

Can One Roof Tile system do it all including **making electric power**?

A new manufacturer is upending the way the building industry approaches **solar roofing**. The design is a '**3 in 1 Roof**'. It was done by a new Florida-based company, recently debuted its innovative roofing tiles, which combine insulation, wind protection, and solar power in a single product. President and CEO Carmen Bellavia calls the product "the solar industry's supreme solution."

The company's roof tiles are constructed from a layer of heat-resistant closed-cell foam coated with a durable geo-polymer. According to the company, the material improves solar performance and insulation by keeping roof temperatures down during sunlight hours.

Traditional blue and black silicon **solar cells** have an average efficiency rating of around 22 percent but they can experience a functionality loss of 5 percent for every 20 degrees F the roof surface rises above 120 degrees F. On a typical 88 degree F day, traditional roofing materials can collect enough solar heat to reach up to 150 degrees F by midafternoon, losing energy production potential during the sunniest part of the day

The 3 In 1 Roofs geo-polymer, on the other hand, reaches just 12 degrees above air temperature at any given time, the company says. In addition, while common roofing materials, such as asphalt and concrete; take a long time to cool after reaching high temperatures. The 3 In 1 Roof tiles rise and fall in temperature at nearly the same rate as the surrounding air. The result is a solar system that won't lose efficiency unless daytime temperatures are consistently above 110° F. The company says its tests show the tiles have a 23 percent greater efficiency on an 88° F day than their traditional competitors

The tile material also blocks the sun's rays from entering attics, improving building envelope performance. This can help prevent heat-related building damage, such as dry-rot, condensation, mold, and energy loss. "By combining solar modules, a dense foam core, and an advanced exterior that deflects potentially damaging ultraviolet rays, 3 In 1 Roof tiles will forever change the role a roof plays in commercial and home design efficiency;" Bellavia says.

The final piece of the 3 In 1 Roof package is material durability. Solar cells are integrated directly into the foam and polymer core, stabilizing the fragile glass without the need for cumbersome racks. Designed for the hurricane-level winds that occur in south Florida, where Bellavia lives, in Florida the tiles have a 200-plus miles/hour wind rating. They also have a Class A fire rating and won't crack underfoot the company says.

Tiles from '3 In 1' Roof can be specified as solar-producing or non-solar, and the two types can be combined on a project for a customized level of power production and insulation. Solar cells can also be switched out as the technology progresses. With a complete system weight of less than 250 pounds per 100-foot square, the tiles can be used on any new construction or retrofit project that has a roof pitch of between 4/12 and 12/12, the company says. Roof tiles are available in 12 colors and four styles, including modern, traditional, slate, and shake looks.

-Amanda Hermans of Products Magazine