

ROOFING APPLICATION STANDARD (RAS) No. 130

1. Scope

1.1 This application Standard provides the minimum installation criteria for wood shingles and shakes.

2. Definitions

2.1 For definitions of terms used in this application standard, refer to ASTM D 1079 and the *Florida Building Code, Building*.

3. General

3.1 Maximum exposure for wood shingles and shakes shall comply with Table 1 herein, unless specifically specified in the roof assemblies Product Control Notice of Acceptance (NOA).

3.2 Wood shingles and shakes may be applied over solid or spaced sheathing. In spaced sheathing applications, the first 36 in. above the eave line shall be solidly sheathed. All wood decks shall comply with the provisions set forth in Chapters 15 and 23 (High Velocity Hurricane Zones) of the *Florida Building Code, Building*.

3.3 Wood shingles and shakes shall not be installed on roof mean heights greater than 33 feet, unless specifically specified in the roof assemblies Product Control Notice of Acceptance (NOA).

TABLE 1			
MAXIMUM EXPOSURE TO WEATHER FOR WOOD SHINGLES AND SHAKES IN INCHES			
Shingle Length			
Roof Slope	16 in.	18 in.	24 in.
3 1/2:12 to 4:12	3.75 in.	4.25 in.	5.75 in.
4:12 or greater	5 in.	5.5 in.	7.5 in.
Shake Length			
		18 in.	24 in.
4:12 or greater		7.5 in.	10 in.

1. Calculated in accordance with ASCE 7.

Wood Shingles

3.4 Underlayment

Solid Sheathing Two plies of ASTM D 226, Type I felt overlapped 19 in., or a single layer of ASTM D 226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps. Fasten with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c., and one row at the laps fasten 6 in. o.c.

Spaced Sheathing: Underlayment shall be installed at a minimum of 36 in. wide at the eave line, and shall be a minimum of two plies of ASTM D 226, Type I felt overlapped 19 in., or a single layer of ASTM D 226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps. Fasten with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c., and one row at the laps fasten 6 in. o.c., at a minimum of 36 in. from the eave of the roof.

Roofing nails shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than 3/16 in., or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in.

3.5 Edge metal shall comply with Section 1517.6 of the *Florida Building Code, Building*, and RAS 111.

3.6 Valleys may be installed open or closed. A 36 in. wide sheet of minimum ASTM D 226 Type

II organic felt shall be installed over the underlayment and centered in the valley, fastened 6 in. o.c. through tin-caps at each edge of the sheet. Minimum end laps shall be 12 in. and fully adhered with approved flashing cement.

3.7 Valley metals shall comply with the Section 1517.6 of the *Florida Building Code, Building*. Valley metal shall be preformed with side returns and a minimum 1 in. high center water diverter. Valley metal shall have a minimum formed width of 20 in. Valley metal shall be fastened with minimum 2 in. wide metal clips spaced 12 in. o.c. Metal clips shall be fabricated of similar metal and fastened with minimum two approved 1 1/4 in. annular ring shank roofing nails at every clip (see Detail 'A').

3.8 Metal laps shall be a minimum of 12 in., and shall be sealed with approved flashing cement. For open valley installations, the wood shingles are to be cut to form a straight edge. The open area of the valley shall be no less than 4 in. and no more than 8 in. wide. For closed valley installations, the wood shingles are to be miter cut along the center water diverter. Wood shingle fasteners shall be kept back at least 8 in. from the valley centerline. Wider wood shingles and the positioning of the fasteners higher at the valley may be required.

3.9 The maximum exposure to the weather for wood shingle applications shall comply with Table 1 herein.

3.10 An optional interlayment sheet may be installed between wood shingles in solid sheathing applications. Interlayment shall be required in all spaced sheathing applications. Interlayment shall be a minimum of ASTM D 226 Type I felt with a minimum width of 18 in. and shall be applied between each succeeding course of wood shingles. Interlayment shall be fastened on the upper edge of the sheet. The bottom edge of the interlayment shall be positioned above the butt edge of each course of wood shingles, a distance equal to triple the weather exposure of the wood shingles. Extend interlayment up vertical surfaces a minimum of 4 in. No felt shall be exposed.

