



technical bulletin

Asphalt Roofing Manufacturers Association

National Press Building
529 14th Street, NW, Suite 750
Washington, DC 20045
Tel: (202) 591-2450 • Fax: (202) 591-2445
www.asphaltroofing.org

Plain Facts About Buckled Shingles

Description

Buckling is the result of asphalt shingles not lying flat due to wrinkling of the roofing underlayment or movement of the wood deck.

Causes

- Exposure of the wood roof deck during new construction or roof replacement can lead to moisture absorption into the wood. As the wood increases in moisture content, movement of the decking can occur.
- As a new roof is installed, moisture can be trapped in the system and the roofing underlayment can absorb moisture and wrinkle.
- Inadequate ventilation of the attic space, which restricts free-flow of air directly beneath the roof deck, can create problems with moisture and temperature management in the attic space that can contribute to movement of the wood deck. See individual manufacturer recommendations for ventilation requirements.
- Roof decking that is not spaced a minimum of 1/8" can cause buckling due to expansion.

Solutions

- Allow moisture to escape the roofing system. Once the roofing system reaches the proper moisture content, the roof should lie flat and the buckling problem should not return.
- Remove the shingles that are affected, and where the felt is wrinkled, repair the wrinkles by cutting and re-nailing the felt so that it is flat, and then replace the shingles.
- Ensure that the attic is properly ventilated according to the latest version of the building code. Proper ventilation includes free-flow of air directly beneath the roof deck, from the eaves to the ridge.

Prevention

- Use only wood decking materials acceptable to the roofing manufacturer that have been properly conditioned. Refer to detailed recommendations found in the "How to Minimize Buckling of Asphalt Shingles" published by APA – The Engineered Wood Association.
- Do not expose decking materials to liquid water either before or after application.
- Cover wood deck materials with asphalt-saturated felt shingle underlayment (ASTM D 226, ASTM D 4869, ASTM D 6757 or CSA A123.3), then apply shingles as soon as possible.
- Ensure adequate attic ventilation (e.g., a minimum of one square foot net free area per 150 square feet of attic floor space). See individual manufacturer recommendations for additional ventilation requirements.
- Apply shingles in accordance with shingle manufacturers' recommendations.

Correction

- Ventilate the attic space to eliminate excess moisture. In some circumstances, the addition of mechanical exhaust fans may be necessary.
- When buckling persists, remove and replace the affected underlayment and shingles.

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