Laboratory for Acoustics

Determination of the sound insulation of a louvre type 'L.170ACL - 447/225' with Rockwool on both sides, manufacturer Renson

Report number A 4830-9E-RA-001 d.d. 09 February 2026

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Principal:	Renson Ventilation nv Maalbeekstraat (Industriezone 2 Vijverdam) 10 B-8790 WAREGEM
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1 Introduction

At the request of Renson Ventilation nv based in Waregem (Belgium) sound insulation measurements have been carried out on three:

a louvre type 'L.170ACL - 447/225'
with Rockwool on both sides,
manufacturer Renson

The measurements were performed in the Laboratory for Acoustics of Peutz bv, situated at Lindenlaan 41, 6584 AC in Molenhoek (the Netherlands). See Appendix 2 for a plan of the laboratory.

2 Standards and guidelines

The measurements have been carried out according to the Quality Manual of the Laboratory for Acoustics as well as:

EN-ISO 10140-1:2021	Acoustics – Laboratory measurements of sound insulation of building elements – Part 1: Application rules for specific products
EN-ISO 10140-2:2021[1]	Acoustics – Laboratory measurements of sound insulation of building elements – Part 2: Measurement of airborne sound insulation
EN-ISO 10140-4:2021	Acoustics – Laboratory measurements of sound insulation of building elements – Part 4: Measurement procedures and requirements
EN-ISO 10140-5:2021	Acoustics – Laboratory measurements of sound insulation of building elements – Part 5: Requirements for test facilities and equipment
EN-ISO 12999-1:2020	Acoustics – Determination and application of measurement uncertainties in building acoustics – Part 1: Sound insulation
EN-ISO 717-1:2020[1]	Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation

[1] For these type of measurements the Laboratory for Acoustics has been accredited by the Dutch Accreditation Council (RvA).

The RvA is member of the EA MLA (**EA MLA**: **E**uropean **A**ccreditation Organization **M**ulti **L**ateral **A**greement: http://www.european-accreditation.org).

EA: "Certificates and reports issued by bodies accredited by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries."

3 Tested louvre

The values mentioned are the nominal values as given by the client, unless otherwise stated (MV, measured value).

The following louvre was tested (for drawings see appendix 4)

Type:	**L.170ACL - 447/225 with Rockwool on both sides**
Manufacturer:	Renson
Dimensions (width x height x depth):	774 x 1030 x 218,5 mm
Distance between blades:	170 mm
Minimum opening between blades:	66 mm
Length blades:	774 mm
depth blades:	218,5 mm
Number of blades:	5
Free area:	26%

Peutz was not involved in the selection of the test specimen (or of its materials). The laboratory cannot make any declaration about the representativeness of the provided specimen and the samples made available. The results as presented here relate only to the tested items and laboratory conditions as described in this report. The test report ahead is valid as long as the tested constructions and/or materials are unchanged.

4 Measurements

4.1 Results

The result of the measurement is summarized in table t 4.1. The frequency dependent result is given in the figure of appendix 3. In the graph the values of the insulation found are presented in 1/3 octave bands. From those values the following single-number quantities have been calculated and stated:

- the "weighted sound reduction index R_w" and the spectrum adaptation terms C and C_{tr} according to EN-ISO 717-1:2020.

t 4.1 Measurement results sound insulation ((indicated measurement uncertainty is under reproducibility conditions)

Variant nr.	setup	**R_w (C;C_{tr}) [dB]**	R_w ± U (k=2) [dB]	Record nr.	Appendix
1	**L.170ACL - 447/225 with Rockwool on both sides**	**15(-1;-3)**	15,6 ± 2,4	#130	3.1

The results as presented here are based on a testing area of 0,80 m². In situations where different dimensions and/or method of mounting differ from the ones tested, different results may be found.

4.2 Measurements set-up and method

The test were conducted in accordance with the provisions of the test method EN-ISO 10140-2:2021 in the Laboratory for Acoustics of Peutz bv in Molenhoek (The Netherlands). A detailed description of the test set up has been given in appendix 2 of this report.

