SUBJECT

Instructions were given for the measurement of the protection against airborne noise of a wall construction made of wood concrete blocks, with the designation **"DMi 17/12 new"** and a 49.8 cm x 17.0 cm x 25.0 cm format, dressed on both sides.

On 19 April 2006, a wall of around 10.7 m^2 was assembled between two echo chambers in the wall test facility of the test laboratory – test facility as per ÖNORM (Austrian Standard) EN ISO 140-1 "Acoustics – Measurement of sound insulation in buildings and of building elements – Part 1: Requirements for laboratory test facilities with suppressed flanking transmission", 1998 issue – and on 25 April 2006 it was dressed on both sides.

The blocks had a mass of around 8.2 kg on delivery (limits for 5 blocks around 7.8 kg and around 8.5 kg) and around 7.3 kg after drying (limits for 5 blocks around 6.9 kg and around 7.5 kg).

The erection of the wall construction (from outside to inside, descriptions and data partly according to the client) was given as follows:

around 1.7 cm	Lime-plastered "Rigips Rimano 6-30", around 900 kg/m^3
around 17 cm	Masonry made of **"DMi 17/12 new"** wood concrete blocks in 49.8 cm x 17.0 cm x 25.0 cm format as per *Annexes 1* and *2*, in tongue and groove, filled with ready-mixed concrete, around 2,190 kg/m^3
around 1.5 cm	Lime-plastered "Rigips Rimano 6-30", around 900 kg/m^3
around 20.2 cm	(measured) total thickness, around 310 kg/m^2 area-related mass (with the moisture content given during measurement)

TEST PROCEDURE

The protection against airborne noise was measured on 5 May 2006 as per ÖNORM (Austrian Standard) EN ISO 140-3 "Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurement of airborne sound insulation of building elements", 2005 issue, with measuring equipment of the "Norsonic dual channel real time analyser type 830" kind. The noise stimulus was achieved with stationary broadband noise.

The measurement of the noise level, both on the transmission and reception side, was carried out with a ½" condenser microphone ("Brüel & Kjaer condenser microphone type 4165", "Brüel & Kjaer preamplifier type 2639" and "Brüel & Kjaer microphone power supply type 2804"). Before measurement, the measuring chain was calibrated with a test sound source calibrator of the "Norsonic type 1251" kind; after the measurement there was a control of the calibration.

Spatial averaging of the noise level was carried out through averaging over 6 microphone positions, the averaging time was 32 secs. For measurement of the reverberation time the stimulation time was determined as 5 secs. The averaging of the reverberation time was carried out via 6 readings per microphone position and all 6 microphone positions. All measurements were made with one third octave filters.

RESULTS

The sound insulation index values against frequency for the wall construction type tested, which are shown in *Annex 3*, came out as an average from several measurement series (various loudspeakers and microphone positions). In *Annex 3*, the reference curve is also plotted according to ÖNORM (Austrian Standard) EN ISO 717-1 "Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation", 2006 issue.

The assessed value for the sound insulation index established according to the above-mentioned standard along with the values of the spectrum adjustment values C and C_{tr} are given in *Table 1* below and in *Annex 3*[1].

Table 1

Subject	assessed sound insulation index **R_w (C;C_{tr})** (in dB)
solid wall with a thickness of around 17 cm made of wood concrete blocks with the designation **"DMi 17/12 new"**, 49.8 cm x 17.0 cm x 25.0 cm format, dressed on both sides	**56(-2;-6)**

[1] For determination of the assessed sound insulation index R_w in the wall test facility of the test laboratory, it can be assumed with 95% certainty that the difference between two individual values determined under repeatability conditions will come out as at most 2 dB for R_w and as 1 dB or 2 dB for the spectrum adjustment values C and C_{tr}.