3.11 The beginning or starter course of wood shingles at the eave line shall be doubled as a min-

imum. The wood shingles shall be project a minimum $\frac{3}{4}$ in. to a maximum of 2 in. beyond the drip edge at both eaves and rakes. Spacing between shingles (joints or key ways) shall be a minimum of $\frac{1}{4}$ in. and a maximum of $\frac{3}{8}$ in. Shingles shall be positioned so that they cover the joints in the preceding course and adjacent courses shall be offset a minimum of 1 $\frac{1}{2}$ in. In any three courses (adjacent), no two joints should be directly aligned (see Detail 'B')

- 3.12 Each shingle shall be fastened with a minimum of two (2) 5d hot-dipped, galvanized box nails. Fastened $\frac{3}{4}$ in. to 1 in. from the edge of the shingle, and 1 $\frac{1}{2}$ in. to 2 in. above the butt line of the next course. In all cases, fasteners shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than $\frac{3}{16}$ in., or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in. Nails shall be driven straight and flush. Nails shall not be overdriven (see Detail 'C').
- 3.13 Hip and ridges may be installed from pre-manufactured units or field assembled units from manufacturer's shingles. The exposed juncture of the roof hip and ridge areas shall be covered with a minimum 6 in. wide strip of ASTM D 226 type II organic felt, prior to installing the hip and ridge units. No felt shall be left exposed. Lay alternate overlapping hip and ridge units, starting with a double starter course. Each side of the hip and ridge units shall be a minimum of 4 in. wide. Each hip and ridge unit shall be fastened to the roof with two fasteners of the same type as that used for the field shingles. Fasteners shall be of sufficient length to penetrate the plywood panel or wood plank decking not less than $\frac{3}{16}$ in.; or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in. Nails shall be driven straight and flush. Nails shall not be overdriven. (See Detail 'C').
- 3.14 Metal flashing materials shall comply with Section 1517.6 of the *Florida Building Code, Building*. Metal step flashing shall be used at all vertical side walls. The length of the step flashing units shall be 3 in. longer than the exposure of the shingles. The step-flashing unit shall be installed just up slope from the exposed area of the wood shingle, in such a manner as to be covered by the next wood

shingle, while maintaining a minimum 3 in. headlap. Step flashing metal shall extend 5 in. up the vertical surface and 5 in. horizontally onto the wood shingle. Nail each step-flashing unit near the upper corner. Location of the shingle fasteners must be adjusted to insure that the step flashing is not penetrated. Vertical head walls shall be flashed with apron type metal flashing. Wood shingles shall be installed up to the vertical head wall and out over the top course of wood shingles a minimum of 5 in. Wall treatment or flashing or head wall flashing a minimum of 3 in. and shall terminate a minimum of 1 in. above the surface of the wood shingles. Metal counter flashing shall be installed in compliance with Roofing Application Standard RAS 111.

- 3.15 Roof penetration that protrude through a roof shall be flashed at all intersecting angles to prevent leakage. Flashing details shall be in compliance with manufacturer's recommendations, unless otherwise indicated in roof assembly's NOA.

4. Wood Shakes

4.1 Underlayments:

Solid Sheathing: Two plies of ASTM D 226, Type I felt overlapped 19 in., or a single layer of ASTM D 226 Type II felt overlapped a minimum of 4 in. on side laps and 6 in. on the end laps. Fasten with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c., and one row at the laps fasten 6 in. o.c.

Spaced Sheathing: Underlayment shall be installed at a minimum of 36 in. wide at the eave line, and shall be a minimum of two plies of ASTM D 226, Type I felt overlapped 19 in., or a single layer of ASTM D 226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps. Fasten with

corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c., and one row at the laps fasten 6 in. o.c., at a minimum of 36 in. from the eave of the roof.

Roofing nails shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than $\frac{3}{16}$ in., or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in.

