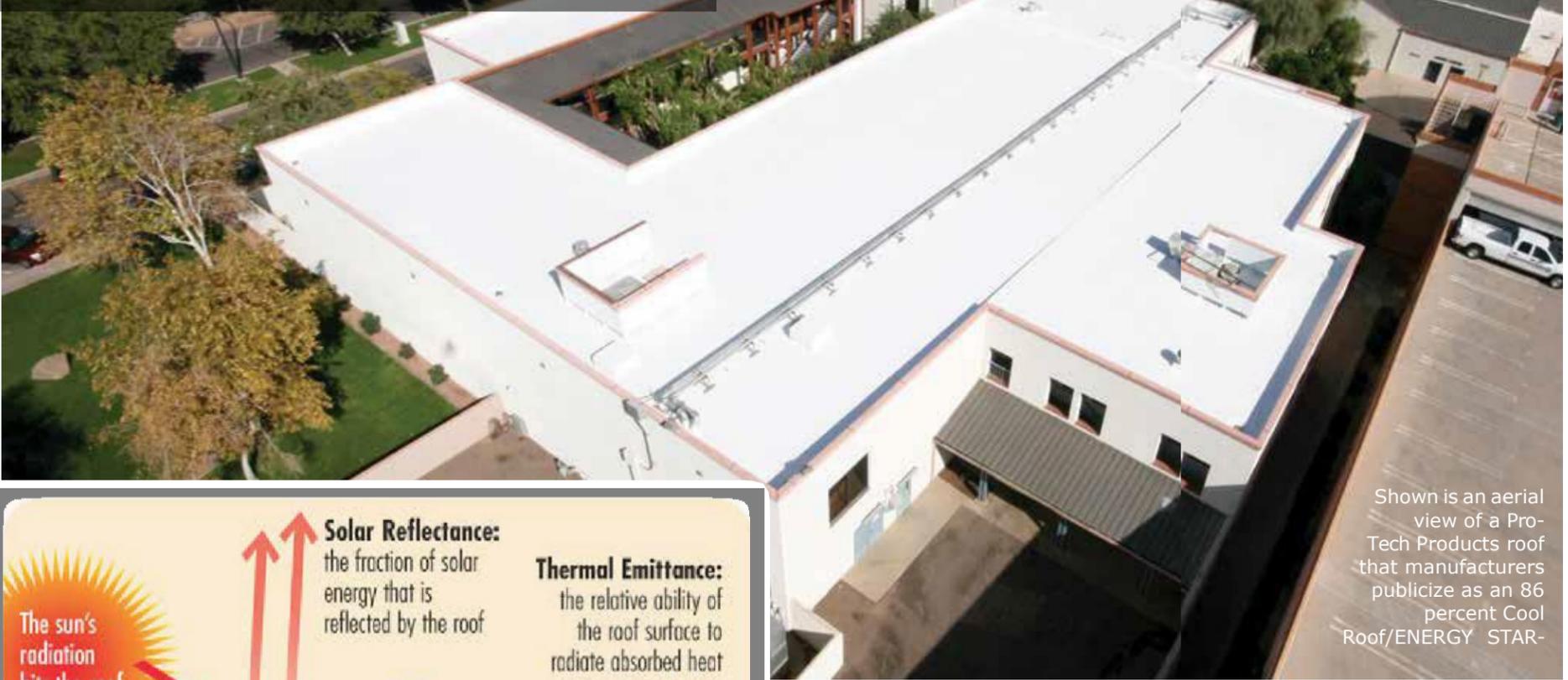


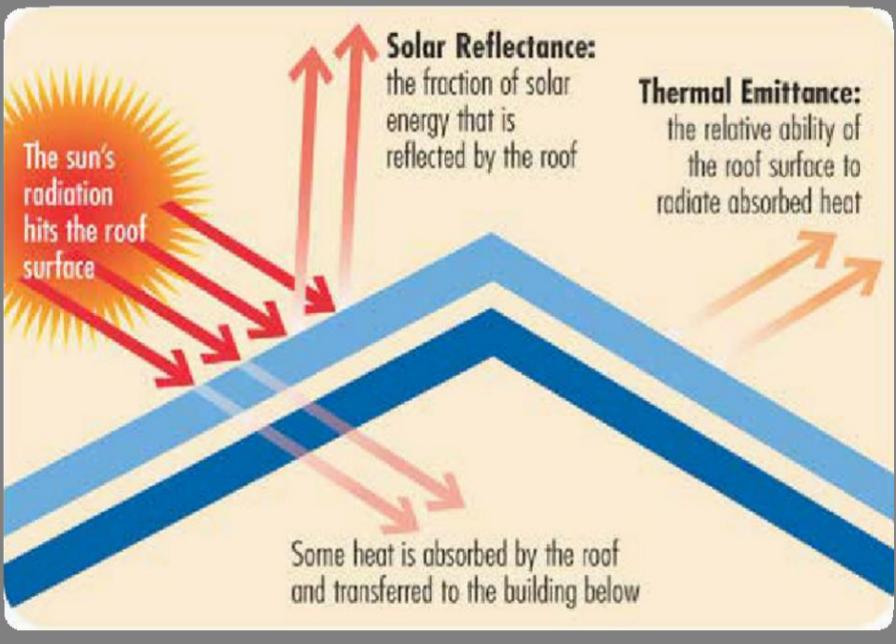
# HOT TOWN, COOL ROOFS

Solar Reflectance can help keep out the heat

By Lee Allen



Shown is an aerial view of a Pro-Tech Products roof that manufacturers publicize as an 86 percent Cool Roof/ENERGY STAR-



As roofs age, they can be recoated and restored to reflect more of the sun's rays. One Scottsdale cool roof product manufacturer reports an 86 percent reflectivity rate.

*“Hot town, summer in the city, back of my neck getting dirty and gritty... walking on the sidewalk, hotter than a match head,”* sang the Lovin’ Spoonful. Well, it’s that time of the year again when triple-digit horrors have settled in over the Valley, unrelentingly blazing down on concrete and tarmac that become their own urban heat islands. It’s not just sidewalks and streets that attract and hold the heat. Think of the thousands of rooftops that act like a sponge to soak up all that sunlight and sizzle. One of the largest of those sponges is Scottsdale Airpark

with its millions of square feet of rooftop. John Meyer is a designated broker for Airport Property Specialists LLC and, as such, has probably sold a majority of the buildings in the park. He broke out the abacus and calculator to try and figure out just how many square feet of roof was involved. “The validity of a conclusion is dependent on the accuracy of the premise,” he warned before looking at all his maps and reporting, “This should be a safe number. We’re talking about 34,006,890 square feet of building



space on site—60 percent of which is single story (20.4 million square feet of roofing), two-story buildings add another 3.5 million, and three-story facilities contribute another 2.3 million. That's a total of 26.2 million square feet of roof space that covers all the Airpark buildings."

And that's as things stand today, according to figures in the May issue of Scottsdale Airpark News that cited a current 34 million acres of airpark on 3,100 acres with nearly 3,000 companies employing 54,000 workers. Looking forward to 2030, author Jim Keeley predicts 4,000 companies with 75,000 employees and an expanded Airpark of 50 million square feet, ergo, lots more rooftop.

If current building managers did decide to take on a new top hat in the form of cool roofing being promoted by the City of Scottsdale, that new coating in the form of foam, tile, metal or asphalt shingles could cool roofs, reduce energy use, ambient air temperature, air pollution and greenhouse gas emissions.

"Flat roof products are not just 'paint on a roof.'" says George Daisey, a research scientist with Dow Chemical, who notes that paint is 2-3 mil thick while roof coating via roller, brush or spray application runs plus or minus 20 mil.

"The benefits of cool roof technology are compelling. Not only do the roof coatings reflect the sun's rays and reduce heat transfer, they also extend a roof's service life."

