

DECLARATION OF CONFORMITY DS/EN14351-1:2006

Vitral

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outside
in

We, VITRAL A/S, Måløv Byvej 229, 2760 Måløv, Denmark, hereby declare at our own risk that the following products:

- **VITRAL Skyvision roof light Fixed, Comfort, Circular, Linear and Access**
 - 8 tough/16 Argon/4 float/0.76 PVB/4 float
 - 8 tough/14 Argon/5 float/0.76 PVB/5 float
- **VITRAL Skyvision roof light Fixed and Comfort Ecoline**
 - 6 tough/6 Krypton/4 tough/8 Krypton/4 float/0.76 PVB/4 float
- **VITRAL Skyvision roof light Walk-On**
 - 6 TVG/1.52 PVB/8 TVG/1.52 PVB/8 TVG - 16 air - 4 float/0.76 PVB/4 float
 - 8 TVG/1.52 PVB/8 TVG/1.52 PVB/8 TVG - 16 air - 5 float/0.76 PVB/ 5 float
 - 8 TVG/1.52 PVB/10 TVG/1.52 PVB/8 TVG - 16 air - 5 float/0.76 PVB/5 float

are covered of this declaration, and are in accordance with the EEC Construction Product Directive (89/106/EES, 93/68/EEC)), and that the standard and/or technical specifications below have been applied:

- **DS/EN14351-1 Windows and doors – Product standard, performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics**

Test method	Product	Test purpose	Characteristics/ Dimension	Classification	Test Institute
EN12208 EN1027 (2000)	Fixed, Comfort, Circular, Ecoline, Walk-On, Linear, Access	Water tightness	Pa	Class E1200	1
EN12207 EN1026 (2000)	Fixed, Comfort, Circular, Ecoline, Walk-On, Linear, Access	Air tightness	Max. test pressure Pa	Class 4 (+600/-600 Pa)	1
DS/EN ISO 717-1		Acoustic performance	Sound insulation dB	34 (-2; -6) dB	2
EN 10077-1 EN 10077-2	Fixed, Comfort, Circular, Linear, Access	Thermal transm. Coefficient and External surface area	$U_w(0^\circ)$ (W/m ² K) m ² $U_w(90^\circ)$ (W/m ² K) m ²	0.97 W/m ² K, 3.72 m ² 1.51 W/m ² K, 1.82 m ²	1

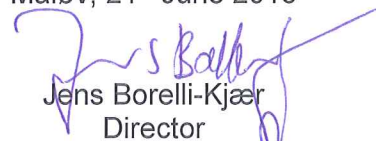
EN 10077-1 EN 10077-2	Ecoline	Thermal transm. Coefficient and External surface area	$U_w(0^\circ)$ (W/m ² K) m ² $U_w(90^\circ)$ (W/m ² K) m ²	0.65 W/m ² K, 3.72 m ² 1.22 W/m ² K, 1.82 m ²	1
EN 10077-1 EN 10077-2	Walk-On	Thermal transm. Coefficient and External surface area	$U_w(0^\circ)$ (W/m ² K) m ² $U_w(90^\circ)$ (W/m ² K) m ²	1.06 W/m ² K, 3.77 m ² 1.66 W/m ² K, 1.82 m ²	1

Test institutes:

1. Technological Institute, Kongsvang Allé 29, 8000 Århus C, Denmark.
2. DELTA, Erhvervsvej 2A, 8653 Them, Denmark

VITRAL A/S is ISO 9001:2000 audited and certified by Dansk Standard Certificering A/S,
Kollegievej 6, 29020 Charlottenlund, Denmark

Måløv, 21st June 2016


Jens Borelli-Kjær
Director

Certificate of Test

Page 1 of 11

**Title: Impact testing Vitral Skyvision
Rooflights**

Certificate of Test Number: 14225

Client's Name & Address:

VITRAL UK Ltd.
17 High Street
Whittlesford
Cambridgeshire
CB22 4LT

Our Ref: N950/V054

TC Job No: C3687

Your Ref:

Date: 16 May 2011

Date sample(s) received: 11 April 2011

Sample(s) received from: VITRAL UK Ltd


Sample No: 1

This Certificate of Test is copyright. Reproduction of the whole or any part thereof must not be made without the express permission of Technology Centre.

This Certificate and the results shown are based upon the information drawings samples and tests referred to herein

Technology Centre accepts no liability for any damages, charges, costs (including, but not limited to, legal costs) or expenses in respect of or in relation to any damage to any property or other loss (save for death or personal injury occasioned by reason of any negligence on the part of Technology Centre) whatsoever arising directly or indirectly from the use of this Certificate of Test, or the use of any goods or materials referred to in this Certificate of Test.

