



NEBESYS



Discover the views
that open from our roofs.

THE ONLY ONE IN THE WORLD

Translucent structures have been long-time dreams of mankind. Friedrich Nietzsche foresaw that in the future architecture would be transparent and it would levitate. But a transparent roof goes even further, all the way to the border of magic. The first system in the world that is an ordinary roof from the outside and transparent from the inside brings an abundance of opportunities. First of all, it protects an open undeveloped landscape. It may sound odd, but the possibility of building needed spaces in underutilised attics and above already standing buildings reduces the need to build new houses in suburban areas. The attractiveness of this solution brings the viewer above the horizon of events, uncovers the roof landscape in its entirety, and facilitates the creation of under-roof spaces isolated against wind and rain as well as the airy space of roof gardens hidden from sight.



Přemysl Kokeš / the author of the system

WHY TO CHOOSE NEBESYS SLANTED ROOFS?



NEBESYS has been tested in the real world since 2011, showing no shortcomings.



Translucent and even transparent from the inside, the system ensures perfect lighting of the interior.



NEBESYS is a compact roof, indistinguishable from ordinary roofs. The available roofing materials are pantile, flat tile, Brněnka tile, and other tile shapes.



The horizon does not limit you, and you will no longer miss the artistic rendering of reality that we usually do not perceive.



NEBESYS is like tree leaves, providing perfect shading and reflecting more than 70% of heat radiation.



NEBESYS facilitates the using of under-roof spaces in urban conservation zones and thus reduces the housing development in an open landscape.



NEBESYS makes it possible to perfectly hide the technological units installed on the roof.



NEBESYS ensures the airing of interiors by several direct systems as well as recuperation.



We are working towards the NEBESYS system that would warm water and even produce electricity with a roof indistinguishable from ordinary roofs.





Litomyšl



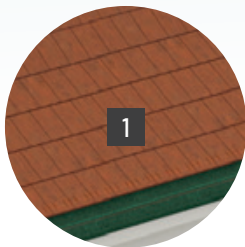
Mikulov

TRANSPARENT ROOF SYSTEM



VARIABLE SYSTEM FOR EVERY ROOF

Any original historical or modern roof frame, as well as newly designed houses and superstructures, can be equipped with an autonomous system composed of aluminium profiles that are called after the carpenter's roof framing elements that follow. Special anchors, rectified in all axes, are screwed to wooden, metal, or concrete roof framing elements. Subsequently, aluminium rafters with purlins and glass are installed from which only consoles for battens protrude. On them, the NEBESYS magic roofing tiles are placed that let in light, air, and water, and form a shading element that imparts an authentic look to the roof.



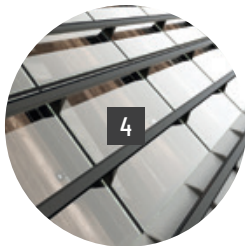
ORIGINAL ROOF



UNCOVERED ROOFING FRAME



SUPPORTING SYSTEM



INSULATION LAYER



ROOFING MATERIAL



ROOF SHADING

FAQ

Name of producer: NEBESYS a.s.
Name of product: NEBESYS SYSTÉM 2.5

WHAT IS THE SYSTEM MADE OF?

It is a coherent system composed of two construction solutions – transparent and solid.

1) The transparent glazed part is composed of aluminium segments installed on the existing wooden rafters. Heat insulation triple-glazed panes are mounted on the aluminium segments, making a thermal and hydro insulation layer.

2) The solid part is composed of thermal, above-rafter insulation, whose thickness corresponds to the requirements for each structure, and a hydro insulation layer. Both the transparent and the solid part of the roof are covered with metal perforated ‘magic’ tiles, resulting in a compact roof surface without disturbing elements.

THE STATIC DESIGN OF THE NEMESYS SYSTEM?

The system is statically calculated for the given snow and wind areas in the Czech Republic based on the valid EN standards.

DO YOU PROVIDE THE SYSTEM INSTALLATION?

