

Specifics: What's Growing On Your Roof?

Addressing The "Growing" Problems On Roofs Caused By Algae, Lichen, Fungus, and Moss

Fact:	Algae, or Gloeocapsa Magma, can spread... from one infested roof to another via the release of airborne spores. As more homes are built closer together, this hardy algae has been able to spread rapidly.
Fact:	Algae is well adapted to extreme conditions... heat, long dry spells, UV rays, heavy rain, intense cold, thick snow or high winds doesn't deter it.
Fact:	The dark color of Algae is a pigmented protective sheath... that encapsulates each cell to protect it from UV rays
Fact:	Copper and Zinc can both inhibit algae growth... Zinc (including pellets) however does have other inherent problems, such as: it's limited ability to be color matched to roofing shingles, attachment method to roofing shingles, cost and the occasional "bloom" effect due to the build-up of zinc oxide. Copper granules are used instead of zinc for these reasons.
Fact:	Copper is 10 times more effective against algae than Zinc... Zinc actually becomes less effective against algae quicker than copper
Fact:	AR shingles at work...some granules covering the shingle contain Copper encapsulated by a specially developed coating allowing Copper (cupric ions) to be time-released to prevent algae over a long period
Fact:	Dew is the dominant source of water for algae and is the "agent" best suited for the release of the copper in Algae Resistant shingles. Rainwater, although effective, runs off a roof too quickly to provide significant leaching of copper. Dew is also present more days than rain.
Fact:	Algae can go for long periods of time without water... It is unaffected by heat or downpours and is dormant in winter. Algae secretes a material that adheres them firmly to the shingle surface.
Myth:	<i>Algae is killed immediately by copper.</i> FACT: Algae cells are poisoned over time.
Myth:	<i>Algae is a fungus.</i> FACT: Algae, or Gloeocapsa Magma belongs to the Cyanobacteria branch in the Eubacteria family and is not a fungus.
Myth:	<i>Installing a copper ridge or hip shingle with copper granules on an existing roof may overcome an existing colony of algae.</i> FACT: AR granules have not been proven to kill existing algae.
Myth:	<i>Are "FR" or Fungus Resistant shingles better?:</i> FACT: "FR" is an inaccurate name since fungus is not the actual source of the suggested problem. Additionally, copper granules have not been proven to inhibit fungus growth.

F.A.Q.'s - Algae ~ Fungus ~ Moss ~ Lichen

What Does it Look Like?	Dark/black or green stains or streaks on roof... Also called "Blue-Green Algae" (Cyanobacteria) and "Gloeocapsa Magma"	Green, connecting colonies... Includes mold & mildew	Green, spongy clumps... can be random growths.	Orange, White or Yellowish spots... in a star burst shape
What's Needed for Growth?	Moisture, inorganic food sources (asphalt fillers), airborne spores, proper temperature	Moisture, organic food sources (soil), spores, proper temperature - 40 F to 100F.		
Where Does it Grow?	Nationwide; 80% +/- . Mostly SE, coastal, Pacific NW. High humidity. See map.	High humidity, heavy shade, any exposure. Heavy and/or low tree coverage aids growth.		

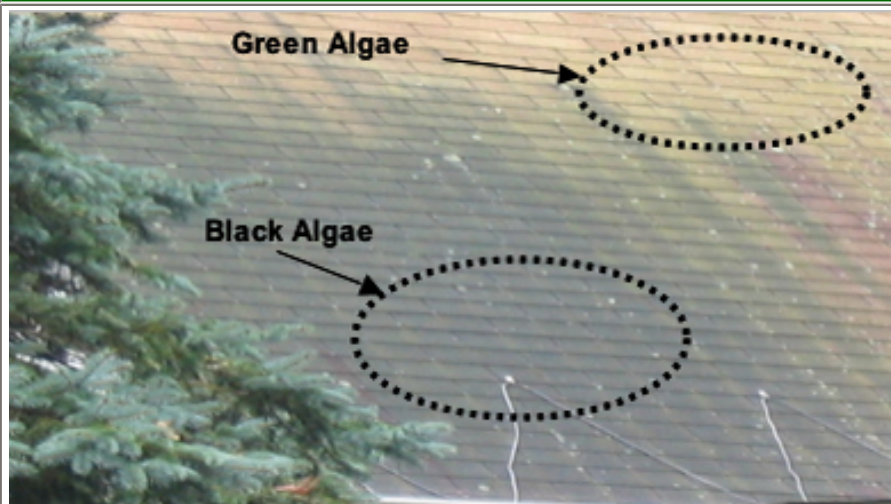
Typical Roof Exposure?	Mainly North facing, but can occur on all exposures.	Any exposure. Heavy and/or low tree coverage aids growth.
Impact on Roof?	Aesthetics Only	Aesthetics, poor drainage, slippery, potential to lift shingles, possible premature deterioration.
Are Algae Resistant Shingles Effective?	Yes...	No, may inhibit growth in early stages only, will not prevent growth.
How Do You Get Rid Of It?	Wash the Roof Shingles with "Anti-Algae Solution"*. Apply at low pressure, wait 15 min. rinse with low pressure water. Protect plants/shrubs. Do not power wash. Use Fall Protection.	Remove initial bulk of growth with stiff brush or broom. Then treat the roof as you would for algae.

