FERMACELL Soft Impact Test

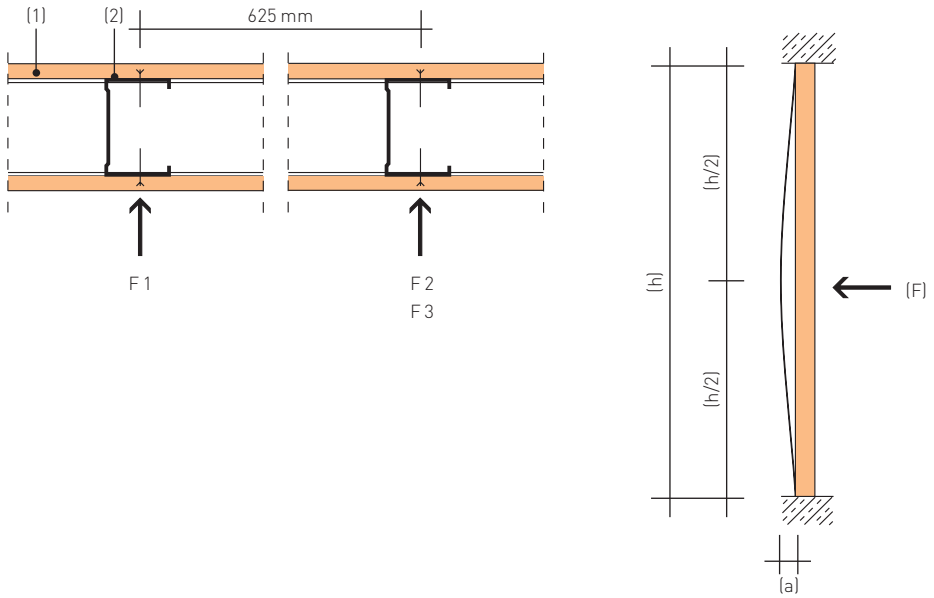
In accordance with DIN 4103

The certificate for soft impact is based on an assessment of the ability of the whole partition to withstand a semi static load. A soft impact on lightweight partitions can result from for example the impact of a human body (from a ladder or scaffolding) or in the case of panic caused by fire as a result of the pressure of human bodies in corridors that restrict an escape route.

The tests for this type of impact resistance have been carried out on single layered FERMACELL partitions (12.5 mm board) on a steel subframe construction using 100 mm x 0.6 mm vertical C profiles installed at 625 mm.

During the test a force F was applied at right angles to the face of the wall at the mid point between floor and ceiling. The force was applied to the partition both on the stud and at the mid point between the studs using a pneumatic ram with a 50 mm diameter shoe. In the first test the load was increased until a deflection of 5 mm from the Perpendicular axis was reached. A similar method was used for the second test which was carried out at the mid point between the studs. The third test, also at the mid point between studs was continued until penetration of the board occurred.

The force necessary to achieve the set deflection was measured and the result is given in the table below.



Key

(1) FERMACELL board 12.5 mm
(2) C Stud 100 mm x 0.6 mm
(h) (Height of partition) = 3000 mm
(a) Deflection of the partition
(F) Location of force applied with 50 mm diameter ram

Load Type:	Force
Soft Horizontal Impact	kN
F 1 Force applied over stud to create deflection of 5 mm	1.119
F 2 Force applied between studs to create deflection of 5 mm	0.605
F 3 Force applied between studs to break through board	1.505

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FERMACELL Hard Impact Test

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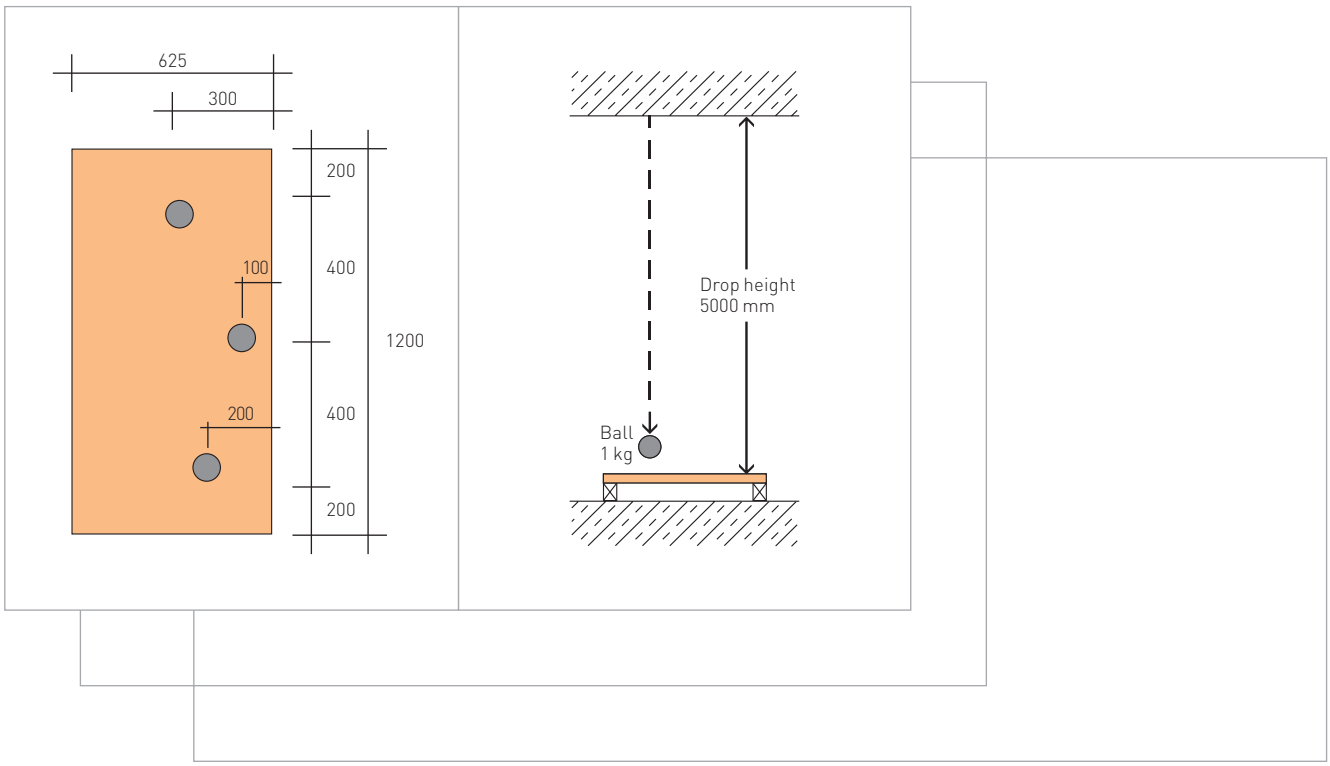

The resistance to hard impact is determined by a drop ball test. A steel ball 63.5 mm in diameter weighing 1030 g is released in free fall on to the face of a 12.5 mm FERMACELL board. The drop ball tests are carried out on 1000 mm wide pieces of board, spanned between two supports at 625 mm. The impact points are in the middle of the board and near the edge of the board (see attached sketch).

Results.

1. After 15 drops from 1000 mm, no indentation was seen on the face of the board. The board was then cut at the impact points and no structural difference was observed in the cross section.
2. From a drop height of 4500 mm, distinct indentations appeared, which were seen in the reverse face of the board. The ball did not break through the board.
3. From a drop height of 5000 mm to 5500 mm, the board broke parallel to the supports.

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