Yes, our company installs the NEBESYS system.

The installation is provided by our employees or by assembly groups trained by our company.

WHAT IS THE THERMAL INSULATION MADE OF?

In the transparent part, the thermal insulation is ensured

by triple glazing that behaves similar to the structural facades of glazed buildings. (Technical specification – heat penetration coefficient U_g 0.7–0.8 W/m². Depending on the roof pitch, not relating to glass connections – the overall average heat penetration coefficient will be provided after the currently executed measuring and tests.)

IS IT NECESSARY TO INSTALL THE TRANSPARENT ELEMENTS ALL OVER THE ROOF?

No. With the solid, non-transparent solution, above-rafter thermal insulation is applied. As a standard, we offer the thermal insulation PUR 160 mm, but this composition can be adjusted according to the designer’s requirements.

WHAT IS THE HYDRO INSULATION LAYER COMPOSED OF?

The hydro insulation layer in the transparent part of the roof is the system-sealed triple glass. Outside the transparent parts, there is a roofing sheet, or a PVC folio.

CAN THE NEBESYS SYSTEM BE USED FOR WINDOWS ONLY?

The NEBESYS system is primarily designed for installation on compact roof surfaces. If it was installed to existing or even new roofing systems, the materials would age differently which could result in colour differences of the roofing systems.

WHAT INSTALLATION CAN THE NEBESYS SYSTEM BE USED FOR?

The NEBESYS system is designed for the above-rafter installation about 200–240 mm above the wooden rafter.

WHAT IS THE RECOMMENDED PITCH FOR THE NEBESYS SYSTEM INSTALLATION?

The recommended roof pitch is 25° and more. Lower degrees are also possible, but each case requires special consulting.

HOW MUCH DOES THE SYSTEM’S WEIGH?

The weight of the system does not exceed the weight of the replaced original roofing without thermal insulation. Its weight depends on the equipment, ranging from 50 to 70 kg/m².

HOW IS THE SYSTEM WASHED?

Based on our experience from the previously installed roofs in Litomyšl (11 years) and Mikulov (3 years), we have observed that the system does not require washing since coarse dirt does not permeate through the fine perforation and rainwater reliably washes fine dust. Despite this fact, we have developed and tested a system of glass washing built within the battens that support roof tiles. The demand of the system depends on users. As part of an optional service, we are developing a robot to conduct the system’s maintenance from the outside between the tiles and glass.

WHAT COLOUR SOLUTIONS ARE AVAILABLE?

As a standard, the roofing system is delivered in RAL 9005 half-matte colour and the roof tiles are delivered in

the colour 9005 (inside). The outside colour of the tiles depends on the requirements of the investor, architect, or alternatively, conservationists.

WHAT ROOF TILE TYPES ARE AVAILABLE?

Currently, we offer the following variants of roofing tiles – Prague pantile, Brněnka, flat tile, Steinbrück in the square size 320 × 320 mm, and roofing sheets. Nevertheless, we can produce any mould for a tile required by the customer. Yet, compared to commonly available tiles from serial production, this solution would be more time-consuming and expensive. The tile transparency, or rather perforation, is 29.6%. The solar factor follows from this. What is the solar factor? It indicates the amount of incoming solar energy through a window. The solar factor is part of the current system testing.

CAN THE SYSTEM BE VENTILATED?

Yes. A line ventilation (ventilation valve, aperture 35 × 550 mm) can be used or a sliding window of the size about 600 × 1000 mm. We are completing the sliding window development.

FIRE RESISTANCE?

The solid part of the system is a standardised roofing composition with provable fire resistance. From the perspective of fire protection, the transparent part of the system is regarded as a filling of an opening without fire resistance requirements. In 2023, we plan to conduct fire resistance tests on specific solutions with divided fire segments that, naturally, the fire standard of the NEBESYS system does not know. In the case of dividing attics into more fire segments, the solid part of the system is used for the division wall that is fire resistant.



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