The test specimen have been placed into test opening C with dimensions 1500 x 1250 mm. The remaining test opening has been carefully sealed with a filler wall, consisting of a separated style-framing with double gypsum board (2 x 12,5 mm thickness) applied on both sides. The dilatation between the two measuring rooms is positioned within the cavity of this wall. The cavity between the gypsum boards has been filled entirely with mineral wool. The total thickness of the wall was ca. 230 mm during the measurements. The sound insulation of this auxiliary structure is at least 10 dB higher than the sound insulation of the vent tested.

In one of the rooms (the so-called sending room) loudspeakers generate broadband noise. In this sending room as well as in the adjacent room (the "receiving room") the resulting sound pressure level is measured by means of a continuous rotating boom, so the (time- and space-) averaged sound pressure level is determined.

The reverberation time of the receiving room is also measured.

The instruments and the method used meet the requirements of EN-ISO 10140-5:2021.

As allowed by the test method the test procedure is repeated reversing the sending and receiving rooms. The reported value of each sound insulation is the arithmetic average of the two results.

In EN-ISO 10140-2:2021 the airborne sound insulation of an object is defined as the "sound reduction index R" to be evaluated according to formula 4.1 and expressed in dB:

$$R = L_1 - L_2 + 10 \lg\left(\frac{S}{A}\right) \tag{4.1}$$

in which:

L_1	sound pressure level in the sending room	[dB]
L_2	sound pressure level in the receiving room	[dB]
S	area of the object to be tested	[m²]
A	equivalent sound absorption [m²] in the receiving room according to:	

$$A = \frac{0{,}16\, V}{T} \tag{4.2}$$

in which:

V	volume of the receiving room	[m³]
T	reverberation time in the receiving room	[s]

4.3 Accuracy

The accuracy of the airborne sound insulation as calculated can be expressed in terms of repeatability (tests within one laboratory) and reproducibility (between various laboratories).

4.3.1 Repeatability

The repeatability describes when: - two tests are performed on identical test material - within a short period of time - by the same person or team - using the same instrumentation - under unchanged environmental conditions - the difference between the two test results.

As stated in the EN-ISO 12999-1:2020 standard, the repeatability with regard to the single number value R_w is ± 0,8 dB. See appendix 1 of this report for a further explanation.

4.3.2 Reproducibility

The reproducibility describes when: - two tests are performed on identical test material - in different laboratories - by different person(s) - under different environmental conditions - the difference between the two test results.

As stated in the EN-ISO 12999-1:2020 standard, the reproducibility with regard to the single number value R_w is ± 2,4 dB. See appendix 1 of this report for a further explanation.

4.4 Environmental conditions during the measurements

t 4.2 Environmental conditions during the measurements at November 13th, 2025.

temperature [°C]	relative humidity [%]
17	70

Molenhoek,

R.T. Allan
Laboratory Supervisor

S.M.C.M. Dirkx
Manager

This report contains 9 pages and 4 appendices.

appendix 1	Standard uncertainty	(1 page)
appendix 2	Plans and Sections	(2 pages)
appendix 3	Measurement result	(1 page)
appendix 4	Construction drawings	(1 page)

Appendix 1
Standard uncertainty

In table I.1 the general standard uncertainties for the single number quantities are given as mentioned in the standard EN-ISO 12999-1:2020, Chapter 7. These values are derived from inter-laboratory tests on different type of test specimens, including walls, glazing and windows.

Single Number	repeatability **Standard Uncertainty σ_r[dB]**	reproducibility **Standard Uncertainty σ_R[dB]**
R_w	0,4	1,2
$R_w + C_{100-3150}$	0,5	1,3
$R_w + C_{100-5000}$	0,5	1,3
$R_w + C_{50-3150}$	0,7	1,3
$R_w + C_{50-5000}$	0,7	1,3
$R_w + C_{tr,100-3150}$	0,7	1,5
$R_w + C_{tr,100-5000}$	0,7	1,5
$R_w + C_{tr,50-3150}$	1,0	1,5
$R_w + C_{tr,50-5000}$	1,0	1,5

For measurements obtained in accordance with the ISO 10140 series, the expanded uncertainty U shall be calculated by:

$$U = ku \tag{1.1}$$

in which:

u the standard uncertainty see table I.1

k the coverage factor

A measurement result shall be read as follows:

I.1 Standard Uncertainties (partly taken from table 3 of the EN ISO 12999-1)

$$Y = y \pm U \tag{1.2}$$

in which:

Y the measurand, y the best estimate found by the measurment; and

U the expanded uncertainty calculated for a given confidence level. For a normal distribution of measured values, there is a 95% confidence that the true value lies within the range $(y - U)$ to $(y + U)$. This corresponds to a coverage factor of k=2.

