

Asphalt shingle designations

by **Tom Bollnow**

Each month in this column, one of NRCA's technical services staff members will answer readers' technical questions. If you have a specific question you would like answered in this column, send it to Professional Roofing magazine, 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018-5607 or fax (847) 299-1183.

Q: Why are asphalt shingles no longer identified by weight?

A: Until the early 1970s, most asphalt shingles had organic reinforcement mats and were designated as 210 pounds per square, 215 pounds per square, 235 pounds per square, 250 pounds per square and 300 pounds per square. The published service life expectancies varied from 20 to 35 years.

During the middle and late 1970s, fiberglass shingles were produced in various configurations and large quantities. The fiberglass mats were lighter in weight, and these lighter shingles were publicized as having as much strength as heavier organic shingles. Therefore, the asphalt shingle industry shifted from weight designations to service life or warranty designations.

However, shingle testing and field observations, conducted by contractors, associations, designers and independent laboratories, have shown that weight alone is not an adequate indicator of shingle quality or field performance. The figure illustrates the range of published weights of organic and fiberglass shingles compared with various warranty designations.

The wide range of weights within each warranty category reflects the industry position that weight and quality

of a shingle's components— asphalt, reinforcement, filler and seal-strip adhesive—are more realistic indicators of shingle performance. Exposed granules and back-surfacing materials dramatically can affect shingle weight but have a relatively small effect on shingle performance.

Asphalt provides pliability, toughness and durability to shingles. Even though a minimum weight of asphalt is required as a waterproofing agent, asphalt quality is more important to shingle performance. The ability to resist weathering and becoming brittle with age are more significant than total weight.

Reinforcement mats—organic and fiberglass—provide integrity, tensile strength and tear strength. Organic mats are saturated with soft asphalt before coating and weigh between 25 pounds per square and 35 pounds per square. There generally are two types of organic mats: lighter weights are used for 20- and 25-year shingles, and heavier mats are used for shingles with life expectancies of 30 years or more.

Fiberglass mats are not saturated before coating and weigh between 1.3 pounds per square and 2.5 pounds per square. There is a wide range of fiberglass mats, and, generally, heavier mats are stronger. Small increases in a fiberglass mat's weight dramatically can affect shingle performance. Fiberglass mats have a higher strength-to-weight ratio than organic mats; therefore, a relatively small increase in fiberglass mat weight will result in a greater increase in strength.

Organic and fiberglass shingles' weights and warranty designations		
Length of warranty (years)	Approximate minimum weight (pounds per square)	Approximate maximum weight (pounds per square)
20	205	229
25	208	250
30	234	325
40	300	385
Lifetime	280	425

How various shingle weights compare with shingle warranty designations.

Filler is added to coating asphalt as a particulate reinforcement to control flow, provide durability and flexibility, and resist cracking. Filler also adds weight to a shingle and increases fire resistance.

Too little filler can result in a soft coating, and too much filler can create a hard, brittle coating that may crack and split. Although filler can affect a shingle's weight, adding filler will not likely improve shingle performance.

Asphalt shingle weight is one component of performance, but perceptions that it is a primary component have been difficult to displace. NRCA recommends you refer to ASTM D 3462, "Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules," for fiberglass shingles and ASTM D 225, "Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules," for organic shingles.

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