



## ASPHALT SHINGLES

**REFERENCE:** 2021 International Residential Code, Chapter 9, Roof Assemblies

**PERMIT REQUIRED:** The cost of the permit is computed by using the valuation of the project. The dollar valuation is figured per square (area 10' x 10' or 100 square feet). Maximum of 2 layers of asphalt shingles on roof.

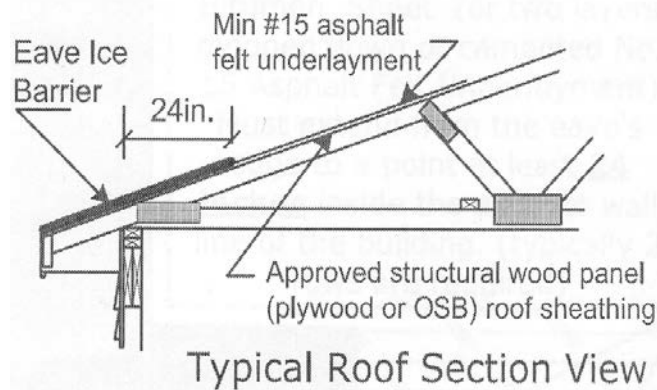
Overlay	\$60.00/square valuation
Tear-off and replace	\$80.00/square valuation
Replace sheathing & roof	\$100.00/square valuation

**HELPFUL TIP:** Manufacturer's installation instructions covering most roof applications are printed on the packaging of asphalt shingles. Much helpful information is available by contacting the websites on the internet or through building material suppliers.

### REQUIREMENTS:

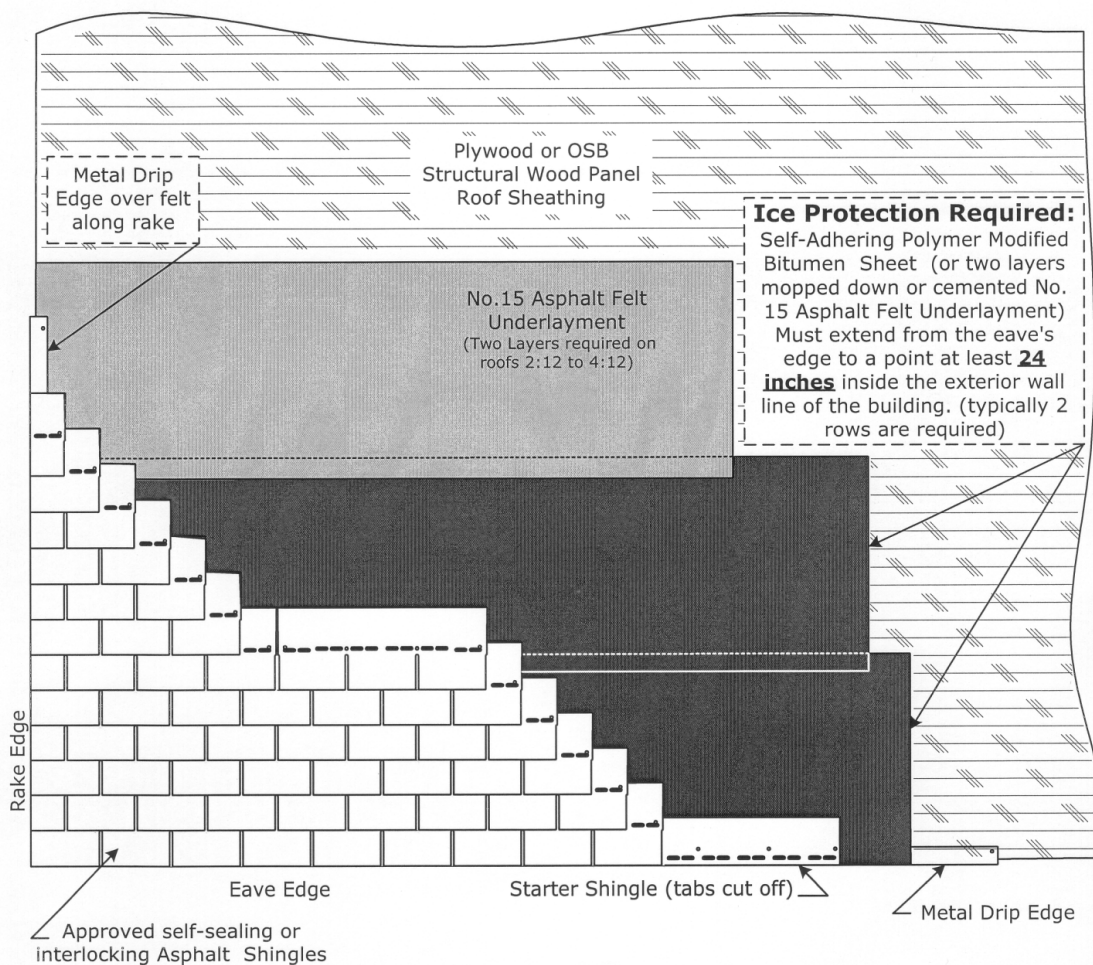
1. **Shingle specification requirement**—Asphalt shingles shall comply with ASTM D3462 and meet the wind rating of 115 mph.
2. **Sheathing**—Shingles shall be fastened to solidly sheathed decks.
3. **Slope**—Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal (2:12) or greater (check shingle manufacturer's specifications).
4. **Ice Dam Protection**—An ice barrier meeting ASTM D 1970 shall consist of a self-adhering polymer modified bitumen sheet (ice guard) or 2 layers of underlayment **cemented** together.

