

Green Roof Service LLC presents:



January 17, 2012

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



Elevating Urban Farms onto Rooftops

Visit the wine museum in Cologne, Germany, where they grow their grapes in the sky!



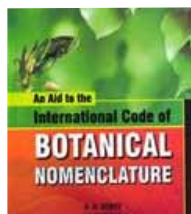
The Economics of Green Roofs from the Perspective of a Commercial Client

Humans may stereotype some plants as weeds, but these so-called pests might just be the answer to a flourishing green roof.



A Cool Green Roof Plants Study

Sustainable practices such as harvesting solar energy have been increasing in popularity recently; the solar industry alone has grown 71% over the past year.



Botanical Names of Green Roof Plants

Our commitment is to common sense, never nonsense. Simple mistakes are easily avoided.



Elevating Urban Farms onto Rooftops

Long before green roofs became necessity and rooftop farming was trendy in North America, Dipl.-Ing Markus Wittling was planning to elevate an entire vineyard on top of the Wine Museum in Cologne, Germany. Build in 2002, the sloped green roof spans over the entire museum building of almost 20,000 square feet. It is the first vineyard on a roof, the first sloped rooftop farm and the first and oldest organic urban farm on a roof in the world.

In the middle ages Cologne was the most important wine trading town north of the Alps. The "Weinmuseum Köln e.V." is honoring this fact with a brand new museum with astonishing and educational exhibits on wine. The green roof displays 40 of the most important grape species from around the world situated onto 720 vine stocks. The soil layer (growing media) including granular drainage is approximately 27 inches deep and consists of a blend of porous volcano material like Lava rock and Pumice - materials in which grapes simply grow best.

This rooftop vineyard is a prime example of the performance of modern green roof technology and is ideal for educational purposes. If you have a chance to visit Cologne, the Wine Museum is a must on your Green Roof Safari and your effort will be rewarded with amazing wine tasting!

For more information: www.weinmuseum.com or simply contact us.



The Economics of Green Roofs from the

In 1994, Fritz Hämmerle published an analysis on the economic benefits of extensive Green Roofs for the very first in the international Green Roof magazine Dach + Grün. Nearly 20 years later, it is now undisputed that extensive green roofs have numerous positive effects on the environment and the physical properties of buildings. Nevertheless, today only a small amount of extensive Green Roofs have been installed in North America and this is mainly due to the high initial costs of construction and the commitment to proper long-term maintenance.

The latest case study (2013, Jorg Breuing) about the economics of extensive Green Roofs in the USA is now available for download.

Download the entire case study as a PDF (107KB) exclusively at our Resources Page. <http://www.greenrooftechnology.com/case-studies>



A Cool Green Roof Plants Study

A recent British study in *Building and Environment* found that broad-leafed plants, such as *Stachys byzantina*, *Bergenia cordifolia* and *Hedera hibernica*, which can thrive in partial shade, outperformed the traditional *Sedum* in cooling the substrate and surrounding air. The study concluded by suggesting, "...the choice of plant species on green roofs should not be entirely dictated by what survives on the shallow substrates of extensive systems, but consideration should be given to supporting those species providing the greatest eco-system service potential."¹

This is certainly one of the many worthless studies on the web that shows us that no horticultural understanding or common sense was ever part of the research study. A green roof is all about the vegetation and if we are not entirely dictated to by what survives, we have simply no plants, no vegetation, and therefore no green roof. It is also not new that more leaf mass provides cooler temperatures – standing in summer in the forest is cooler than on a corn field. I always thought this was common knowledge.

The broad-leafed perennials that were tested (less than 2 year tested) typically require deeper soil profiles. More green roof growing media (soil) increases the costs of the green roof, the structure and the maintenance dramatically. Substantially increasing green roof costs decreases the likelihood of having a green roof to start with. The study also did not mention that the climate conditions in Great Britain are unique and are generously supported with moderate temperatures by the golf stream all year around. This effect allows higher varieties of plants to start with but won't guarantee a higher survivability of these plants.

