



SECTION 9: ROOF STRUCTURE, ROOFING MATERIALS AND FLASHING, GUTTER, DOWNSPOUTS, AND SKYLIGHTS

Background

There are two basic types of roofs, flat and pitched. These two types have numerous variations. The so-called flat roof may actually have some slope for drainage. This type of roof is not as common in the Indianapolis home market today as it was in the 50's, but still has an occasional application. The slope is generally expressed as the rise being given first, as for instance 4 inches in rise per 12 inches horizontal. For purposes of definition, flat roofs might be classified as those having less than a 3-in-12 slope. This slope is the greatest for which a shingle is ordinarily allowed to be installed on a roof according to local building codes. Pitched roofs may vary in slope from 3-in-12 to 14-in-12 or more, depending on the architectural design and the intended use of the attic space.

All species of softwood framing lumbars are acceptable for roof framing, subject to maximum allowable spans for the particular species, grade, and use. Since all species are not equal in strength properties, larger sizes, as determined from the design, must be used for weaker species for a given span.

Roof structures in the Indianapolis market usually consist of the main roof body, valleys, dormers and overhangs, covered by a plywood or OSB roof sheathing.

The purpose of the finished roofing material is to form a weatherproof surface which prevents water from entering the house. There are several types of roofing material used, including asphalt, fiberglass, wood, tile, slate and metal. In single family residential home construction, the most common material used is the seal down asphalt or fiberglass shingle. This common shingle is manufactured by coating a dry felt core with asphalt or fiberglass, then rolling colored granules on the outer surface to provide the finished color. Because the process of coating shingles with colored granules is a batch-type process, dye lots and color variations can result. Color variation is quite common.

The shingle manufacturer provides all warranties on their product. Homeowners should familiarize themselves with these warranties.

Roof Structure

9.1 Observation: Roof ridge sags or bows.

Standard: Roof ridge should not sag or bow more than 1 inch in 10 feet, and not to exceed a 2-1/2 inch deflection on one continuous ridge.

Builder's Responsibility: The builder will repair any deficiencies which do not meet the standard.

9.2 Observation: Roof rafter bows.

Standard: Rafters that bow greater than 1 inch in 8 feet are considered excessive.

Builder's Responsibility: The builder will repair any deficiencies which do not meet the standard.

9.3 Observation: Roof sheathing is bowed and appears wavy.

Standard: Roof sheathing should not bow more than 1/2 inch in 2 feet.

Builder's Responsibility: The builder will straighten bowed roof sheathing as necessary to meet the standard.

Roof Vents

9.4 Observation: A roof vent or attic louver leaks.

Standard: Roof vents and attic louvers should not leak; however, infiltration of wind-driven rain and snow are not considered leaks and are beyond the control of the builder.

Builder's Responsibility: The builder will repair or replace the roof vents or louvers as necessary to meet the standard.

Discussion: Attics should have natural ventilation as required by the approved building codes. The builder will provide adequate

ventilation. The builder is not responsible for problems that may result from homeowner's alterations to the original system. Occasionally, driving rain or snow will infiltrate the vents, causing spotting on the ceiling. The builder is not responsible for such weather damage.

Fiberglass or Asphalt Shingles and Flashing

9.5 Observation: The roof or flashing leaks.

Standard: Roofs and shingles shall not leak under normal conditions. On some occasions, a driving rain with high wind at a particular angle to the shingle can produce a temporary leak. The water tightness of the roof is a combination of the shingling material and the sheet metal work used at the junctures of the roof and at openings such as the chimney.

Builder's Responsibility: The builder will repair any verified roof or flashing leaks not caused by wind-driven rains or snows, ice build-up, leaves, debris, or the homeowner's actions or negligence.

Homeowner's Responsibility: It is the homeowner's responsibility to keep the roof drains, gutters, and downspouts free of debris.

9.6 Observation: Ice builds up on the roof.

Standard: During prolonged cold spells, ice is likely to build up at the eaves of a roof. This condition occurs when snow and ice accumulate, and gutters and downspouts are frozen.

Builder's Responsibility: None

Homeowner's Responsibility: Prevention of ice build-up on the roof is a homeowner's maintenance item.

Discussion: Indiana has freeze-thaw cycles more frequently than most other states. It is common for winter storms to be followed by relatively mild temperatures, resulting in freeze-thaw cycles. These variations in temperatures can result in a build-up of ice in the gutters and roof valleys, known as an ice dam. Sometimes the ice can extend several inches above the level of the gutters. As this ice melts, it can cause water to back up under the shingles and roof decking or to seep through the shingles, causing leaks. Although roofs with a

low pitch are more susceptible to this type of leak, it can happen on any roof.

9.7 Observation: Shingles have blown off the roof.

Standard: Shingles should not blow off in winds less than the manufacturer's warranty covers for the type of shingle installed.

Builder's Responsibility: The builder will ensure proper installation of shingles.

