Green Roof Service LLC presents:

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GREEN ROOF TECHNOLOGY
WE KNOW FORM AND FUNCTION

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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!

Herbicides in Green Roof Runoff Polluting Drinking Water

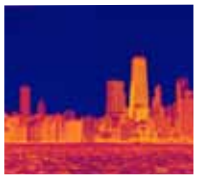
The issue of root penetration is well known in the green roofing industry. Many solutions have been proposed, some better than others. Herbicides have been a popular choice for this particular battle, but recent research has shown that these chemicals have been making their way into drinking water supplies via runoff.

Intrinsic Perennial Gardens

Established in 1992, this nursery has been growing along-side their unique perennial selection. The 23 acre farm now offers over 900 varieties of perennials to choose from!

Episcopal Academy Installs More Green Roofs

Newton Square, Pennsylvania received a handful of new green space in the air this month. The glass walled hallways of Epicopal Academy's high school now overlook a more cheery environment compared to the black tar it once used to be. These new creations sit amongst a few other flourishing green roofs installed last summer.



Urban Heat Island and Green Roofs

With the heat index well into the triple digits lately, it is only appropriate to talk about the Urban Heat Island. A metropolitan area which is significantly warmer than its rural counterparts, the Urban Heat Island Effect creates a more brutal environment, especially during these sweltering summer days.

Herbicides on Green Roof Polluting Drinking Water

The issue of root penetration is known to most in the green roofing industry. The relatively complex world of roofing membrane compounds and organic chemistry has resulted in most green roof professionals defaulting to local instructional manuals, which default to FLL testing records. But just because a material is effective does not mean it is not harmful, e.g. lead in paint.

In 1997, Bayer Aktiengesellschaft was the assignee of Patent US 5672568 A titled "Root growth inhibitors for building materials comprising monohydric alcohol esters of mecoprop." Root-resistant bitumen mixtures were soon marketed.

This past week the Berlin Senate's Department for Urban Development and Environment and the Berlin State Office for Health and Social Affair published a series of recommendations for the prevention of environmental pollution due to the release of the herbicide Mecoprop from root-resistant bitumen membrane sheets.

<u>The statement reads:</u>

Investigations at the Swiss Federal Institute for Water Resource and Conservation (EAWAG) on behalf of the Swiss Federal Office for the Environment (FOEN) have shown that Mecoprop under natural weather exposure is released from the bitumen sheets and the precipitate is washed out.

Rain water contaminated with Mecoprop can pollute combined sewers or surface waters. Due to the low rate of elimination in sewage treatment plants results in a particularly high risk potential. In a decentralized rainwater infiltration system there is a risk of soil and groundwater contamination. (Translated from the German)

The report goes on to make simple recommendations. The first says the use of bituminous membranes impregnated with Mecoprop should not be used unless absolutely necessary for structural reasons. Second, they should never be used in protected water areas.

Since the issuance of Patent US 5672568 A, there has been a series of scientific papers published reporting the leaching of biocides from bitumen waterproofing. They can be found here, here and here.

Green Roof Technology is against any use of herbicides in green roof construction or maintenance. For more information on how to protect your building against root penetration without the use of poisonous herbicides please contact our office.

Intrinsic Perennial Gardens

Located North of Chicago, nestled on the Wisconsin-Illinois border, is a wholesale container nursery called Intrinsic Perennial Gardens. Started in 1992, they specialize mainly in one gallon perennials, including ferns, grasses, shrubs, vines and green roof plants.

A Family owned and operated company, Brent Horvath is the current owner of Intrinsic Perennial Gardens. But the family business stretches way back into the 1970s, when his father, Lajos, created Intrinsic Landscaping and his mother, Trudy, ran Flowers by Intrinsic. In 2002, Jörg Breuning introduced modern green roof technology to Brent and his brother, Kurt, of Intrinsic Landscaping. Working together, our companies created the green roof on the Peggy Notebaert Nature Museum in Chicago. Not only is Brent the president of Intrinsic Perennial Gardens, he has recently shared with us a list of his top picks of native plants which would specifically flourish on green roofs. Also in the line to appear on bookshelves in the fall is a book by Brent on Sedum, published by Timber Press.