EXAMPLE

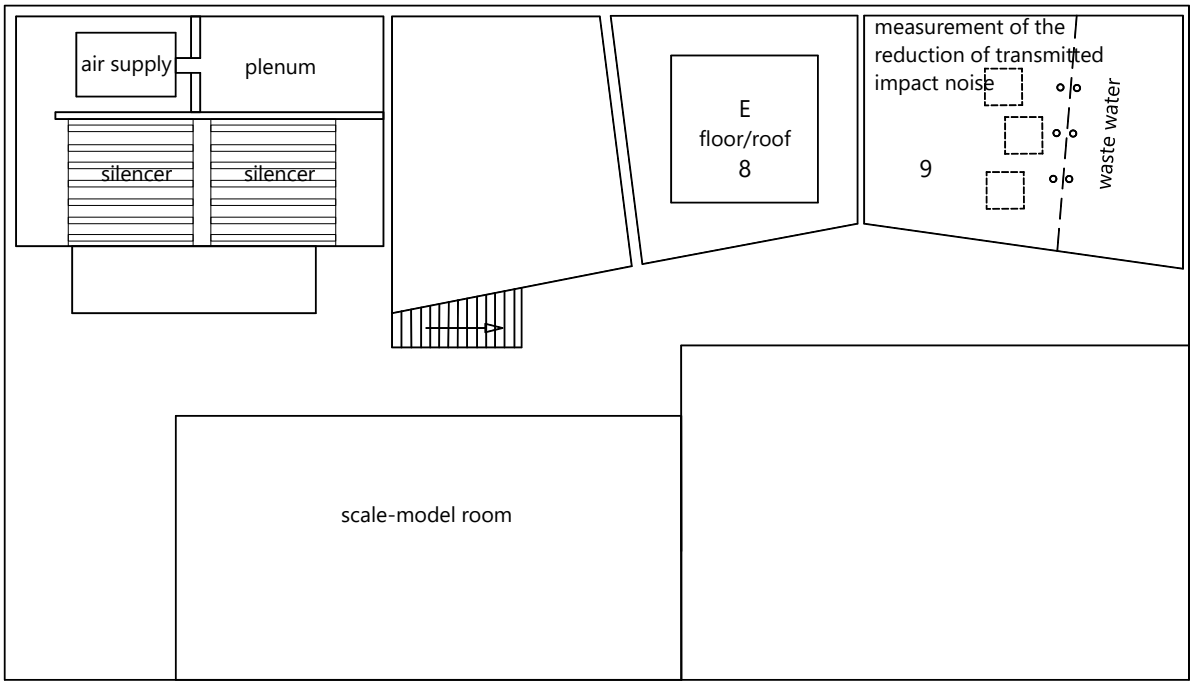
The airborne sound insulation will be designated as: R_w= 28,3 ± 2,4 dB (k=2, two sided).

