



CHOOSING ROOFING MATERIALS

If you are confused about the various roofing materials available, the following descriptions may help you make your choice.

A principal division among roofing materials has to do with the “pitch” of the roof. This term refers to the angle a roof slopes. It is expressed in two numbers, such as “4-12.” In a roof with a 4-12 pitch, the roof drops 4 inches for every 12 inches it travels horizontally. Roof pitch can range from 0-12 to 12-12 and up. Roofs with a pitch of less than 3-12 are considered “flat” roofs.

MATERIALS FOR GABLE ROOFS (with a pitch of 3-12 or more):

Wooden Shingles, Slate Shingles, Cement Shingles, Clay Tile:

These roofing products were used on many older homes when originally built, but they are less commonly used today. Most of these products are designed to last 50 to 100 years. These are the most expensive residential roofs. They cannot be roofed over, but must be stripped off when a new roof is installed. They generally weigh a lot more than asphalt shingles, so the roof framing must be made stronger when the house is constructed to withstand the weight.

Organic or Fiberglass Asphalt Shingles:

These are the most common residential roofing materials used in this area. They are usually used on roofs with a 4-12 or greater pitch, but check the building code in your community. (Cleveland Heights, for example, requires that shingles also be installed on roofs between 3-12 and 4-12 pitch; the City recommends that in these cases an ice and water shield be installed beneath the shingles to prevent water from getting underneath the roofing material.) One additional layer may be applied over the first layer of shingles; however, on roofs that already have two layers of shingles, the roof will have to be stripped (torn-off) before the next layer is installed. If asphalt shingles are being installed on a roof that was originally covered with wood shingles (or, occasionally, slate or clay tiles), a base of plywood sheathing must first be installed over the entire roof surface after the old roof is removed – generally at an extra cost.

The difference between asphalt and fiberglass shingles can be confusing – even for roofers. Part of the confusion is due to the fact that fiberglass shingles are made from asphalt, and really should be called “fiberglass-asphalt shingles.” Both types of shingles have a base mat that is surfaced with mineral aggregates. In organic asphalt shingles, that base mat consists of felt made from rags, and paper wood pulp that is saturated and coated with asphalt. In fiberglass-asphalt shingles, the mat is made from glass fiber mat coated with asphalt. Although fiberglass shingles have a better fire rating than organic asphalt, both are considered acceptable.

The choice of organic asphalt or fiberglass-asphalt shingles will usually matter more to the roofer than to the homeowner. Fiberglass-based shingles, which are coated (not saturated) with asphalt, don’t get as soft during hot-weather installations – and thus aren’t so easily damaged. On the other hand, fiberglass shingles are more difficult to work with in very cold weather because they become brittle and can crack if flexed. For that reason, your contractor may recommend using organic shingles if your roof will be installed during the late fall or winter months; fiberglass, for a summer installation.

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Asphalt shingles, like most roofing materials, are sold in “squares.” Each square of shingles covers 100 square feet, or a 10' x 10' area. They are available in many colors and several shapes, although rectangular shingles are the most common. Interlocking and dimensional shingles each offer an alternative “look” to traditional three-tab shingles; you might want to drive around your community and look at various roofs to determine what you like.

Your choice between organic asphalt and fiberglass-asphalt shingles will generally depend on aesthetics, availability, and cost. Both types of shingles are warranted for 20 to 30 years. In most situations, a longer warranty correlates to a heavier shingle. The shingles will have a longer life expectancy with proper ventilation. Vents can be installed at any time, but they are often included with a re-roofing job.

MATERIALS FOR “FLAT” ROOFS (with a pitch less than 3-12):

RECOMMENDED CHOICES:

Modified Bitumen:

Modified bitumen is a generic name used for several different types of roofs, but usually refers to a single-layer roofing product used on “flat” roofs. One type is installed with a torch, using heat to melt an adhesive/tar that bonds the roofing material to the deck; application of hot-process modified bitumen is usually best left to a professional roofer. A safer alternative is to use cold-process modified bitumen, which is installed without heat, using an adhesive to bond the roofing to a base sheet.

