HOMEOWNER REPAIR GUIDE

MODIFIED BITUMEN ROLL ROOFING

A longer-lasting roll roofing material for flat roofs

They just don't make stuff like they used to. For a flat roof on a home or garage, homeowners are learning that the traditional roofing material – asphalt roll roofing – is probably not the best choice any longer. Asphalt roll roofing was once rated at 90 lbs. per square (enough to cover a 100 square foot area), and you could expect at least 5 to 10 years of service before the aging asphalt dried out and cracked, allowing water to seep through. (Sometimes you could get another year or two before you had to replace the roof entirely by coating the roofing materials with liquid asphalt.) More recently, however, manufacturers have been making the material thinner, so the asphalt roll roofing now being installed will only last a few years.

WHAT IS MODIFIED BITUMEN?

Whenever you re-roof, you're probably looking for a long service life and low maintenance requirements. Currently, the material that best fills this niche is modified bitumen roll roofing. When modified bitumen is applied using a **"hot process,"** the installation is generally done by a roofing contractor. Even inexperienced homeowners, however, can complete a **"cold process"** application. This job involves nailing a base sheet to the roof deck, spreading a cold adhesive over the sheet, and then bedding a top membrane (the modified bitumen roll material) into the adhesive with a roller or by walking back and forth over the material.

The membrane is made of a polyester mat impregnated with asphalt (bitumen) that is modified with a rubberized polymer. It resembles regular asphalt roll roofing, but is more durable and much more resistant to drying out. Modified bitumen costs more than asphalt roll roofing, but the increased longevity more than justifies the additional price.

Several companies make cold process modified bitumen products, but they are not available at all retail home centers. The manufacturer will usually offer a guarantee on the membrane – sometimes up to 20 years – if the application requirements are followed exactly. (There are specifications for the nailing, side and end laps, and the type or brand of adhesive.) 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	Cold process application of modified bitumen roofing is best done in warm, dry weather; if the roofing is applied in cold weather, it may develop humps or ridges (due to expansion) when temperatures rise.
Strip the old roof	You'll get the best result if all the old asphalt 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.

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 in just a few minutes. (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 DRIP EDGE AND BASE SHEET

1. Start the installation of the new roofing by nailing down a metal drip edge to protect the exposed lower edge of the plywood and keep it from getting wet *(see Illustration 1)*.

2. Meanwhile, roll out a couple lengths of the base sheet, 12 to 16 feet each, and let them "relax" in the sun to eliminate any tendency to curl. (Place the pieces on your driveway, as the material will kill grass if you lay it on your lawn.)

3. Fold the first row of base sheet in half lengthwise, and cut along the fold. This "staggers" the laps in the base sheet with the laps in the membrane on top of it, so the two seam joints are not directly over one another (to minimize puddles).

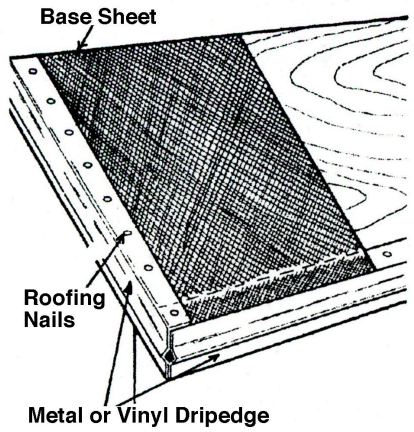


Illustration 1: Drip edge nailed in place under the base sheet on the bottom edge, and on top of the base sheet on the rake edges

4. Nail this starter strip to the lower edge of the deck, covering the drip edge. Measure from the bottom of the roof and snap a chalk line to make sure the first row is straight. Space the nails according to the manufacturer's guidelines *(see Illustration 2)*; the most common nailing schedule calls for the use of 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. The nailing is very important, as it is the nailed base sheet that keeps the membrane secured to the roof in high winds.

5. Lap the next row of base sheet over the starter strip by 2" or 3", and follow the manufacturer's nailing instructions for the lap seams and field nailing. Continue this process with the rest of the roof, using chalk lines to keep the rows straight and parallel.

6. When all the rows are nailed down and excess material cut off along the top and sides, install metal drip edge over the base sheet along the rake edges (sides) of the roof *(see Illustration 1)*, except on garages with parapet sides. Besides protecting the exposed edge of the wood deck, the drip edge also helps keep the roofing material in place in high winds.

