Roof greening system that has proven itself over decades

**Nature Roof system solution. Biodiversity, species protection and nature conservation**

Greened roofs combine a variety of positive effects. Perhaps the most important and understandable argument in favour of green roofs is their role as an “ecological balance”. With its Nature Roof campaign and the Nature Roof system solution, Optigreen international AG presented a green roof structure over 20 years ago that displays greater ecological significance than frequently-used simple sedum roofs thanks to its biodiversity (species and structural diversity).

**Scientific investigations**

The green roof structure, with its corresponding selection of plants, is crucial for the existence of animal species on the roof. As part of the dissertation by Gunter Mann, over 120 Optigreen green roofs were examined scientifically, with the following results:

* Thin-layer extensive greening is only temporarily populated with animal species that are able to fly and must then be “captured” again each year. Intensive greening is a permanent habitat for animals over many years. Frost- and dryness-sensitive soil fauna (e.g. earthworms) can only survive over several years when there are suitable areas to retreat to in the form of higher substrate structures.
* Most animal species can be found in structured and varied greening. The ecologically most valuable form of greening is extensive greening with partial substrate mounding and sedum-herb/woody plant vegetation with smaller areas of water, deadwood and gravel areas. Extensive and intensive roof greening offers a variety of breeding habitats for ground-breeding birds.

**Implementation in practice. Nature Roof system solution**

The Nature Roof Optigreen System Solution is not to be seen as a rigid system, but as a green roof solution that allows designed and varied roof greening. Using various substrate heights and the wide variety of plants associated with this, as well as various design elements, ecologically high-quality and visually attractive roof greening can be created:

* Deviating from the basic green roof structure with a total height of 10 cm, the Optigreen extensive substrate type E can be elevated across the whole surface or in partial areas by 5-25 cm (extensive to simply intensive). This means that higher shrubs and dryness-tolerating woody plants can survive – and thus offers possible refuges for frost- and dryness-sensitive soil fauna to enable long-term survival.
* Plant use according to specific species list, for instance according to flower colour and flowering time. The use of the Optigreen seed mix type E, a long-proven seed mix with a coordinated composition of 30 types of herb and 9 types of grass, is recommended for a roof area with a uniform-looking species-rich flower meadow that can flower from April to October. The Optigreen seed mix type E is also available “locally”.
* Plantations in fields, which e.g. are separated by gravel or chipping strips (flower beds, planting islands).
* Gravel, chipping and sand areas of various shapes and grain sizes.
* Temporary water areas as eye-catchers and drinking troughs for insects, and permanent ponds, which act as drinking areas for birds and contribute to a greater variety of species on the roof.
* Rootstock and deadwood as design elements and nesting aids for wild bees.

**Notes**

* Nature Roof system solution: www.optigruen.de (Webcode: web231)
* Free request for the dissertation Gunter Mann: info@optigruen.de

**Literature**

MANN, G. (1994): Ökologisch-faunistische Aspekte begrünter Dächer in Abhängigkeit vom Schichtaufbau (Ecological and faunistic aspects of greened roofs depending on the layer structure). - Dissertation University of Tübingen

MANN, G. (1996): Faunistische Untersuchung von drei Dachbegrünungen in Linz (Faunistic investigation of three green roofs in Linz). - ÖKO-L 18/3, 3-11

MANN, G. (1996): Die Rolle begrünter Dächer in der Stadtökologie (The role of greened roofs in urban ecology). - Biologie in unserer Zeit 5, 292-299

MANN, G. (1997): Aus einem Kiesdach wurde ein Naturdach (A crushed gravel roof became a Nature Roof). - Stadt und Grün 4, 235-238

MANN, G. (1998): Vorkommen und Bedeutung von Bodentieren (Makrofauna) auf begrünten Dächern in Abhängigkeit von der Vegetationsform (Occurrence and importance of soil fauna (macrofauna) on greened roofs depending on the vegetation form). - Dissertation University of Tübingen

MANN, G. (2001): Mit 50 000 Quadratmeter Gründach ein Stück Natur zurück (Regaining a piece of nature with 50,000 square metres of green roof). - Stadt und Grün 8, 578-582

MANN, G., ZELLER, S. (2003): Zur Bewertung begrünter Dächer in Bauleitplanung und Eingriffsregelung (For the evaluation of greened roofs in urban development planning and intervention regulations). – Dach + Grün 4

MANN, G. (2005): Vorkommen von Tiere auf begrünten Hochhäusern (Occurrence of animals on greened high-rise buildings). – Dach + Grün 3

Optigreen international AG

Am Birkenstock 15-19

72505 Krauchenwies

Tel. +49 7576-7720

Fax. +49 7576-772299

info@optigruen.de

www.optigruen.de

**Photos/figure**

Photo 1: Karlsruhe environmental agency with structure-rich construction. FBB Green Roof of the Year 2013

Photo 2: Example: Pond area and deadwood as a supplement to species-rich roof greening

Fig. 1: Nature Roof system solution. Extensive greening with many possibilities for ecological enhancement

Photo 3: Extensive greening with mounds. One of the most high-quality forms of roof greening

***Please quote “Optigreen” as a source. Thank you!***