



PULLMAN BUILDING DEPARTMENT NEWSLETTER

NOVEMBER 2006

SLOPED ROOF COVERINGS

The first recorded building code in North America regulated the type of roof covering for houses in New Amsterdam in 1625. The early codes focused on the roofing materials' resistance to fire.

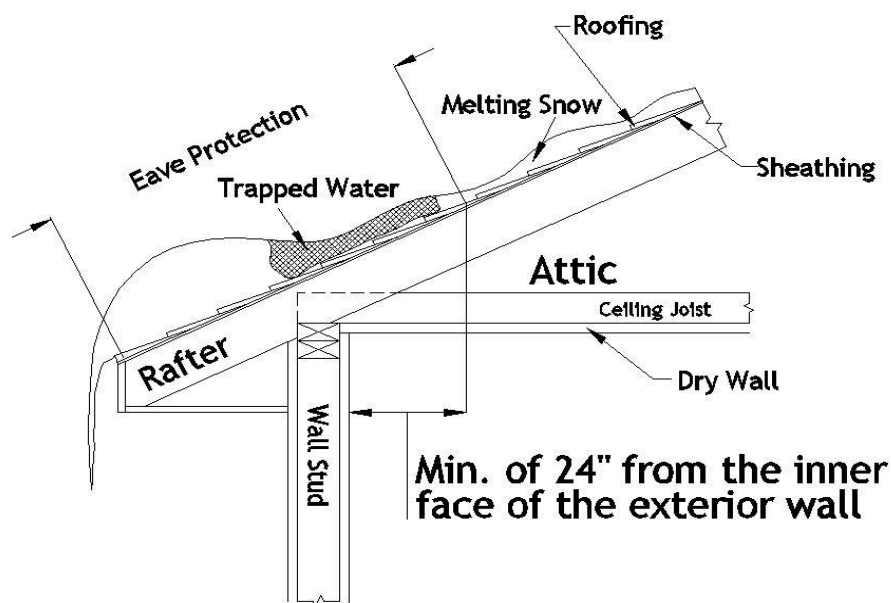
Roofs have continued to be regulated as building codes have evolved in the United States of America.

In 1890 the City of Pullman began to regulate roofing materials used in the City of Pullman. This continued with subsequent city codes up to and including the adoption of the Uniform Building Code (UBC) in 1953.

The UBC was the City of Pullman building code from 1953 to 2004. It regulated the fire resistance of roofing materials and their ability to provide weather protection for a building at the roof. The current building codes regulating roofs used in the City of Pullman are the International Building Code (IBC) and the International Residential Code (IRC).

Roof covering classifications indicate the expected tested performance of a roof covering when exposed to fire from outside the building. They apply to both flat and sloped roofs. Fire resistive roof coverings are A (high fire resistance), B (moderate fire resistance), C (low fire resistance) and non-classified (unknown fire resistance). Requirements for fire resistive roof coverings are based on the building size, construction type, occupancy classification and the building's fire separation distance from property lines. Table 1505.1 of the IBC tabulates the minimum roof covering classification for types of construction. IRC section R902 states IRC's requirements for fire-resistive roof assemblies.

Sloped roofs regardless of type have 4 basic requirements. These are 1) deck sheathing, 2) underlayment, 3) flashings and 4) application of the roofing materials.



1) Deck sheathing:

Asphalt shingles, slate shingles, wood shingles, wood shakes and mineral surfaced roll roofing require solid sheathed decks.

Metal roof panels or shingles require solid or closely sheathed decks unless specifically designed for spaced supports.

Often roofs will be protected with a roof covering for 20 to 40 years before the deck is exposed during a tear-off for a re-roof. It is in the public interest that the roof deck be inspected for rot, adequate ventilation, deck nailing and general soundness. City inspectors will continue to inspect roof decks on new construction and re-roof projects. Weather can make timing critical during re-roofing. Re-roof contractors should make a reasonable effort to have representative portions of the roof decks available for spot checking of the decks.

2) Underlayment:

Asphalt shingles require the use of underlayment conforming to ASTM D 226 Type I (15# asphalt felt), or ASTM D 4869 Type I (Shingle asphalt felt underlayment).

Clay and concrete tile require the use of underlayment conforming to ASTM D 226, Type II (30# asphalt felt); ASTM D 2626 (felt base sheet) or ASTM D 249 Type I mineral-surfaced roll roofing (74#).

Metal shingle, mineral-surfaced roll roofing, wood shingles and wood shakes all require the use of underlayment conforming to ASTM D 226, Type I.

The general application requirements of underlayment vary depending on type of roof covering and the slope of the roof. The code should be referenced for the specific requirements for your roof covering.

The UBC, IRC and IBC require an ice barrier as part of the underlayment when there is a possibility of ice forming along the eaves causing a back up of water. It has been determined by continued observation since the early 1980s that ice dams do form at the edge of eaves and water damage does occur inside of buildings from ice dams in the winter months in Pullman. Ice barriers may be constructed on site by cementing at least 2 layers of underlayment together or the use of a self-adhering polymer-modified bitumen sheet. Both methods require the ice barrier to extend from the eave's edge to a point at least 24 inches inside the exterior wall line of the

building. As part of the roof and re-roof inspections, city inspectors will continue to look for the installation of ice barriers and/or determine if the method proposed by the installer complies with the methods outlined in the code. Asphalt shingles, metal shingle, wood shingle, wood shake, clay tile, concrete tile and mineral-surfaced roll roofing all have the requirement for an ice barrier.

3) Flashing

Each roofing types has specific flashing requirements to prevent moisture from entering the walls through joints in copings, moisture-permeable materials, at intersections with parapet walls and other penetrations through the roof plane. The code should be referenced to determine these requirements. Some roofing types have detailed valley flashing requirements when there is the possibility of ice dams forming. The IBC and IRC require asphalt roof coverings to have drip edge mechanically fastened at a maximum of 12 inches on center installed at the eaves and gables of roofs.

4) Application of Roof Coverings

Asphalt shingle fasteners are required to be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12-gage shank with a minimum 3/8-inch diameter head. Fasteners shall be long enough to penetrate into sheathing $\frac{3}{4}$ inch or through the thickness of the sheathing.

The type and number of fasteners required for clay and concrete tile roof coverings are dependent on type of tile, slope of the roof and wind exposure.

Metal roofing shall be secured to the roof in accordance with approved manufacturer's installation instructions.

Fasteners for wood shingles and shakes shall be corrosion resistant with a minimum penetration of $\frac{3}{4}$ inch into the sheathing. For sheathing less than $\frac{1}{2}$ inch thick, the fasteners shall extend through the sheathing.

In all roof coverings the type and number of fasteners and weather exposure of the roofing material required is dependent on the type of roof covering, slope of the roof and wind exposure. The applicable sections of the IBC or IRC and the manufactures instructions should be referenced for determination of specific fastener requirements.

**CITY OFFICES WILL BE CLOSED
FRIDAY, NOVEMBER 10, 2006, FOR VETERAN'S DAY
THURSDAY AND FRIDAY, NOVEMBER 23-24, 2006, FOR THANKSGIVING**