Test Report

Report no.:
230465

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CPR 1235

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Client: DOLLE A/S
Vestergade 47
DK-7741 Frøstrup

Init: NTH / MMH
Order no. 230465

Object: Energy calculation of an Insulated loft ladder, SW40-5

Input data: The calculations have been based on input data from the description sent by the customer from 2023-12-07

Period: The tesing was carried out from 2023-12-11 to 2023-12-12.

Method:

EN 10077-2:2017	Thermal Performance of windows, doors and
EN 14351-1:2006 +A2:2016	Windows and doors - Product standard performance characteristics
Guideline WA-08engl/3 - Part 1	Thermally improved spacers. Determination of representative Ψ-values for profile sections of windows

Results: U-value: 1.16 W/m2K (A = 0.64 m2)

Terms: This test was conducted accredited in accordance with international requirements (ISO/IEC 17025:2017) and in accordance with the General Terms and Conditions of Danish Technological Institute. The test results solely apply to the tested item. This test report may be quoted in extract only if Danish Technological Institute has granted its written consent.

Location: 2023-12-13, Danish Technological Institute, Building and Construction, Aarhus

Performed by:
Nisanthan Thanabalasingham
Consultant, Engineer

Co-reader:
Mads B. Hansen
Consultant, Mechanical engineer

DIGITALLY SIGNED DOCUMENT
15 December 2023
DANISH TECHNOLOGICAL INSTITUTE

Results

The determination of the Uf-value is conducted according to EN ISO 10077-2:2017.

$$U_f = \frac{U_{tot}^{panel} \, x \, \ell_{tot} - U_{panel} \, x \, \ell_p}{\ell_f}$$

Where:

U_{tot}^{panel}	=	thermal transmittance for total construction [W/(m² K)]
U_{panel}	=	thermal transmittance for panel plate [W/(m² K)]
ℓ_{tot}	=	total length of construction (m)
ℓ_f	=	length of frame/sash (m)
ℓ_p	=	length of panel plate in m (lg = 0.25 m is generally chosen)
U_f	=	thermal transmittance for frame/sash profile [W/(m² K)]

The determination of the U-value of the combined construction, which consists of the frame and insulation plate, is conducted according to EN ISO 10077-2:2017.

$$U_d = \frac{A_p \times U_p + A_f \times U_f}{A_d} W/(m^2K)$$

Where:

$\mathbf{A_p}$	=	Plate area (m²)
$\mathbf{U_p}$	=	U-value of the insulation plate [W/(m² K)]
$\mathbf{A_d}$	=	$A_p + A_f$ (m²)
$\mathbf{A_f}$	=	frame/sash area (m²)
$\mathbf{U_f}$	=	U-value of frame/sash [W/(m² K)])

For the construction SW40-5, with the following dimensions 1.175m x 0.576m (0.64m^2), this result in a U-value of:

$$\boldsymbol{U_{SW40-5} = 1.16}$$

The above-mentioned U-value is valid for the construction shown in appendix 2 only.

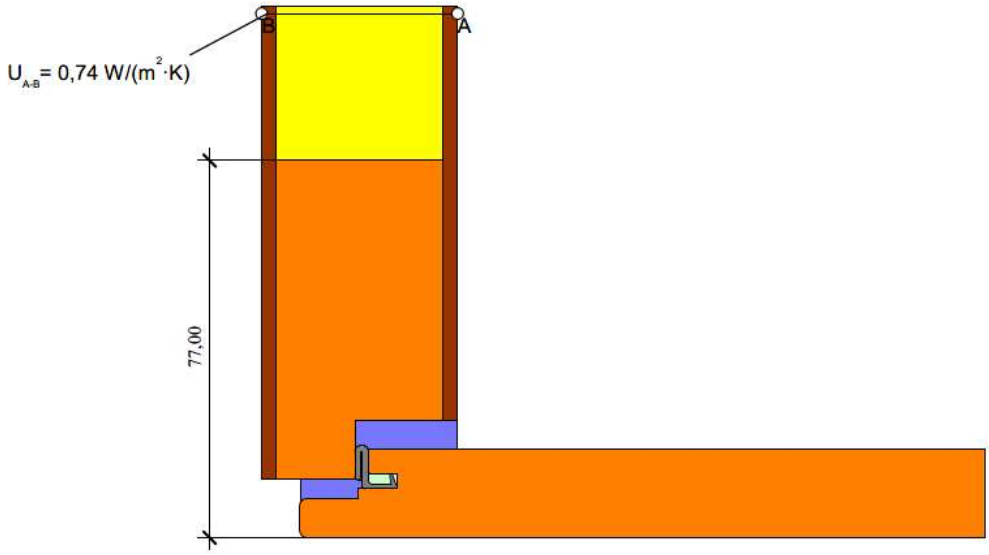
Appendix 1

Calculation of energy data for door profile	**System:** Dolle loftstrapper - SW40-5
	Profile: L29, L30, V28, V29
Manufacturer: Dolle	**Source:** Se side 2

Boundary Condition	q[W/m²]	θ[°C]	R[(m²·K)/W]
Exterior, frame		0,000	0,040
Interior, frame, normal		20,000	0,130
Interior, frame, reduced		20,000	0,200
Symmetry/Model section	0,000		

Material	λ[W/(m·K)]	ε	μ[-]
HDF	0,115	0,900	1,000
Neopor	0,030	0,900	1,000
Q-lon liste	0,060	0,900	1,000
VT-00012: Soft Wood	0,130	0,900	
VT-00001: Unventilated Cavity *	Eps=0,9/0,9		1,000
VT-00002: Slightly-ventilated Cavity *	Eps=0,9/0,9		1,000

* EN ISO 10077-2:2017, 6.4.3



Results:

U-value sash/frame: U_f = 1,89 W/m² K

Width sash/frame: b_f = 77,0 mm

Comments:

U_{plate} = 0,74 W/m² K

Temperaturerne i tværsnittet er vist ved 0°C ude og 20°C inde.

