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Denver Residential Roofing Guidelines

This is an overview of the building code requirements for new asphalt shingle roofs and re-roofs for residential 1- and 2-family houses in Denver. For *all* related building code requirements see the 2009 International Residential Code (IRC) and the 2011 Denver Building Code Amendments (DBCA), effective 10-17-2011.

Repairs that comprise more than 10% of the roof square footage require a building permit.

Denver allows only two layers of roofing. If new roofing would result in more than two layers, all layers must first be removed down to the decking before new roofing may be applied.

Applicable residential asphalt shingle codes:

1) Low slope flat roofing (R905.5.2 / 2011 DBCA)

Modified rolled roofing or other appropriate systems such as EPDM (ethylene propylene diene terpolymer) is required for roof slopes below one unit vertical in 12 units horizontal (8 percent slope) on 1- and 2-family dwellings. Exception: The code allows 90-pound rolled roofing on accessory structures and porches and patios open on three sides down to 1/12 slope. (Warning: Manufacturers typically don't warranty 90-pound rolled roofing below 2/12 slope).

2) Wind speed requirements (R905.2.4.1 / 2009 IRC, "Wind resistance of asphalt shingles")

All shingles shall be tested and labeled to comply with the requirements of **ASTM D 7158** or, if the brand of shingles are not included in the scope of **ASTM D 7158**, then they must be tested and labeled to comply with **ASTM D 3161** for the 90 / 100 / 110 mph wind speeds for Denver (per Table R301.2(1) in the 2011 DBCA).

Wind speed centerlines (2011 DBCA section 1609.3):

- Federal Boulevard – 90 mph
- Sheridan Boulevard – 100 mph
- Kipling Street – 110 mph

3) Underlayment (R905.2.7 / 2009 IRC)

For roof slopes from two units vertical in 12 units horizontal (17 percent slope), up to four units vertical in 12 units horizontal (33 percent slope), underlayment shall be two layers applied in the following manner. Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), and fastened sufficiently to hold in place. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater, underlayment shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches (51 mm), fastened sufficiently to hold in place. End laps shall be offset by 6 feet (1829 mm). Distortions in the underlayment shall not interfere with the shingles' ability to seal.

Optional low slope underlayment (R905.2.7 / 2011 DBCA)

An accepted self-adhering polymer modified bitumen sheet (i.e. 1 layer ice and water shield) can substitute for a double underlayment installation.

4) Roof sheathing (R905 / 2009 IRC)

R905.1 Roof covering application: Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.

R905.2.1 Sheathing requirements: Asphalt shingles shall be fastened to solidly sheathed decks.

Note: For **maximum gap definition** on 1X decking sheathed roofs consult the manufacturer's installation instructions for the product you are installing. Which are included as part of the code per section **R905.1**.

5) Drip edge (code section)

Drip edge is required at gutters and exposed roof sheathing.

6) Ice and water shield around the eaves (Table R301.2(1))

Ice and water shield around the eaves is not required in Denver.

7) Valley underlayment (R905.2.8.2)

- a) 3' wide 90-pound rolled roofing
- b) Ice and water shield
- c) Metal flashing (only allowed in open valleys per DBCA R905.2.8.2)