preserveALA
ALABAMA HISTORICAL COMMISSION

Essay #10 of a series written by Alabama preservationists to supplement the *Handbook for Owners of Alabama's Historic Houses*, Alabama Historical Commission, 2001

ROOFS

Harvie Jones, F.A.I.A.

Wood Shingles

By far the most common roof-covering in the 19th century was wood shingles. They were usually made by hand in Alabama before the Civil War; the shingles were split off a chunk of wood along the grain with a "froe" and mallet. A froe is a short, wedge-section stiff knife with a short wood handle at 90 degrees from the blade. The wooden mallet drives the froe blade into the top of the chunk and splits off a shingle-blank. The rough split shingle-surface was then smoothed with a draw-knife. The typical shingle, based on many examined, was 3 to 4 inches wide and about 18 inches long. Heart red cedar, poplar, or tideland cypress was preferred for longevity, based on its availability in a particular area. Less durable but very common was pine, although heart pine must have been reasonably durable. Most shingles were square-butt (or almost square – many were slightly off-square, perhaps deliberately to better drip off the water from the ends), however, the 1814 Leroy Pope House in Huntsville had round-end ("fishscale") heart cedar shingles originally. Many are still there is an attic enclosed in about 1850.

In the Mobile area, shingles were apparently being machine-sawn as early as the 1830s. By the 1850s numerous shingle-sawing patents had been awarded throughout the state and after the Civil War these mechanically sawn shingles quickly supplanted the handmade type, although examples of handmade shingles are known to have been produced for farm buildings well into the 20th Century.

Currently the only normal wood shingle source is Western Cedar sawn shingles. These come in three quality grades. It is imperative to get the best grade – no. 1 "blue label" - which are rift-cut (wood grain about 90 degrees to the "flat") and consequently do not warp and curl as much as lesser grades ("red" & "black label"). "Blue label" also has no knots. Each packet of shingles is grade-stamped so that the owner can verify that the proper grade is being used.

These machine-made shingles give an acceptable match in appearance to hand-rived, drawknifed shingles. The major difference is that the Western Cedar shingles come in widths of up to 6 or 7 inches whereas the hand-rived ones rarely exceed 4 inches in width. The Cedar shingles also present a slightly more uniform texture. However it is a mistake to use hand-split "shakes" which are very rough and are a parody of the true appearance of hand-rived shingles.

Wood shingles will last better if installed in the traditional way directly over wide-spaced boards nailed to the rafters rather than over felt-covered plywood. The shingles should be lapped so there are 3 layers at any point. This method of installation allows the shingles to quickly dry after a rain, whereas the presence of a plywood and felt deck under the shingles will slow down the drying time, thus encouraging fungal growth in the shingles. It is unnerving to go in a shingled attic and see hundreds of daylight spots in the roof, but time has proved this is the best method of wood shingle installation.

For latter-19th century sawn wood shingles, the modern Western Cedar shingles are almost identical in appearance except for the wider shingles found in Western Cedar.

Some early primitive structures were roofed with wide boards laid on shingle-fashion ("Letters From Alabama," Phillip Henry Gosse, F.R.S., 1859, Morgan & Chase, London).

Slates

Slate roofs probably came to Alabama with the advent of rail connections in the 1850s to the northeastern quarries, though perhaps some slates came earlier by water. Many of these quarries are still open. Missing or broken slates are easily repaired (see "Old House Journal" article in this publication).

There are some slate roofs in Alabama known to be 100 years old and still performing well with no or few slate replacements. A slate roof which needs repair should not be lightly discarded, for either historic, technical or economic reasons. Usually it is cheaper and better to repair the slate roof. It is also important to keep in mind that 90% of "roof leaks" are actually flashing leaks and the flashing can be repaired or replaced without discarding the roofing surface.

Slates must not be walked on as they are brittle by nature. When working on the roof put down walk-boards or ladders that can be moved over the surface. Secure the walk-boards with ropes, etc. so they can't slip.