The base sheet used with cold-process modified bitumen is a polyester mat, superior to both fiberglass and organic, which remains flexible even in sub-freezing temperatures. This roofing material easily lasts 10-15 years, but needs to be maintained annually (checking for and repairing any loose seams or joints, or any cracks), particularly as it ages. Installation on a do-self basis is well within the ability of most homeowners.

Single Ply EPDM:

This roofing is basically a sheet of rubber sold in large rolls, from 10' x 50' to 50' x 100'. EPDM comes in two standard thicknesses, .045 and .060, and is available in white or black. It can be installed in several ways; the most common method is to glue the EPDM to a high-density fiber recover board nailed or screwed to the roof deck. Special techniques must be used if the flat roof abuts an asphalt-shingled roof, since direct contact with asphalt will chemically break down EPDM.

EPDM has a life expectancy of 20-25 years; however, the manufacturer may not honor the warranty unless the installer has received factory training in its use. Its advantages are its “stretch” and, often, the chance for a seamless application, resulting in minimal maintenance and few leaks. Its disadvantages are a more complicated installation method and, if the roof is not large, the difficulty of buying a small sheet of material.

B.U.R.:

This is the abbreviation for “Built-Up Roof,” which, as the name implies, is a roof made from several layers of roofing felt alternated with coats of hot roofing tar. It has been widely used on commercial roofs for some time, but on residential buildings would only be found on very large roof areas. (Modified bitumen or EPDM are more appropriate for typical house or garage roofs.) Most people will not be able to install a B.U. R. on a do-self basis.

The differences among B.U.R. installations come in the material the felt is made from, the number of layers of felt, and the composition of the roofing tar. Generally, more layers of roof felt mean a longer expected life; between 10 and 20 years is common. A B.U.R. roof will need increased maintenance (checking for and repairing loose seams, joints, or cracks) as it ages.

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NOT RECOMMENDED:

Roll Roofing:

This product is an asphalt-based strip of roofing material. It comes in rolls, generally 36" wide by 33' long; one roll covers one square (100 sq. ft.) 90 lb. roofing is the most common weight. Roll roofing is available in several colors.

Roll roofing has a life expectancy of three to five years, at best. For that reason, it's no longer a good idea to use roll roofing. If you do decide to use this material, a half-lapped installation (with two layers of material over all parts of the roof) will offer the most longevity. The need for annual maintenance (checking for and repairing any loose seams, joints, nails, and cracks) increases with age.

Summary:

The pitch of the roof is always the first consideration when selecting roofing material. Budget constraints and the installer's familiarity with a certain product have traditionally been deciding factors after that. However, with the new materials available in the home repair field, the homeowner can now also consider longevity, maintenance requirements, and (if applicable) the ease of do-it-yourself installation. The chart below summarizes these variables:

Material	Average Life	Cost of Materials	Roof Pitch	Maintenance Required	Ease of DIY Installation
Asphalt Shingles	20 years and up	Inexpensive (about \$50+ per square)	3-12 or more*	Little	Moderate
Slate, Wood, Cement, or Clay Shingles	50 - 100 years	Most expensive (about \$800-3,200 per square)	3-12 or more*	Little	Hard
Modified Bitumen	10 - 15 years	Inexpensive (about \$60 per square)	less than 3-12	Moderate	Easy to Moderate
EPDM	20 - 25 years	Moderate (about \$90 per square)	less than 3-12	Little to None	Moderate to Hard
B.U.R. (contracted)	10 - 15 years	Expensive (about \$145 per square)	less than 3-12	Moderate	Hard
Roll Roofing	3 years	Least expensive (about \$40 per square)	less than 3-12	Moderate to Heavy	Easy

(2008 prices)

*Note: On roofs with a pitch between 3-12 and 4-12, an ice and water shield should also be installed.