Mastering Roof Inspections: Underlayment, Part 4

by Kenton Shepard and Nick Gromicko

The purpose of the series "Mastering Roof Inspections" is to teach home inspectors, as well as insurance and roofing professionals, how to recognize proper and improper conditions while inspecting steep-slope, residential roofs. This series covers roof framing, roofing materials, the attic, and the conditions that affect the roofing materials and components, including wind and hail.

Non-Bitumen Synthetic Underlayment

Non-bitumen synthetic underlayments are made from polypropylene or polyethylene. These synthetic polymers are also used to make a huge variety of other types of products -- everything from food-storage containers and rope to thermal underwear.

Advantages

Like other underlayment materials, synthetics have both advantages and disadvantages. The advantages include:

- they are lightweight and high-strength;
- they're typically non-skid;
- they are resistant to fungal growth;
- they're wrinkle-free, since they don't absorb moisture. Although they can be designed as moisture-permeable, they are typically used as moisture barriers; and

- they’re also highly resistant to UV damage, and can be left exposed to weather for periods from six months to a year, depending on the manufacturer's recommendations.

Disadvantages

As of 2010, there are some concerns with synthetic underlayment. According to the National Roofing Contractors Association:

- to date, there are no applicable ASTM standards for these products;
- many synthetic underlayments don’t meet current building code requirements;
- the use of these underlayments may void some manufacturers' material warranties for certain roof coverings (such as asphalt shingles); and
- wicking can be more of a problem than with felt underlayment. Installation along the roof eaves is different with some types of synthetics.

If the installer fails to read and follow the manufacturer's installation instructions and instead installs the synthetic underlayment using the same practices as required for felt, this may create moisture problems.

Above, you see synthetic underlayment installed on a home.

Again, as an inspector, you are not responsible for identifying the type of underlayment, but it’s a good idea for you to know what types exist, as well as some of their properties.

Although companies who manufacture synthetic underlayment may also manufacture similar-looking housewrap, housewrap does not meet roofing underlayment requirements. Housewrap installed as underlayment is a defective installation. Underlayment is usually thicker than housewrap. Above, you can see the difference between the two.

INSTALLING SYNTHETIC UNDERLAYMENT

Slope Limitations

Slope limitations vary by manufacturer. Some specify a greater overlap for low-slope roofs, and some don't.

Roof Edges

To avoid problems from wicking moisture, many synthetic underlayments are designed to wrap around the roof edge and protect the edges of the roof sheathing. The edge metal is installed over the underlayment at both the eaves and the rakes.

Fastening

Fastening is generally done with plastic caps or roofing nails. The use of staples is discouraged because synthetics are not self-sealing.

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