Gutters and Downspouts

Metal gutters and downspouts were advertised in Alabama newspapers from before 1820. In the early 19th century, even many modest houses had metal gutters concealed in the moulded wood roof-cornice. Round downspouts (with mitered bends, not rounded "sweeps" as seen today) projected through the eave soffit-board and spilled into a metal leader-head from whence the leader extended to the ground. This refined detail was almost present on better commercial structures, although many had eave-hung half-found gutters, or none, per mid-19th century photographs.

Since most gutters leak at the joints, most of these hidden gutters have long ago been abandoned and covered over, frequently replaced with a modern ogee-profile gutter after the brutal removal of the original wood eave-cornice. If this has happened, a better solution is to replicate and replace the missing eave-cornice and hang a new half-found gutter off the eave-cornice. Still better is a rooftop "semi-hidden" gutter as illustrated below. Gutters of this type have been seen on Federal Period buildings in Alabama, and Thomas Jefferson's University of Virginia buildings of circa 1820 still have them, called "Boston gutters" or "Philadelphia gutters."

Best of all is to restore the original hidden gutter if you are prepared to deal with the constant leak-vigilance required. There is still no "miracle sealant" that can assure leak-proof metal-gutter joints.

The metal in the gutters was probably predominantly galvanized iron after the mid-19th century when its manufacture became practical and common. Before that it may have been tinplate or terneplate (plated sheet iron) which was widely used in the 19th century. Zinc is said to have been little used in roofing. Copper was sometimes used for gutters and downspouts in the early 19th century ("Building Early America", Charles Peterson, FAIA, Ed.) but no surviving Alabama examples from this period are known to the writer.

Make sure the galvanized or terne gutters are painted and kept painted in a proper oil paint on the insides of the gutters as well as the outsides. They should also be kept clean of silty trash which traps moisture. Most painters habitually do not paint the insides of gutters. If they are not painted they will begin to ruse in 10 years and will probably need to be replaced in 15 years – an expensive problem, especially if the gutters are a special design for a historic building.

See the “gutters and downspouts” section in this publication for additional information.

Metal Standing Seam and Flat Lock-Seam Roofing

Metal roofing (of various types) is found on many 1820-1860 Alabama structures. “Standing seams” are used on sloped roofs and “flat locked seams” are used on nearly-flat roofs. The majority of the standing seam roofs, based on many attics examined are later replacements (apparently mostly 1880-1920) for original roofs of wood shingles. A rough dating indicating for standing seam roofs is the spacing between the cross-pan seam (which run 90 degrees to the standing seams). The oldest metal roofs observed in Alabama have cross-pan seams about 13 inches apart and standing seams about 18 to 20 inches apart. The cross-pan seams get progressively farther apart as manufacturing processes allowed the fabrication of longer metal plates, until today “terne” plate comes in rolls of almost indefinite length, and cross-pan seams are no longer used except in very long slopes.

Most of these old metal roofs are probably terneplate, perhaps some are tinplate. Some observed are copper-coated steel plate. A few are solid sheet copper.

It is vital to keep terne-plate roofs properly painted for the “terne” rust-resistant coating is very thin. Once it is gone, the roof left is only sheet-iron and will quickly rush through. The proper paint is “long-oil”, a specially formulated oil-base paint which will stretch and shrink more than normal oil paint; needed for a metal roof, which has a high coefficient of expansion. Laytex paint should not be used. If the old paint is flaked and chipped the following procedure should be used. Brush the loose paint flakes and chips off with a stuff natural bristle brush, not a metal brush (which will gouge the terne coating). Clean off all the loose rust scales and dust with mineral spirits. Also clean the existing firm paint. Repaint with a “long oil” system as recommended for terne-metal roofs by a first-line paint manufacturer.

Domes were commonly covered with metal roofing in early Alabama inasmuch as metal could easily be formed to spherical shapes. Some examples are the 1849 State Capitol, the 1840 Madison County Courthouse (demolished) and the 1836 Barton Academy in Mobile.