LABORATORY FOR ACOUSTICS

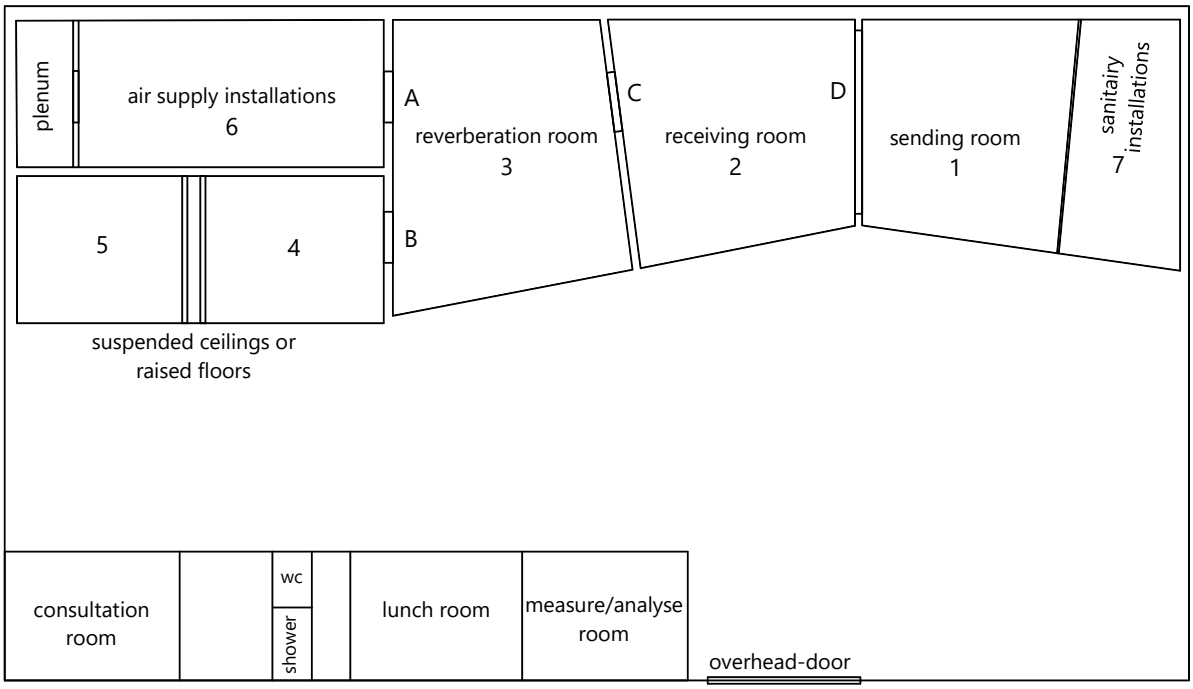
Peutz bv
Lindenlaan 41, NL-6584 AC MOLENHOEK (LB), THE NETHERLANDS

OVERVIEW

Story



Ground level



TEST OPENINGS (w x h):
A: 1300 x 1905 mm
B: 1100 x 2450 mm
C: 1500 x 1250 mm
D: 4300 x 2800 mm
E: 4000 x 4000 mm

0 1 2 3 4 5 m
scale

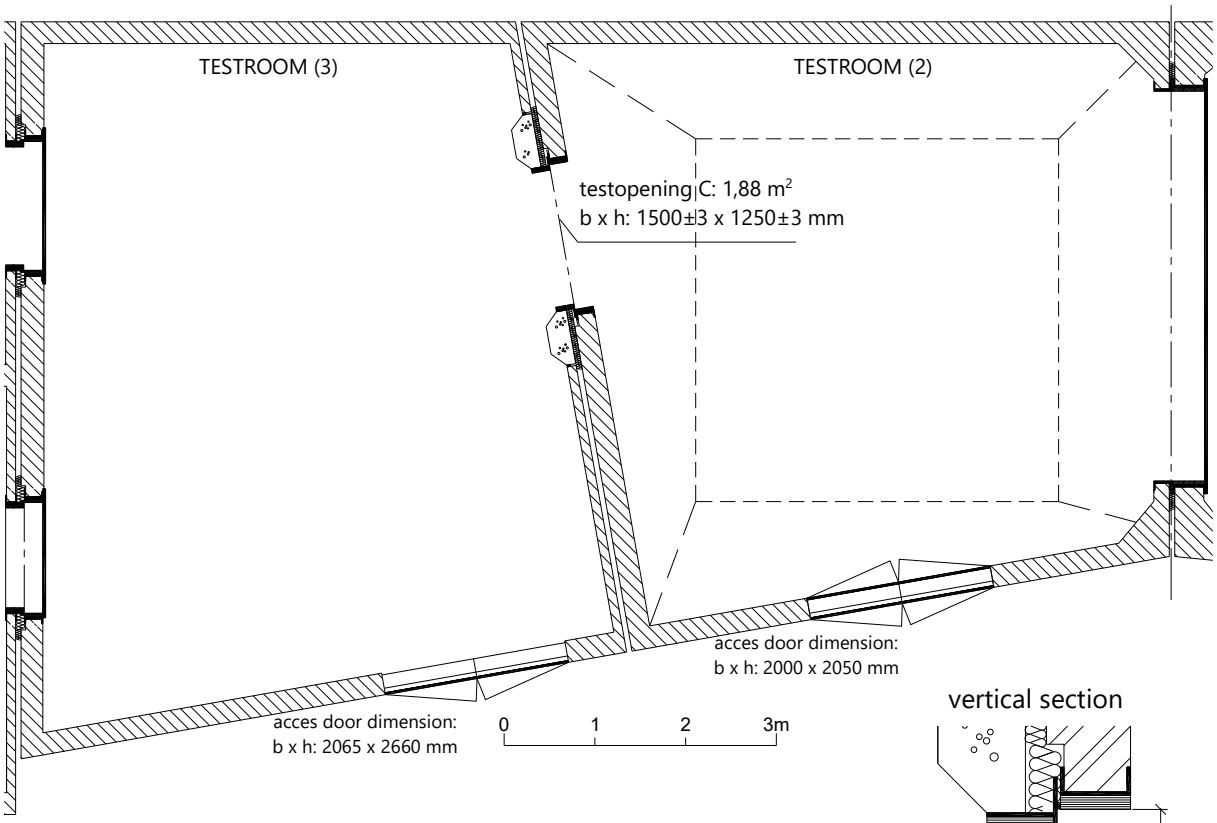
Peutz bv
Lindenlaan 41, NL-6584 AC MOLENHOEK (LB), THE NETHERLANDS

