

24th Newsletter of the UFZ Green Roof Research



04th November 2025



The Gewandhaus zu Leipzig received a green roof in 2025.
(Photo: Maya Ziehlke)

Research green roof

at the Helmholtz Centre for Environmental Research – UFZ



Europa fördert Sachsen.
EFRE Europäischer Fonds für
regionale Entwicklung

This construction measure is co-financed by tax funds on the basis of the budget passed by the members of the Saxon state parliament.

Research partners:



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Practice partners:



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A green roof complex at the Gewandhaus zu Leipzig

The Gewandhaus zu Leipzig is a concert hall and part of the City of Leipzig's municipal cultural institutions. The building, located at Augustusplatz in the city centre, was completed in 1981. At present, around 500 events are held annually, attracting nearly half a million visitors. For several years, the Gewandhaus has been working continuously to optimise its overall climate impact¹. Among the measures - such as roof insulation, replacement of all windows, and renovation of the glass façade - 2025 also saw the conversion of 800 m² of the Gewandhaus roof from a gravel fill to a green roof complex. This project was facilitated through the support of the City of Leipzig's Office for Environmental Protection and was scientifically supervised by the Leipzig Green Roof Think Tank.

The technical reconstruction was carried out under the supervision of an engineering office specialised in building maintenance. In addition to obtaining the necessary permits, the preparatory activities included gravel removal using a suction truck, renovation of the rainwater inlets, and the installation of a root-barrier layer. Furthermore, the lightning protection system and lighting had to be dismantled and reinstalled. A planned reuse of the gravel could not be implemented, as it was too heavily contaminated with pigeon droppings.



Figure 1: The Gewandhaus zu Leipzig located at the Augustusplatz.
© Lucie Moeller

The text was written by Dr. Lucie Moeller (UFZ), Dr. Anett Richter (City of Leipzig's Office for Environmental Protection) and Dr. Peter Otto (Institute for Biology, University of Leipzig).

¹ <https://www.gewandhausorchester.de/gewandhaus/umweltbewusstes-gewandhaus/>

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Preparation for planting

The newly constructed green roof complex consists of four segments, each planted with different vegetation. In total, approximately 2,800 plants were installed, and 5 kilograms of seeds were sown. The planting design was planned by Dr. Peter Otto, a member of the research group *Molecular Evolution and Systematics of Plants* at the University of Leipzig and a long-standing member of the UFZ Green Roof Research Team.

The plants were supplied by the Vocational Training Center Leipzig for Hearing, Speech, and Communication (Leipzig-Knauthein) and the company Stauden-Ihm (Diera-Zehren near Meißen). Using a crane, the plants were transported onto the roof of the Gewandhaus (Figures 2 and 3)



Figure 2: Plants being lifted onto the roof of the Gewandhaus by crane.

© Peter Otto



Figure 3: A delivery of plants for the Gewandhaus green roof project. © Sabrina Wenkel

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Planting of the green roof complex

Visitors to the Gewandhaus can easily see the green roof areas in the north through the windows of the main foyer on floor 4 (east and west sides). The planting was carried out with great expertise by the company HEIDEL - Gardening and Landscaping (Hartenstein near Zwickau).

In addition to the Crassulaceae commonly used for extensive green roofs, Lamiaceae such as thyme, steppe sage and oregano, as well as various species of Caryophyllaceae, were planted. In total, 22 species from nine plant families found a unique habitat on the roof of the Gewandhaus.