Metal Shingles

Metal galvanized shingles came into wide use by the turn of the 20th century. Many of these are still performing well (if they have been kept painted). There are several companies still making these shingles and fittings in several patterns. One is Conklin Tin Plate and Metal Co., P.O. Box 2662, Atlanta, GA 20201, (404) 688-4510. These shingles must be kept well-painted in an oil base “galvanized paint” system as recommended by a first-line manufacturer. Peeled paint should be handled as described in “Metal Standing Seam Roofing,” above.

It should be kept in mind that today’s galvanizing coatings are much thinner than in the past. In order for today’s galvanized metal to survive it must be kept properly painted. The same applies to galvanized-iron gutters and flashings.

Clay Tiles

Around the turn of the century and up through the 1920s a popular roofing for better structures of all types was clay tile molded in various shapes, from barrel tiles to pan tiles. Many of these roofs are still in good shape. If repairs are needed, the Ludowici-Celadon Company, P.O. Box 69, New Lexington, Ohio 43764, (614) 342-1995, is still making many of these tiles. Individual tiles can be replaced in the same manner described in the Old House Journal article on slate roofs, in this publication. These are

excellent and beautiful roofs and should be repaired rather than discarded. They lend a character to a building that no asphalt composition shingle can approach.

Composition Roofing

Thomas Jefferson in the early 1820s roofed his University of Virginia student rooms with flat roofs, against the advice of the architect Latrobe and Dr. Thornton. The roofs leaked and were soon replaced by sloped roofs. This has been the general history of flat roofs and many of today's architects use sloped roofs where the size and design of the building allows it. Early flat roofs (actually low-slope) frequently used canvas combined with viscous substances such as pine tar or natural asphalt. Perhaps some of the Alabama 1830 to mid-19th century houses with very low-slope "widows walk" decks on top of a hipped roof used such roof coatings originally (they are now usually covered with metal flat lock-seam roofs).

Late 19th century commercial buildings commonly had "built up" roofs consisting of several layers of pitch or asphalt heated and mopped into successive layers of rag felt. These roofs usually sloped all the way to the back of the building in a drop of 2 to 4 feet. Masonry parapets hid the roof and its slope.

There are now many types of flat-roof membranes of such materials as "modified asphalt", rubber and polyvinylchloride compounds. Some of these appear to be technically promising. Where the built-up roof is hidden there is probably no sound historical reason for not using these, for a modern asphalt build-up roof would not be a true replication either.

Again it should be remembered that most "roof leaks" are flashing leaks not involving the "roofing" at all. If your roof leaks first check the flashings before deciding to replace the roof.

Asphalt Composition Shingles

This roof-covering apparently came into use around the turn of the century and was common by the 1920s. The most common colors were apparently green and red. A diamond pattern was much used in addition to the rectangular pattern still used. Thus in restoring a 1920s bungalow it will be entirely appropriate to use this type of roof if the evidence indicated its original use. The old green and red colors are still available. One company, at least, still makes the diamond pattern.

Cement-Asbestos Shingles

These shingles were common up to the mid 20th century. They are extremely durable and will develop a pleasing patina in 10 to 20 years. Their limitation is their extreme brittleness, necessitating the use of walk-boards and/or extreme care in working on these shingle surfaces.

Cement-asbestos shingles are still made in a very limited range of patterns and colors by "Suprador" and "IBP." One way to replace random shingles is to obtain 1/8 inch cement-asbestos sheets of 4 x 8 feet and saw them into shingles. This material is smooth and light gray, so an oil-base stain must be applied to make them blend with the old shingles. The shingles can be inserted and secured with copper strap-hooks in the same manner described in the Old House Journal article on roofing slates, reproduced herein.

Summary

Probably the majority of buildings have at least some leaks in certain win conditions. The majority of these "roof leaks" are in fact not "roof leaks" but flashing leaks at parapets, chimneys, vents, mechanical and plumbing roof devices, etc. In the event of leaks, these kinds of conditions should be checked first rather than to make a hasty and probably needless, expensive decision to replace the

entire roof. If the roof is of small units such as slates, tiles or shingles, see if some units are damaged or loose, and fix those rather than replace the roof.