SOUND INSULATION TEST FACILITIES: OPENING C

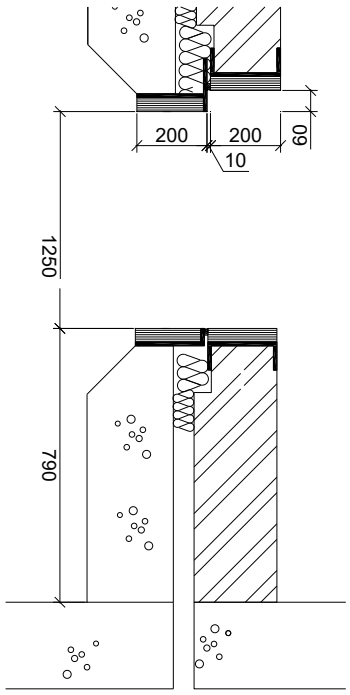
The testrooms meet the requirements of ISO 10140-5. Additional data:

- volume of room 2: 115 m^3
- volume of room 3: 214 m^3
- area of the test opening: 1,88 m^2

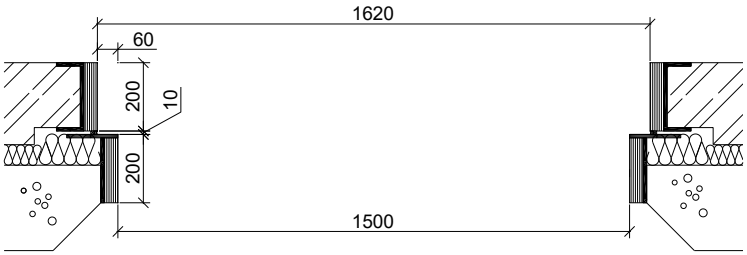
Both rooms are isolated for vibrations by using a so called room-in-room construction. Flanking transmission is thus minimized.



