

Green Roofing Options

By David Goldstein, Ventura County PWA

A literally “green” roof, featuring living plants, insulates, absorbs carbon, filters air, retains storm water, and can look beautiful, but it requires the investment of money and energy for building with materials strong enough to support soil and water. However, there are many ways to “go green” with your roofing. Environmentally beneficial roofs can reflect heat, last for several decades, and some can even generate energy.

Integrated solar panels are a roofing option promising all of these benefits along with the potential aesthetic benefit of making a solar power insulation appear to be nothing more than roofing tiles. According to powersage.com, which bills itself on its web site as “the largest on-line marketplace for solar installations in the country,” only Tesla and Forward Labs make roofing panels containing fully integrated solar panels, and both are reportedly planning to scale up production this summer. Other companies, such as GAF/DecoTech, SunTegra, and CertainTeed make low-profile solar panels which blend into roofing and are nearly as unobtrusive.

Both fully integrated and low-profile solar collectors are more expensive than installation of standard solar panels, but Tesla also makes interesting durability claims. While other companies offer 10 or 15 year product warranties, and some offer 25 year power output warranties, Tesla offers a 30-year warranty for power production and an “infinite” warranty for the tile structure.

Buying a long-lasting product is certainly a good way to reduce energy demand, but even a metal roof is generally less expensive than the \$21.85 per square foot Energysage.com says customers can expect to pay for a fully integrated solar roof. Although metal roofs can absorb heat, increasing air conditioning needs, installers can reduce this problem. They can increase the solar reflectance and thermal emittance of metal roofs by coating them with reflective paint, oven-baked finishes, or granular coated surfaces, according to the U.S. Department of Energy web site.

Although not nearly as effective as proper insulation and sealing of cracks, any roofing type can reduce air conditioning costs if colored appropriately. The Department of Energy web site quantifies the benefit, “Standard or dark roofs can reach temperatures of 150°F or more in the summer sun. A cool roof under the same conditions could stay more than 50°F cooler and save energy and money by using less air conditioning.” Coloring options mentioned include not just highly reflective paint, but also sheet coverings, and highly reflective tiles or shingles.

Other Department of Energy-recommended options for lightening the color and increasing the reflectivity of roofing include substituting marble chips or gray slag for dark gravel in a flood coat of asphalt, using reflective mineral granules or a factory-applied coating on a mineral surfaced sheet, or applying a cool coating directly on top of a dark asphaltic emulsion coating.

Unfortunately, replacing a roof causes a tremendous amount of waste. Both asphalt shingles and clay tiles are unrecyclable in Ventura County. Although there is a company occasionally using asphalt

shingles as one of the inputs for their asphalt manufacturing plant, they accept only post-industrial, entirely clean shingles from a factory in Kern County, no local demolition or construction debris. Similarly, although local facilities crush many types of concrete and asphalt to make road base, none can use the relatively soft material coming off local roofs.

Only wood roofs can be recycled, and since fire prevention regulations have prevented installation of new wood roofs for decades, these are rare. Normally, fire-proofing chemicals and treatments used on roofing shingles would make the wood unrecyclable, but these wear off over the years, making wood shakes recyclable at local wood recycling centers, such as Agromin in Ormond Beach, Del Norte Recycling Center in Oxnard; the Simi Valley Landfill and Recycling Center; Peach Hill Soils in Moorpark; Gold Coast Recycling in Ventura; and Ojai Valley Organics in Ojai.

Using repair to extend the life of a roof is also a green option, as is helping someone else repair a roof by providing surplus material through a reuse store. Often, when people get new roofs, their roofer gives them stacks of extra tiles or shingles they can use for patches or repairs over the next several years. At least some of this surplus is likely to be left over by the time homeowners get their next roofs, and the surplus is unlikely to match the new roof. Fortunately, The ReStore takes surplus roofing tiles if they are in new condition. The ReStore, with branches in Oxnard and Simi Valley operated by Habitat for Humanity, is a re-sale store for surplus and reusable building materials.

You can also make green choices if you need to install solid decking across rafters before re-roofing. Some choose Oriented Strand Board (OSB) roof sheathing instead of solid (CDX) plywood because, in production, OSB wastes less wood than CDX. OSB is made from smaller pieces, including scraps from other types of wood product manufacturing. However, while the adhesives holding these wood scraps together often makes OSB stronger than CDX, some people have concerns about air emissions resulting from adhesives used by some manufacturers. Therefore, a green alternative to OSB is to buy CDX certified by the Forest Products Stewardship Council, which provides its stamp of approval to lumber companies that replant sufficiently, avoid causing erosion, and maintain other sustainable practices.

Both in choosing a new roof or in removing an old one, you can make choices to reduce environmental impact.

On the net:

<https://news.energysage.com/tesla-solar-panel-roof-the-next-solar-shingles/>

www.coolroofs.org

www.fsc.org

<http://www.ecohaus.com/C-354/fsc+cdx+plywood>