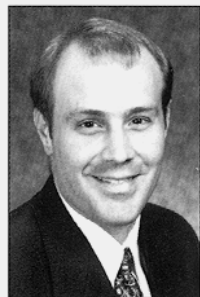


Cleaning, preventing algae growth on asphalt shingles

by James R. Kirby

Q: *Several years ago, we installed new asphalt shingles. The roof now has streaks that extend from the ridge to the eave, with the heaviest discoloration at the downslope edge. What causes this?*



A: Based on what was briefly described, this black or dark-green

streaking on asphalt shingles most likely is caused by an airborne algae called *Gloeocapsa*. It tends to grow in warm, humid environments, such as the South and Midwest, but can occur throughout most of the United States and parts of Canada.

The algae is carried by the wind and eventually comes to rest and grow on shingles. The growth is most noticeable on lighter-colored shingles, especially white and off-white.

It is important to recognize that the algae growth is not a performance problem of the asphalt shingle roof system but an aesthetic one that should not cause concern about shingle failure. It generally is not necessary to remove and replace asphalt shingles strictly because of algae growth and the associated discoloration.

If cleaning the algae from the shingles is desired, NRCA does not recommend pressure- or power-washing or using solutions with high concentrations of bleach—these can cause damage. A bleach-based cleaner may prematurely age asphalt shingles, and over-scrubbing or power-washing can remove granules, reducing useful service life. The bleach solution also can harm nearby plants and etch window frames. Additionally, safety is a concern; shingles can become slippery when wet.

If the roof's appearance is not acceptable, and cleaning is the preferred method to improve it, asphalt shingles should be washed with a mild solution of chlorine bleach and water or mild detergent gently applied with a sponge or hand-held sprayer. The surface then *must* be rinsed thoroughly with water. Unfortunately, cleaning the roof system's surface is only a temporary solution; the algae is likely to reappear.

It also is recognized that metal (galvanized or copper) fixtures (e.g., exhaust fans, flashings) retard algae growth. The water running over the metal creates various compounds that coat the shingles' top surfaces and slow the algae growth.

Installing zinc or copper strips at the ridge is another method for controlling algae growth, but they might not be effective across the entire roof area (because of high concentrations of zinc or copper at the ridge and subsequent smaller amounts of zinc or copper further down the roof). Installation of multiple strips can be a more effective solution. The strips can be incorporated into existing residential roof systems in conjunction with the previously described cleaning methods.

Algae growth is not limited to asphalt shingles. It has been reported on all roof system types, including wood shakes and shingles and concrete and clay tiles.

Q: *We currently are replacing an asphalt shingle roof system because the previous one had unsightly algae growth. What measures can be taken to prevent algae growth from recurring?*

A: There are several different ways to prevent algae growth. First, there are shingles specifically manufactured with alternate types of granules that provide algae resistance. Additionally, installing metal strips (either zinc-coated or copper) at the roof's ridge will help prevent algae growth.

Originally, an algacidal coating on the granules was used to prevent algae growth on shingles. Then, in the late '80s, use of zinc granules was

the most effective method for algae resistance. This worked well, but concerns arose out of using a heavy metal.

Both zinc and copper have been determined to be effective in deterring algae growth; however, the copper's cost makes it a more economical choice. And zinc has another problem besides cost—it emits a white rust, which is caused by the release and subsequent buildup of zinc oxide.

In recent years, algae growth has been controlled by adding multiple coatings to the granules. The coatings contain cuprous oxide (i.e., copper), which, over time, allows for the slow release of copper ions. The amount of copper-coated granules per shingle—less than 4 percent or as much as 10 percent (by weight)—is important: The greater the percentage, the greater the resistance.

There are several manufacturers that sell fungus-resistant shingles. Typically, marketing of these products has been limited to the South and southeast United States, where the algae problem tends to be most severe. For other regions of the United States, algae-resistant shingles' use has been limited by lack of marketing and product availability.

Shingle product names that include an "AR" suffix or "3M Algae Block" are manufactured and warranted to be algae-resistant. Also, ISP Mineral Products Inc., Hagerstown, Md., manufactures and supplies algae-guard granules, called AR-900, to shingle manufacturers.

It is becoming more common to install algae-resistant shingles. The additional cost is small when compared with the overall cost of the reroofing project. **PR**

Each month in this column, one of NRCA's technical services staff members will answer readers' technical questions. If you have a specific question that you would like answered in this column, send it to Professional Roofing magazine, 10255 W. Higgins Road, Suite 600, Rosemont, Ill. 60018-5607; or fax (847) 299-1183.