vertical section



horizontal section



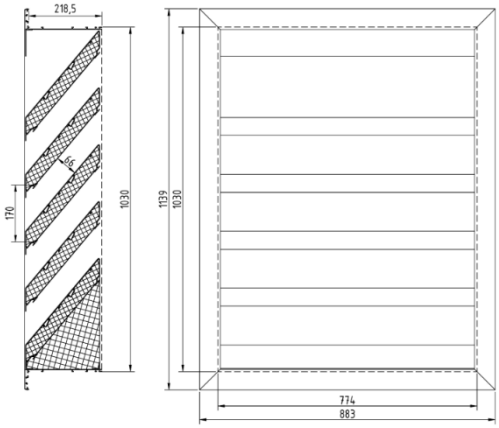
LABORATORY FOR ACOUSTICS

MEASUREMENT OF THE SOUND INSULATION ACCORDING TO EN-ISO 10140-2:2021

principal: Renson Ventilation NV

TESTING RvA L 334

Variant 1: L.170ACL - 447/225 with Rockwool on both sides



volume measuring room
213 m³

volume measuring room
115 m³

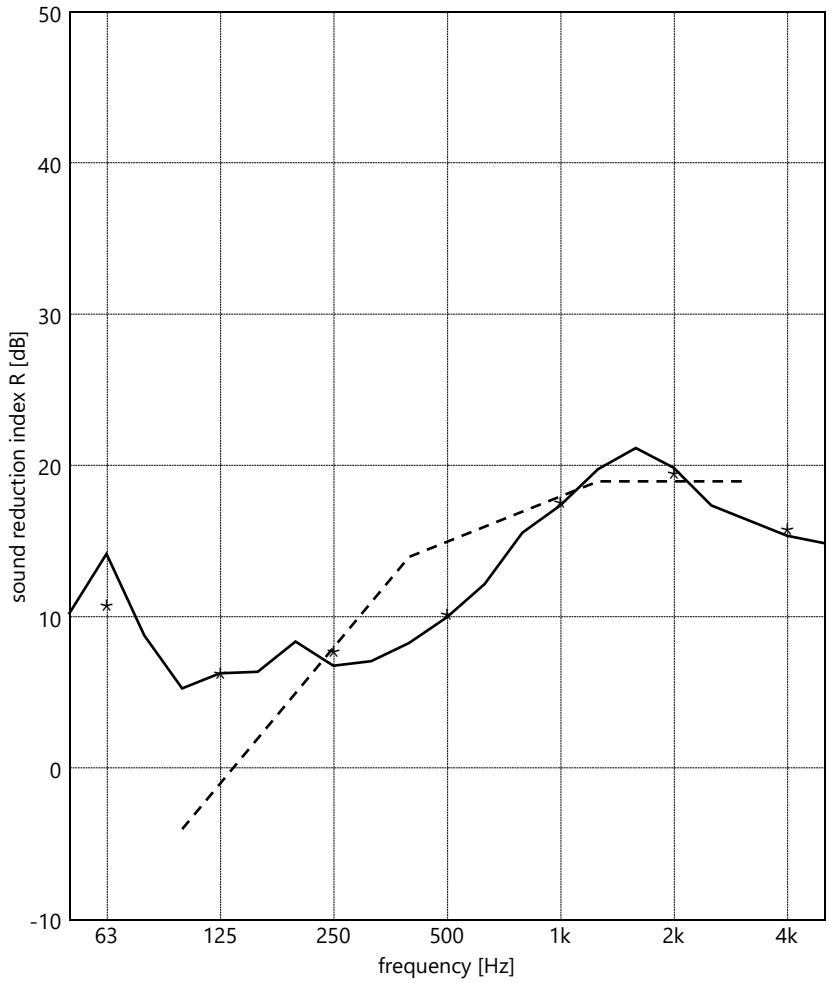
surface area tested partition
0,8 m²

measured at
Peutz Laboratory for Acoustics

signal
broad-band noise

bandwidth
1/3 octave

ISO 717-1:2020
$R_w(C;C_{tr})$ = 15(-1;-3) dB
$C_{100-5000};C_{tr,100-5000}$ = (0;-3) dB
$C_{50-3150};C_{tr,50-3150}$ = (-1;-3) dB
$C_{50-5000};C_{tr,50-5000}$ = (0;-3) dB



	10,2	5,3	8,4	8,3	15,6	21,2	16,4	
1/3 oct.	14,2	6,3	6,8	10,0	17,4	19,9	15,4	dB
	8,8	6,4	7,1	12,2	19,8	17,4	14,9	
1/1 oct.	**10,5**	**6,0**	**7,4**	**9,9**	**17,3**	**19,2**	**15,5**	**dB**

——— 1/3 oct.
* 1/1 oct.
- - - - - ref. curve (ISO 717)

