

Determination of airborne sound insulation factor

(designation of the test)

Test performed in accordance with:	<i>LST EN ISO 10140-2:2010 Acoustics. Laboratory measurement of sound insulation of building elements. Part 2: Measurement of airborne sound insulation (ISO 10140-2:2010); LST EN ISO 10140-1:2010 Part 1: Application rules for specific products (ISO 10140-1:2010); LST EN ISO 10140-4:2010 Part 4: Measurement procedures and requirements (ISO 10140-4:2010); LST EN ISO 10140-5:2010 Part 5: Requirements for test facilities and equipment (ISO 10140-5:2010).</i>
(number of normative document or description of a test method, test procedures, test error)	

Product: Pressed straw block. Dimensions: width 890 mm, height 2,050 mm, thickness 490 mm.
System: straw pressed in a wooden frame plastered on one side with a 30 mm layer of clay; on the other side, covered with 60 mm STEICO protect (inthermo) wood-fibre wool.
(name, mark of the normative document or description, means of identification)

Client: "ECOCOCON" Ltd, Dievogalos Village, Dievogalos str.
69, Kaunas Dist.
(name and address)

Producer: "ECOCOCON" Ltd, Dievogalos Village, Dievogalos str.
69, Kaunas Dist.
(name and address)

Test results:

Indicator and Dimension	Test Method Mark	Test Results
R_w (C ; C_{tr} ; $C_{100-5000}$; $C_{tr,100-5000}$), dB Airborne sound insulation factor	LST EN ISO 717-1:1999	54 (-1;-3; 0;-3;) dB

Place of the test: Laboratory of Building Thermal Physics, IAC KUT

(name of the test laboratory)

Specimens delivered: 11-12-2012 Date of testing: 14-12-2012

Specimens selected: by the client. Sampling report No. 105/12, 11-12-2012

Other information: Application 11-12-2012, drawings

(any deviations, additional tests, exceptions and any information related to the test)

Annexes: 1 – Measurement results, 2 – Schematic view of measurement chambers, 3 – Specimen cross-section

(names and numbers of annexes specified)

Technical Manager:

J. Ramanauskas

(approves the test results)

(signature)

(name, surname)

Bandymą atliko:

V. Dikavičius

(technically responsible
for the test)

(signature)

(name, surname)

Installation and measurement

The specimen was placed by the staff of the Laboratory of Building Thermal Physics in an opening (2100×910 mm) of the wall separating two resonant chambers. The drawing of specimen installation is given in Annex 2. Airborne sound insulation factor has been determined by means of precision integrated noise meter analyser, positioned microphone and multi-directional speaker.

Methods and equipment

Airborne sound insulation factor R has been determined by means of measurements in accordance with LST EN ISO 10140-1:2010 [1], LST EN ISO 10140-2:2010 [2], LST EN ISO 10140-4:2010 [3], LST EN ISO 10140-5:2010 [4]. The value of an airborne sound insulation factor R_w has been determined in accordance with LST EN ISO 717-1:1999 [5].

The thickness of brick walls of adjacent resonant chambers is 0.25 m. The thickness of brick shell enveloping both chambers is 0.38 m. Floor dimensions of outgoing sound chamber: 4.9×4.8 m, height – 3.5÷3.0 m (slanting stepped ceiling). Floor dimensions of incoming sound chamber: 4.8×4.3 m, height – 3.5÷3.0 m (slanting stepped ceiling). Chamber volumes, respectively, are 80 and 68.56 m³.

Measurement equipment:

Noise meter analyser L&D (Larson & Davis) 2800B No. 0527; diffuse microphone L&D 2560 No. 2572; preamplifier PRM900C No. 3782; diffuse microphone L&D 2560 No. 2546; preamplifier PRM900C No. 3777, calibration certificate VMC No. 794567 AV 3.3-00-807, 07-03-2011; acoustic calibrator L&D CAL200 No. 0712, calibration certificate VMC No. 794566 AV 3.3-00-806, 07-03-2011;

Multi-directional speaker	custom-made
Power amplifier	custom-made
Microphone positioning system	custom-made
Relative humidity and temperature meter	Testo 615, No. 3070000244Gb
Static pressure gauge	Barometras Aneroider Nr. 1685

