



TECHNICAL BULLETIN

STRUCTURAL BOARD ASSOCIATION

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ROOF SHINGLE RIDGING

INTRODUCTION

Flexible non-wood roof covering materials may ridge or buckle under certain conditions. This ridging or “picture framing” as it is sometimes called, is usually noticed at certain times of the day or under conditions of low sun elevation such as occurs in the spring or fall. This is a phenomenon influenced by the change in the style, weight, and composition of roof shingles. **It does not occur when using heavy weight shingles and proper construction practices are followed.**

Under certain conditions of moisture or temperature in the area or attic space beneath the roof surface, the roof structure including the roof deck may move. Ridging will then occur over joints in the roof deck sheathing, or over a truss upper chord due to the expansion of the chord.

Buckling or the wavy appearance of a roof may also be due to uneven upper truss chords, inadequate sheathing thickness without blocked edges, or improper installation of sheathing panels. Occasionally buckling or ridging may also be caused by the improper selection or application of roof flashing.

When using OSB panels, roof shingle ridging can be avoided by careful selection of roof covering materials, attention to roof construction details and good ventilation practices.

The following suggestions may be useful.

1. Panel Storage

Like all wood products, OSB and waferboard are affected by major changes in humidity or direct exposure to moisture. Store panels on at least three sticks or bunks off the ground and if stored outside, lightly cover with tarps or plastic, leaving room for air circulation around panels. OSB like waferboard is made with water proof and boil proof adhesives and weather will not affect its structural properties; however like all wood products, for appearance purposes, it should be kept reasonably dry and clean.

2. Roof Sheathing Installation

Select the correct thickness or span rating for the application. Make sure the rafters or upper truss chords are in alignment, even and straight. Curved, twisted and uneven rafters and upper chords adversely affect the finished roof appearance. Block truss chords if necessary to prevent further twisting. Panels must be installed texture side up across the supports and stagger end joints at least two support spaces. **Leave a 3mm (1/8”) gap at panel edges and ends and support long edges with blocking or clips as specified. Panel and joints must be over supports.**

When nailing or stapling OSB or other sheathing panels to the roof supports, **it is important to stand over the supports, otherwise some unevenness may be built into the roof.**

Fasten panels with 63mm (8d) common or deformed shank nails at 150mm (6”) o.c. around perimeter and 300mm (12”) o.c. along intermediate framing.

3. Ventilation

Recent increases in insulation requirements and energy efficient building design have placed increased demands on ventilation of the space below the roof structure or attic. This space may collect significant amounts of moisture vapour from the drying out and curing of building materials as well as moisture vapour from the living space, due to cooking, washing, showers, and humidification equipment, which escapes to the attic through improperly sealed openings in the vapour barrier. This moisture vapour will affect all wood roof components causing some movement.

As well, the vapour may condense quickly on the underside of roof sheathing panels during cold weather and periods of rapid change in outside air temperature such as in the spring and fall.

Radiant barriers are occasionally installed in attic spaces to improve the efficiency of heating and cooling systems. If improperly installed, radiant barriers can trap the moisture in the sheathing panel, increasing its expansion.

In order to minimize the impact of moisture build-up in attic spaces it is essential that adequate ventilation be installed with 50% of the ventilation at the roof ridge and 50% at the soffit area. Use baffles to make sure that insulation does not block ventilation openings especially along the eaves and between truss chords. Building codes specify that the minimum unobstructed vent area equal not less than 1/300 of the total insulated ceiling area if a maximum 1 perm vapour retarder is installed on the warm side of the ceiling insulation. Otherwise the free vent area must equal not less than 1/150 of the insulated area.

4. Vapour Barrier

Building codes require a vapour barrier and may require an air barrier on the warm side of the ceiling below the insulation to minimize the amount of moisture passing into the attic from the living areas. The access hatch must be sealed with a tight fitting gasket and insulated to maintain the integrity of the vapour barrier. Make sure the attic access door is in place as soon as the roof is shingled and the vapour barrier is installed.

5. Shingle Storage

Like roof sheathing, proper storage of shingles prior to application will enhance the appearance of the finished roof. Follow shingle manufacturer's instructions, but at all times shingles should be stored level and flat and off the ground. Cover bundles lightly with tarps or plastic film and protect piles from direct sunlight.

5.3.2 Prevention of Ice Damming

Ice damming occurs in extreme cold climates and is due to heat transfer from the attic space to the shingles melting the snow during the day time period. At night, the snow melt freezes. Repeated cycles of freeze/thaw cause a ridge of ice trapping the snow melt as it flows down the roof. The snow melt backs up under shingles and soaks the sheathing. Rain storms can also threaten the integrity of sloped roofs. The effect of ice dams and wind driven rain can be substantial from stained walls or ceilings to severe water damage.

A continuous underlayment of ice and water self-adhering protective membrane or other heavy waterproofing material must be installed from the edge of the exterior wall 900mm (3') up the roof under the shingles to protect the roof sheathing and in all other critical zones where roof leaks commonly occur (Consult with the membrane manufacturer for proper installation).