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INSTALLATION OF ASPHALT SHINGLES ON LOW SLOPED ROOFS

Asphalt shingles are an effective roof covering material for sloped roofs. They can be successfully used on "low sloped" roofs as well as steeper pitches. Typically any roof slope less than 4:12 (i.e. 4" of vertical rise for every 12" of horizontal run, or 18.5°) is considered a low sloped roof. Asphalt shingles can be successfully applied to these lower slopes, providing a few special application procedures are followed. Asphalt shingles should never be applied to roof slopes below 2:12 (8.5°).

All of the application steps used for shingles on steeper, standard roof slopes should also be followed when installing shingles on low [4:12 down to 2:12 (18.5° to 8.5°)] slopes. For the finished roof to perform well, quality materials must be used and they must be installed properly, following the manufacturer's application instructions. This Technical Bulletin does not address all the good roofing practices needed for all roof slopes, but will highlight some of the major concerns of low sloped roofs.

Because of their lower slope, these roofs are more susceptible to water entry, primarily by two mechanisms; severe ice dams, and wind-driven rain. Due to these increased opportunities for water entry, the key requirement for a low sloped roof system is to increase or enhance the water shedding property of the roof system as a whole.

First, the protection and prevention of ice dams will be discussed. (For complete information on ice dams, refer also to [CASMA Bulletin #10 - Preventing Problems from Ice Dams](#)). The mere fact that low sloped roofs are not steep, means that rain or melting snow on the roof will not run off quickly. Ice dams can therefore form more easily, and grow to a much larger size than on standard slopes. The best way to protect your roof from the damage due to ice dams is to prevent their occurrence. The optimum way to accomplish this is to provide complete, open and adequate attic ventilation. (For complete information on Ventilation, refer also to [CASMA Bulletin #1 - Proper Ventilation for Asphalt Shingle Covered Roofs](#)). Although critical to the performance of any roof system, ventilation is particularly important on low sloped roofs. Just as the lower pitch retards the rate of water runoff on top of the shingles, attic airflow from soffit to ridge is slower than on steep roofs. To ensure adequate airflow on lower slopes, the net free ventilating area of all vents should be increased from the standard 1/300th to a minimum of 1/150th of the attic floor area. Approximately half of the vent openings should be at or near the soffits, with the other half as close to the ridge as practical. (NOTE: some vents designed and sold for standard roof pitches may not be suitable/recommended for low slopes. Check with the vent manufacturer to ensure vents used are approved for your roof slope).

Although the National Building Code permits various types of ice dam membranes, for

best roof performance, CASMA recommends the use of self-adhering modified asphalt membranes for secondary ice dam protection on low sloped roofs. Since ice dams can be severe on lower slopes, the membrane should extend a minimum of 900 mm (36") beyond the interior wall line of the inside wall. Apply the membrane according to the manufacturer's instructions.

For the remainder of the roof, enhanced water shedding is also required to protect against water entry due to wind-driven rain. This can be addressed either by improving the underlay beneath the shingles, or by special shingle application.

The underlay can be improved in one of two ways; two plies of asphalt saturated felt, or one ply of self-adhering modified asphalt membrane may be used. Should water from wind-driven heavy rains sneak past the shingles, the underlay can now provide a secondary water shedding layer.

Optionally, the shingle application may be customized for low slopes. Standard three-tab shingles can be applied with a reduced shingle exposure [for metric shingles this dimension is 111 mm (4 3/8")], resulting in the shingles being effectively applied "triple coverage". The shingles are cemented down at time of installation to protect against wind uplift. With this method, an underlay is not required, and therefore typically not used. (These procedures are common for low sloped roofs in Atlantic Canada).

Generally, three-tab asphalt shingles are best suited for low slope application. For other shingle designs, check with the specific manufacturer to see if those products are recommended or approved for use on low slopes.

Despite using quality materials and following all of these application recommendations, a low slope roof is a severe exposure condition for asphalt roofing shingles. In Canadian latitudes and climates, shingles on low slope roofs typically age more rapidly than steeper roofs, and rarely last longer than fifteen years.

Additional information on shingling low slope roofs can be found in the Canadian Standards Association Standard A123.52 *Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3*.

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Canadian Asphalt Shingle Manufacturers' Association