

Green Roof Service LLC presents:

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**Green Roof Plant of the Month:**



Brush up on your green roof plant knowledge with a new plant every month! Only on our Green Roof Plant Blog!



### The Solar Boom

The solar industry has been growing steadily in the past decade, but it wasn't until recently that this was proven. The United States solar industry now employs more solar workers than coal miners.



### Europe has Banned Potent Pesticides

Honey bees are the most significant pollinators on earth. Evidence has surfaced that a category of pesticides called neonicotinoids are responsible for the recent honey bee population decline. Also known as Colony Collapse Disorder, a phenomenon that appeared in 2006.



### Lancaster Green Roofs Receive a Little More Green

The Dewatering Building and the E. King Street Fire Station both had their roofs remodeled with the past the weeks. Although the weather was gloomy, our hopes are high for the new sedum cuttings which were spread two weeks ago.



### Irrigation on Extensive Green Roofs

Are irrigation systems a good idea to include on extensive green roofs? Green roof designers and professionals are must understand that less is often more when it comes to extensive green roofs. There is no need to make a green roof more complicated than necessary.

The **United States**  
*solar industry* employs  
more workers  
than  
**coal mining** <sup>[1]</sup>



**California**  
has more  
*solar workers*  
than **actors** <sup>[2]</sup>



More  
**Texans** work  
in *solar*  
than in  
**ranching** <sup>[3]</sup>



## The Solar Boom

It is obvious the solar industry has been growing steadily, but an ongoing study by the Solar Foundation has uncovered to the extent in which the industry has expanded thus far. Solar workers now outnumber many of our larger occupations in the United States. Currently, we have more solar workers than coal miners in America, and the industry hasn't seized growth yet. The Solar Foundation released an interactive map naming the top three states with the most solar jobs as California, followed by Arizona and New Jersey. Most of these jobs are listed as installation positions, but others include manufacturing, project development, sales and distribution.

The new integrated Sun-Root™ System can help achieve both clean energy production along with additional benefits of a green roof. The Sun-Root™ System is the most advanced system solution that considers both enhanced water storage for the green roof plants and optimized evaporative cooling for solar panels.



## Europe has Banned Potent Pesticides

Honey bees are the most significant pollinators on earth. They are responsible for pollinating approximately 80% of our flowering crops. "If the bee disappeared off the surface of the globe, then man would only have four years of life left." It may be questionable to whether this quote came directly from Albert Einstein himself, but it is indisputable that the honeybee population is essential for maintaining the quality of life we enjoy so much.



Yesterday, the European Union stood up for the honeybees and banned a group of potent pesticides classified as neonicotinoids. Neonicotinoids are commonly used to prevent pests on plants such as soy, corn, canola, sugar and wheat. Evidence has surfaced that these pesticides are responsible for the honeybee decline or Colony Collapse Disorder, a phenomenon that appeared in 2006. Neonicotinoids are known to agitate the honeybee's reproduction processes, communication and navigation skills, along with weakening their immune systems.



We take pride in avoiding herbicides and pesticides at Green Roof Technology. A green roof is an excellent habitat for all pollinators, especially honeybees. Watch a video about beehives on rooftops in Baltimore or learn about the plants you may choose specifically to lure these fuzzy creatures to your green roof!

## Lancaster Green Roofs Receive a Little More Green

Last week I traveled to the City of Lancaster to oversee the install of 155 lbs. of Sedum cuttings on the Dewatering Building and E. King Street Fire Station green roofs. Both green roofs were installed earlier this year during the winter months. The Dewatering green roof was installed January 22nd through the 25th and just under two months later Fire Station green roof was installed.

There is a common misconception that green roofs cannot be constructed and vegetation planted during the winter months. Actually, we believe installing green roofs when spring is just around the corner is ideal. The weather may not be to the likely of many fair-weather green roofers, but for those who are willing to brace the cold and wet, the payback for the client is well worth it. By establishing the vegetation in its new soil media prior to the start of the growing season, plants are able to jump start their growth and the first 2 months of the growing season can be equal to more than 6 months of growth if the same plants were planted later in the year. Unfortunately, too often vegetation (in this case the Sedum cuttings) is not available until the spring when it is more advantageous for the nursery.

