

## What Home Inspectors Need to Know About

# SLATE ROOFS

Joseph Jenkins

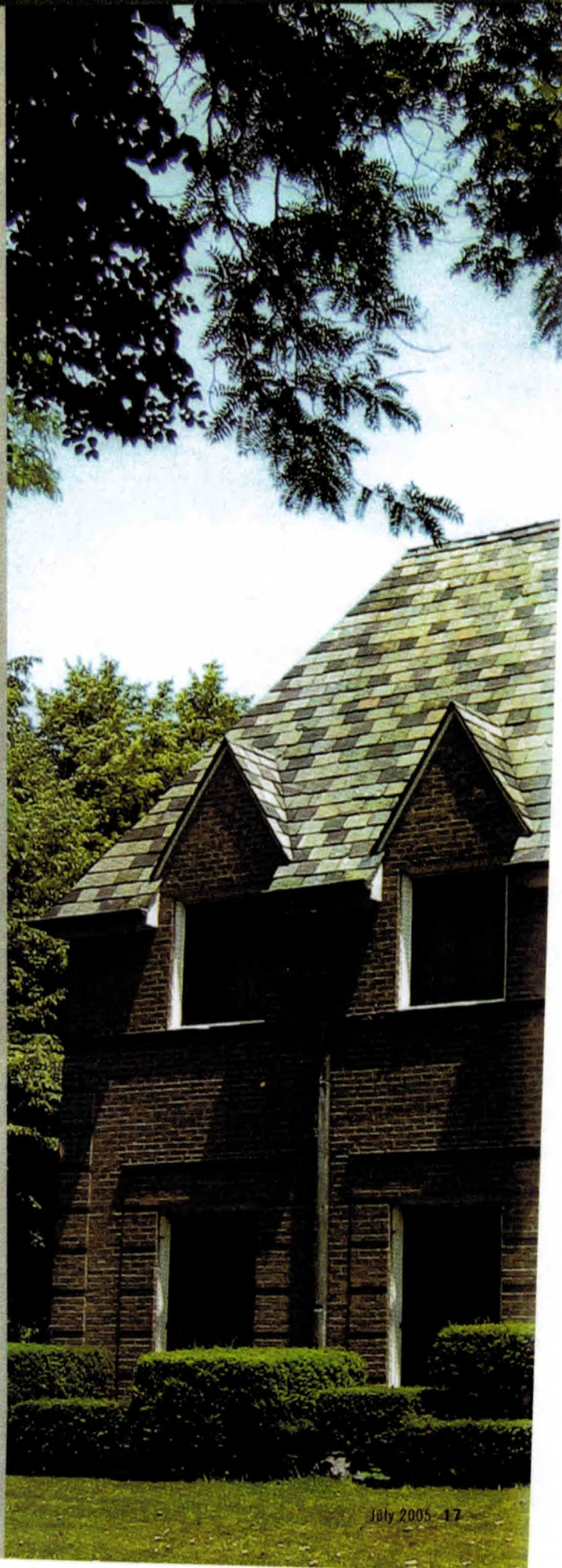
**A**lthough most home inspectors will work their entire career without ever inspecting a slate roof, those who are called on to do so have an opportunity to help protect and preserve one of our nation's most overlooked architectural treasures. Many existing slate roofs in the United States are more than a century old, and may continue to function well for another century.

With a basic understanding of this highly specialized roofing system that dates back hundreds of years, home inspectors can provide their customers with information on the current condition of a slate roof, its life expectancy and, if necessary, the potential for restoration.

A standard slate roof installation is a model of simplicity. It is comprised of thin, flat, usually rectangular slabs of stone overlapping in such a manner as to be water tight and to stay water tight for a century or two. The stones, or slates, are fastened to a wood roof deck with nails. Those three components: stone, wood and fasteners, are all that are needed for a successful slate roof system that will keep a structure dry for centuries.

There are many variations of slating styles: side-lapped slate, graduated slate, diamond pattern, random widths, staggered butts, but the "standard pattern" was used for the majority of slate roofs in the United States. ▶▶▶

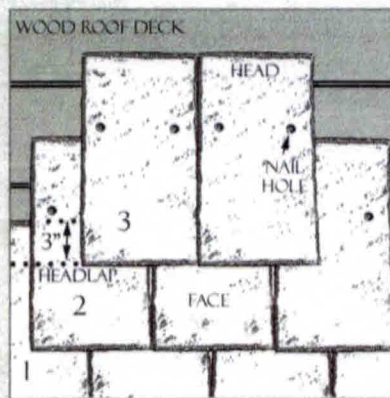
*Editor's note: This article presents an overview of a complex subject and is not intended to prepare someone to inspect slate roofs. Just as differences exist between slate quarried in different regions, one finds regional differences in techniques used to install and repair slate roofs. Readers with questions about materials, techniques or a specific slate roof are invited to post queries at [www.slateroofcentral.com](http://www.slateroofcentral.com).*







In a standard slating pattern, each slate is the same length and width (although shapes may vary). Each slate is fastened to the roof with two nails along a chalk line that marks the top edge of the slate course, and each slate overlaps two courses below it. The standard headlap is three inches, but it can range from two to four inches. Without this headlap, the roof would leak like a sieve. Less headlap can lead to leakage, depending on the slope of the roof, however, two-inch headlap is not uncommon on older roofs with adequate slope (see illustration at right).



*Standard slate installation pattern, showing overlap, headlap, placement of nail holes, "face" and "head" of the slate. Course #3 overlaps course #1 by three inches. This is called the "headlap."*

### What goes wrong with slate roofs?

Typically, problems with a slate roof can be traced to one of four factors.

- All slate is stone, but not all slate is the same.
- Flashings fail.
- People walking on slate roofs damage them.
- Bad workmanship plagues many.

### All slate is stone, but not all slate is the same

Slate is wrestled from the earth in heavy slabs and worked into individual shingles largely by hand. The fact that slate roofs are rock roofs is the main reason why they last so long. Nevertheless, stone is a natural material and may have invisible fractures or other imperfections that can cause slates to eventually break and come off the roof.

Some slate varieties are softer than others and do not last as long as the harder (S1) types. Softer S2 or S3 slates become flaky and crumbly when they reach the end of their effective lives, which could be as soon as 55 years, but more likely around 80-100 years. These "soft slate" roofs cannot be saved or restored, but can be replaced with new or salvaged slates. Harder slates, such as most Vermont, Peach Bottom, Buckingham or Monson slates, could conceivably last centuries on a properly maintained roof.

It is imperative that people who own, inspect or work on slate roofs are able to identify the slate on the roof in question, its type, origin, longevity, characteristics and qualities. If it can't be identified by sight, a slate sample or photo can be sent to someone who knows slate. Presently, in the U.S., roofing slate is still being quarried in Virginia, Pennsylvania, New York and Vermont. A century ago, there were hundreds more slate quarries than there are today, including in Maine and Georgia. The differences in appearance and quality between the slates from the

