

# Technical Bulletin

## SELECTION OF MECHANICAL FASTENERS FOR TILE ROOF UNDERLAYMENTS

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Because underlayment is installed under virtually all steep slope roofing products, it has become almost a secondary matter as to its application. When asphalt based underlayments are installed beneath shingles or other flush roofing materials, they essentially become just another layer of material between the weather and the roof deck. The flat materials lap over and apply flush to the surface of the underlayment. Underlayment woven tightly between layers of flush material is not likely to be exposed to significant water flow once the roof is installed.

When underlayments are installed under a tile roof they perform a somewhat different function. Tiles or tile like materials do not lay flush to the roof deck or underlayment and consequently create the opportunity for the movement of both air and water between the tile and underlayment. Indeed this separation can be beneficial from a heat flow perspective since it allows for air to circulate beneath the tile which greatly diminishes the transfer of surface heat to the roof deck. Likewise it significantly reduces the likelihood of the heat loss that leads to ice damming in cold climates.

Since tile is installed differently, it is more likely that the underlayment will be required to shed water, both prior to and following installation. Because of this, it is important that the fasteners used to attach the underlayment be properly suited to their function. Technically speaking, if a tile roof is properly installed, the underlayment will not be exposed to any significant water flow and the performance of the underlayment fastener at that point is not very critical. Prior to tile application, the underlayment may be exposed to the elements for days or even weeks at a time and if proper fasteners are not used, there is a risk that they may fail prematurely. This prolonged exposure often results in the curling of the underlayment which can actually create water ponding.

If a non corrosive-resistant fastener is present where ponding occurs, there is a very good chance that rust or corrosion will set in. This can be particularly problematic when the fastener happens to be a light gage staple of the sort administered through a hammer tacker. In many cases, such staples have been seen to completely rust away, leaving only two small holes where they had been. Obviously, any fastener prone to that sort of deterioration should not be considered for use with tile. Shinglers have long used these devices to install felt under shakes and asphalt shingles but they are less than ideal for use with tile underlayments.

The best fastener for installing tile underlayment is the common, hot dipped roofing nail because of its corrosion resistance and flat head. Capped nails are popular in areas prone to high winds but care must be taken to ensure that they are made of corrosion resistant material, both shank and cap. Most of these products are not currently galvanized since they evolved from fasteners designed for built-up roofing where they are sealed into the system. In actuality, the potential for wind damage to felt is generally fairly low since the roof is usually either loaded or battened shortly after felting.