

Info Sheet

Fire Prevention and Green Roofs

Some facts about preventative fire protection with green roofs

Towards the end of the 1980s there were concerns in Germany that, in particular, extensive green roofs with dry grass could pose a threat to the building they were installed on if they were to go on fire. Building supervisory authorities and insurance companies require roofs in certain circumstances to be installed as "hard roofs", i.e. these roofs should provide protection against flying sparks and radiating heat.

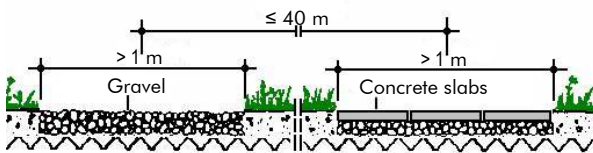
Following the procedure set out in German Standard DIN 4102-7, ZinCo green roof build-ups were tested in the open and under laboratory conditions by the Stuttgart Institute for Materials

Testing, Materials Science and Strength of Materials (IMWF).

These tests provided the basis for recommendations put forward by an expert commission on "building standards and building supervision" at ARGEBAU (German Federal Architectural / Building Institution). With the help of these recommendations, building supervisory authority requirements regarding sufficient preventative fire protection for green roofs can now be fulfilled. They have been incorporated into the relevant regulations in individual States in Germany and building insurers have

accepted these in the same way.

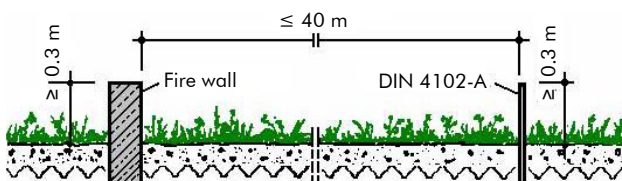
These regulations are now also anchored in the FLL Green Roof Guidelines and since May 2016 they have been part of the new version of German Standard DIN 4102 "Fire Behavior of Building Materials and Components", Part 4 "Compilation and Application of Classified Building Materials, Components and Special Components". Green roofs are now listed in section 11.4 as one of the types of roofing which are "independently of the roof pitch resistant to flying sparks and radiant heat", provided the rules listed below are complied with.



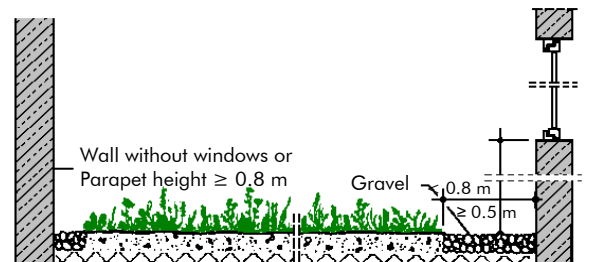
Gravel strip or concrete slabs at least every 40 m,



gravel strips or concrete slabs around roof openings (e.g. skylight),



or walls that protrude from the roof at least every 40 m, made of building materials as per DIN 4102-A.



The minimum width of vegetation-free safety strip along the walls is 0.5 m, where window – parapet height < 800 mm.

When are green roofs considered to be hard roofs?

Roofs with intensive green roof

- including roof areas that are irrigated and looked after (e.g. roof gardens, underground garage green roofs) and that generally have a somewhat thicker substrate layer – are considered to be resistant to flying sparks and radiating heat. They are considered to be "hard roofs".

Roofs with extensive green roofs

- roofs that are generally not watered and are maintained only once a

year – are considered to be resistant to flying sparks and radiating heat if:

1. the substrate layer (System Substrate, Zincolit®, etc.) is at least 30 mm thick,
2. the substrate has a maximum of 20 % by mass organic part (all ZinCo system substrates are below this),
3. firebreaks are included at least every 40 m on large-surface green

roofs (e.g. gravel strips or upstands) and

4. a strip of coarse gravel, concrete slabs or similar are placed in front of openings in the roof (skylights, light strips) and in front of walls with openings.

When carrying out annual maintenance, it is important to ensure that the firebreaks mentioned in items 3 and 4 remain free of combustible material.

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Life on Roofs