Tested by: 
D. Bennett (position: Technician)

Authorised by: 
S .R. Moxon (position: Manager)

Technology Centre

Stanbridge Road, Leighton Buzzard, Bedfordshire, LU7 4QH

Tel No. 01525 859000
Registered Office, Watford

Fax No. 01525 859001
Registered No. 2295904 England

TECHNOLOGY CENTRE 

1. INTRODUCTION

This certificate of test describes impact tests carried out at the request of VITRAL UK Ltd on 12 April 2011 at the Technology Centre in Leighton Buzzard.

The test was carried out in accordance with CWCT Technical Notes TN66 and TN67.

The tests were witnessed by:

Nick Samuell -	VITRAL UK Ltd
Andrew Loader-	VITRAL UK Ltd
Neville Young -	Whitesales
Steve Knight -	Whitesales

2. SAMPLE DESCRIPTION

The sample had clear internal dimensions of 0.6 m by 0.6 m.

The glass in the sample comprised:

- 8 mm toughened outer
- 16 mm Argon filled cavity with TGI "warm edge" spacer
- 8.8 mm clear laminate inner

Three samples were tested at ambient temperature.

The test samples are shown in the following photographs and in the drawings and descriptions included in the Appendix (Note: laminate glass thickness increased to 8.8 mm from 8.4 mm used in previous tests).

All samples were mounted on a rigid steel frame bolted to the floor.

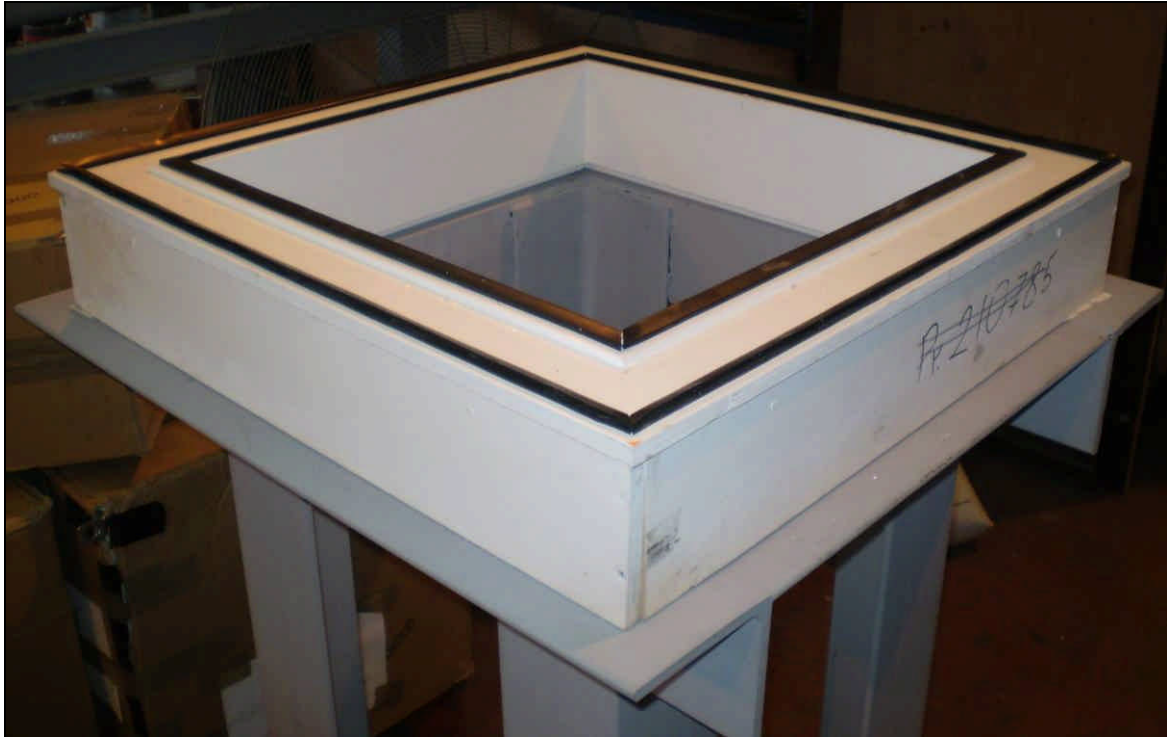
PHOTO 4120048

TEST SAMPLE



PHOTO 010001

TEST SAMPLE FRAME



3. TEST ARRANGEMENT

The test rig comprised a horizontal steel angle framework. The test samples timber frame was fixed onto the support frame and the glass and aluminium frame lifted onto the timber frame.

