WATERPROOFING

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TECHNICAL BULLETIN

TECHNICAL DATA SHEET 180412SCANE (supersedes -)

SUBJECT : GRANULE LOSS ON SBS CAP SHEET MEMBRANES

This technical bulletin is intended to address preventative measures to reduce the granular loss on SBS cap sheets that is sometimes observed on sites.

SOPREMA's SBS cap sheets are tested against the very stringent ASTM D4977 "Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion" addressing granule adhesion to the bitumen blend. However, even when membranes are produced following a strict quality control process, outside environmental or particular site conditions can result in adverse conditions that may greatly contribute to granule loss.

First, there is the lack of drainage on the roof surface. This condition leads to water accumulation around the lowest point on the roof, usually at the drain location. Combined with dust, leaf, and other environmental debris, this contributes to a known phenomenon described as mud curling. As this mixture dries, it cracks and tends to pull granules with it, which slowly leads to granule loss at the surface of the membrane. Designers should always make sure that positive drainage occurs on the roofs they develop by following the national and local roofing associations' best practices, as well as the manufacturer's requirements for a 1% to 2% continuous slope to the drain. Drains should also be installed with sumps that are now readily available and greatly contribute to reducing water accumulation on the field of the roof. Owners should also maintain their roof throughout its lifespan and make sure that their drains are free from debris or anything that may keep water from flowing to the drain. It may also be advantageous to add an extra layer of membrane around the drains (sumps) or add a protective coating over the cap sheet in areas that may pond water.

In addition, membranes need to be protected from excessive foot traffic during and after roofing works.

Roofers installing the cap sheet should be cautious, particularly during hot summer days, when walking or kneeling over the membranes. They should also be sure not to overheat the membranes, as this can loosen the granules on their surface and lead to premature granular loss. This usually happens at the parapets where membranes are installed vertically and loose granules are more prone to slipping due to gravity.

It is also common to see damage caused by workers from other trades when the roof is used as a temporary workplace. No works should be executed on the membrane without providing sufficient protection. The use of plywood sheets is the easiest and most common method to protect the surface while the roof serves as an active job site.

To limit the foot traffic of the roof maintenance staff, membrane-covered traffic paths should be installed in strategic places, once the roof surface is complete. Walking on cap sheet membranes outside those paths should be strictly limited to necessary interventions, such as drain and mechanical unit repairs. On warm summer days, as well as during installation, roofers and all other people working on the roof must be careful not to damage the surface.

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White reflective granular membranes can seem even more affected by granular loss. This is caused by the contrast between the black bitumen and the white granules. The variation brings more attention to granular loss since even small and normal loss appears far worse than on a typical grey coloured cap sheet. Also, roofing applicators must adjust their torching technique when installing highly reflective cap sheets as any overheating at the side laps or end laps will scorch the surface. Over torching will create problems at the laps and may also embed granules in the bitumen, creating a granular loss effect.

It is therefore critical to protect highly reflective cap sheets as soon as they are installed if other work needs to be done, including the installation of cap sheet flashing membranes, pitch pockets, metal works, and mechanical units. These membranes are highly vulnerable to metal filings from steel panel cutting on site without proper protection, as filings can cause rust stains after rainfall. It is possible to delay the main field cap sheet installation in strategic places to allow tradesmen to walk or work only on the base sheet. It is much easier to repair or add another layer of base sheet than to repair a damaged reflective cap sheet.

In summary:

Outside environmental and worksite conditions and some activities can contribute to granule loss.

Roofs should always be designed to provide positive drainage complying with the design criteria of national and local associations as well as the manufacturer's recommendations.

Care should always be taken to protect the membrane during and after installation.

Membrane walkways should be installed to create pathways on the roof especially at all access points, and for mechanical equipment that may be used by other trade workers.

Special care is required when installing highly reflective white membranes.

Owners should know the correct maintenance procedures to follow. They should have inspections done annually as well as both before and after major weather events or a new season. For example, two inspections per year, in spring before summer and in fall before winter, could help ensure the proper performance of the roof system.

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