

Why **STEEP** Instead of **LOW?**

By A. Tab Colbert

As building practices have evolved, so have the function and appearance of the sloped roof. As a result, today's building designers have numerous options for paying tribute to the architectural styles of the past. Whether the vision is for the towering gable roofs of Gothic-style design or the hipped roofs and exaggerated overhangs of prairie-style construction, steep-slope roofs offer the versatility and performance to satisfy any and all specifications. Roofing-key.com asserts, "...steeper-sloped roofs are generally more visually pleasing and tend to last longer as well." They add that "the roofing material is estimated to last up to 50% longer and will require less maintenance in the long run."

In addition to its rich historical precedent, the steeply sloped roof provides perhaps the industry's widest pallet of products from which to choose. Clay tiles were originally used on steeply sloped roofs in China before finding their way through the Middle East, northern Africa, Europe, and eventually into the Americas. Likely the oldest type of roof covering, clay tiles offer not only a highly durable water-shedding system, but also an ability to enhance the structure's style simply by changing shape, texture, or color of the material. Quarried slate has also been used for centuries because of its durability and variety of colors and thicknesses. Cedar shakes, another natural roofing product, contribute a handsome

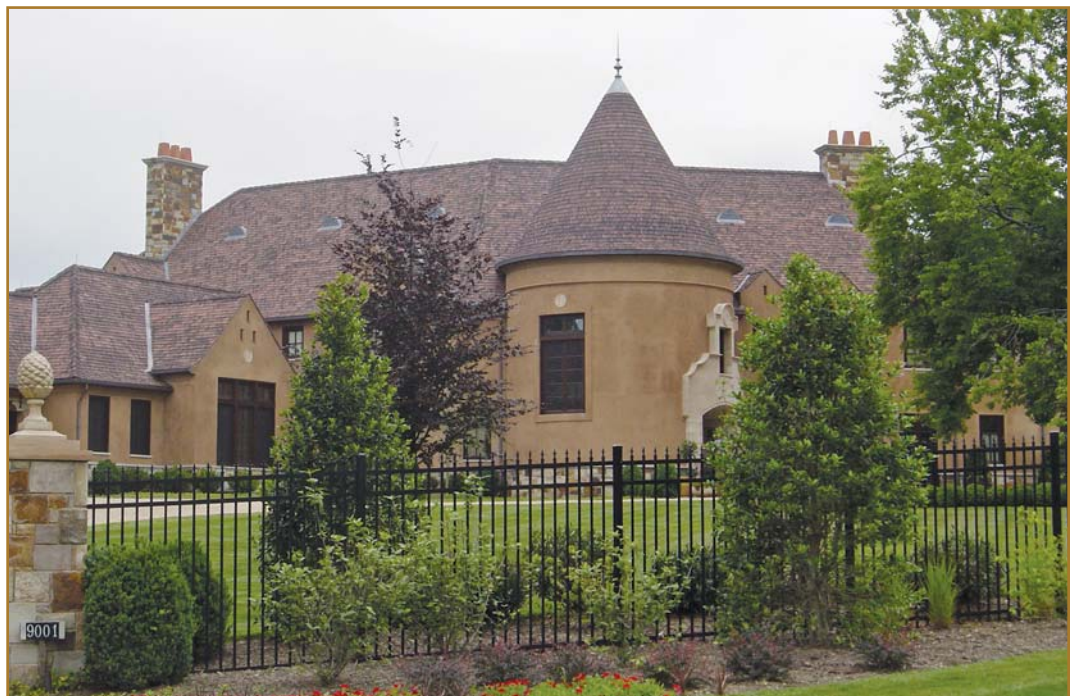
and rustic appearance to any steeply sloped roof; however, they do have a shorter life expectancy than clay tiles or slate.

Technological advances have resulted in the introduction of new steep-slope roofing materials to the market. Asphalt shingles, lightweight plastic, and metal roofs now exist as options for a building designer who is operating under cost and weight constraints. One thing that these technological advances have not done is eliminate the need for maintenance. Clay tile stands alone in having the lowest life-cycle cost of any steep-slope product. Clay tile from a reputable manufacturer should be designed to last the life of the structure. Asphalt, plastic, cedar, metal, and even slate have life expectancies less than that of clay tile.

One statement that all steep-slope prod-

ucts can unite behind is that steep-slope roofing outperforms flat roofing. Flat roofs are designed and used as economical initial-cost alternatives to steep-slope roofs. In simple terms, they are engineered retention ponds that are economical to build but loaded with possible problems, as the water is designed to slowly drain from the roof. This slow drainage exposes the structure to possible leaks as the water remains on the roof, seeking a drainage point. Steep-slope roofing gets water off the roof as quickly as possible, avoiding the retention pond approach to roofing.

Like the rest of the building industry, roofing is "going green." As a result, additional benefits of steep-slope roofs are becoming more apparent. Structures in both warm and cold climates profit from the



construction of “cold roof” systems. In this assembly, air flows in at the eave and out at the ridge. In cold climates, these roofs prevent the buildup of potentially hazardous ice dams. Ice dams can not only cause leaks and water damage inside the building but can also destroy roof decks entirely. In warm climates, the “cold” construction of a steep-slope roof reduces heat transfer, which in turn cuts down on energy usage.


The roofing industry has also seen the emergence of the Cool Roof Rating Council (CRRC), an independent organization that has established a rating system for displaying accurate radiative property data on the outermost layer of roof surfaces. Many products rated with the CRRC may improve the energy efficiency of buildings while positively impacting our environment. Interested parties, such as building code bodies, ener-

gy service providers, architects, specifiers, property owners, and community planners use CRRC’s *Rated Products Directory*.

One of the most compelling arguments for steep-slope roofing can be found in an October 13, 2007, article from *Science Daily*. Summarizing the results of a study led by ORNL engineer André Desjarlais, it reads:

A study of roofing damage incurred by Gulf Coast structures following Hurricane Katrina has found that buildings with steep-slope roofs held up better against the high-wind storm damage than buildings that had low-sloped roofs. The study –

conducted on behalf of the Roofing Industry Committee on Weather Issues (RICOWI) through a cooperative research and development agreement with Oak Ridge National Laboratory’s Buildings Technology Center – determined that steeper-sloped roofs held up better due to the fact the building materials composing the roof structure defend better against wind uplift forces that occur during hurricanes.

Historical precedent, durability, aesthetic value, and environmental friendliness clearly make a steep-slope roof a superior choice. 

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