Comparing *Sedums* with the mentioned type of perennials is like comparing wild strawberries with apples. The survivability of *Sedums* under extreme conditions on a shallow layer of soil with low nutrients makes them to the ideal, perennial and stabilizing groundcover for extensive green roofs.

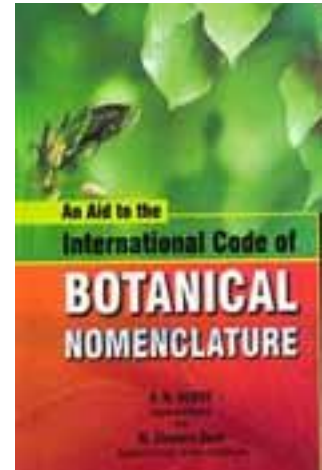
There is no doubt that we use other annual or perennial plants as temporary fostering or nursing plants or to promote the growth of *Sedums* or reduce the pressure of unwanted plants.

In modern green roof technology there are multiple choices of herbaceous perennial plants that supplement the fundamental *Sedum* carpet.

Botanical Names of Green Roof Plants

A botanical name is a formal scientific name to each individual plant conforming to the International Code of Nomenclature for algae, fungi, and plants (ICN). The purpose of a formal name is to have a single name that is accepted and used worldwide for a particular plant or plant group.

Botanical Nomenclature For example, the botanical name *Sedum reflexum* denotes a plant species which is native to Northern, Central, and Southwestern Europe, where it has accumulated various names in many languages. Later it has been introduced worldwide, bringing it into contact with even more languages. English names for this plant species include: Reflexed Stonecrop, Blue Stonecrop, Jenny's Stonecrop and Prick-madam. The cultivar *Sedum reflexum* 'Blue Spruce' is a blue-green-variegated horticultural selection of this species.



Botanical names prevent people from confusing different species of plants, but also indicate that different species are related. The genus (ex. *Sedum*) is the unique name followed by the species (ex. *reflexum*). The first letter of the genus is capitalized and the species in small letters. Most of these names have their origin in Latin or Greek, are combinations of languages or words, the name of somebody who is honored, appearance or location.

Knowing what the Latin (and sometimes Greek) words mean can help gardeners with their planning and maintenance chores. For instance, if the available area is cramped, a plant with *arborescens* (tree-like) or *altissimum* (very tall) in its name might not be the best choice.

Some names refer to special characteristics of the plants. *Pubi*, *hirti*, *villi*, and *barbi* are all "combining forms" suggesting hairiness. Combining forms are Latin roots with vowels added to facilitate pronunciation. They frequently appear attached to more familiar Latin-based words, like those for leaf and flower. *Hirtifolia* would mean hairy leaved. *Barbiflora* would mean bearded flower.

It is getting really interesting when we look at cultivars of plants like *Sedum reflexum* 'Blue Spruce'. 'Blue Spruce' is a blue-green-variegated selection of this species. Variegations of plants can be caused by environmental conditions (air quality, sun light, nutrients, water supply etc.) or by targeted human influence like propagating only the plant with certain properties, propagating plants with "defects" or Gen manipulation (like most of our food plants, ornamental plants or turf grasses).

Vegetation for Green Roofs should be identified, specified and communicated by their botanical name to avoid confusion. The names of the plants must be written correctly according the International Code of Nomenclature and professionals don't refer to the "Latin" name of a plant – they refer to the botanical, horticultural or formal scientific name of plants.

Recommended readings (Multi-lingual):

- Zander - Handwörterbuch Der Pflanzennamen / Dictionary of Plant Names / Dictionnaire Des Noms Des Plantes: Dictionary of plants. Dictionnaire des noms des plantes [Hardcover]
- The Timber Press Dictionary of Plant Names

Recommended readings (only English):

- Mabberley's Plant-book: A Portable Dictionary of Plants, their Classifications, and Uses [Hardcover]
- An Aid to the International Code of Botanical Nomenclature