

Single-Ply

Balancing Act

Balancing Sustainability & Practicality: Foolish as Magic Wands & Fairy Dust?

by Shawn Stanley, IB Roof Systems

For the past few years it seems the only newsworthy roofing articles or profiles involve LEED, reflective cool roofs, vegetative roofs, or roof mounted solar. These articles spend the majority on the benefits of sustainable technologies and little time on the roof systems itself. They seem to minimize the pains and efforts of the roofing contractor to make sure that the roof installation performs flawlessly throughout the warranted life of the system.

Let me ask this important question. What happens if a roof system fails halfway through the life of a vegetative roof system or part way into a roof mounted solar project? These exciting roof add-ons become an extremely expensive burden that places all of the benefits from the promising sustainable technologies at risk. For example, I read an article just the other day in a national trade publication touting the benefits of an extensive multi-million dollar solar array and how many metric tons of carbon emissions would be reduced and the energy generating capacity, etc. The only problem was the aerial picture taken of the project appeared to have an older existing roofing system for its foundation.

These wonderful advances in sustainable construction can be for not if there isn't proper attention given to the roof system. The roofing professional and his craft are being out staged by these technologies. What we all need to realize is that if the roof fails, these same technologies, on the balance sheet, will look as foolish as magic wands and fairy dust.

There appears to be an excitement to spend money on sustainable roof technologies, but when it comes time to discuss money for a new durable,

high quality roofing system, to support the chosen technology, you can hear crickets in the room, even when the new roof system is less than 10% of the cost of the overall project.

We get it, a new roof is not as sexy as solar or wind power generation or vegetative roof gardens. However, the cost of these sustainable roof technologies is significant and it is extremely important to budget for a new roof system with the project and insure that careful consideration is given to find the most durable and sustainable roofing material to suit each specific project. Once this is determined the rest of the project can continue with more confidence.

Getting Back to Basics

As a roofing industry we need to get control on what happens on roofs. We are not solar, wind, or plant experts; we are roofing experts that can facilitate a successful roof project. This message needs to be shouted from the rooftops (no pun intended). It would be silly to build a multi-million dollar skyscraper without ensuring that the foundation was sound. When it comes to roof technology add-ons, the roof system is the foundation that needs to be sound and perform its duties, which is to get water off the roof and keep the building dry 24/7 without resting periods for as long as the chosen technology continues to add benefit to the building. This could be 25 to 30 years depending on what is installed on top of the roof.

Choose Documented Life-cycle Materials

Although there are many roofing systems that have this length of war-

“What happens if a roof system fails halfway through the life of a vegetative roof system...”

ranty, there is one membrane category that has documented performance in many areas of the country for over 30 years; PVC roofing membrane. Because of PVC's life cycle it has proven to be a good choice to integrate with and support all the new sustainable roof technologies above for long performance needs. After its life cycle, PVC roofing membrane is even being recycled. Below are some reasons why I recommend PVC membrane for sustainable and high performance roofing projects.

Durability: PVC roofing membrane has one of the longest documented life expectancies of available roofing systems. Life expectancy or life-cycle assessment is key to the success of any sustainable roof technology. If a material only has to be manufactured, packaged, transported, and installed once every 30 to 40 years before it is recycled it may be three to four-times as sustainable than those products that have a 10 to 15 year life expectancy.

Some PVC roofing membranes have been performing for over 30 years. Just to give an example of how long 30 years is. What music were you listening to in 1980? According to Billboard Hot 100 for 1980, the top ten included Pink Floyd's, "Another Brick in the Wall," "Rock with You" by Michael Jackson, "The Rose" by Bette Midler, and everybody's favorite "Escape (The Pina Colada Song)" by Robert Holmes, (In fact the 43 year old author of this article was a Freshman in high school in 1980).

Thirty years will outlast most of the warranties of sustainable roof technologies, if not all. PVC membranes have been proven to provide the longevity foundation needed to

maximize the financial and environmental return from the sustainable roof investment.

Assemblies: PVC roofing membranes were first introduced around the early 60's. They were among the first to be studied and improved to develop roof assemblies that would perform the best in various conditions. ASTM D 4434 was the first ASTM standard published for PVC membrane and it has been upgraded several times with the most current edition in 2006. PVC membrane manufacturers will be able to tell you what tested assemblies they have that would be the most durable for a project.

Seam Strength: The welded seams of PVC membranes are stronger than the membrane itself. This is vital when installed under a vegetative surface to protect against root penetration.

Reflectivity: PVC membranes are an efficient way during construction to obtain a reflective cool roof. According to the CRRC (Cool Roof Rating Council) product directory, PVC membranes lead the thermo-

plastic category in initial and long-term reflective ratings. Steven Chu, U.S. Energy Secretary was quoted saying, "I have been pushing white or reflecting roofs as the lowest cost climate strategy. Indeed, it is almost certainly the single cheapest of the stated methods needed to stabilize near 2°C total warming - the equivalent to taking the world's approximately 600 million cars off the road for 18 years, while quickly paying for itself in direct energy savings. I would add that by reducing the urban heat-island effect (along with shade tree planting), white roofs are also the lowest cost 'adaptation' strategy, directly cooling a city. So it is perhaps the one true triple play in climate - mitigation, geo-engineering, and adaptation - that is also both low-cost and scalable."

PVC roofing membranes are also light-weight (usually between 0.3 and 0.5 pounds/square foot). Because of this, PVC membrane, in some cases, can be installed over existing roofing material, avoiding placing the spent material in landfills.

Conclusion

It is always good to consider various options to determine what system will best support your roofing needs. You should also ask for references for any system on where and how long it has been performing. PVC roof membranes are a good choice when considering most roofing projects, but not always. Other roofing products have the performance characteristics to perform successfully as well.

The main point that I want to stress is the vital role that a roof systems plays in this new environmental and sustainable roofing framework for long lasting performance. Be sure to include a new, proven roof system when considering integrating sustainable technologies on a roof. Also, if you have a good roof design, a proven durable product, and a good install, the chances are greatly increased to having a long successful return on your roofing investment and avoid turning your project from successful to something as silly as magic wands and fairy dust.