The Federal Office of Energy Efficiency & Renewable Energy advises:

"In summertime, we wear light-colored clothes that keep us cooler because light colors reflect, rather than absorb, the heat of the sun. Products made of materials called high solar reflectance are like a white T-shirt for roofs, helping keep the internal temperature of a building lower." The Department of Energy's Energy Saver website reports that nearly any type of building can benefit from a cool roof designed to reflect sunlight and absorb less heat than standard roofs.

Standard or dark roofs have been known to reach 150 degrees or more in the summer sun while cool roofs under the same condition stay more than 50 degrees cooler, benefiting the building and its occupants through improvement of comfort climate and reduction of energy bills.

"Building owners and contractors have been using cool roofing products for more than 20 years on industrial, commercial, and residential buildings, installed both

#### Cool on delivery

Based on EPA and Department of Energy ENERGY STAR data, shipments of cool roof products have grown to represent more than 25 percent of manufacturers' commercial roof products (and about 10 percent of residential roofing materials). According to a City of Scottsdale Public Information Office news release that touts the efficacy of cool roofing, "Over 40 percent of all electricity consumed in Valley homes is used for air conditioning. Black surfaces in the sun can become up to 90 degrees hotter than the most reflective of white surfaces."

Estimates are that the U.S. average annual energy cost savings with a cool roof runs about 3.8 percent while Western states benefit even further, 6.1 percent in Nevada, and 7.5 percent in California. In Arizona, that projected annual energy cost savings runs about 11 cents per square foot when weathered conventional gray roofs are replaced with a cool white roof. If the 26.2 million square feet of roofing in the Airpark went on flat or gently-sloped roofs as well as on steep-sloped roofing," says the Environmental Protection Agency.



Lots of square footage in this newly covered cool roof. Environmentalists are hoping more Valley sites join the grassroots campaign to reduce heat islands and save on energy costs.



to cool roofing, the annual collective energy savings would run about \$2.8 million.

In addition to the aforementioned benefits of cool roofing applications, one local manufacturer (Pro-Tech Products Inc. of Scottsdale) offers "Industry-leading Technology that Works For You" and adds its watertight product "helps protect commercial buildings against damaging winds and driving rains associated with Southwestern monsoons."

"As roofs stale and age, you can restore them," according to Paul Johnson, vice president of business development at Pro-Tech, makers of a coating for existing roofs that offers a tested and Cool Roof/Energy Star-approved 86 percent reflectivity rate.

Anthony Floyd runs the Green Building Program in the city's Office of Environmental Initiatives and says, "Statistically, we haven't been tracking existing roof upgrades because new cool roof coatings on

existing buildings do not require a building permit."

He does clarify that, "As of January 2013, all new low-slope commercial roofing on new buildings are required to have a cool roof coating that meets solar reflectance and thermal emittance requirements of the International Energy Conservation Code, adopted by the City in 2012."

One of the Airpark inhabitants already participating in the cool roof initiative is Denali National Trust LLC, a firm that rehabs and renovates commercial real estate in the metro area.

"We have two buildings on East Acoma with 80,000 square feet that we re-roofed to seal out water and keep things cool," said John Nobile, general manager.

"Today's elastomeric products have so many benefits, the move made sense. Not only was it the right thing to do, it was the smart thing to do."

In what may portend to be a harbinger of things to

come, the Los Angeles City Council unanimously voted to enact an update to its Municipal Building Code making it the first major city to require that all new and refurbished residences have a cool roof. A group called Climate Resolve has been advocating for that change under its "Hot City, Cool Roofs" endeavor that strives to reduce rising temperatures. UCLA research suggests that by mid-century, temperatures in the Los Angeles basin will increase by 3 1/2 to 5 1/2 degrees.

"This is a great step forward to meet energy efficiency and climate goals, keeping Angelinos' energy costs low and significantly reducing Greenhouse Gas emissions," says Jonathan Parfrey, Climate Resolve executive director. "Cool roofs are a win-win proposition." Adds Pro-Tech's Paul Johnson: "In Arizona, the Cool Roof initiative is a grass roots effort—but we need to get going on this one because we're years behind the curve."