

THE IMPORTANCE OF ROOFING UNDERLAYMENT

HOW TO HELP ENSURE YOUR ROOF SYSTEMS WITHSTAND THE ELEMENTS

BY CLEM NEWCAMP

Building homes that can withstand the elements isn't easy, and the roof typically bears the brunt of this onslaught from sun, precipitation, and wind. But even the best roof can leak or be penetrated by a particularly strong storm, resulting in water damage to the home.

That's where underlayment plays a part, protecting the roof deck and frame if water manages to penetrate the finished roof. Underlayment is a waterproof or water-resistant material installed directly on the roof deck before any other roofing materials are applied. It acts as a barrier against leaks and the effects of harsh winds that may tear away shingles or ice dams and allow water to pool and seep under or penetrate through the roof cladding. Underlayment also can play an important role during construction, shielding roofs from severe weather prior to applying the finish cladding.

In fact, to satisfy the current International Building Code, a home's roofing system must include an underlayment, and roof cladding manufacturers also require an underlayment to maintain their products' warranty. But specifying an underlayment is one thing; it must also be properly sealed and installed. And not all underlayment is the same or installs in the same way.

TYPES OF UNDERLAYMENT

The three most common types of roofing underlayment are felt (aka roofing paper), synthetic, and self-adhered.

Felt underlayment is one of the oldest and most-used products for this



For roof hips and ridges, install underlayment so it overlaps by at least 12 inches.

application. Its main advantage is it tends to cost less than synthetic underlayment.

Among felt's disadvantages are that it can't be left exposed to the elements (especially to heat) for more than a few days or its effectiveness is reduced; the finish roof cladding should be installed immediately after felt is applied to help ensure optimal weather protection. In addition, felt's slippery surface makes it more difficult to install, it's prone to tearing, and if exposed to moisture it can absorb water and wrinkle, making it more difficult to get shingles to lay flat.

Provided it's installed correctly, **synthetic underlayment** offers enhanced water resistance and protection from the elements, and is also more durable, faster

to install, has better traction to provide a safer working surface, and repels water better than felt. But it's also typically more expensive than felt products.

Self-adhered underlayment (also referred to as peel-and-stick or ice and water shield) is highly water-resistant and doesn't require mechanical fasteners because of its sticky backing, which helps to create a waterproof seal between the roof deck and underlayment and eliminates the need for mechanical fasteners.

Self-adhered underlayments also are designed to protect the roof from damage where water tends to collect or in leak-prone areas and is useful in regions that experience severe winter weather because the its upper surface may contain



Though they cost more, synthetic and self-adhered underlayment products provide better protection from water penetration than felt and also install faster and offer better safety.

granulated polyethylene or polyester materials that provide additional weather-resistant benefits; those materials also create a nonskid surface for better safety.

INSTALLATION TIPS

For all underlayment types, make sure the roof deck is properly secured and free of damage or debris before rolling out the underlayment following the manufacturer's requirements for proper horizontal and vertical laps. Button-cap fasteners are best for felt and synthetic underlayments, as they provide a better seal and have stronger holding power—especially in high winds. Follow the manufacturer's fastening schedule.

At high-risk areas, such as rakes, skylights, chimneys, and shed walls, extend the underlayment 12 inches up the adjacent wall, then integrate it with the drainage plane, wall cladding, and roof flashing (see illustration, above, right). Finally, apply drip edges to properly shed water off the roof, a best practice also required by code in several markets.

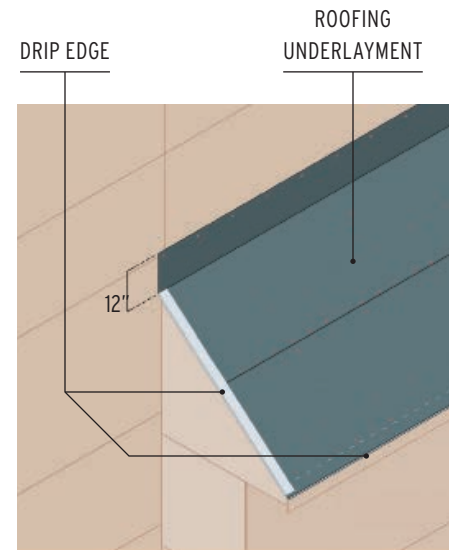
In most cases, synthetic or felt underlayment can be installed down to a 4:12 roof pitch, while self-adhered products should be used for all low-slope applications or risky areas down to a 2:12 pitch.

DRIP-EDGES

In most markets, the drip edge goes over the underlayment along the rake edge and under the underlayment at the eaves. This practice helps to protect the roof deck and fascia, respectively, from wind-driven rain and decreases the possibility of leaks, rot, mold, and/or structural water damage.

VALLEYS, HIPs, AND RIDGES

All valleys should be covered using a self-adhered underlayment because it offers the best protection against water leaks in one of the roof's most highly trafficked watershed routes. When the underlayment passes into the valley, make sure it overlaps by at least 6 inches or passes through the entire valley. Remember to keep all fasteners out of the center of the valley by at least 12 inches.



Extend roofing underlayment 12 inches up the adjacent wall and integrate it properly with the drainage plane, wall cladding, drip edges, and roof flashing.

When installing over hips and ridges, overlap the underlayment by at least 12 inches.

ROOF PENETRATIONS

All penetrations through the roof deck, such as vents, plumbing stacks, and skylights, should be sealed and properly integrated with the roof underlayment so the roof is dried in against inclement weather. Remember to use a quality flashing boot and to install it in sequence with your cladding as a final layer of protection.

As you look to ensure that you're providing a high-quality underlayment on the homes you build, there's no doubt that synthetic and self-adhered underlayments provide better protection than traditional roofing felt. And for synthetic products, button cap fasteners in lieu of staple guns or roofing nails provide a better seal. Above all, remember that your underlayment layer should be capable of keeping your homes completely dry before the finish roof cladding goes on. **PB**

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