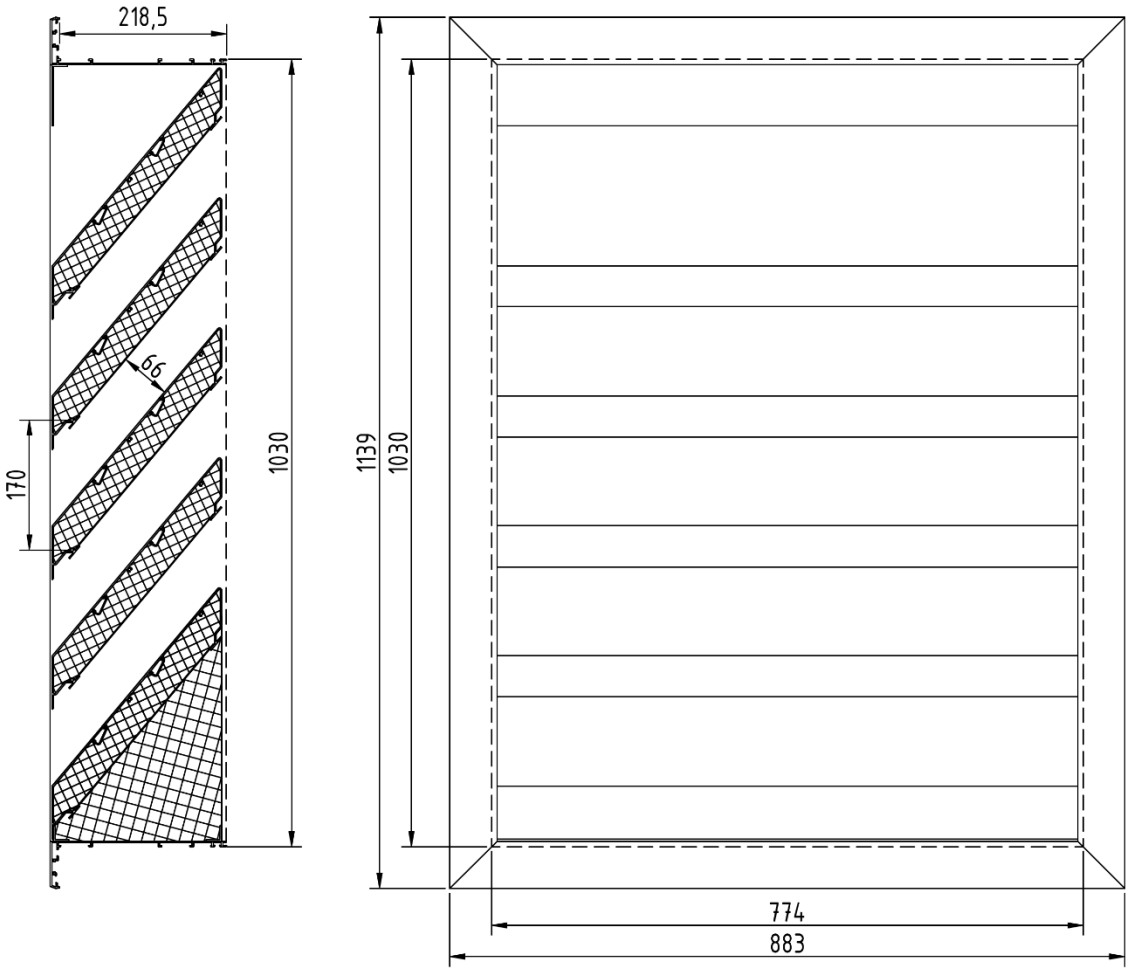
publication is permitted for the entire page only

RA

Molenhoek, measured at 13-11-2025

Insulat v3.23.0 mode 1. file: a4830 S#:128-129 ##:130

A 4830-9E-RA-001 /E816CAB3/ REMKO



Let op: Omwille van productietechnische redenen, kunnen er details van de uitvoering met de tekening afwijken !
Attention: because of production technical reasons, some executional details might differ from the drawing!
Attention: pour des raisons de techniques de production, il est possible que certains détails de l'exécution diffèrent du dessin !
Achtung: aus produktionstechnischen Gründen, können bestimmte Details der Ausführung von der Zeichnung abweicheni

RENSON® Creating healthy spaces www.renson.eu - 8790 Waregem (Belgium) This drawing is owned by RENSON and may not be copied or shown to third parties without written permission.	Description : 447/225 - L.170 ACL		Sheet : 1
			Scale : 1/6
	Use. : 449	Project. nr.: /Productie/2025/R&D	Drawn : J.D.
	Part, nr. : 449	State : Work in Progress / Creation date : 14/05/2025	Size : A3
		Doc. nr.: DT3_R&D_2	units in mm