

Requirements for load bearing capacities according to DIN EN 12825/13213 and proofs for fire resistance according to DIN 4102:

Is this contrary to each other?

In accordance with the testing laboratories this question was answered as follows:

The regulations which have to be considered exactly for system floors was clarified according to building laws by publishing the "Exemplary guideline for fire protection requirements at wiring systems" (MLAR), issue dated March 2000, as well as the "Exemplary guideline for fire protection requirements for hollow floor and access floor systems" (MDBR), issue dated December 1998.

In parallel, the requirement classes for load bearing capacities of these flooring systems (compare DIN EN 12825 and DIN EN 13213) were compiled among others in the course of the European product standardization.

Therefore, the corresponding proofs of load bearing capacities will be provided by strictly defined testing methods with concentrated loads, such as 2000 N, 3000 N, 4000 N, 5000N which will be classified by assigning the nominal loads that a system floor has to attend in a "cold" situation of usage.

Proof of the fire resistance class

Fire resistance tests for system floors are carried out according to the regulations of the DIN 4102 part 2 (ETK). These regulations are completed with detailed definitions which are agreed with the testing laboratories.

In opposition to the requirements for the load bearing capacity of a concrete floor in case of fire, the main objectives for system floors are the personal security and the fire fighting in areas with low and constant loads (for example in necessary floors and entrance areas of the rooms).

To accommodate this situation, the assumed additional load will be simulated by a substituted load of 1,5 kN/m² during the fire testing. Due to the chequered distribution of this load as well as the

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resulting joint displacement in case of fire, this is a practically orientated requirement according to the opinions of the experts for fire protection.

According to the experts, this fire and load model consequently includes sufficient contingency protection to allow the escape of people and the intervention of the fire brigade.

According to the building regulation list A part 3 (building types) current number 1 the proof has to be delivered with an application proof in terms of a general building testing certification (ABP) and a declaration of conformity provided by the producer.

Fire protection and load bearing capacity

The load bearing requirements for the classification of system floors according to DIN EN 12825 or DIN EN 13213 (e.g. 5,0 kN) as well as the additionally used 1,5 kN/m² for the fire testing according to DIN 4102 do not contradict.

DIN EN 12825 and DIN EN 13213 regulate the usability under “cold” conditions, whereas DIN 4102 part 2 regulates the suitability of a system floor in case of fire by considering the legal requirements for protection.

Remark:

In case exceeding loads as for example static surcharges should also be considered in case of fire, this goes beyond the legal standardized requirements for protection and the regulations of the DIN 4102 as well as the MDBR.

In this case individual measures have to be agreed and corresponding proofs have to be delivered.