*Anti-Algae Solution: 4 Gallons of water, 1 Gallon of bleach, 1 Cup of Tri Sodium Phosphate (TSP)

The Following GAF® Algae Resistant Shingles Are Available Nationwide (other Algae Resistant Shingles are available regionally):

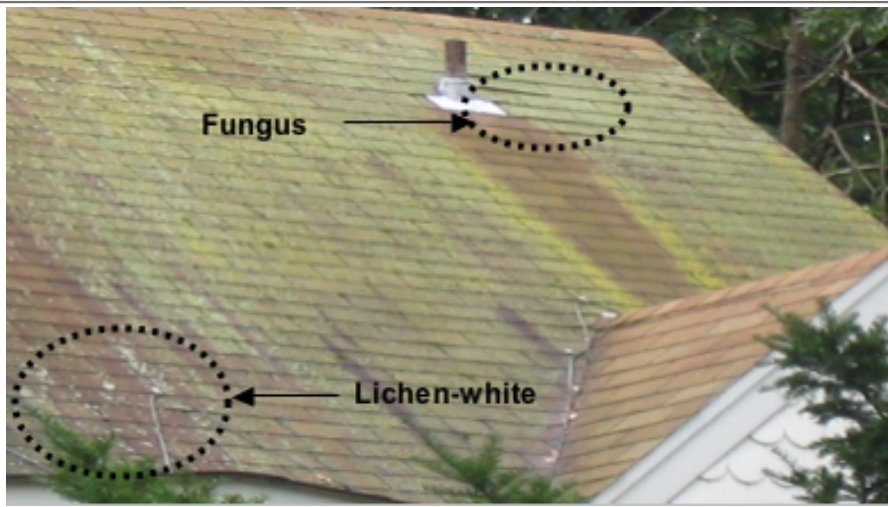


Big Picture: Can You Identify What's Growing on Your Roof?
4 Types: 1. Algae 2. Lichen 3. Fungus 4. Moss



ALGAE GROWTH

- Extensive Algae growth - in both green and black.
- Different colors are evident.
- Dark appearance is a protective layer the algae have developed to protect itself from damaging UV rays.



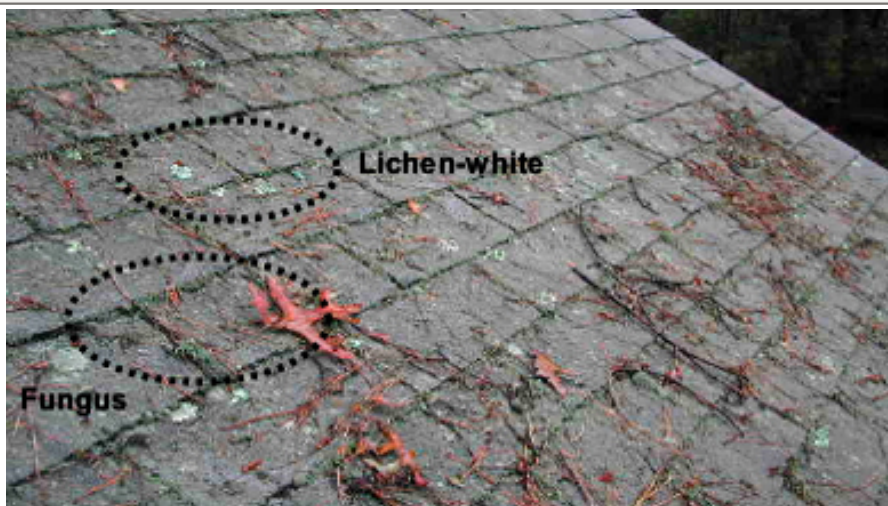
ALGAE, LICHEN, FUNGUS

- Evident are Lichen, Fungus & algae.
- **Notice the vent metal has inhibited growth.** This observation is what initially prompted researchers into finding metals that prevent algae growth to take place.
- **Exposure:** Note the algae-free surface on dormer roof.



ALGAE GROWTH

- Extensive algae growth.
- **The area below the window is free of algae due metal flashing...** run-off of the metal inhibits growth
- **Algae predominantly grows from the bottom - up,** due in part to the amount of time water is on the roof.



LICHEN & FUNGUS GROWTH

- **Fungus** - predominantly at the shingle edges and key ways.
- Left to grow **may eventually damage the shingles** by lifting them and further inhibiting water run-off.

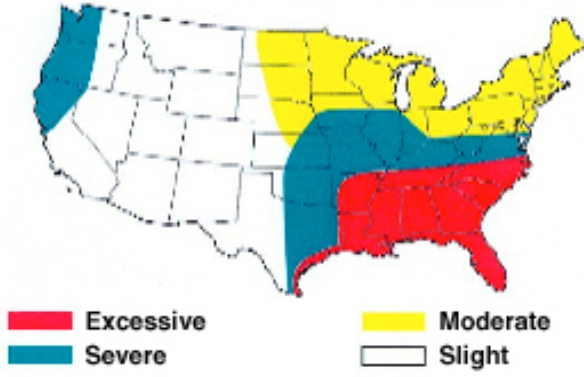


MOSS

- **Moss** due partly to low slope, shady location, organic material & exposure.
- **Water is retained on the roof;** thus essentially aiding the growth.
- **Organic material needs to be present** for growth or moss cannot take root.

Geographical Predominance

Roof Discoloration by Algae - Geographic Potential



White: Very Low Algae, Moss, Lichen and Fungus Growth

Yellow: Low Algae, Moss, Lichen and Fungus Growth

Blue: Moderate Algae, Moss, Lichen and Fungus Growth

Red: Severe Algae, Moss, Lichen and Fungus Growth