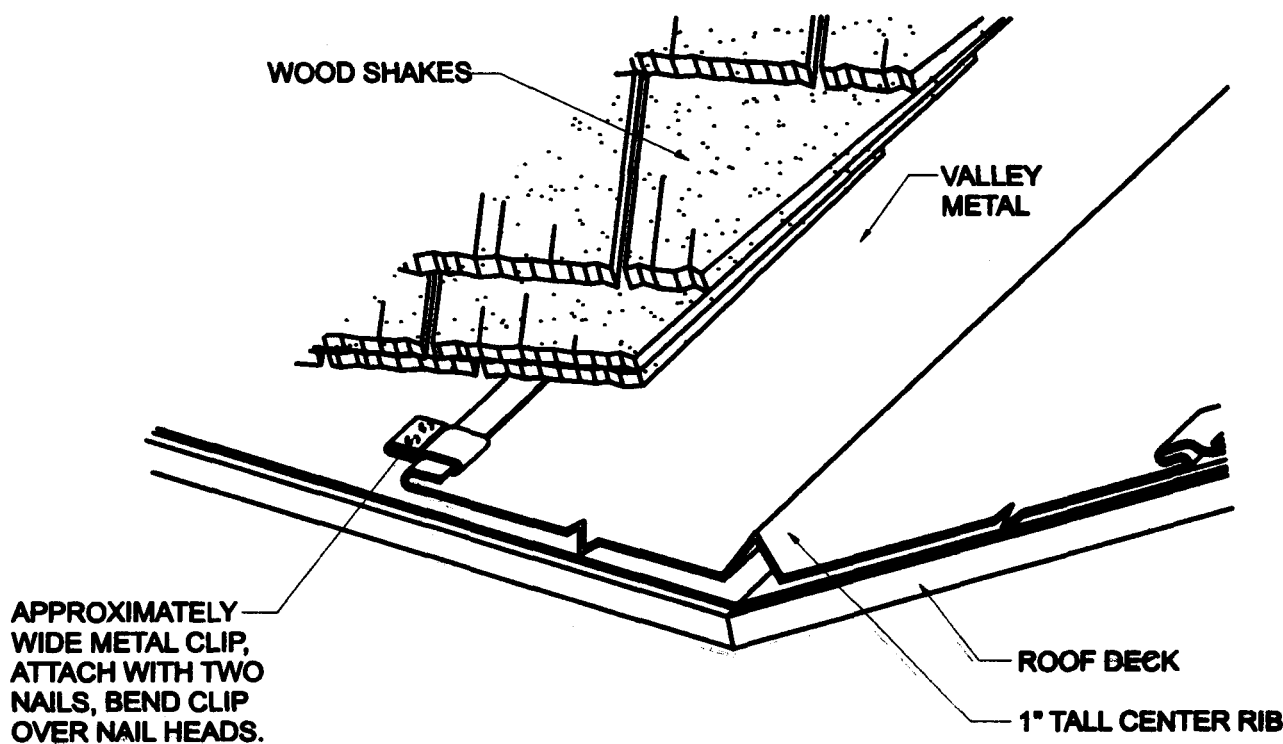
- 4.2 Interlayment shall be a minimum of ASTM D 226 Type I felt with a minimum width of 18 in. and shall be applied between each succeeding course of shakes. Interlayment shall be fastened on the upper edge of the sheet. The bottom edge of the interlayment shall be positioned above the butt edge of each course of shakes, a distance equal to twice the weather exposure of the wood shakes. Extend interlayment up vertical surfaces a minimum of 4 in. No felt shall be exposed.
- 4.3 Edge metal shall comply with Section 1517.6 of the *Florida Building Code, Building* and RAS 111.
- 4.4 Valleys may be installed open or closed. A 36 in. wide sheet of minimum ASTM D 226 Type II organic felt shall be installed over the underlayment and centered in the valley, fastened 6 in. o.c. through tin-caps at each edge of the sheet. Minimum end laps shall be 12 in. and fully adhered with approved flashing cement.
- 4.5 Valley metals shall comply with the Section 1517.6 of the *Florida Building Code, Building*. Valley metal shall be preformed with side returns and a minimum 1 in. high center water diverter. Valley metal shall have a minimum formed width of 20 in. Valley metal shall be fastened with minimum 2 in. wide metal clips spaced 12 in. o.c. Metal clips shall be fabricated of similar metal and fastened with minimum two approved $1\frac{1}{4}$ in. annular ring shank roofing nails at every clip (see Detail "A").
- 4.6 Metal laps shall be a minimum of 12 in., and shall be sealed with approved flashing cement. For open valley installations, the wood shakes are to be cut to form a straight edge. The open area of the valley shall be no less than 4 in. and no more than 8 in. wide. For closed valley installations, the wood shakes are to be miter cut along the center water diverter. Wood shake fasteners shall be kept back at least 8 in. from the valley centerline. Wider wood shakes and the positioning of the fasteners higher at the valley may be required.
- 4.7 The maximum exposure to the weather for wood shakes shall comply with Table 1 herein. An interlayment sheet shall be installed between each shake. The beginning or starter course of wood shakes at the eave line shall be doubled as a minimum. The wood shakes shall project a minimum $\frac{3}{4}$ in. to a maximum 2 in. beyond the drip edge at both eaves and rakes.
- 4.8 Spacing between shakes (joints or key ways) shall be a minimum $\frac{1}{4}$ in. and a maximum of $\frac{5}{8}$ in. Shakes shall be positioned so that they cover the joints in the preceding course adjacent courses shall be offset a minimum of $1\frac{1}{2}$ in. In any three courses (adjacent), no two joints should be directly aligned (see Detail "D").
- 4.9 Each shake shall be fastened with a minimum of two (2) 6d hot-dipped, galvanized box nails. Fastened $\frac{3}{4}$ in. to 1 in. from the edge of the shake, and $1\frac{1}{2}$ in. to 2 in. above the butt line of the next course. In all cases, fasteners shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than $\frac{3}{16}$ in., or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in.. Nails shall be driven straight and flush. Nails shall not be overdriven (see Detail "C").
- 4.10 Hip and ridges may be installed from pre-manufactured units or field assembled units from manufacturer's shakes. The exposed juncture of the roof hip and ridge areas shall be covered with a minimum 6 in. wide strip of ASTM D 226 type II organic felt, prior to installing the hip and ridge units. No felt shall be left exposed. Lay alternate overlapping hip and ridge units, starting with a double starter

