TECHNICAL BULLETIN

INSTALLATION GUIDELINES FOR APPLICATION OF ASPHALT SHINGLES IN COLD WEATHER (<40˚F [4˚C])

Safety First

- Wear fall protection.
- Make sure ice or frost is not present on the walking surface, whether the deck or underlayment. Conditions can be difficult to see, especially on overcast days.

Storage and Handling

- Store roofing materials in a heated facility prior to installation. This is particularly true for asphaltic underlayments and hip and ridge shingles.
- Shingle bundles tend to retain the shape of the surface where they are stacked, so lay bundles on a flat surface. Because shingles become stiffer in cold weather, let them warm in the sun prior to application. You can also open the bundles and let the black surface on the back of shingles absorb the sun's heat. This will help the shingles flatten out and increase their flexibility. Make sure shingles are flat prior to installation.
- Never bend, throw, or drop shingle bundles. If shingles are frozen together in the bundle, the bundle will need to be warmed enough to separate the shingles without causing damage to them.
- It is easier to separate shingles granule side up.

Underlayment

- Malarkey Arctic Seal® is self-adhering, but this attribute is affected by cold weather and moisture, often making it necessary to fasten the underlayment in place until shingles can be applied.
- Allow Arctic Seal® and Malarkey Right Start® UDL to relax prior to installation. Unroll, cut into manageable lengths, and lay out in the sun. This will prevent wrinkling once the underlayment warms up. Failure to allow the sheets to relax may result in wrinkles or buckles.

Shingles

- Shingles should be as flat as possible prior to nailing in place. The flatter the shingle, the less chance of buckling.
- Don't butt shingles too close together. Allowing a small space between them (1/32" [1 mm]) when installing will help shingles lay flatter as the roof warms up.
- Pay attention to cracks on shingles, and do not install if cracked.
- Shingles are easier to cut granule side down.

Hand-Sealing
Malarkey's shingle installation instructions require hand-sealing shingles on slopes greater than 21:12 and strongly recommend it in adverse weather conditions when cold weather, high winds, and blowing dust can prevent a shingle's self-sealing strip(s) from activating.

There are a number of factors affecting how well shingles seal down, so it is difficult to say a specific ambient temperature that aids or hinders the process. A shingle's *radiant temperature* is what activates seal-down strips, and the following factors affect the radiant temperature of shingles:

- Slope: Very steep slopes will not seal as fast as lower slopes, given there is less weight of the shingle on the seal-down.
- Color: Darker colored shingles seal faster than lighter colored shingles.
- Ambient temperature
- Whether it is sunny or cloudy
- Whether shingles are in the sun or in shade
- How hard the wind is blowing
- Direction the plane of the roof is facing: South and west sides typically seal faster than north and east sides.

Malarkey shingles have a fairly aggressive, modified SEBS adhesive. A little sunshine goes a long way to activating the seal-down.

Malarkey's wind warranties apply only when shingles are sealed, whether by *hand-sealing* or activation of the self-sealing strips. Failure to seal under adverse circumstances like those described above is not a manufacturing defect.

To hand-seal a *laminate* shingle, apply four (4) quarter-size dabs of asphalt roof cement evenly spaced underneath, and press shingle firmly into solvent-based adhesives conforming to ASTM D4586 or ASTM D3019. An ASTM C920 Type S, Grade NS, Class 35 solvent-free adhesive compatible with asphalt roofing materials may also be used in lieu of asphaltic adhesives and is available at most roofing distributors or hardware stores. Windsor® *designer* shingles should have a dab under each shingle tab, and hip and ridge shingles are hand-sealed under lower corners.

Detailing and Added Tips

- *Open metal valleys* are a better option than *closed-cut* or *woven* valleys which require shingles be pressed well into the break of the valley. Failure of shingles to remain in the valley center can form bridges susceptible to breaking or cracking if stepped on. To prevent this, we recommend warming shingles sufficiently so they are flexible, conform to the valley center, and resist cracking.

- Like valley shingles, *hip and ridge shingles* should also be warmed to increase flexibility and prevent cracking.
- Monitor compressor pressures and adjust as the roof warms up during the day or as climatic conditions change the temperature of the deck.
- Although an increased cost, consider *hand-nailing shingles* to reduce issues of underdriven/overdriven fasteners.

Installation: Follow the Sun

Hot summer days demand shingle installation in the morning and to follow available shade the rest of the day. The opposite is true in cold weather: follow the sun; work in the sun for conditions most conducive to a quality installation.

Following Installation

If the *installed* shingles are not lying flat: They need warm temperatures and sunlight so they can relax and lay flat. This process may take a couple weeks to several months.

When roof inspections or maintenance are required following installation, take care when walking on cold, hardened, and uneven shingles because they can crack or have their sealant bonds broken very easily. If having to clear snow or ice, be careful not to damage shingles in the process.

Contact Malarkey Technical Services with questions at (800) 545-1191 or (503) 283-1191, 7:00 am to 5:00 pm, Pacific Time, or email us at malarkey.technicalinquiries@amrize.com.

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