Discussion: In excessively high winds, shingles may stand up in the air or possibly blow off if the shingles have not had ample sunlight and roof heat to activate the seal down strip. Some shingles may require one full summer to complete the sealing process.

9.8 Observation: Shingles are not aligned.

Standard: Shingles should be installed according to the manufacturer's installation instructions to ensure the proper appearance.

Builder's Responsibility: The builder will remove shingles that do not meet the standard, and replace them with shingles that are properly aligned.

9.9 Observation: Shingle color mismatch.

Standard: Manufacturers do not guarantee uniform color. Some color mismatches occur from sun reflections, minor differences in colors between shingles in the same lots and the aging and weathering of shingles. Color variations are to be expected.

Builder's Responsibility: None.

9.10 Observation: Shingle edges and corners are curled or cupped.

Standard: Shingle edges and corners should be flat.

Builder's Responsibility: The builder will ensure that all shingles will lay flat.

9.11 Observation: Shingles do not overhang edges of roof or hang too far over edges of roof.

Standard: Shingles shall overhang roof edges by not less than 1/4 inch and not more than 3/4 inch.

Builder's Responsibility: The builder will reposition or replace shingles as necessary to meet the standard.

9.12 Observation: Shingles have developed surface buckling.

Standard: Shingles buckling higher than 1/4 inch are considered excessive.

Builder's Responsibility: The builder will fix the affected shingles to meet the standard.

9.13 Observation: Sheathing nails have loosened from framing and raised shingles.

Standard: Nails should not loosen from roof sheathing to raise shingles from surface.

Builder's Responsibility: The builder will repair all areas as necessary to meet the standard.

9.14 Observation: Roofing nails are exposed at ridge of roof.

Standard: Nail heads shall be sealed to prevent leakage.

Builder's Responsibility: The builder will repair areas to meet the standard.

9.15 Observation: Holes from walk boards are visible in exposed portions of shingles.

Standard: There should be no holes from walk boards in the exposed part of the shingles.

Builder's Responsibility: The builder will replace any shingles not meeting the above standard.

Roll Roofing

9.16 Observation: Roof leaks due to water trapped under roll roofing.

Standard: Water shall not become trapped under roll roofing.

Builder's Responsibility: If water becomes trapped under roll roofing during the service period, the builder will repair or replace the roofing as necessary to meet the standard.

9.17 Observation: Roofing is bubbled or wrinkled but does not leak water.

Standard: Bubbled or wrinkled surface of roll roofing is caused by unusual conditions of heat and humidity acting on the asphalt and cannot be controlled by the builder.

Builder's Responsibility: None.

9.18 Observation: Water is standing on a flat roof.

Standard: Water should drain from a flat roof except for minor ponding limited to 48 hours following a rainfall.

Builder's Responsibility: Builder will take corrective action to assure proper drainage of the roof.

Chimney Flashing

9.19 Observation: Leak in new chimney flashing.

Standard: New chimney flashing should not leak under normal conditions, except where the cause is determined to result from ice build-up or the homeowner's actions or negligence.

Builder's Responsibility: The builder will repair leaks in new chimney flashing not caused from ice build-up or the homeowner's actions or negligence.

Homeowner's Responsibility: Chimney flashing and chimney caps should be kept in good condition in order to keep moisture from entering your chimney. They should be checked occasionally for rust, corrosion and secure attachment. Have loose flashing repaired

by a professional. If flashing is not tight, it will allow water to leak through the spot that the flashing is protecting.

Gutters and Downspouts

9.20 Observation: Gutters or downspouts leak.

Standard: Gutters and downspouts should not leak.

Builder's Responsibility: Builder will repair leaks in gutters and downspouts.

Homeowner's Responsibility: Keep all gutters and downspouts free of any debris, including leaves, tree limbs, and other objects which may block the normal flow of water through the system.

9.21 Observation: Gutters overflow during a heavy rain.

Standard: Gutters may overflow during a heavy rain.

Builder's Responsibility: The builder will repair if gutters overflow during normal rains.

Homeowner's Responsibility: Homeowner is responsible for keeping gutters free from debris that could cause overflow.

9.22 Observation: Water remains in the gutters after rain.

Standard: When a gutter is unobstructed by debris, the water level should not exceed 1 inch in depth.

Builder's Responsibility: Builder will repair the gutter to meet the standard.

Discussion: Installing gutters with a minimum 1/32 inch drop in 1 foot will generally prevent water from standing in the gutters. Even so, small amounts of water may remain in some sections of gutter for a short time after a rain. In areas with heavy rainfall and/or ice build-up the builder may consider increasing the pitch or fall or adding additional downspouts.

Skylights

9.23 Observation: Skylight leaks.

Standard: Leaks resulting from improper installation of skylights are unacceptable. Condensation on interior surfaces of skylights is not a leak and not considered a defect.

Builder's Responsibility: Builder will repair any leaks to meet the standard.