course. Each side of the hip and ridge units shall be a minimum of 4 in. wide. Each hip and ridge unit shall be fastened to the roof with two fasteners of the same type as that used for the field shakes. Fasteners shall be of sufficient length to penetrate the plywood panel or wood plank decking not less than $\frac{3}{16}$ in.; or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in. Nails shall be driven straight and flush. Nails shall not be overdriven. (see Detail "C").

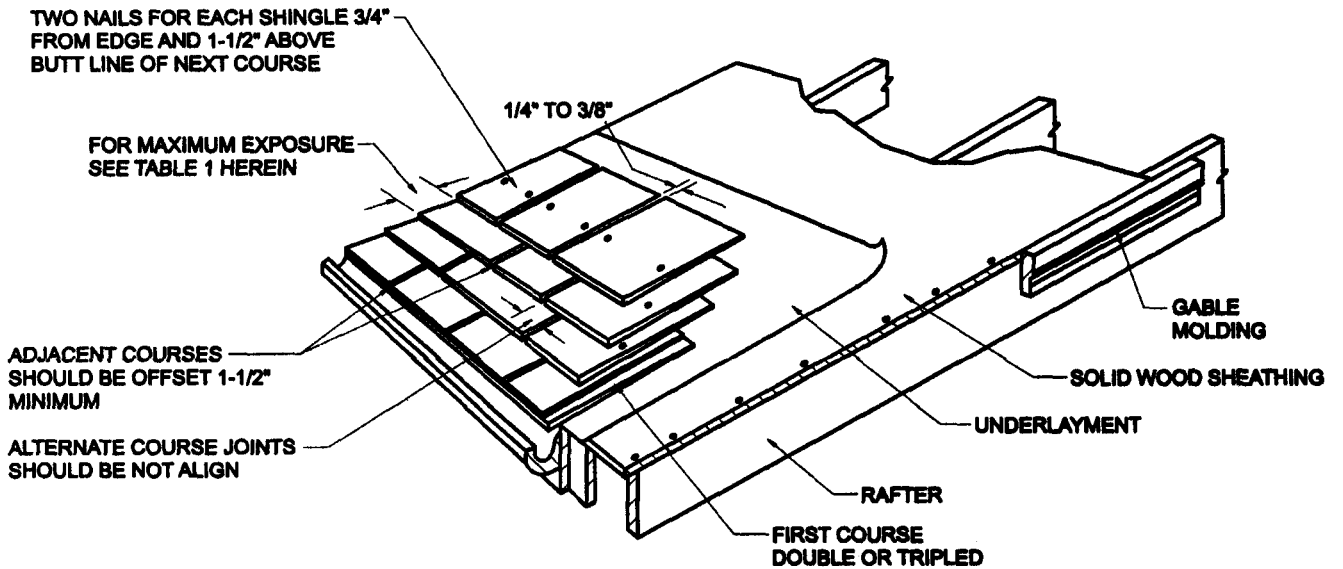
- 4.11 Metal flashing materials shall comply with Section 1517.6 of the *Florida Building Code, Building*. Metal step flashing shall be used at all vertical side walls. The length of the step flashing units shall be 3 in. longer than the exposure of the shakes. The step-flashing unit shall be installed just up slope from the exposed area of the wood shake, in such a manner as to be covered by the next wood shake, while maintaining a minimum 3 in. headlap. Step flashing metal shall extend 5 in. up the vertical surface and 5 in. horizontally onto the wood shake. Nail each step-flashing