The soft body impactor comprised a canvas spherical/conical bag 300 mm in diameter filled with sand with a total mass of approximately 45 kg suspended from a cord with a quick release mechanism.

The hard body impactor was a solid steel ball of 100 mm diameter and approximate mass of 4.1 kg. The impactor was held prior to dropping by an electromagnet.

PHOTO SBIMPACTOR

SOFT BODY IMPACTOR



PHOTO HBIMPACTOR

HARD BODY IMPACTOR



3.1 Instrumentation

Temperatures were measured using platinum resistance thermometers (PRT).

All measuring instruments and relevant test equipment was calibrated and traceable to National Standards.

FIGURE 1

TEST RIG GENERAL ARRANGEMENT FOR SOFT BODY IMPACTOR

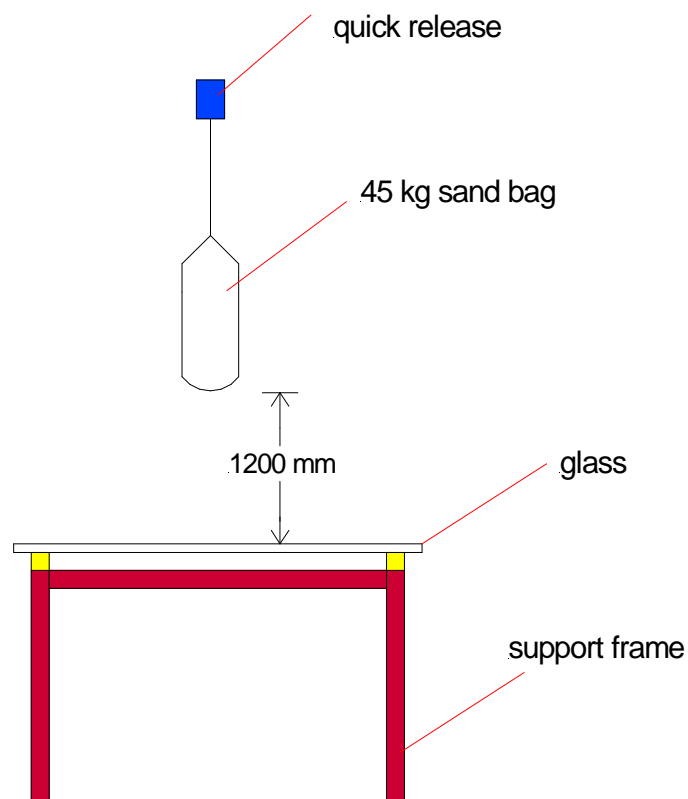
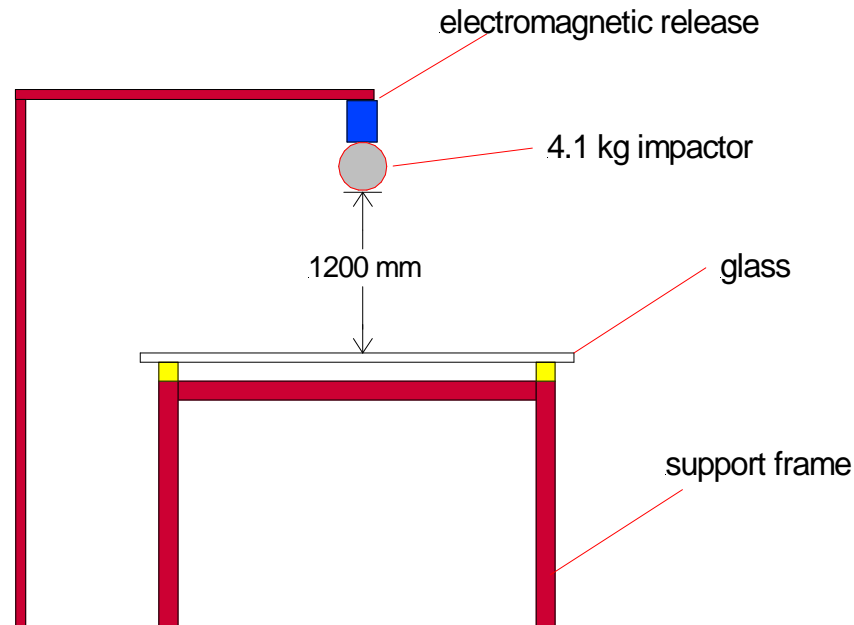


FIGURE 2

TEST RIG GENERAL ARRANGEMENT FOR HARD BODY IMPACTOR



4. TEST PROCEDURES

4.1 Preparation

The samples was tested horizontally at ambient temperature.

