

TECHNICAL PUBLICATION

SHINGLES

Shingles are a common roofing material installed on numerous homes and commercial buildings. They accent the roof design and give an aesthetically pleasing affect to the building. A shingle roof can be a tremendous asset to the look of a home or building enhancing its appearance. Shingles have been available for several decades and remain today to be a proven roofing material.

Shingle Types

Shingles are available primarily in a standard three tab design (three tabs of shingles in one sheet) or a dimensional style (laminated). The three tab shingle is very commonly installed, however, the dimensional shingle accents a building and the roof design. Other types of shingles are available and include a “T” look design and a no cut out design. The dimensional shingles creates a dynamically textured rooftop with shadow lines and is especially preferable for steep slop designs. Several colors are available from manufacturers to compliment the aesthetics of any building.

Shingle Composition

Shingles are typically composed of asphalt and a mat or carrier sheet covered with granules. Asphalt types vary and some manufacturers have developed asphalt that has been modified with various polymers. These polymers alter the basic characteristics of the asphalt. The mat is the reinforcing component and the types of mat vary to include organic felts, fiberglass mats and polyester and polyester hybrid mats. The granules are used for the following reasons:

- Protect the underlying asphalt from degrading effects of ultra-violet and weathering
- Increase fire resistance
- Provide a greater variety of design possibilities due to the color and color blends
- Add weight and wind resistance

Installation

Shingles are intended to be installed over an underlayment that is secured to the roof deck. The underlayment usually consists of an organic asphalt felt and is installed in one or two layers. The underlayment functions as a protection to the roof deck and acts as a secondary water barrier in the event of shingle failure and or prior to the installation of the shingles. A heavier underlayment, a modified bitumen membrane, is primarily installed in cold climates at eave, rake and valley areas to prevent water back up from ice build up during freezing and thawing conditions. This membrane type is also installed on lower slope conditions of the roof deck to prevent water back up into a building.

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Shingles are recommended to be installed with non-corrosive nails and properly driven in the correct location. Improper nail placement and under or over driven nails result in water intrusion. High wind areas require additional fasteners that a non-high wind area. Shingles are manufactured with asphalt tabs that act as sealing strip to hold the shingles in place. Proper placement of fasteners relevant to the sealing strip is essential to achieve the intended results. Manufacturers product special accessory shingles for the hip and ridge area of an applicable roof design that are properly cut to fit the specific area and complete the installation.

Fungus

A type of roof discoloration, caused by algae and refereed as fungus growth, has been observed throughout the United States and Canada. This coloration usually has a brown or black appearance, is widespread and is subject to warm and humid conditions. Algae discoloration is difficult to remove from roofing surfaces, but it may be lightened with a diluted solution of chlorine bleach, trisodium phosphate and water. The solution should be gently placed on the affected surface and precaution taken to avoid damage to adjacent materials, such as shrubbery, for example. Scrubbing the shingles will cause granule loss and affect the remaining roof life of the shingles. The effectiveness of such cleaning is only temporary and the discoloration may recur. Several types of algae resistant roofing products have been developed and are available. These products are specifically designed to inhibit algae growth.

Warranty

Manufacturer warranty's are typically prorated and cover the shingles material only. Contractors typically guarantee their installation and sheet metal flashings for a period of two or three years. Should a claim arise, the manufacturer will request several items of information to include the size of the project, photos of the alleged claim, photos of the elevation of the building in question, and a total physical sample of the shingle. On some occasions, manufacturers send a representative to the project site for a field verification. Claims are typically paid out in products and stand by their warranty parameters.

Specifications and Details

Specifications clearly direct the installer on every aspect of the shingle roofing system. Materials, installation instructions, wind calculations and detail drawings will define the entire project. Specifications should include Bid Documents, Contractor Responsibilities, Scope of Work, Technical Specifications, Wind Calculations, Installation Instructions and Complete Detail Drawings. Interfacing the roofing system with all penetrations, roof design interchanges and walls eliminates all guess work for the contractors during the bidding stage of the project and the on site installation. Material and labor guarantees are included as a part of the Specification package. Detail drawings depict design parameters of specific interfacing with all applicable components.

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The Installer

The installer must have a clear understanding of the Specifications and Detail Drawings. Details at all areas are clearly depicted in the Specifications and Drawings for the contractor to follow. Only proven and accepted methods are specified and detailed, benefiting the end user. The installer must be financially secure, be properly insured with workers compensation and general liability insurance, properly staffed, and possess all relevant equipment to perform the roofing operation. Contractors should be evaluated and references checked prior to requesting pricing for the project. The combination of a good installer and well defined specifications and detail drawings will result in a properly installed roofing system.

Summary

Shingles have a proven track record for performing and are aesthetically pleasing as a visible roofing product. Today the dimensional shingles is available with shadow lines and multi-color granules including a host of colors to choose from. Warranties supplied from the manufacturers are typically twenty, twenty-five, thirty and fourth years of which all are prorated. Specialty shingles are manufactured with a modified asphalt and copper or other material and available for a premium price.

The key elements to the success of a shingle roof are good products, proper slope in the roof deck design, proper installation, interfacing with all applicable components and penetrations to include sheet metal flashings, This roof type is available through products, qualified installers and proper direction through specifications and detail drawings. All three elements create a team approach and excellent results. On site inspections verify contractor compliance and are recommended to be performed by a third party. Documenting photography is essential for verification of services rendered and documentation of the project.

A qualified professional should be engaged to specify, design and field inspect your project.