測定結果:

ISO 717-1に従い、100 ～ 3150 Hz・周波数範囲での遮音性が計測された。結果として、

$$D_{n,w} = 39\ dB$$

発信室/受信室の室温: 14°C
湿度: 31%

測定日: 12月12日, 2002年

添付資料 2 (A 51641)に同封したフォームに基づく試験対象の概略報告

小型化した窓枠試験台に設置した石膏ボード間仕切壁開口部に施工された試験体 CP670ヒルティファイヤーストップ セーフティボードの遮音性指標の評価は下記の通り。

$$D_{n,w} = 39\ dB$$

2003年1月23日

Institut für Akustik und Bauphysik
(Institute for Acoustics and Building Physics)
Amtlich anerkannte Eignungs- und Güteprüfstelle
(Officially accredited Suitability and Quality Testing Laboratory)

Prof. Dr. Ernst-Jo. Völker
Institute Director

Dipl.-Ing. Wolfgang Teuber
Measurement & Technical Manager

Enclosure 1 (Cross-sectional view A 51648)
Enclosure 2 (Measurement and evaluation sheet A 51641)

IAB Oberursel
Eignungsprüfstelle nach DIN 4109

Institut für Akustik und Bauphysik, Oberursel im Taunus

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January 23rd, 2003

Test Certificate

Subject: **CP 670 Fire Safety Board System in Gypsum-Boarded Partition Wall**

Is herewith granted a Test Certificate corresponding to DIN EN 20140 - 10
(*Measurement of sound insulation in buildings and of building elements - Laboratory measurement of airborne sound insulation of small building elements*)

Applicant: Hilti
Entwicklungsgesellschaft mbH
Hiltistrasse 6
86916 Kaufering

Valid until: January 23rd, 2008

Test Certificate No.: A 51642/3093

This test report consists of 9 pages including 2 annexes.

Institut für Akustik und Bauphysik
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This is a translation of the German original version that has not been reviewed by the granting laboratory.

GENERAL CONDITIONS

This test certificate provides evidence in determining the standard sound levels of a fire-proof system. The product Hilti CP 670 Fire Safety Board System was tested in a single-layered 50 mm thick gypsum-boarded partition wall construction. The test was carried out in compliance with standard DIN EN ISO 140-10: September 1992.

The test certificate does not replace the permission, agreements and certifications required by law for carrying out construction projects. The test certificate is granted without prejudicing the rights of third parties, especially private protection rights.

The manufacturer and distributor of the subject of a test certificate must submit copies of the test certificate to the user of the construction product, notwithstanding any rulings to the contrary.

The test certificate may only be copied completely. The publication of extracts is subject to approval by the granting test laboratory. Texts and drawings of advertising material may not contradict the test certificate. Translations of the test certificate must contain the note"Translation of the German original version that has not been reviewed by the granting test laboratory".

The test certificate is granted, but is revocable. The regulations in the test certificate can be subsequently supplemented or changed, especially if the latest technical findings give reason for this.

The construction products mentioned in the test certificate require verification (evidence) of agreement and marking with the agreement mark (U-mark) in keeping with the agreement mark ordinances of the federal states.

Cancellation of test certificate

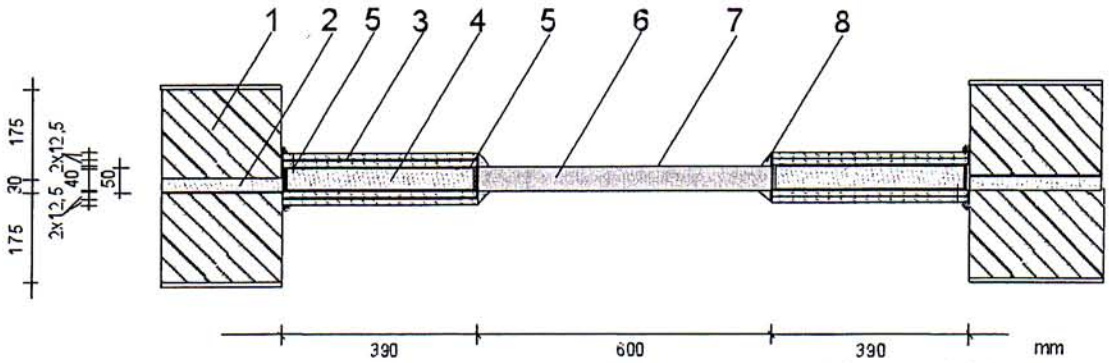
The test certificate can be cancelled by the IAB if the conditions of this agreement are not fulfilled This applies especially when material and building construction methods are changed and no longer follow the tested and approved criteria.