4.2 Soft body impact on outermost pane

The soft body was dropped from a height of 1200 mm onto the centre of the glass.

4.3 Hard body impact on outermost pane

The hard body was dropped from a height of 1200 mm onto the centre of the glass.

4.4 Soft body impact on lower pane

After breaking the outermost pane using a centre punch 13 mm in from the edge, the soft body was dropped from a height of 1200 mm onto the centre of the glass.

4.5 Hard body impact on lower pane

The hard body was dropped from a height of 1200 mm onto the centre of the glass.

4.6 Static load

After breaking all glass layers a static load, using two 45 kg sand bags, was placed on top of the glass for a period of 30 minutes.

4.7 Assess fragments

Glass fragments on the floor should be no more than 50 mm in length and a combined mass of 50 g.

4.8 The above tests were repeated until three units had been tested

5. TEST RESULTS

Test Date: 12 April 2011

5.1 Sample 1

5.1.1 Ambient temperature = 15 °C, Glass temperature = 15 °C.

5.1.2 No damage was observed during the soft body impact test on the outermost pane.

5.1.3 No damage was observed during the hard body impact test on the outermost pane.

The outermost pane was shattered using a centre punch, 13 mm in from the edge.

5.1.4 Both laminate panes cracked during the soft body impact test on the laminate pane but the impactor was retained on the glass.

5.1.5 No further damage was observed during the hard body impact test on the laminate pane.

5.1.6 The 90 kg static load was held for 30 minutes.

5.1.7 Only very small glass fragments were observed on the floor after the test. They were less than 50 mm long and 50 g in weight.

PHOTO 4120053

SAMPLE 1 WITH 90 KG STATIC LOAD



5.2 Sample 2

5.2.1 Ambient temperature = 15 °C, Glass temperature = 15 °C.

5.2.2 No damage was observed during the soft body impact test on the outermost pane.

5.2.3 No damage was observed during the hard body impact test on the outermost pane.

The outermost pane was shattered using a centre punch, 13 mm in from the edge.

5.2.4 Both laminate panes cracked during the soft body impact test on the laminate pane but the impactor was retained on the glass.

5.2.5 No further damage was observed during the hard body impact test on the laminate pane.

5.2.6 The 90 kg static load was held for 30 minutes.

5.2.7 Only very small glass fragments were observed on the floor after the test. They were less than 50 mm long and 50 g in weight.

PHOTO 4120061

SAMPLE 2 WITH 90 KG STATIC LOAD



5.3 Sample 3

5.3.1 Ambient temperature = 15 °C, Glass temperature = 16 °C.

5.3.2 No damage was observed during the soft body impact test on the outermost pane.

5.3.3 No damage was observed during the hard body impact test on the outermost pane.

The outermost pane was shattered using a centre punch, 13 mm in from the edge.

5.3.4 Both laminate panes cracked during the soft body impact test on the laminate pane but the impactor was retained on the glass.

5.3.5 No further damage was observed during the hard body impact test on the laminate pane.

5.3.6 The glass was observed to sag but the 90 kg static load was held for 30 minutes.

5.3.7 Only very small glass fragments were observed on the floor after the test. They were less than 50 mm long and 50 g in weight.