unit near the upper corner. Location of the shake fasteners must be adjusted to insure that the step flashing is not penetrated. Vertical head walls shall be flashed with apron type metal flashing. Wood shake shall be installed up to the vertical head wall. The head wall flashing shall then be installed to extend up the vertical surface 5 in., and out over the top course of wood shake a minimum of 5 in. Wall treatment or metal counter flashing shall be brought down over all vertical flanges of the step flashing or head wall flashing a minimum of 3 in. and shall terminate a minimum of 1 in. above the surface of the wood shake. Metal counter flashing shall be installed in compliance with RAS 111.

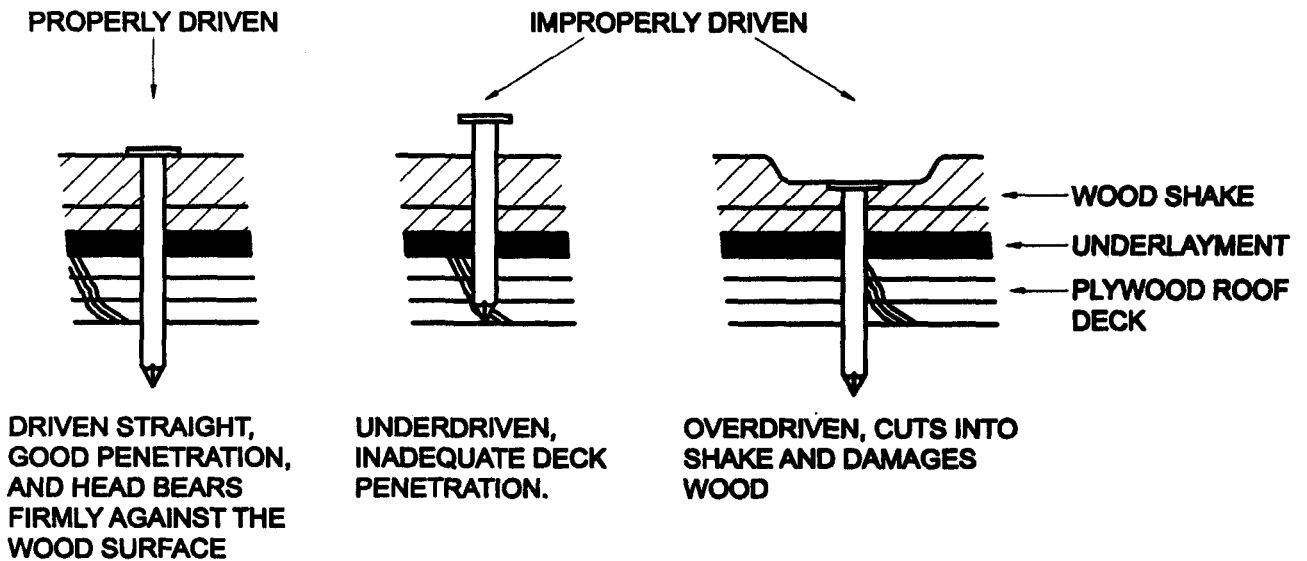
- 4.12 Roof penetrations that protrude through a roof shall be flashed at all intersecting angles to prevent leakage. Flashing details shall be in compliance with manufacturer's recommendations, unless otherwise indicated in roof assembly's NOA.



