

ALGAE STAINS ON YOUR ROOF

By: David L. May, Jr., AIA

There is a silent threat that is slowly shortening the life of asphalt shingle roofs in Southeastern Virginia as well as many similar communities along the Gulf Coast, Eastern Seaboard and Southeastern United States. It is the dark gray to black streaks that form on asphalt shingle roofs, slowly increasing in severity until most your roof is covered. It goes by many names, "Dry roof fungus," "Roof stains," but is primarily a species of algae named, *Gloeocapsa Magma*. It is very persistent, slowly consuming the filler in asphalt that binds together the shingle. The filler is its food source, yum.

By darkening the roof, the algae also decreases the reflectivity of a light colored asphalt shingle, increasing its temperature. Higher temperatures drive off the volatile portions of the asphalt, leaving behind a more brittle shingle, making it more susceptible to wind damage during a storm. The higher roof temperature also increases attic temperatures adding to your air conditioning load in the summertime.

This alga was first seen in South Florida in the mid to late 1970's. It is believed to be an introduced species most probably from South America. At first it was believed to be a tropical nuisance only, unable to withstand the colder temperatures in the rest of the United States. By the late 1980's the algae was seen on Hampton Roads roofs, and now it has made it all the way to Canada.

In response to the prevalence of the new algae, roofing manufacturers introduced in late 1990's, algae resistant asphalt shingles which are sold under various trade names, such as "Fungus-buster." In many areas, such as Hampton Roads, roofing manufacturers will only sell algae resistant asphalt shingles, because the algae attacks the roof long before the roof warranty expires on ordinary shingles. The algae resistant asphalt shingles, all employ added granules on the surface of the shingle which slowly leach a metal that is toxic to most plant life. Usually it is a metal like copper or zinc that is soluble in weak acids, such as the sort that falls in the form of acid rain.

The algae resistant shingles provide just short term relief from damage to the roof. Once the metal has fully leached from the added granules, the protection to the shingle ceases. This typically occurs about 5 to 8 years after the shingle is installed and then the roof stains begin to grow. Another type of protection takes the form of an exposed copper or zinc strip inserted partially under the ridge cap shingles. As rain water passes over the exposed metal strip, it picks up small trace amounts of the metal, where it in turn kills the algae on the roof slope below. This is a very slow process which is not recommended from heavily infested roofs, because of the amount of time that it takes to work. This method works best to keep a newly installed roof clean. Think of it as a vaccination for a new roof.

For an existing roof with infested asphalt shingles, cleaning the algae from the roof is necessary to help extend the life of the shingles. To clean infested shingles, the Asphalt Roofing Manufacturers Association recommends gently spraying a solution of 1 cup of

chlorine bleach (sodium hypochlorite), 1 gallon of TSP (tri-sodium phosphate) and two to five gallons of water. It is not necessary or even advisable to use commercially prepared bleaches, because most of them contain detergents that are not necessary and can make the roof surface slippery.

This solution must be applied with the gentle spray from a garden sprayer. Do not pressure wash your roof as pressure washing damages the surface of the shingle by blasting the granules off the asphalt! Protect your plants and shrubbery from any overspray as the bleach will defoliate your plants. It is best to do this procedure on a windless day early in the morning will the roof surface is cool to prevent rapid drying. Let the solution set on the roof until it is almost dry. Then rinse the roof with clean water. The algae will return in little more than a year or two, so the process will need to be repeated. For serious infestations, a commercial roof cleaning company should be called. They have more active algaecides that come in a specially prepared solution that stays in contact with the roof providing protection from reinfestation for five or more years.

Your roof may be the single most expensive component to be replaced during the life of your home, so it makes sense to take action to clean your infested roof extending its life by removing the conditions that will lead to it early demise.