It was so cold the week we installed the Dewatering Building's green roof that the growing media and Sedum mats arrived frozen solid. The growing media had to be defrosted overnight inside the garage portion of the building and the Sedum mats that could not be unrolled were left out in the sun for one day. Despite being completely frozen prior to install, the health of the Sedum mats was not compromised at all.

There is one detail that must be given special attention when planting during the winter months. When planting plugs, it is critical that they are planted as deep as possible. If this requires loosening or removing a portion of the bottom, so be it. But if they are not planted deep and the soil well compacted around them, then plugs will migrate up out of the soil during periods of freeze and thaw. This can happen to the extent that a plug becomes completely removed from the soil, exposing the root system to the elements, and often results in the plug withering and dying. Plugs are not cheap and a negligent planting technique is a waste of the client's money.



*E. King Fire Station after receiving 70 lbs. of Sedum Cuttings. Five varieties of cuttings were spread that day and 6 varieties of herbaceous plugs.*



*The color of the Sedum mats on the upper portion of the Dewatering Building's green roof has changed from mostly reds to a variety of lush greens. New growth is abundant.*

*Preparing the soil for Sedum cuttings is critical. Because the soil was installed several weeks prior, the top layer of the soil needed to be loosens and leveled. This increases the contact area between the soil and the cuttings, promoting more abundant rooting.*



*Even though there was a light rain while spreading the cuttings, we still watered the green roof. We wanted to ensure there was uniform moisture throughout the roof, but also the moisture helps to hold the cuttings in place until they begin to root out in a few days.*

## Irrigation on Extensive Green Roofs

The main purpose of an extensive green roof is stormwater retention and delaying stormwater runoff amongst many other added values. In the last decade, I've seen many green roofs where the intended plants never really flourished. I estimate that in the US at least 50% of the green roofs are not performing to their fullest potential. This can be observed by simply looking at the most obvious of indicators, the plants themselves, regardless if they were planted on purpose or somehow found the space to take root. Most of these less healthy extensive green roofs are pre-planted boxes, or commonly known as modular systems. Not only are these systems much more costly, the mid to long term results are often far below systems that are assembled in place and at the time of installation.



I know that the transition from being a common nursery-grown plant (including pre-planted boxes) to the extreme environment of a rooftop poses severe challenges. Green roof plant nurseries typically have "great" advice and recommend the installation of temporary or more permanent irrigation systems. This advice is defeating the purpose of an extensive green roof and shows that asking self-appointed experts can cause a spiral of failures.



Since many green roof installers lack the proper horticultural knowledge, they may not be able to identify problems by simply looking at the indicators (the plants). This could cause the problem to gain momentum. In addition, the false conclusion that technology (Google search, Apps, synthetic growth media or sophisticated soil moisture control devices) can fix the problem supports my theory of less experienced or misinformed green roof professionals. They rely heavily on technology to fix any issue and miss the big picture. Nature has the ability to take care of itself, as long as the appropriate design, materials and plants are used in addition to being familiar with the immediate climate.

Green roof designers and green roof professionals must understand that less is often more when it comes to extensive green roofs. No building owner wants to irrigate their roof in short, mid or long terms. There is no need to

make a green roof more complicated by using multiple synthetic or plastic layers. LEED™ certification supports using gray (recycled) water for green roof irrigation; but what is the point of watering an extensive system when it's main purpose is to retain stormwater? Common sense and experience are the only two things that will aid in planning the perfect green roof.

Implementing irrigation on an extensive green roof is a clear sign of not understanding the basic principles of horticultural techniques or the laws of nature. Irrigation reduces the water retention, increases the nutrient pollution in runoff and requires higher fertilization application. Irrigated extensive green roofs are not environmentally friendly, not economically feasible and have hardly any payback for the building owner.

I tell my clients if they have an offer or design for an extensive green roof that includes irrigation - be cautious!