Default

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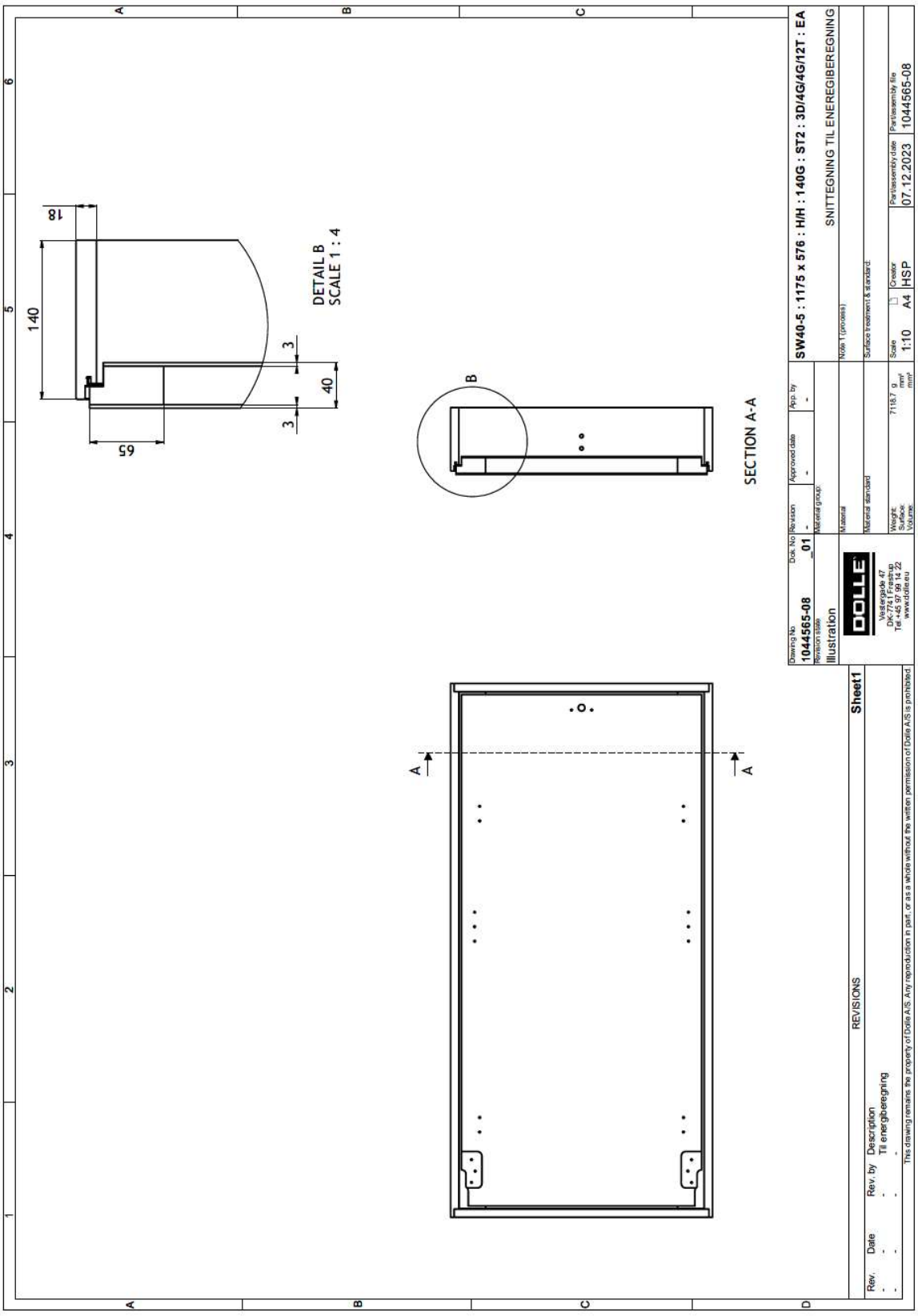
Date: 13-12-2023

Calculated by:Nisanthan Thanabalsingham

Appendix 2


DETAIL B
SCALE 1 : 4
SECTION A-A
SW40-5 : 1175 x 576 : H/H : 140G : ST2 : 3D/4G/4G/12T : EA
SNITTEGNING TIL ENEREGIBEREGNING
Drawing No.
1044565-08
Dok. No.
_01
Revision
-
Approved date
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App. by
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Material
Material standard
Surface treatment & standard
Weight:
7116.7 g
Surface:
mm²
Volume:
mm³
Scale
1:10
Sheet
A4
Creator
HSP
Part/assembly date
07.12.2023
Part/assembly file
1044565-08
Illustration
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REVISIONS
Rev.
Date
Rev. by
Description
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Sheet1