- References** [1] *LST EN ISO 10140-1:2010 Acoustics. Laboratory measurement of sound insulation of building elements. Part 1. Application rules for specific products*
[2] *LST EN ISO 10140-2:2010 Acoustics. Laboratory measurement of sound insulation of building elements. Part 2. Measurement of airborne sound insulation*
[3] *LST EN ISO 10140-4:2010 Acoustics. Laboratory measurement of sound insulation of building elements. Part 4. Measurement procedures and requirements*
[4] *LST EN ISO 10140-5:2010 Acoustics. Laboratory measurement of sound insulation of building elements. Part 5. Requirements for test facilities and equipment*
[5] *LST EN ISO 717-1:1999 Acoustics – Rating of sound insulation in buildings and of building elements. Part 1. Airborne sound insulation.*

Distribution Client Original
Laboratory of Building Thermal Physics, IAC KUT Original

Contact person: Vidmantas Dikavičius, tel. +370 37 350799

Sound insulation factor, R , in accordance with ISO 10140-2

(test name)

Test carried out in accordance with:

LST EN ISO 10140-1:2010, LST EN ISO 10140-2:2010, LST EN ISO 10140-4:2010, LST EN ISO 10140-5:2010

(number of normative document or description of a test method, test procedures, test error)

Gamintojas:

"ECOCOCON" Ltd, Dievogalos Village, Dievogalos str. 69, Kaunas Dist.

(name and address)

Užsakovas:

"ECOCOCON" Ltd, Dievogalos Village, Dievogalos str. 69, Kaunas Dist.

(name and address)

Product:

Pressed straw block

(name, mark of the normative document or description, means of identification)

Specimen installed: by the laboratory employee

Description of test device, specimen and test procedure in accordance with LST EN ISO 10140-2:2002:

Test facilities:	horizontal	Relative air humidity:	56.0%
Specimen surface area, S :	1.91 m ²	Static pressure:	0.102 MPa
Air temperature:	18.0°C	Volume of the incoming sound chamber:	68.56 m ³
Date of testing:	25-10-2012		

Name of the institute: Laboratory of Building Thermal Physics, IAC KUT

Measurement in accordance with LST EN ISO 717-1:1999

$R'_w(C; C_{tr}) = 54 (-1;-3)$ dB; $C_{50-3150} =$ dB; $C_{tr,50-5000} =$ dB; $C_{100-5000} = 0$ dB; $C_{tr,100-5000} = -3$ dB;

Test performed by:

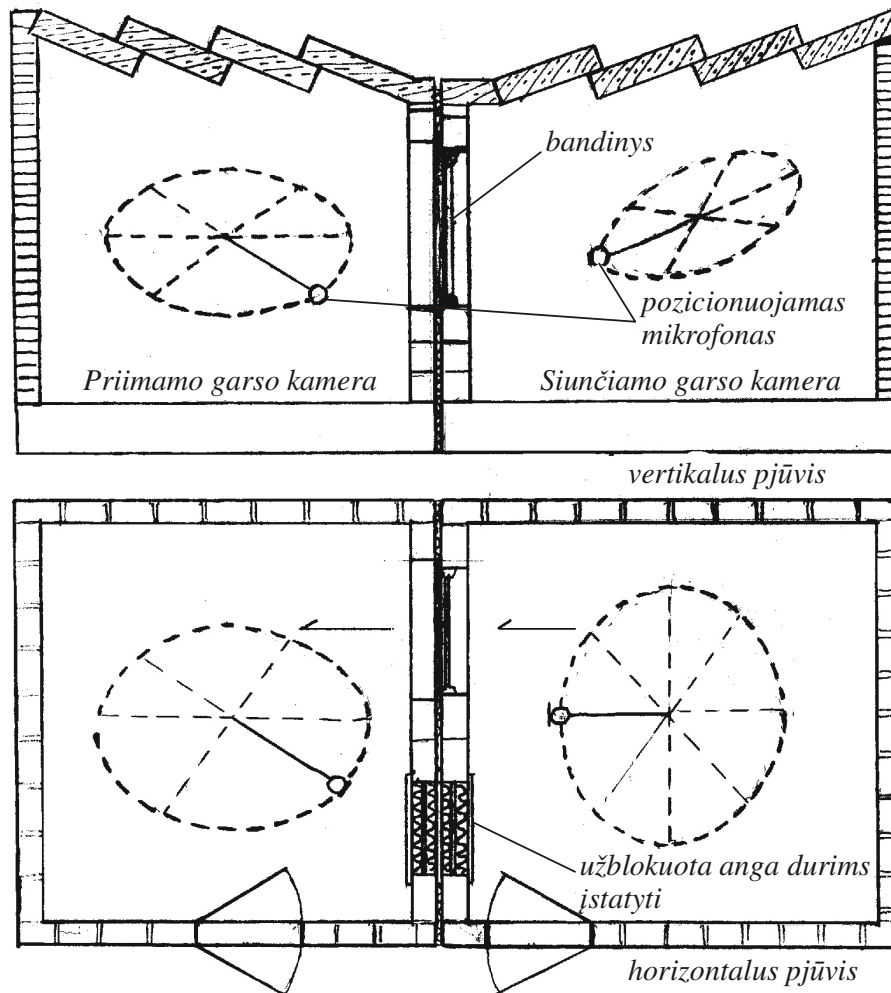
(technically responsible
for the test)