Ice dam protection shall extend from the eave's edge to a point 24" inside the exterior wall line of the building.



5. **Underlayment (15# felt)** Organic felt must meet ASTM D 226 Type I or II D48696 Type I, II, III, IV or inorganic felt must meet D6757 Type I.
  - a. **Roofs with a slope of 2:12 pitch up to 4:12,** underlayment shall be 2 layers applied in the following manner.
    1. Apply ice barrier as stated above.
    2. Continue with a 19" strip of underlayment.
    3. Apply a 36" wide sheet of underlayment, overlapping successive sheets 19".
  - b. **Roofs with a slope of 4:12 or greater,** underlayment shall be 1 layer applied in the following manner.
    1. Apply ice barrier as stated above.
    2. Install underlayment in a shingle fashion, parallel to and continuing up from the ice barrier with an overlap of 2". End laps are to be offset by 6".
6. **Fasteners**—Roofing nails are to be a minimum 12 gauge shank with a minimum 3/8" diameter head. If the roof sheathing is less than 3/4" thick, the nails should penetrate through the sheathing. If the sheathing is thicker, the nails should penetrate at least 3/4". The number of nails shall be according to the manufacturer's recommendations. Fasteners shall comply with ASTM F 1667.
6. **Attachment**—Asphalt shingles shall have the minimum number of fasteners required by the manufacturer. For normal applications, not less than 4 fasteners per strip shingle would be required.
7. **Flashings**—Corrosion resistant metal flashing with a minimum thickness of 0.019 inches must be used to prevent leaks where the roof meets a wall, another roof, a chimney, or other objects that penetrate a roof (asphalt cement or sealants are not approved substitutes for flashings). The step-flashing method shall be used where shingles meet a vertical sidewall. A *cricket* or *saddle* shall be installed on the ridge side of chimneys wider than 30 inches. All flashings, including *valleys*, shall be installed per manufacturer's installation instructions.

8. **Roof Ventilation**—Enclosed attics and enclosed rafter spaces shall have cross ventilation. The total net free ventilating area shall not be less than 1 to 150 of the area of the space ventilated (exception: the ratio can be reduced to 1 to 300 if the ventilation is split between roof vents and soffit vents).
9. **Reroofing**—No more than two layers are allowed on a roof.
10. **Approved products**—verify that your contractor is using shingles, felt paper, ice barrier, and fasteners that meet the ASTM numbers listed in the above article



**Typical Asphalt Shingle Application  
 for Roofs sloped 4:12 or steeper  
 (Partial Roof View)**