

## Steep-slope roof covering options

by **Tom Bollnow**

**M**ost consumers, roof system designers and roofing contractors choose asphalt shingles for steep-slope roof coverings. Asphalt shingle products, the most widely used steep-slope roof covering in the United States, are available in a wide array of styles and colors. This variety enables asphalt shingles to satisfy a majority of aesthetic and economic criteria for steep-slope structures.

Other conventional materials used for steep-slope roof coverings include wood shakes and shingles, slate, clay and concrete tile, and standing-seam metal panels. Although they enjoy a lesser share of the steep-slope roofing market than asphalt shingles, each of these products has a definite market niche.

In addition to these conventional materials, an assortment of new, non-traditional steep-slope roof coverings are available. This product group includes plastic or resin-based tile, simulated slate and wood, synthetic slate and tile, individual metal shingles, horizontal metal panels, and natural and synthetic thatch.

### Product characteristics

Plastic or resin-based products may contain fiberglass or other fiber for reinforcement. Some also contain natural clay, slate particles, or other mineral or artificial fillers, which generally provide color, binder reinforcement or texture enhancement. These products, typically designed to replicate wood shakes, slate or tile, are produced as individual interlocking or batting pieces.

Synthetic slate and tile are categorized by their material compositions.

Generally described as containing postindustrial materials, such as recycled rubber and/or polymers, these products are prime examples of sustainable building products. The predominant style is black or dark-gray slate though some products are available in variegated colors. In addition to individual pieces, some products are configured as horizontal panels that simulate slate and Spanish tile. Individual slate pieces can be lifted or bent to accommodate installation patterns at penetrations and elevation changes.

Individual metal shingles and horizontal metal panels offer a varied selection of simulated classic replicas, as well as unique modern styles. These metal products imitate various tiles, laminated asphalt shingles, and wood shakes and shingles. Prefinished colors are applied to galvanized steel, aluminum and certain alloyed metals. Natural and alloyed metal finishes, such as copper, stainless steel and zinc, also are available. Some manufacturers offer stone-coated metal finishes that closely replicate the appearance of laminated asphalt shingles and rough-surfaced tiles.

Natural thatch is constructed with water reed, long straw, combed wheat reed, flax, heather, or other types of straw or grass. An artificial thatch product is manufactured using strands of PVC compound. Simulated thatch effects also can be generated by using steam-bent cedar shingles and certain types of asphalt shingles.

### Future trends

Although some of these alternative products are building code-approved, many are not specifically referenced in codes and most do not have a specific

ASTM International product standard. Some may be tested using appropriate ASTM test methods for fire rating, impact resistance, wind-uplift resistance, freeze-thaw and heat cycling, nail tear and pull through, ultraviolet exposure and water absorption.

If not referenced in a local building code, a product should be tested according to the National Evaluation Services Inc.'s acceptance criteria and assigned an Evaluation Service or National Evaluation Report number. Local building code compliance is required for steep-slope roof coverings but does not ensure performance, weatherability and durability.

As environmental issues affecting energy conservation, sustainable building products and air quality gain awareness in state, city and municipal planning, the development of alternative roof covering products becomes more attractive. For example, there are numerous possibilities for using synthetic and simulated roof covering products manufactured from recycled materials, polymers, metals and other sustainable components.

Consumers, designers and roofing contractors should seek information about specific products from manufacturers, trade organizations and other reliable references. Only appropriately tested products approved by a local building code jurisdiction should be used.

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