Historic Preservation
Wood Shingle Roofs

Step 1: Determine historic wood shingle pattern

If original wood shingles exist, please uncover a small section to determine the original shingle material (cypress, pine, cedar, etc.), configuration (exposure and spacing between shingles), and detailing (any distinctive elements such as capped hips or ridges). Also, please remove several individual shingles to determine their size and shape (length, width thickness and taper of each shingle), exposure length (typically 3 ¼ - 5 inches of each shingle is exposed to elements) and nail patterns (number and type of nails and exposed versus unexposed). If there is adequate attic space, some documentation of historic wood shingles can be obtained from the attic (particularly in cases where wood roof is covered by another roofing material). This documentation should be provided to the Phoenix Historic Preservation Office (HPO) for all projects with HPO grant funding.

Step 2: Determine condition of historic wood shingle roof

If original wood shingle roof remains, check to see number/percentage of shingles which appear eroded, cracked, cupped, warped or split, or if there is pervasive moisture damage in roof. If only 20% of shingles or less on any one surface are damaged, selective replacement should be considered instead of wholesale replacement. Replacement shingles should match the original shingles in material, size and shape and be nailed both through the exposed butt of new shingle; a nail through the shingle immediately above through exposed butt is also needed.

Step 3: Spec out new roof

The new roof should closely match the existing wood shingle roof (assumes historic wood roof is remaining).

The new roof should have the best quality wood with a similar surface texture as original roof. Western red cedar, eastern white pine and white oak are generally available. All shingles shall be No. 1 grade, or “edge grain” and be heartwood (not sapwood), without knots. The owner or architect should inspect the material prior to installation.

New shingles should have matching size and shape as historic wood shingles. New roof should have closely matching installation pattern – exposure length, overlaps, special features, etc. This includes the wood type, shingle size, butt and taper size, exposure, nail type and pattern, shingle spacing, projection beyond fascia, coursing pattern and any other details. Uneven courses or overly narrow or wide keys should not be allowed. The specs for all wood roof replacement projects (including documentation regarding historic wood roofs where existing) with HPO funding will require HP Office approval.

Typically, shingles should be doubled or tripled at eaves, with shingles extending 1 ½” inches beyond fascia, shingles spaced ¼” to 3/8” apart, and two nails for each shingle approximately ¾” from edge and 1 ½” above exposure line. Roofs with 4:12 or greater slopes in Phoenix typically should have shingles at 3 ¾” to 4 1/4” exposures for 16” length shingles. Less commonly 18” length shingles with 5” exposures (or thereabouts) were used. Additional specs may be needed for roofs with convex and concave junctures, and additional transitions. As noted above, the individual specs for each wood project with HPO funding will require HP Office approval. A sample installation may also be required, as well as a final HPO inspection (always required). Wood shingles are not recommended on roofs with less than 4:12 sloped roof.

Fire-retardants or preservative treatments are encouraged on wood shingles if visual impact is minimal (no color additives, paints, or stains). Pressure-impregnated shingles are preferred over chemical treatments to the surface. All shingles shall be at least B rated for fire, with "A" rating preferred.

Shingle nails with creosote treatment are preferred but should be at least double hot-dipped galvanized nails to penetrate sheathing totally. No pneumatic staples or staples of any kind. No copper nails or flashing if red cedar is used. Nails should not be under- or over-driven.

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The contractor should ensure that flashing material is compatible with any chemical treatments on the wood prior to installation.

Avoid standardized details such as prefab hips, ridges, and panels. Intersections roof surfaces at hips and ridges should be capped, with alternate overlaps and concealed nailing. Nails must be of sufficient length to penetrate completely through the sheathing.

Remove the existing roofing material down to the existing spaced sheathing. New wood shingles should be applied directly to the space sheathing below. Felts and coverings shall only be used on the overhang areas. Wood decking should be in good repair and be repaired or replaced as needed. If any decking is replaced, new lumber should match original in lumber type and size. If full-size lumber was used originally, then new should match in size. No plywood or modern composition boards should be used. Generally speaking, it is preferred NOT to install new wood shingle roofs to roofs with solid decking.

New metal valleys and flashings should be used where water is channeled off roof, where roof abuts a vertical wall, chimney or other vertical protrusion, and where structural members join a roof at intersecting angles. All flashings and valleys should be heavy gauge metal, pre-painted both sides, and any flashing strips bent to sharp angles should also be painted after bending. Paint colors should correspond closely with the completed roof color. Metal flashings are required for all roof transitions, at skylights, chimneys, etc. and should generally be at least 3” minimum in height with minimum 6” deep flashing for bottom apron. Valley metal should be a minimum of 8” long, with metal extending 12” minimum on either side of valley centerline, and be cut at the correct angle.

The roof project should remove any air-conditioning or swamp cooler units from the roof, and place on ground if possible. Any units to remain should be re-painted out to match roof.

Roofs should have good attic ventilation to prevent moisture from condensing on the undersurface of the shingles or roof decks. Vents are generally needed at eaves and gable ends (and without affecting historic character). Attic fans may also be beneficial, supplying additional movement of air in attic spaces.

Carefully read and understand any roofing warranties offered and watch for provisions that would void it. You should receive a limited warranty of at least 20 years from the roofing contractor if possible. (Your wood shingle roof should last 30 to 40 years or more if properly installed and maintained.) An additional warranty will be needed to maintain the treatment warranty where applicable.

Ensure that the roofing contractor is properly licensed and bonded and has prior recent experience installing wood shingle roofs. Look for a company with a proven track record that offers client references and a list of completed projects. Call these clients to find out whether they were satisfied.

Insist on a detailed, written proposal and examine it for complete descriptions of the work and specifications, including approximate starting and completion dates and payment procedures. Have the contractor list the roofing manufacturers with which his firm is a licensed or approved applicator. Check to see if the contractor is a member of any regional or national industry associations. Being a member of industry associations demonstrates a commitment to professionalism.

Step 4: Maintenance

Consider obtaining additional shingles from the roofing contractor at time a new wood shingle roof is installed so that sensitive selective shingle replacement can occur later as needed.

To extend the life of a wood shingle roof, inspect it regularly to ensure it is kept clean of debris and vegetation droppings and growth, and free of damage.

Check with roofer or manufacturer of any treatments applied at time of roof installation to determine when additional coatings may be needed (typically every four to five years).

Do not spray paint shingles or patch with composite shingles or plywood. Avoid power washing the roof since this may cause damage to shingles. Keep gutters and flashing in good repair.

For more information on wood shingle roofs on historic buildings, refer to: https://www.nps.gov/tps/how-to-preserve/briefs/19-wooden-shingle-roofs.htm