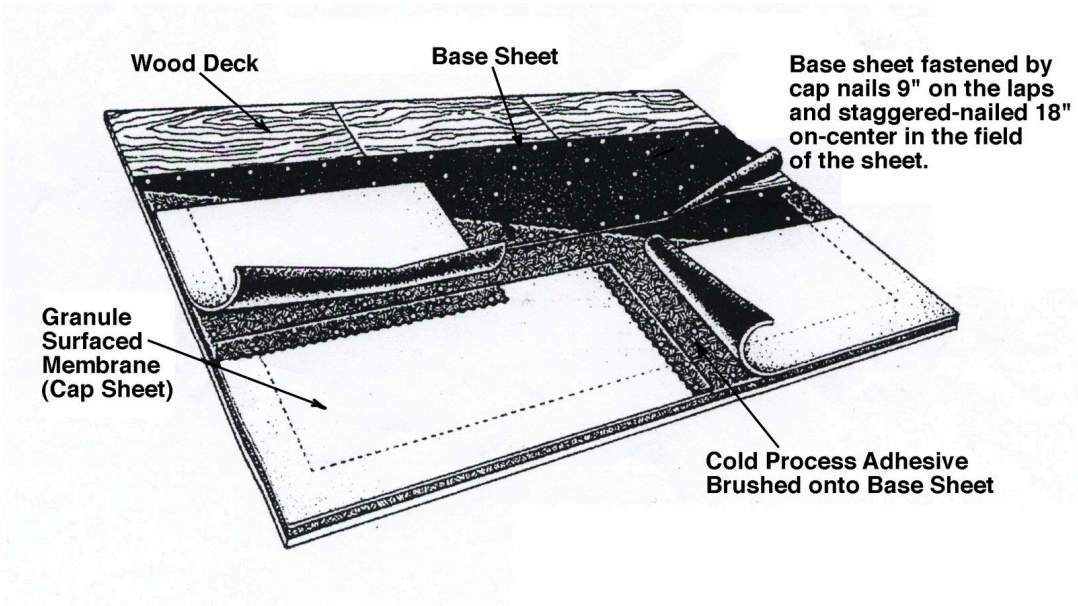


Illustration 2: Typical nailing pattern for base sheet

INSTALL THE TOP MEMBRANE

After the base sheet has been installed, roll out lengths of the top membrane to "relax." Make sure that the granule side is faced down, to keep dirt and grass off the side that makes contact with the adhesive.

Before you bring up the first piece of the top membrane, pour adhesive on top of the base sheet along the bottom edge of the roof, spreading it out over the area that the first row of roofing will cover.

> ### USE THE RIGHT ADHESIVE – AND THE RIGHT AMOUNT
>
> Use only the adhesive specified by the manufacturer for the roofing material you are using, and apply it according to their directions. The directions will specify how much adhesive should be applied per square (i.e., one and a half gallons per 100 sq. foot area); the adhesive is designed to soften the top layer for a better bond to the base sheet, but too much adhesive might burn through the material. The most commonly used applicators are a notched squeegee or trowel or a three-knot roofers' brush.

We suggest you find a friend (or two) to give you a hand with the lengths of membrane. As you lay out the first row, leave enough material to extend beyond the drip edges at least one inch. Smooth out humps or bubbles in the material by pulling the material at the ends; then, use a roller (or walk over the membrane) to "bed" the material into the adhesive.

To start the next row, spread adhesive on the "selvage," or lap area – the edge of the roofing material that has no granules – and on the area of the base sheet that will be covered by the next row of roofing membrane. Continue until the rest of the roof is covered, making sure to spread the adhesive only one row at a time. If you use two "remnant" pieces to complete a row, spread adhesive along the joint edge of the first piece and overlap it with the second piece by 6". (Make sure to position the pieces so that the seams in adjacent rows are not at the same point of the roof.)

When you have the roof deck covered, use a straightedge and utility knife to cut the ends of the membrane, making sure that the membrane extends out over the drip edge by at least one inch.

PARAPETS, RIDGE CAPS AND FLASHING

If your garage has parapets along the sides, follow the manufacturer's instructions for how to install the membrane along the parapet; several installation methods are common, so you need to know the method that should be employed with the material you are using.

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. Some manufacturers direct you to use the roofing material itself as the flashing, rather than metal. In this case, the material needs to be inserted behind the siding (at least 4 to 6 inches), and then lapped over the deck 6 to 8 inches and glued to the top membrane.

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

On the rare occasion when you encounter problems with a modified bitumen roof, it will most likely involve bubbling or ponding.

Bubbles (air pockets) occur where the roofing no longer adheres well to the surface below it; if you push on the bubble, you may hear a squishy sound where water has leaked under the membrane. You will have to cut out the bubbled section and replace it.

Ponding (standing water) occurs where there are low spots in the roofing. If more than 10–15% of the roof remains water-covered 24 hours after a rain, you should build up the low spots to prevent water from working through the seams of the roof.

Home Repair Resource center

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

WWW.HRRC-CH.ORG **+1.216.381.6100** **2520 Noble Road, Cleveland Heights, OH 44121**

© 2026, Home Repair Resource Center