PHOTO 4120063

VIEW FROM BENEATH SAMPLE 3 WITH 90 KG STATIC LOAD

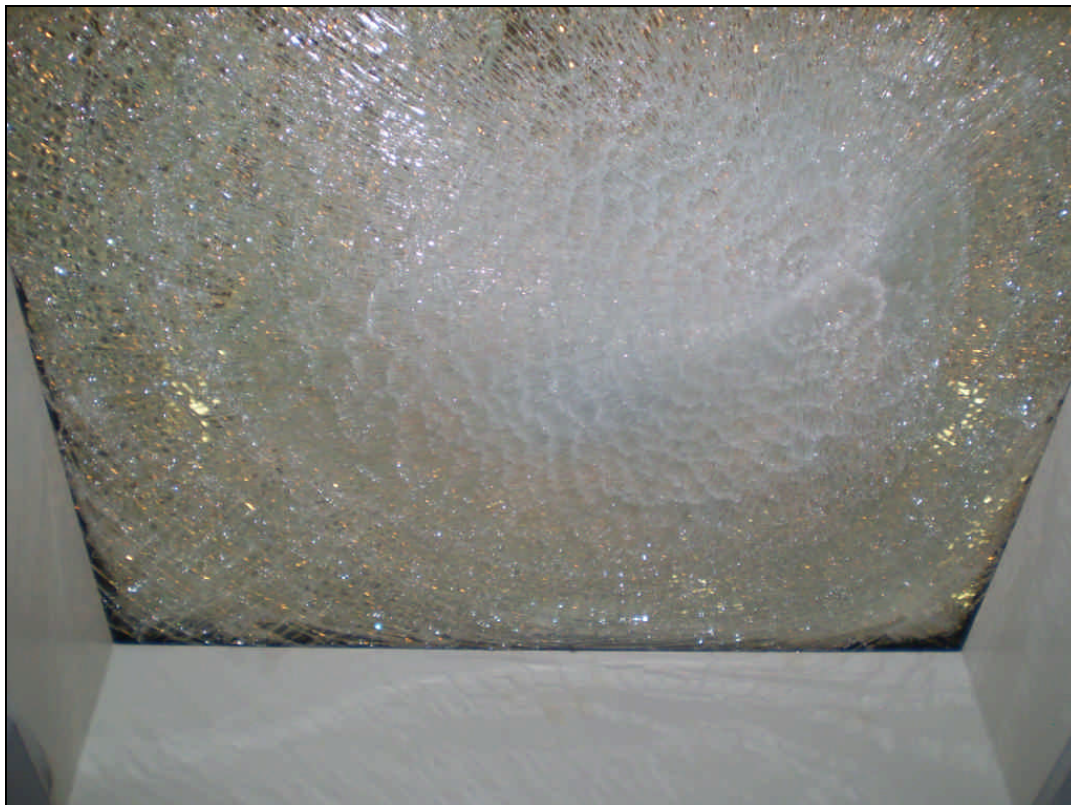


PHOTO 4120064

SAMPLE 3 WITH 90 KG STATIC LOAD



6. PERFORMANCE CRITERIA

- Class 1 – The outermost pane shall not break during impact testing.
 The lower pane can break but the impactors shall be retained.
- Class 2 – The outermost pane can break but the impactors shall be retained.
 The lower pane can break but the impactors shall be retained.
- Class 3 – The outermost pane can break but the impactors shall be retained.
 The lower pane does not require testing.

7. CLASSIFICATION

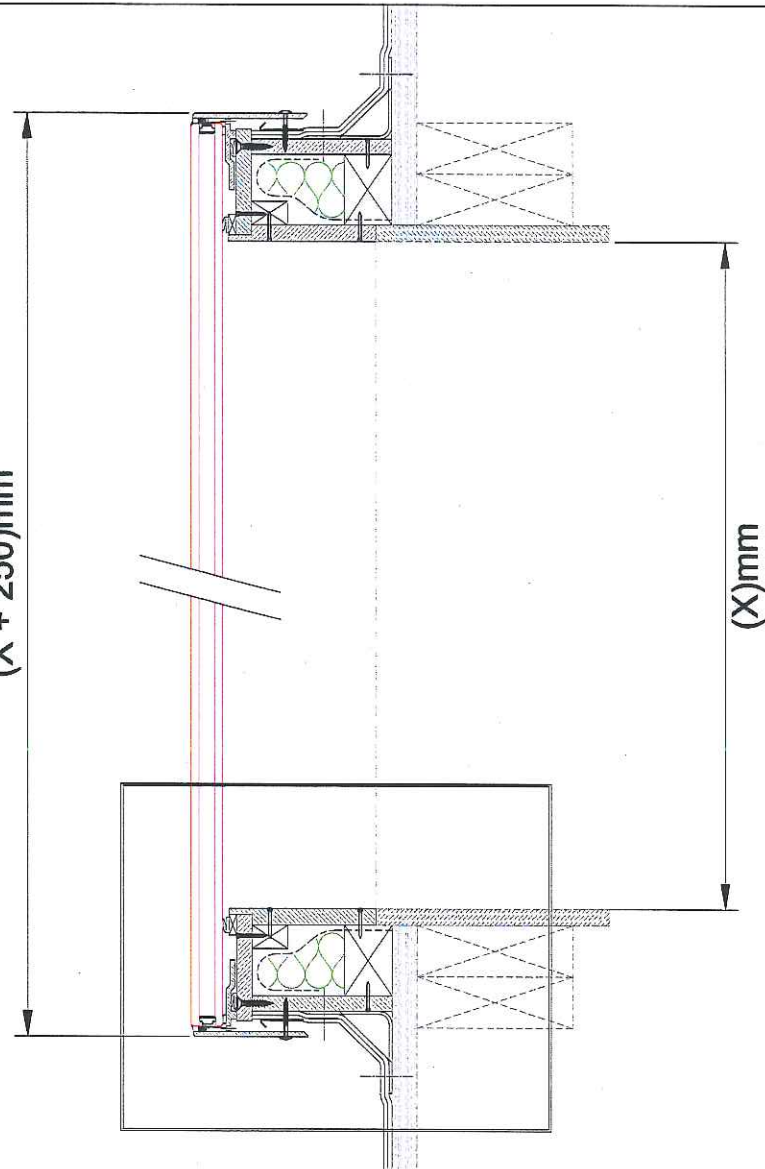
The samples achieved a Class 1 category pass.

