the bottom to divide the 90° angle into two 45° angles.

RIDGE CAPS AND WALL FLASHING

For a shed-type garage, all that's left to do is to install the shingles that create the ridge cap along the peak of the roof. For a porch roof, you'll need to flash (join) the roofing to any adjacent wall(s) of the house, again according to the manufacturer's directions. Pay special attention to this process, as the joint between the house wall and the roof deck can be a prime area for leaks if the installation isn't done correctly.

SIDING TYPE	FLASHING METHOD
Wood siding	You can run the cap sheet up over the bottom row, ending with a termination bar screwed at the top.
Aluminum and vinyl siding	You'll need to remove the bottom row of siding, run the cap sheet behind it, secured with cap nails. Run a bead of SBS cement along the top, and then replace the siding.

In either case, make sure all vertical seams are tight. Note that flashing around doors can be difficult for a do-it-yourself installation; calling in a professional in such cases may be advisable.

RAILING POSTS ON WALK-ON DECKS

Walk-on decks are required by code to have posts and railings to prevent an accidental fall. Depending on the type of post, the method of fastening the railing to the deck will vary.

POST TYPE	FASTENING METHOD
Hollow-box wood posts	See our handout entitled "Porch Railing Posts."
Solid wood posts	Apply a liberal amount of silicone caulk to the bottom of the post, and then toenail (or toe-screw) it to the deck. Run a bead of the caulk around the post once it is fastened.
Metal railing post brackets	These usually have exposed bolt heads. Be sure to use hot-galvanized lag screws (paint them with Rustoleum™ before installation), caulk the base bracket, and run a bead of caulk under the bolt heads to make a good seal.

Once the installation is complete, call your Building Department for a final inspection, if a permit was required for your job. Then, sit back and prepare to enjoy many years from this low-maintenance roof system.

LONG-TERM MAINTENANCE

In the unlikely event that you get a hole in the cap sheet, cut a patch twice as large as the hole, with rounded corners. Apply SBS roof cement to the back of the patch and press the patch in place. If cement oozes out around the patch, trowel the edge with a small piece of the roofing material. Camouflage the cement with asphalt granules rubbed from the cap sheet, as described above.

Home Repair Resource center

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

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