

Technical Guide

for designing a green roof that complies with ISU requirements



This technical guide aims to clarify the actual criteria used in practice by the Emergency Situations Inspectorate (Inspectoratul pentru Situații de Urgență – ISU) when evaluating green roofs and green terraces.

The document is addressed to designers, project verifiers, developers, and contractors who seek a safe, repeatable, and accepted approach in the authorisation and reception process.

In Romania, there is currently no dedicated regulation exclusively for green roofs from the perspective of fire safety. For this reason, each project is analysed based on general fire protection regulations, particularly the “Normativ privind securitatea la incendiu a construcțiilor, indicativ P 118/1-2025” (Fire safety of buildings regulation, code P 118/1-2025), correlated with European standards and the principle of equivalent safety.

In Article 1.2.1:

c) Green roof – a roof on which vegetation is deliberately provided by design, above the layer that provides weather protection. As defined in the technical regulation “Ghid privind proiectarea și execuția acoperișurilor verzi la clădiri noi și existente, indicativ GP 120/2013” (Guide for the design and execution of green roofs on new and existing buildings, code GP 120/2013), approved by Order No. 3383/2013 of the Minister of Regional Development and Public Administration.

Article 2.4.8.2.2: The fire stability level of buildings with green roofs is determined in accordance with Article 2.1.3.2, Table 2 – Minimum conditions for classifying the building or fire compartment into fire stability levels for civil constructions, and Article 2.1.3.3, regarding the minimum conditions for the fire reaction and resistance of combustible roofing panels and their continuous support.

ISU does not require experimental solutions, but clearly defined, documented systems that are easy to understand in terms of fire behaviour.

A green roof compliant with ISU is treated as a structural assembly with controlled potential for fire propagation.

The analysis focuses on limiting the spread of fire across the roof surface, protecting combustible layers, separating risk areas, and maintaining access for intervention.

Vegetation on a green terrace is not evaluated as a decorative element, but as a material with specific behaviour in a fire scenario.



The waterproofing must be certified as root-resistant, have documentation regarding fire reaction, and be protected from fire by a non-combustible, inert layering throughout the green roof system (including all components such as substrates, gravel strips, succulent vegetation).

ISU pays particular attention to details at parapets, skylights, and penetrations, where accumulation of combustible materials can create fire ignition points.

Continuity of the waterproofing layer and mechanical protection are essential. The drainage and protection layer must have controlled fire behaviour. Drainage and water retention panels, although made of combustible materials, are saturated with water in the green roof layering and protected from direct fire contact by a thick inert layer of substrate, vegetation, or gravel.

In practice, solutions where drainage panels are fully covered by a sufficiently thick substrate layer are preferred. Lightweight, exposed, or unclearly classified materials are avoided.

The vegetation substrate is analysed in terms of organic content and moisture retention capacity. ISU accepts substrates with limited organic content that are stable over time and do not behave as fuel under drought conditions. Substrates containing large amounts of peat are contraindicated. [Standard substrates for extensive systems with a high mineral fraction](#) are the most commonly accepted.

Vegetation must be selected to limit the accumulation of dry biomass. **Extensive systems with sedum and succulent plants are considered the safest, as they have high moisture content in their fleshy leaves** (which release juice when simply pressed between two fingers).

Tall, grassy vegetation or shrubs are analysed separately and, in many cases, conditioned by additional fire separation measures, such as wider fire separation strips made of gravel, which are an essential element and explicitly required in most ISU approvals.

These are vegetation-free zones, typically made of washed river gravel with a grain size of

16-32 mm or ornamental stone with rounded edges, placed along parapets, around skylights, at penetrations, next to walls, and for compartmentalising large areas.

The use of crushed stone or sharp-edged stone should be avoided, as stepping on them during roof maintenance access can damage the waterproofing.

Common accepted widths in practice range from 50 to 100 cm, depending on the building type and fire scenario.

For large roofs, especially industrial and logistics buildings, ISU requires compartmentalisation of the roof surface into sectors delimited by continuous mineral strips (every 100 m of green roof must include a gravel strip at least 1 m wide).

This limits fire propagation and allows staged intervention. Compartmentalisation must be coordinated with that of the building below.

Photovoltaic panels installed on green roofs are accepted when distances from vegetation are respected ([succulent vegetation such as Sedum, installed in roll form](#), is recommended).

Maintenance of the green roof is implicitly considered by ISU as part of fire safety measures. For biodiversity-type green roofs, after flowering and seed fall, vegetation must be removed by mowing, followed by evacuation of the cut plant material from the roof.

Documentation must include a maintenance plan that provides for the removal of dry vegetation, maintenance of separation strips, and periodic checking of the system condition.

An unmaintained green roof may be considered non-compliant and dangerous.

Worldwide, events that seemed low-probability have occurred: crows carried glass shards onto a green roof, which acted as a magnifying glass, focusing sunlight and igniting dry vegetation, creating a fire similar to a stubble fire. For this reason, succulent Sedum vegetation is one of the safest choices (considered non-combustible, does not sustain combustion, even if the building user is, to put it bluntly, negligent and ignorant).

Technical documentation for authorisation must be clear and coherent (with well-defined interventions at predetermined dates).

Layered descriptions of the system, technical data sheets for materials, fire separation plans, detailed sections, and a memorandum justifying equivalent safety are required. In practice, well-documented projects are reviewed quickly with few observations.



A correctly designed green roof does not increase fire risk but controls it

When materials are properly selected, vegetation is managed, and separations are respected, the green roof becomes a safe and predictable element from the perspective of fire safety.

Odu Green Roof is at your disposal to create a green roof accepted by ISU without objections, saving you valuable time and avoiding repeated submissions with randomly revised documentation in the hope that “it might pass this time”.