Description of Test Object

The tested fire proof coating is designated to seal wall/floor openings in gypsum-boarded partition wall constructions. Two 50 mm thick fire resistant mineral fibre boards coated on both sides with 1 mm layer of special coating (CP 670) were prepared for a test construction dimensioned with 600 mm x 500 mm (w x h).
Tests were performed with a laboratory test construction with the size 620 mm x 520 mm. The prepared material had the following measured characteristics:

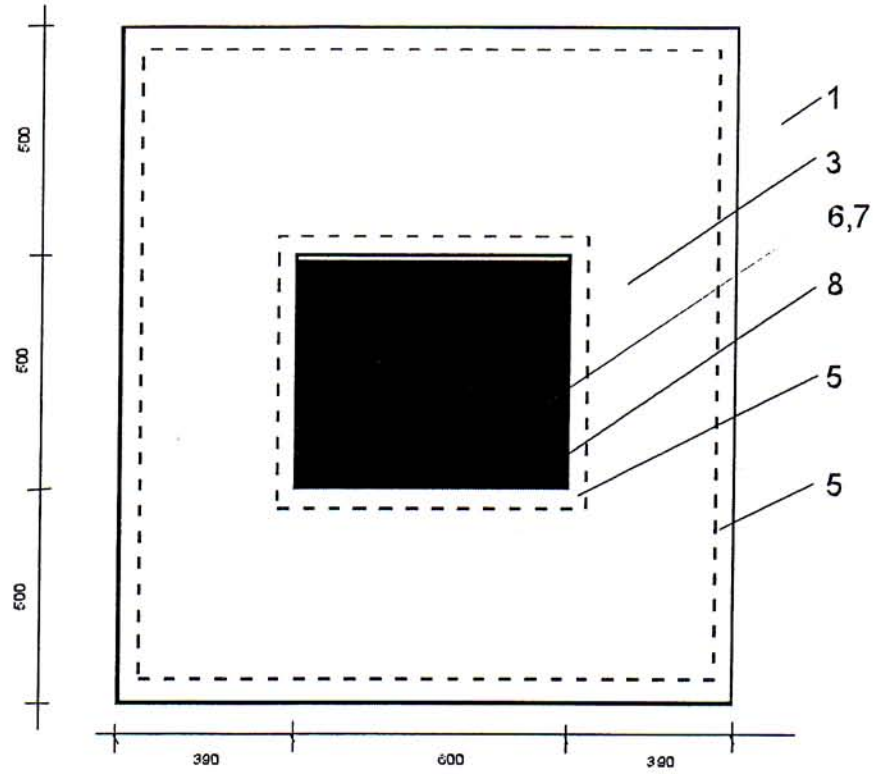
*	The surface-related coating on both sides of the mineral fibre board	m' = 10, 7 kg/m²
*	Specific airflow resistance according to DIN EN 29053, coated sample material, average out of a series of 9 measurements	R_S > 10.000 Ns/m³
*	Specific airflow of the mineral wool without coating average out of a series of 9 measurements	R_S = 4733 Ns/m³

Figure 1 shows the cross-sectional view of the test object with two mineral fibre boards coated (CP 670 Fire Safety Coating) on both sides bonded to the perimeter of the partition wall construction and double-layered gypsum-board miniaturised test bench. The Hilti CP 606 (Filler) was used as bonding and sealing material. The arrangement, set up and fastening of the frame construction is pictured in the schematic diagram of figure 2.



1 = Solid wall test bench with 17.5 cm plastered limestone brick,
2 = Joint, mineral wool filling, sound-proof perimeter connection
3 = Gypsum board 2 x 12,5 mm, screwed with stud frame
4 = Mineral fibre filling, d = 40 mm, Isover BSP 100
5 = Stud frame Knauf 50 mm
6 = CP 670 Fire Safety Board System
7 = CP 670 Coating, approx. 1 mm thick
8 = Bonding and joint sealing CP 606

Figure 1: Horizontal cross-sectional view of test object and connection to test bench opening



1 = Solid wall test bench constructed with plastered 17.5 cm limestone bricks
3 = Gypsum board 2 x 12,5 mm, screwed to stud frame
5 = Stud frame Knauf 50 mm
6 = CP 670 Fire Safety Board System 50 mm
7 = CP 670 Fire Safety Coating, approx. 1 mm thick
8 = Bonded and joint sealed with CP 606

Figure 2: Top view: Test specimen in gypsum board stud frame

Measurements of the Fire Safety Board System CP 670 in a gypsum board partition wall arranged into the window test bench

The fire proof system CP 670 Fire Safety Coating was applied as side bonding for a miniaturised IAB window test bench.
The penetration opening was constructed with a 100 mm thick both-side planked gypsum-boarded stud frame that was sized to the dimension 600 mm x 500 mm (w x h) and fit into a steel stud frame. The applied gypsum board were 12.5 mm each with a mass of m' = 9,0 kg/m² and the mineral wool m' = 4,2 kg/m² to insulate the cavity with a specific airflow R_S = 2417 Ns/m³.
The test set up complies with DIN EN ISO 20140-1 (Acoustics - Laboratory measurement of the flanking transmission of airborne and impact noise between adjoining rooms) arranged with double-planked partition wall.. The maximum insulation rating was R_w = 68 dB. The standard sound level for the gypsum board without opening for the test specimen CP 670 was measured with $D_{n,w}$ = 61 dB