Intrinsic
Perennial Gardens, Inc

Intrinsic Perennial Gardens strives to grow the best ornamental plants as naturally as possible. Their unique operation allows them to breed and introduce new plants into the trade. They offer over 900 varieties of species, 50 of which have been selected, bred and introduced into their nursery. They propagate around 80% of their own material. Approximately a third is done by seed, a third by cuttings and a third by division. Included on their 23 acre farm is a one acre field specifically for plug production.

Episcopal Academy Installs More Green Roofs

On July 9th, three more small extensive green roofs were installed a top the Academy's High School Building in Newtown Square, PA. The High School has a number of glass walled hallways that look out over unsightly black rooftops. The glass walled hallways provide a spectacular viewing area for the green roofs. This year we covered almost three times as much roof area as we did last year, bring the Academy's total green roof count to five.

Once again, Micah from Urban Ecoforms joined us to lend his experienced hand at installing green roofs. From the picture below you can see that Micah was in rare form and simply thrilled to be freed from his recent solitary confinement atop his current project in West Philly.

While we were installing the green roofs, we could not help but stop and admire the incredible lushness of the green roofs we installed last summer, especially when last July was brutally hot and dry.

Micah Shapiro (Urban Ecoforms) striking a pose with the beautiful Academy's quad in the background.

Andrew after spreading the last of the Sedum cuttings. Seem below is one of the green roofs we installed the previous summer.

Urban Heat Island and Green Roofs

With the heat index well into the triple digits lately, it is only appropriate to talk about the urban heat island. A metropolitan area which is significantly warmer than its rural counterparts, the urban heat island effect creates a more brutal environment, especially during these sweltering summer days.

Cities are dense and compact places. Most surface materials in urban spaces are good at absorbing heat, and have no means to transpire. Sunlight heats up these surfaces during the daytime, to temperatures higher than the air. In addition, impervious surfaces are prominent in city landscapes.

Many issues stem from the urban heat island effect, including increased energy consumption, resulting in elevated pollution emissions, compromising human health and comfort. Also, hotter surfaces create warmer runoff, endangering the local bodies of water; rapid temperature changes can be fatal for aquatic life.

Now we understand the urban heat island phenomenon, but is it easily resolved?

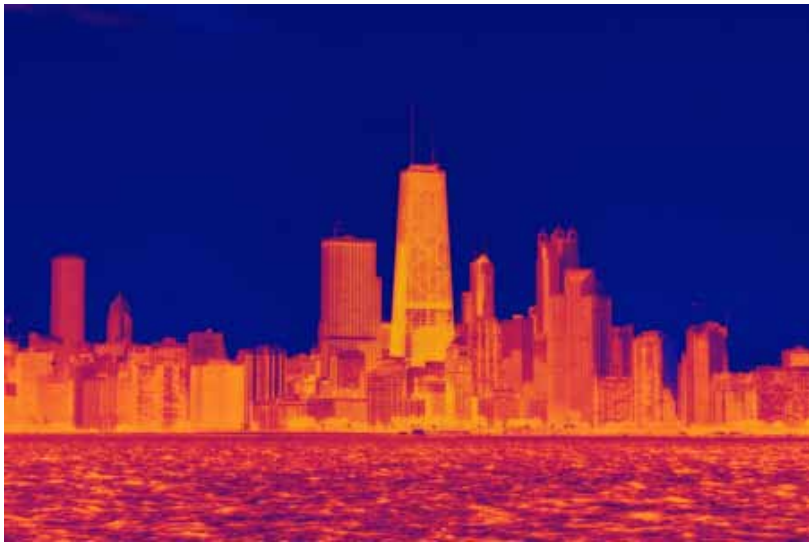


Photo Credit: Dustin Phillips

Unfortunately with the amount of people residing in urban areas, the energy released will always be greater compared to rural areas. Although, there are ways to mitigate the hotter temperatures. In rural areas, temperatures are moderated through evapotranspiration, with vegetation being the main aid in cooler and healthier environments. According to the Environmental Protection Agency, "Trees, vegetation and green roofs can reduce heating and cooling energy use and associated air pollution and greenhouse gas emissions, remove air pollutants, sequester and store carbon, help lower the risk of heat-related illnesses and deaths, improve stormwater control and water quality, reduce noise levels, create habitats, improve aesthetic qualities, and increase property values."

By increasing vegetation in urban areas and the surrounding commercial belts in the form of street trees and green roofs, we can help create a cooler and healthier environment for ourselves. Not to mention a much more attractive landscape.