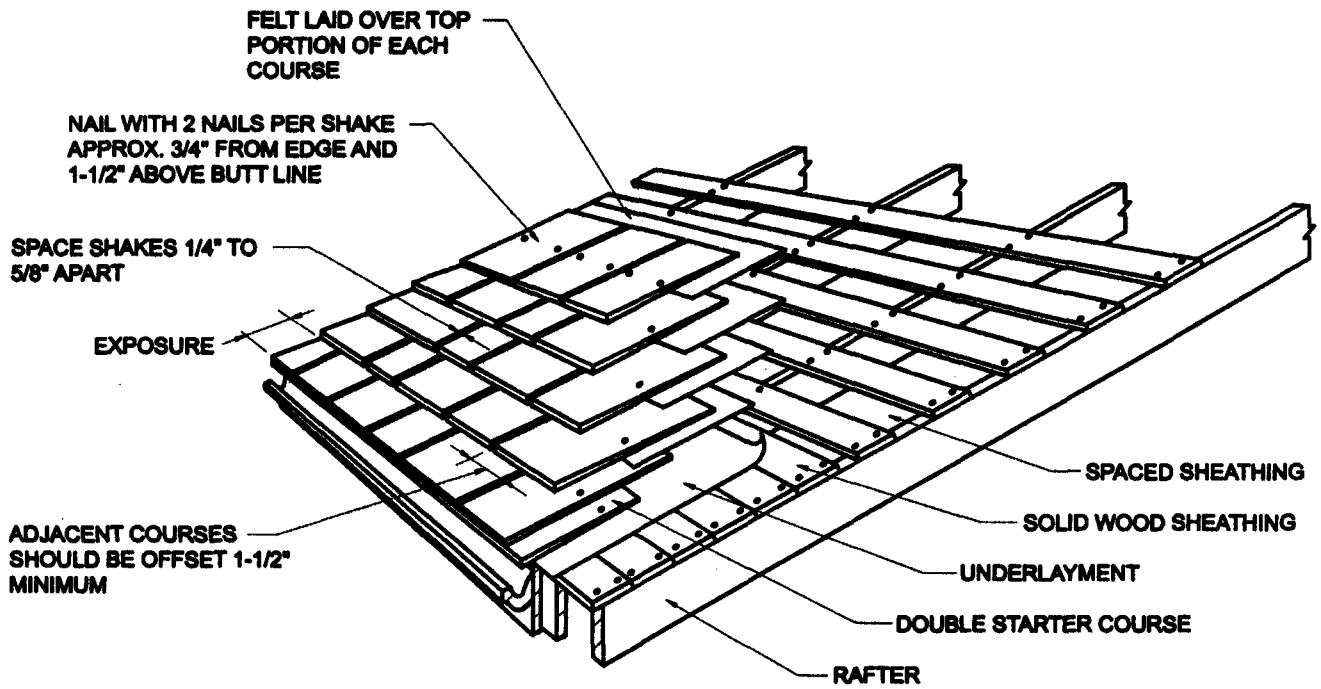
DETAIL 'A'



DETAIL 'B'



DETAIL 'C'



DETAIL 'D'