8. APPENDIX

The following four pages were supplied by VITRAL UK Ltd.

VITRAL Skyvision rooflight data sheet,
VITRAL Skyvision rooflight material sheet,
VITRAL Skyvision rooflight drawing 001,
VITRAL Skyvision untitled drawing.

END OF CERTIFICATE

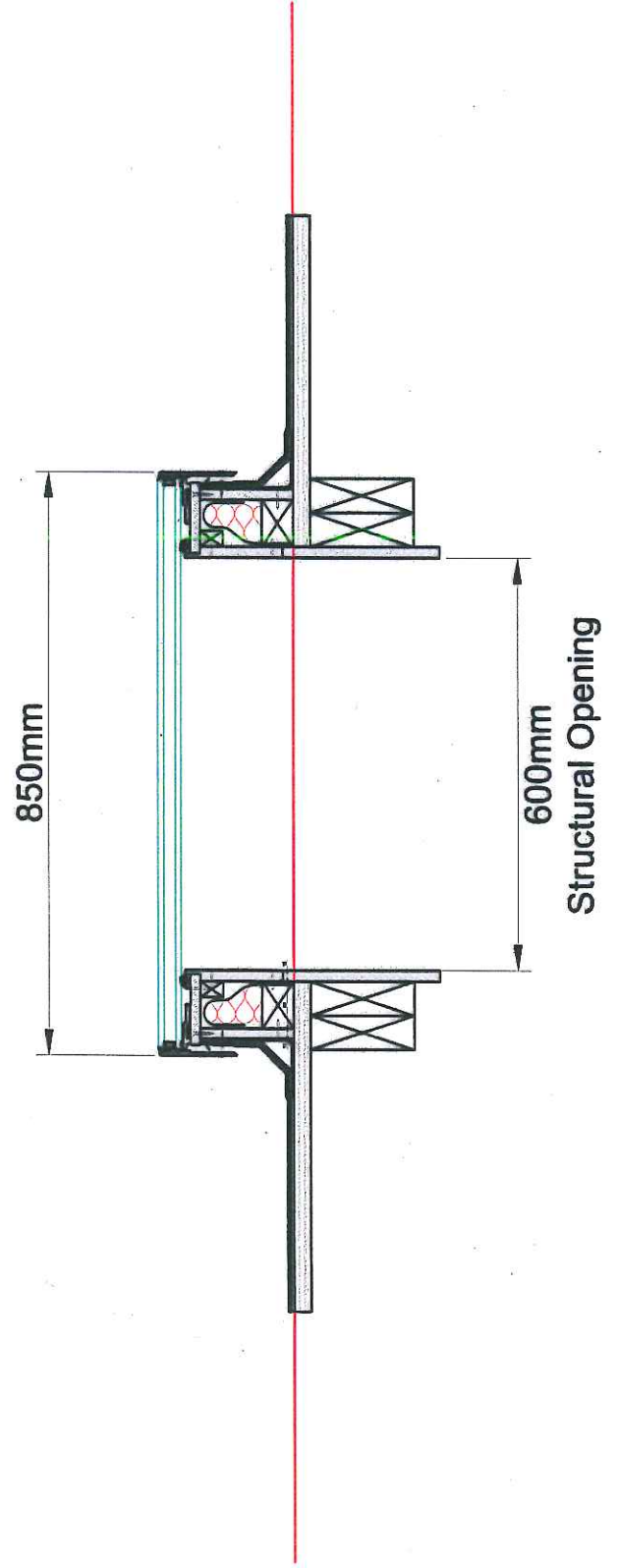
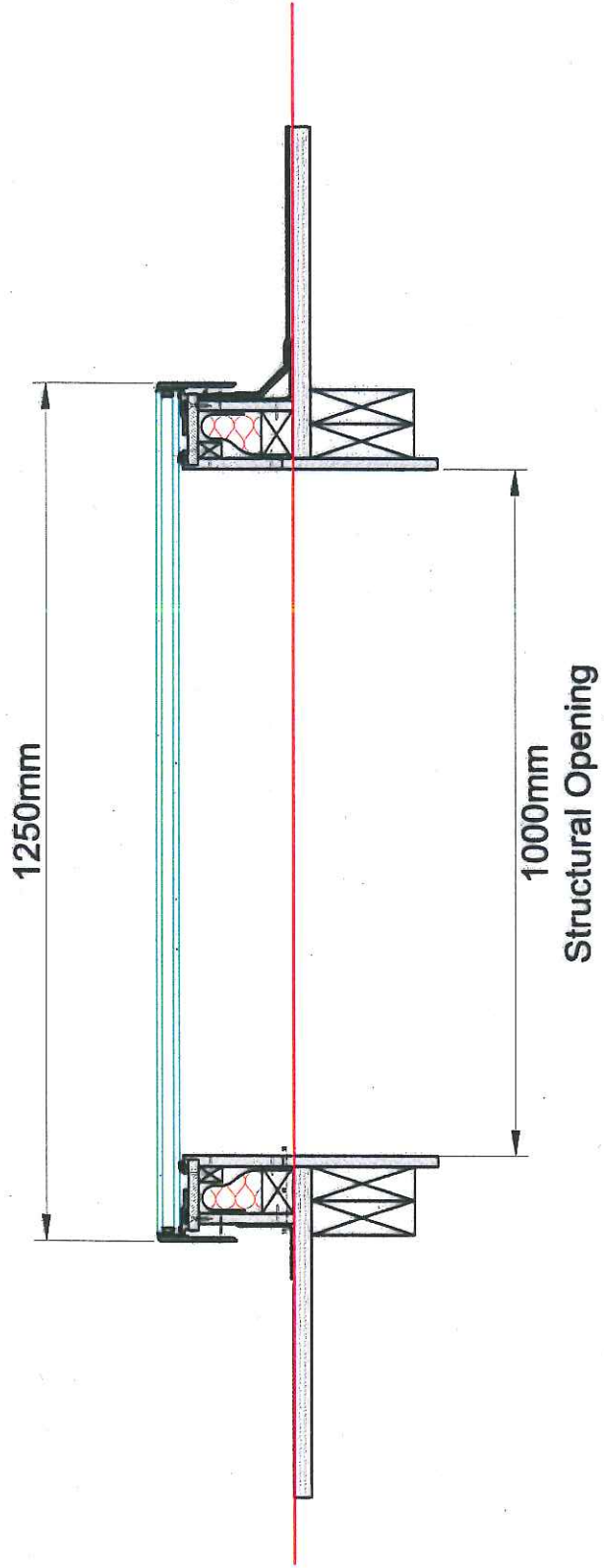


