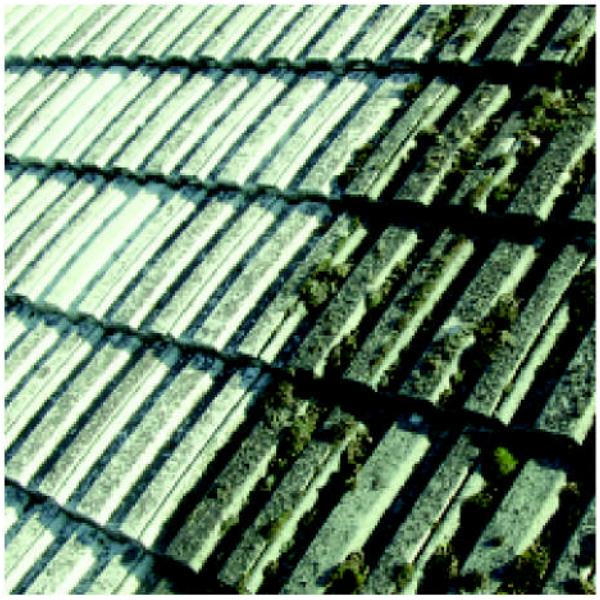
Slating & Tiling

TI PS 87

Lichen and moss



Before and after power washing down a 35-year old concrete tile roof covering

When you look closely at roofs you can find grass, tomato plants, and stonecrop growing in the little crevices, but the most common life forms found are lichen and moss. Lichen and moss are generally not an issue where new roofs are concerned but are very much an issue where old roofs and extensions to existing roofs are concerned. We know what they look like, but what should we do about them?

Definition

Lichen and moss are very different, but may occur next to each other on the same roof. Lichen is a composite organism where a fungus and either an algae or bacteria form a very close friendship and live off each other. Lichen can survive the very harshest of climatic conditions and is rarely killed by long drought conditions. The one thing that will kill lichen is atmospheric air pollution.

There are approximately 15,000 species of lichen but the one that is most common on roofs is *Ascomycetes Foliose*. This form of lichen starts as a small yellow or orange dot and gradually grows out from the centre getting bigger and bigger leaving the centre to go white grey (which is dead).

Moss on the other hand is a very simple plant form that does not have a root or means to suck up or move water around inside its form. It has to absorb the moisture directly and that is why it likes damp shady places. Of the 12,000 species of moss the most common moss found on roofs is *Bryophyte Andeaeaceae* which grows in green humps, and has little lantern shaped spore capsules in place of flowers.

Conditions

Where and when the air that we breathe is highly polluted, moss and lichen struggle to survive, but where the air is clean they will survive.

In many instances the start of moss or lichen growing on roofs is bird droppings. Look under any TV aerials that are fixed to chimneys and the volume of lichen and moss is at its greatest. The nutrients in the bird droppings give the moss or lichen a good starting point. If the surface of the tile or slate is rough then it gives the nutrient something to stop it being washed off the roof. Both moss and lichen like a slightly alkaline to an acidic surface, as the combination of acid rain and alkaline tile (concrete) produces a very weak salt solution which it likes. That is one of the reasons that you see a lot of moss and lichen on houses near the sea. Both of the organisms and plants like wet conditions, therefore they tend to grow better on north facing roof slopes.

Moss and lichen will grow on slates and clay tiles but their preference is concrete tiles or fibre cement slates/sheets. Generally you will find lichen growing on the exposed surfaces while the moss will grow in the corners, interlocks and head laps, where they shelter and get more water, especially the side laps of concrete interlocking tiles. Gradually moss will filter the water flowing down the interlock, collect the dirt and eventually build a dam which will force water flowing down the interlock to discharge into the second interlock channel.

In severe cases the second interlock becomes blocked and the water flows off the side of the interlock and sometimes drips off onto the underlay especially where there is a tile clip.

Moss and lichen will not eat its way through a roof tile or slate but will capitalise on any defect that there may be in the material, such as a small crack. Moss, unlike lichen, which will grow out from the centre and finally die, will not die out naturally, as it is both hardy and slow growing and needs positive action to kill it. Therefore prevention or cure tactics need to be put into place, such as washing weak solutions of copper oxide down the roof every time it rains. Copper oxide is very toxic.

This can be done using a wide copper flashing at the head of a roof slope. The wider the flashing the greater the coverage. A thin copper wire will only protect the top 300-400mm of the roof while a 300mm deep flashing should protect up to 8m of rafter length.

After about five or six years when the original polymer coating on concrete tiles has dissolved away, or after cleaning off old moss and lichen, it would be worth treating the surface of the tiles with a biocide (a cocktail of fungicide, bactericide and algaecide) or a very strong horticultural disinfectant like Jeyes Fluid. This should be done on a dry day so that it can soak into the surface and dry. With natural slates and clay tiles this could be done from new as they are not polymer coated.

Tiles that have been cleaned can look a little bald or discoloured where the surface granules have come off or where the moss has been shielding the tiles from the sun. After a few years the elements will weather the surface back to a more even colour and texture, but the tiles will never revert to their original colour or texture.

Conclusion

The presence of moss and lichen on a roof can make the roof look old but can also affect the performance of the roof by preventing water run off from draining out of laps and interlocks. Moss and lichen will reduce the life expectancy of the roof by a few years over a 100-year life expectancy and is therefore negligible, but should be discouraged from forming in the joints, and should be cleaned off when it has become too bad.

Tips

- Prevention is better than cure, so choose a roof covering that is less attractive to moss and lichen spores by being smooth, and is on a steep roof pitch.
- Scrape and brush as much moss and lichen growth off the roof, especially from head and side laps, before treating the roof in any way.
- Take care when power washing a roof that you blast down the roof, not up the roof, to reduce the amount of water and debris that is forced through the joints onto the underlay.

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