



Issue Description:

The appearance of buckling of asphalt shingles is generally due to an uneven roof deck, wrinkled underlayment and/or movement of roof sheathing. As a result, newly installed shingles may appear wavy or wrinkled because asphalt shingles will conform to imperfections in the underlayment and the roof sheathing, causing irregular shapes to transfer through the surface of the roof covering.

Several causes may contribute to the appearance of buckling on roofs with asphalt shingles:

- Organic asphalt felt underlayments may can wrinkle when exposed to rain prior to the installation of asphalt shingles. When the felt underlayment and asphalt shingles are installed over wet roof deck moisture may be trapped below the roof covering for a period of time and may result in the movement of the deck materials and/or wrinkling of the underlayment leading to the appearance of buckling of asphalt shingles.
- Self-adhered underlayments may also wrinkle if there is poor adhesion to the decking materials, especially in cold temperatures and wet conditions.
- When rain occurs or high relative humidity is present in the air following a shingle tear off, the exposed wood deck may absorb moisture. This increase in the moisture content of the exposed wood can cause movement of the deck materials
- Inadequate ventilation of the roof deck may reduce drying, and may cause condensation and/or accumulation of moisture in the roof sheathing leading to the appearance of buckling.
- Improper spacing of roof sheathing may cause the appearance of buckled shingles due to expansion/contraction. For proper spacing of plywood and Oriented Strand Board (OSB), the Engineered Wood Association (APA)¹ recommends minimum 1/8-inch and maximum 1/4-inch space between panel edge and end joints.
- Finally, compressible underlayment materials such as foil faced reflective insulation blankets, may also be the cause of buckling of asphalt shingles.

Recommendations:

Provide adequate roof ventilation to allow moisture to escape from the roof system. Consult local building code requirements for guidance on the correct levels of air exchange, intake balance and exhaust venting.

If wrinkling is not resolved with the improved roof ventilation measures, remove the shingles from the affected area. Cut out the wrinkled felt and replace with new underlayment, and install new asphalt shingles. Make sure to apply shingles in accordance with Owens Corning's written installation instructions. Consult the services of a licensed/certified roofing professional.

¹The Engineered Wood Association (APA) (formerly the American Plywood Association)
(<http://www.apawood.org>)

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