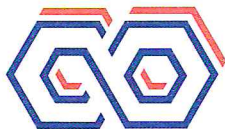
SCALE 1:5 @ A3



PROJECT	CLIENT	TITLE
VITRAL (UK) Ltd. 17, The High Street Whitlessford Cambridgeshire CB22 4LT Tel: +44 (0)1223 499000 Fax: +44 (0)1223 499001 Email: info@vital.co.uk		

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JEDNOSTKA NOTYFIKOWANA
UNII EUROPEJSKIEJ NR 1487

**Instytut Ceramiki
i Materiałów
Budowlanych**

02-676 Warszawa, ul. Postępu 9



AB 115

**LABORATORIUM BADAWCZE
ODDZIAŁU CERAMIKI I BETONÓW
W WARSZAWIE
AKREDYTOWANE PRZEZ
POLSKIE CENTRUM AKREDYTACJI
NR CERTYFIKATU AB 115**

Number of pages: 3

Number of copies: 1

TEST REPORT NO 89/1/LB/2018

SUBJECT OF TESTING: SAMPLE OF THE GLASS 20/AP/10/40 PATTERN D4; 1,5

ORDERER: UAB "STRONGLASAS"

Naujoji g. 136-3
LT-62175, Alytus
Lietuva

DATE OF RECEIPT THE SAMPLES: 07.05.2018

DATE OF TESTS: 11-16.05.2018

EXECUTOR: Technician Jacek Kamiński

M. Sc. Eng Robert Sytek

M. Sc. Eng Marcin Pożarowszczyk

Warsaw, 17.05.2018

RESEARCH LABORATORY ICiMB/OCiB	TEST REPORT NO 89/1/LB/2018	page 2 / 3
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1. Subject of testing

Sample of the glass paints: 20/AP/10/40 pattern: D4; 1,5 measuring 50 x 100 cm

Producer: UAB "STRONGLASAS"

Naujoji g. 136-3

LT-62175, Alytus

Lietuva

Number of sample: 1 piece

Designation of sample: TL/IV/P/074/2018

The samples taken and delivered to the Research Laboratory by the Orderer.