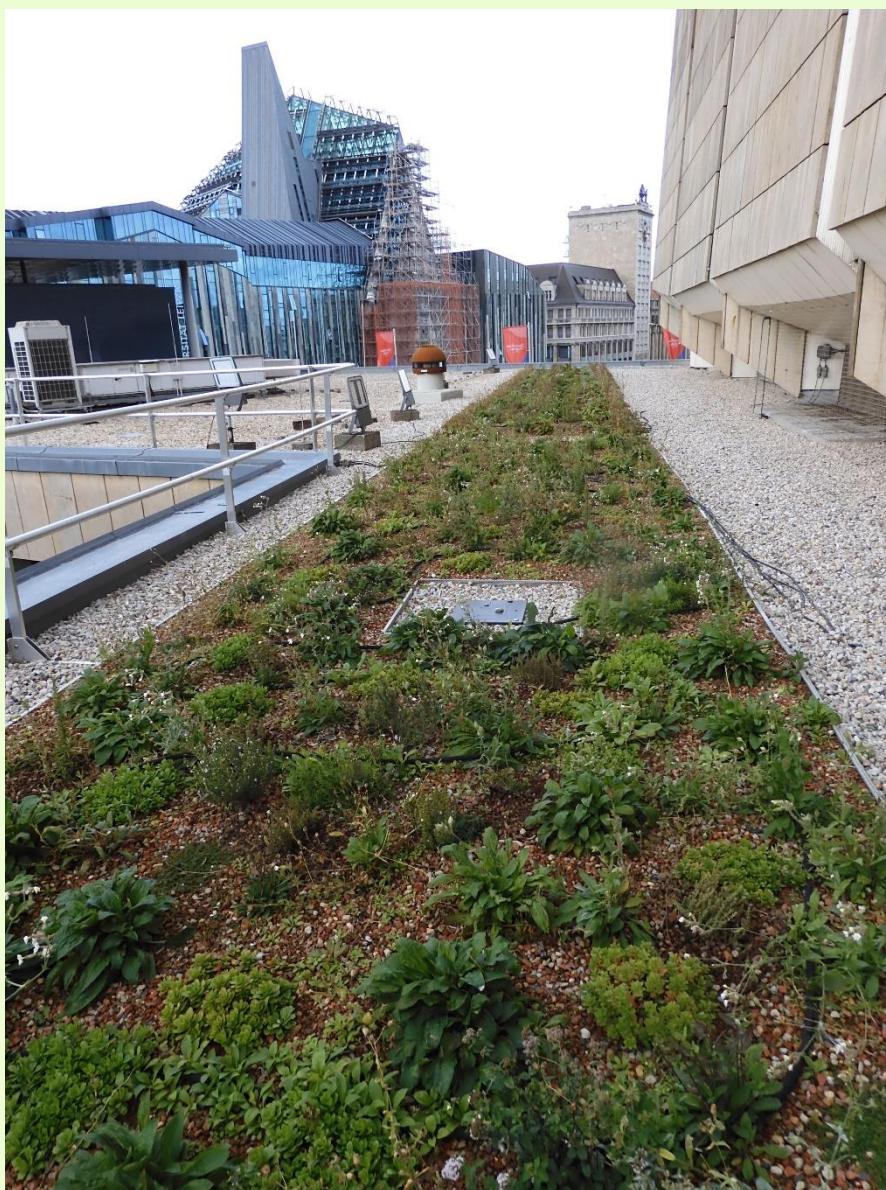


Figure 4: Green roof segment (extensively [front] and simply intensively planted) on the west side (photo taken on 24 September 2025).

© Peter Otto

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Overview of the greening

The east and southeast sides of the roof were planted with species well adapted to heat and drought (Figures 5A and 5B). In the southwestern and western areas, large-scale sowing of seeds from the Leipzig green roof mixture was carried out; on small sections, Sedum cuttings were also sown (Figure 5C). These works were conducted by Dr. Peter Otto in cooperation with Marie Loidl and Maya Ziehlke, both UFZ research assistants. To support growth, germination and early development, irrigation was applied across all roof segments. Over several weeks, sprinkler systems and irrigation hoses were installed with great dedication by the Gewandhaus operations engineer, Jörg Barthel. As a result, successful greening was achieved despite the challenging summer conditions. One green roof segment was reserved for research purposes.



A



B



C

Figure 5:
Segments of the Green
Roof at the
A east side
B southeast side
C southwest side
(photos taken on 24
September 2025)
© Peter Otto

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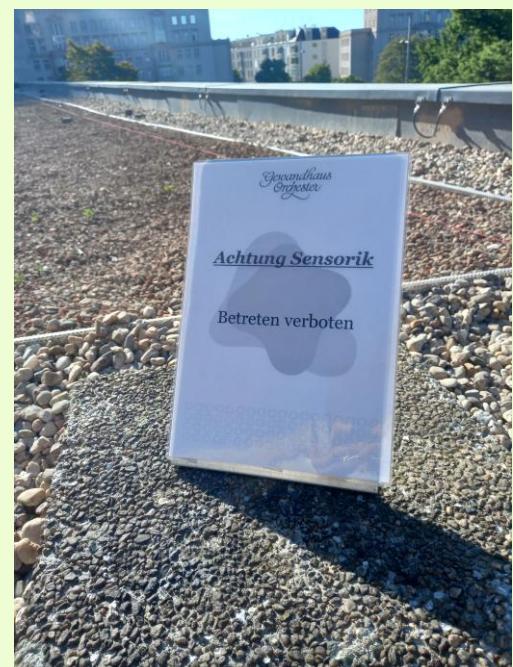
Research on the Gewandhaus roof

Members of Leipzig's Green Roof Think Tank have identified the Gewandhaus roof as significant site for research into the effects of climate adaption in urban areas. Before planting, staff from the Leipzig University of Applied Sciences (HTWK) installed fibre-optic sensors on the southeast segment, which are used for high resolution measurements of substrate temperatures (Figure 6). A first drone flight with a thermal imaging camera was conducted by the company ThINK from Jena. Furthermore, the research institutes UFZ and TROPOS plan to install additional sensors in 2026 to study the effects of the green roof on the microclimate.

The Gewandhaus green roof complex thus becomes an important research platform within the joint project *ValiGrün - Validation of the climate adaption potential for optimizing the functions of blue-green infrastructures in urban areas* (funded by EFRE/SAB, Project No. 100758418). In addition, the roof is suitable for studies on vegetation changes and faunistic investigations, with a focus on insect conservation.



A



B

Figure 6: Installation of the fibre-optic sensor on the southeast green roof segment (A) with corresponding label (B).

© Dennis Messerer (left) und Lucie Moeller (right)

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Grand opening

On 2 October 2025 the green roof complex at the Gewandhaus was officially inaugurated and presented to representatives of the press.

The administrative director of the Gewandhaus Dr. Gereon Röckrath, and the technical manager Toni Schlesinger explained the motivation and background of the roof reconstruction. They also highlighted the challenges involved in redesigning a roof while concerts are ongoing. Peter Wasem, head of the Office for Environmental Protection, outlined the necessity of green roof measures and presented the brochure *Caring, Maintaining and Optimizing Leipzig's Green Roofs*, authored by members of the Leipzig Green Roof Think Tank (Figure 7).

Finally, Dr. Peter Otto presented his strategy and approach for the greening of the individual roof segments. During the subsequent tour of the roof, participants were able to examine all segments closely and ask questions to the attending experts (Figure 8).



Figure 7: The front page of the brochure with tips for the care and maintenance of green roofs (in German only). The complete brochure can be downloaded via this QR code:



Figure 8: Dr. Peter Otto explains the specific challenges of greening by sowing.
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