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Erzherzog-Johann-Universität

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**LABORATORY FOR
BUILDING PHYSICS**

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TEST REPORT No. B05.541.005.331E

Made within the scope of accreditation

Made outside the scope of accreditation

APPLICANT: ECOWALL
Bausysteme GesmbH.
Bundesstraße 85
8160 Preding bei Weiz

REQUEST: Laboratory measurements of impact sound insulation of floors (flanking transmission) in accordance with ÖNORM EN ISO 140-6, ÖNORM Draft EN ISO 10848-1, ÖNORM Draft EN ISO 10848-3 and ÖNORM EN ISO 717-2.

TEST PIECE: Test stand built into a wall construction provided by the applicant, designated "**Test No. 1015**"
For layout see Test Piece - page 2

EXHIBITION DATE: 03 02 2005

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TEST REPORT:**

- 1 Request
- 2 Test piece
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- 4 Test result
- 5 Validity of the test report

Annex 1 Plan of the test piece
Annex 2 Test report

**TEST REPORT
VOLUME:** 6 pages DIN A4, including annexes

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1 REQUEST: Laboratory measurements of impact sound insulation of floors (flanking transmission) in accordance with ÖNORM EN ISO 140-6, ÖNORM Draft EN ISO 10848-1, ÖNORM Draft EN ISO 10848-3 and ÖNORM EN ISO 717-2.

2 TEST PIECE: Test stand built into a wall construction provided by the applicant, designated "**Test No. 1015**"
Layout in acc. with applicant instructions; beginning from top and sending room side:
Partition component:

- 100 mm concrete floor element
- 50 mm Heralan rock wool panel (Heraklith)
- 15 mm OSB – screwed onto wooden floor beams made of solid structural timber
- 200 mm wooden floor beams made of solid structural timber, e ~ 625 mm
in-between: 150 mm air and 50 mm hollow space insulation Sanorock (Rockwool)
- 15 mm OSB – screwed onto wooden floor beams flush with front of OSB
- ~120 mm sprung ceiling hook construction
- 12,5 mm gypsum board
suspended ceiling connected with wall component

Wall component:

- 15 mm OSB – screwed onto frame made of solid structural timber
- 200 mm frame made of solid structural timber, e ~ 625 mm
in-between: 200 mm Sanorock (Rockwool)
2 x 100 mm
- 16 mm Agepan board – screwed onto frame made of solid structural timber

2-layered (inside and outside) EPDM full-cell sealing profile **Trelleborg STG 50*5** mm between the partition component and the top wall component. Single layer (inside) EPDM full-cell sealing profile **Trelleborg STG 50*5** mm between partition component and lower wall component

3 TEST

3.1 TEST PIECE

In accordance with the standard series ÖNORM EN ISO 140, the test stand consists of two testing chambers, which are separated by highly-insulating, two-layered, dismantlable prefabricated units made of armoured concrete – 25 and 11 cm thick – separated by 5cm of mineral fibre insulation boards, the sending room and the receiving room.

The side walls of the sending room and the receiving rooms consists of armoured steel walls with a thickness of 42 cm; the lateral surfaces and the ceiling surface in the receiving room are lined with insulating panels made of vaporized gypsum fibre. The above-described partition component is mounted between the wall panels of the two testing chambers. The joints between the test piece and the partition component, and the junction between the test piece and the test stand, are sealed using mineral fibre insulation material and two-sided plastic sealants.

3.2 ABSORPTION

The equivalent absorption surfaces are calculated from the reverberation times measured in third-octave band widths according to Sabine.

3.3 INSTRUMENTS

Two-channel real-time analyser, type Norsonic RTA 840, with built-in noise generator, amplifier and loudspeakers Norsonic Tippkemper type 229 und type Nortronic 811 L, Norsonic 1201 microphone preamplifier, microphones Norsonic type 1220, standard tapping machine Bruel & Kjaer 3204.

3.4 MEASUREMENT

The standard tapping machine was set up in the sending room above the partition component in accordance with the testing standard and at the same time measured in the receiving room underneath through circulating microphones as average sound level – after switching on the standard tapping machine – measured in one-third octave bands.

3.5 STANDARDS

ÖNORM EN ISO 140-6 “Acoustics – Measurement of sound insulation in buildings and of building elements, Part 6: Laboratory measurements of impact sound insulation of floors”, July 1999

ÖNORM Draft EN ISO 10848-1, “Acoustics – Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms, Part 1: Frame Document“, July 2004; ÖNORM Draft EIN ISO 10848-3, “Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms, Part 1: Application to light elements when the junction has a small influence“, July 2004; ÖNORM EN ISO 717-2 “Acoustics – Rating of sound insulations in buildings and of building elements – Part 2: Impact sound insulation“, July 1997

3.6 TEST SITE

Laboratory for Building Physics, Inffeldgasse 24, 8010 Graz

4 TEST RESULT

The testing of the test piece gave the following result

weighted standard flanking sound level $L_{n,f,w} = 39$ dB

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5 VALIDITY OF THE TEST REPORT

The test report applies exclusively to the tested object and is valid only for the conditions applied to perform the test.

As the testing requirements and the assessment criteria are subject to amendments to reflect changes of the state of the art, it is necessary to verify after the expiry of a period of 3 years following the certificate issuing date whether the test and assessment criteria at the time of the performance of the test are still in conformity with the test and assessment criteria applicable at the time of verification.

Any reproductions of this test report must comprise the entirety of the document. No abridged version or extracts from this test report shall be issued without the prior written approval of the Laboratory for Constructional Physics at the Institute for Building Construction and Industrial Construction of the Technical University of Graz.



E. M. Reiterer
Authorized signatory



Dipl.- Ing. Heinz Ferk
Laboratory manager

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 8160 Preding bei Weiz

Annex 3

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Test condition 1 built-in

Test date: 03.02.2005

Table: Standard flanking impact sound level $L_{n,f}$

Frequency [Hz]	Test condition 1	Ref. curve	Shift. ref. curv.
50	54,7		
63	54,9		
80	48,1		
100	48,4	62	41
125	45,7	62	41
160	47,1	62	41
200	44,5	62	41
250	36,1	62	41
315	36,6	62	41
400	39,0	61	40
500	38,1	60	39
630	34,7	59	38
800	33,0	58	37
1000	33,3	57	36
1250	32,5	54	33
1600	30,3	51	30
2000	27,3	48	27
2500	28,8	45	24
3150	24,8	42	21
4000	16,3		
5000	7,6		

Test result:

weighted standard flanking impact sound level:

$$L_{n,f,w}(C_1) = 39 \text{ [dB]}$$

Diagram:
 Standard flanking impact sound level $L_{n,f}$ [dB]
 Reference curve acc. to ÖNORM EN ISO 717-2