2. Scope of tests and the place of their execution.

- determination of critical slip angle

Scope of tests has been established by the Customer.

Tests have been made in the Research Laboratory of Ceramics and Concrete Division,
ul. Postępu 9, 02-676 Warsaw

3. Testing methods:

DIN 51130:2014-02

Testing of floor coverings. Determination of the anti-slip properties. Workrooms and fields of activities with slip danger, walking method. Ramp test.

4. Results of tests

4.1. Determination of critical slip angle.

According to DIN 51130:2014-02 Testing of floor coverings. Determination of the anti-slip properties. Workrooms and fields of activities with slip danger, walking method. Ramp test.

Sample size: 0,5 m²

RESEARCH LABORATORY ICiMB/OCiB	TEST REPORT NO 89/1/LB/2018	page 3 / 3
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Critical slip angle	
Adjusted average overall acceptable angle α_{ges}	Anti-slip properties class
23,6	R 11

5.0. Statement.

5.1. Results of tests relate exclusively to tested objects.

5.2. Test report may be copied only as a whole, whereas for partial coping the consent of laboratory is required.

The person responsible for the report:


Agnieszka Ducka, M Sc

The person authorizing the report:

Kierownik
Laboratorium Badawcze
Oddziału Ceramiki i Betonów

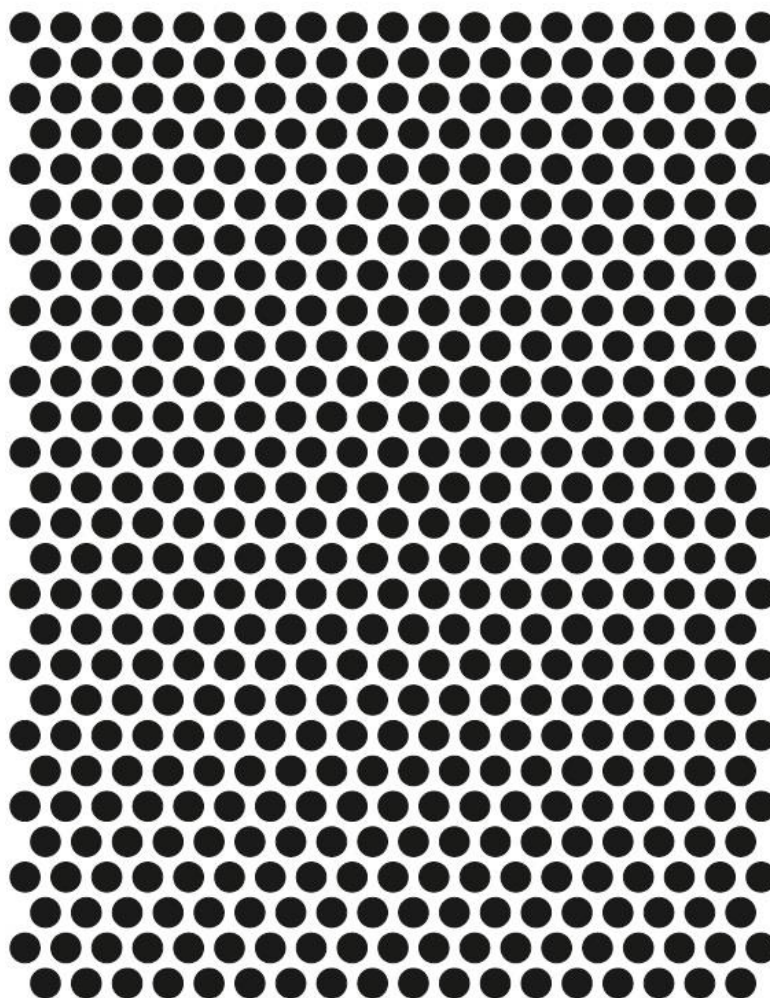

mgr Agnieszka Ducka

TEST REPORT NO 89/1/LB/2018

Paints: 20/AP/10/40

Silk No.: 24/120

Silk code: D4 : 1.5 <45



D4; 1,5