GREEN (LIVING) ROOF AND SOLAR PANEL COMBO YIELD BETTER PERFORMANCE

In the last couple of years, government and state rebates combined with new smart financing models, have made solar affordable for most homeowners. Leasing, third-party-owned and community solar garden schemes allow us to lower our own emissions and start earning from the get-go. Many of us are already reaping in these benefits as well as many others that come with solar power.

Compared to a typical roof consisting of concrete and shingles, green roofs bring a wide array of additional benefits to the table. Some of the more important ones include better filtration of air pollution, conservation of noise, protection from weather and extended roof life. In fact, green roofs have been associated with increased worker productivity.

Arguably, a green roof's single most important advantage is how it can mitigate theheat island effect (the ambient temperature increase that occurs in urban areas as a result of impassable surfaces such as roads, parking lots and non-vegetated roof-tops).

According to EPA (pdf), 5 to 10 percent of community-wide demand for electricity is used to compensate for the heat island effect. Not surprisingly, a study found that in a building

with a green roof, “the summer indoor air temperature was decreased by 2 °C, and the annual energy demand was reduced by 6%.”

One does not necessarily have to choose between solar panels and green roofs, there is actually a significant synergy going on between the two technologies. Evaporation facilitated by plants on a vegetated rooftop cools the nearby environment, which enables solar cells to operate at higher efficiency rates.

While how big the “synergy-boost” between a green roof and the solar panels installed on top of it has to be evaluated on a case per case basis, a few ongoing studies are showing promising results:

Researchers in Berlin have found that solar cells over a green roof had 6% higher power output compared to those over bitumen roofing systems.

An ongoing study conducted by Bronx Design and Construction Academy suggests that solar panels yield 3% higher efficiency rates if combined with green roofs.

A couple of percentage points here and there might not seem like too much of a difference, but these are actually highly significant in the solar industry. The efficiency rates of today's monocrystalline solar panels usually range between 12 to 19 percent, which means that an additional 3 percent would convert between 16 and 25 percent more sunlight into electricity. There are currently not a lot of rooftops around the world that have incorporated both solar panels and green roofs, but there is a steady increase. It will be interesting to see if the synergistic effect between the two technologies can affect solar panel costs in the near future.

Source : http://earthandindustry.com/2012/09/green-living-roof-and-solar-panel-combo-yield-better-performance/