V.Dikavičius

(name, surname)

(signature)

RESONANT CHAMBERS



Priimamo garso kamera	Incoming sound chamber
Bandinys	Specimen
Pozicionuojamas mikrofonas	Positioned microphone
Siunčiamo garso kamera	Outgoing sound chamber
Vertikalus pjūvis	Vertical cross-section
Užblokuota anga durims įstatyti	Blocked door opening
Horizontalus pjūvis	Horizontal cross-section

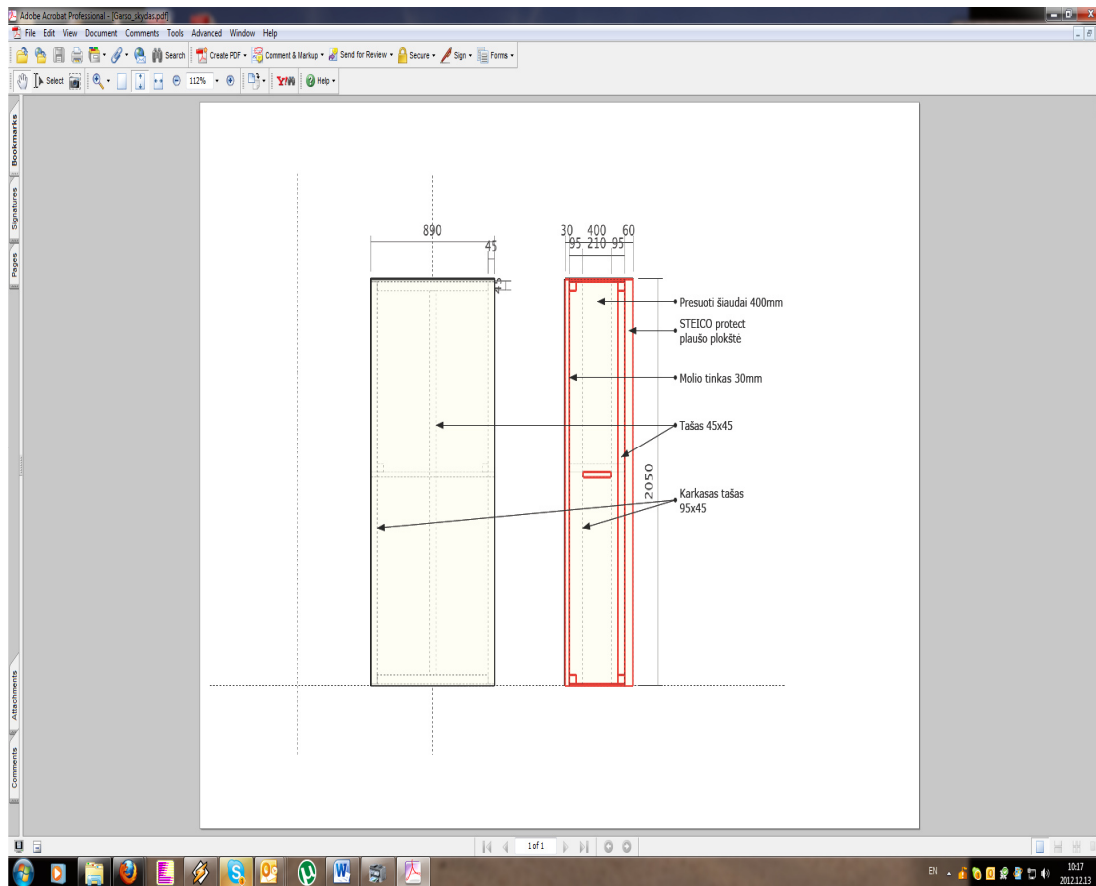


Figure 1. Wall cross-section

Presuoti šiaudai	Pressed straw
STEICO protect plaušo plokštė	STEICO protect fibreboard
Molio tinkas 300 mm	Clay plaster 300 mm
Tašas 45×45	Girder 45×45
Karkasas tašas 95×45	Frame girder 95×45