

Verification of Compliance

No. EC.1282.0V141030.NSGQU44



Product: Tempered Glass
Model(s): 4mm, 5mm, 6mm, 8mm.

Verification to

Standard:

EN 12150-1: 2000, EN 12150-2:2004

related to Regulation:
R 305/2011 (for the Marketing of Construction Products)

Remark: This Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Technical Construction File (TCF) is existent for the above listed product(s). The TCF satisfactorily covers the essential requirements of the above listed standards related to the above listed Directive(s). Other relevant Directives have to be observed in case they are applicable. This Document is only valid for the equipment and configuration described and in conjunction with the TCF detailed above. Whereas the Manufacturer is responsible of the certification of the product(s) and not exempted to perform all the necessary activities before placing the product(s) on the market. The Manufacturer is also responsible of the internal production control to ensure the product(s) are in compliance with the essential requirements of the above mentioned Directive(s). This certificate can be checked for validity at www.entecerma.org

Date of issue 30 OCTOBER 2014

Expiry date 29 OCTOBER 2019

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TEST REPORT

EN 12150-1 Glass in building -Thermally toughened soda lime silicate safety glass -Part 1: Definition and description

Equipment Under Test (EUT)

Name: Tempered Glass
Model No.: 4mm,5mm,6mm,8mm.
Rating and principal Characteristics: See Test Report
Test standards: EN 12150-1:2000
Date of Tests: Oct.15, 2014
Date of Issue: Oct.20, 2014

Test Result:

PASS*

Remarks:

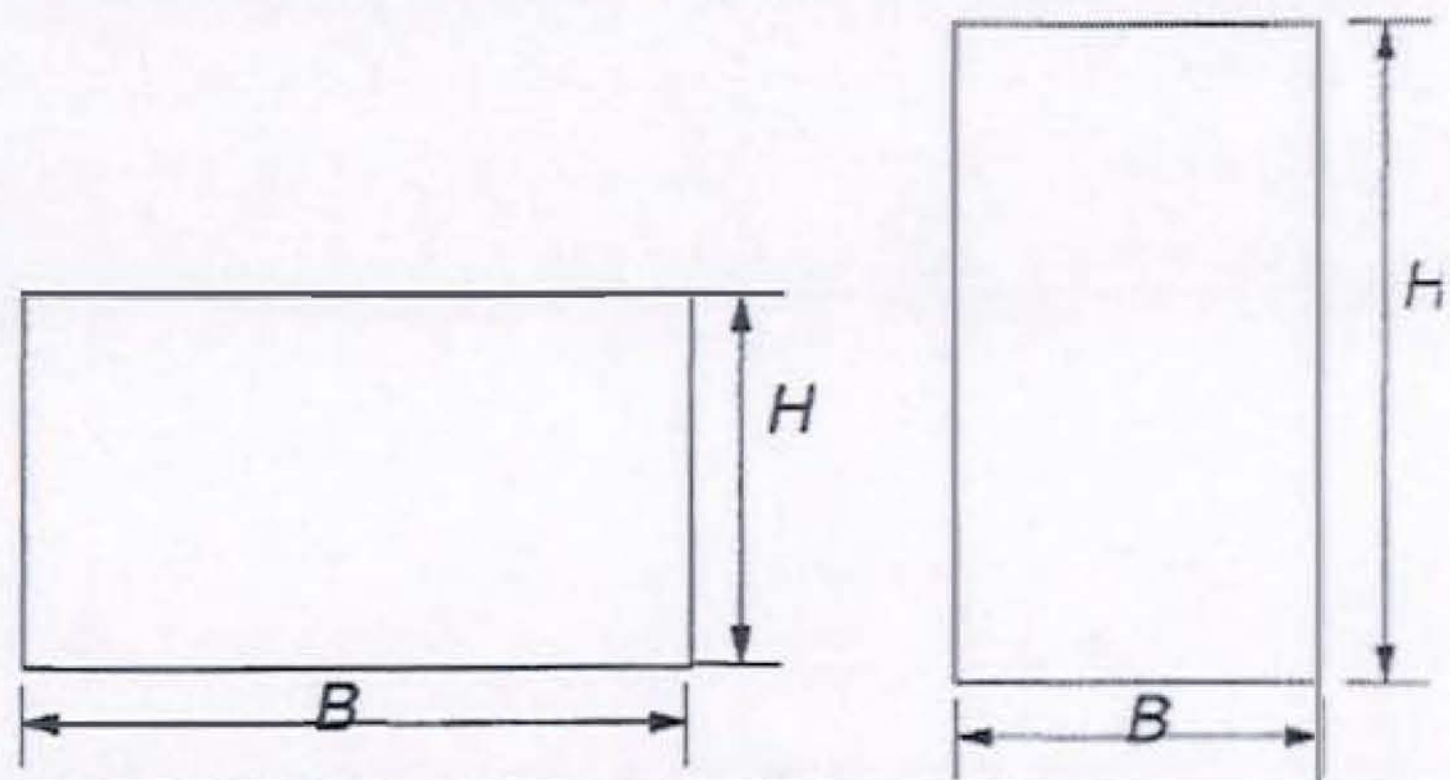
This report detail the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

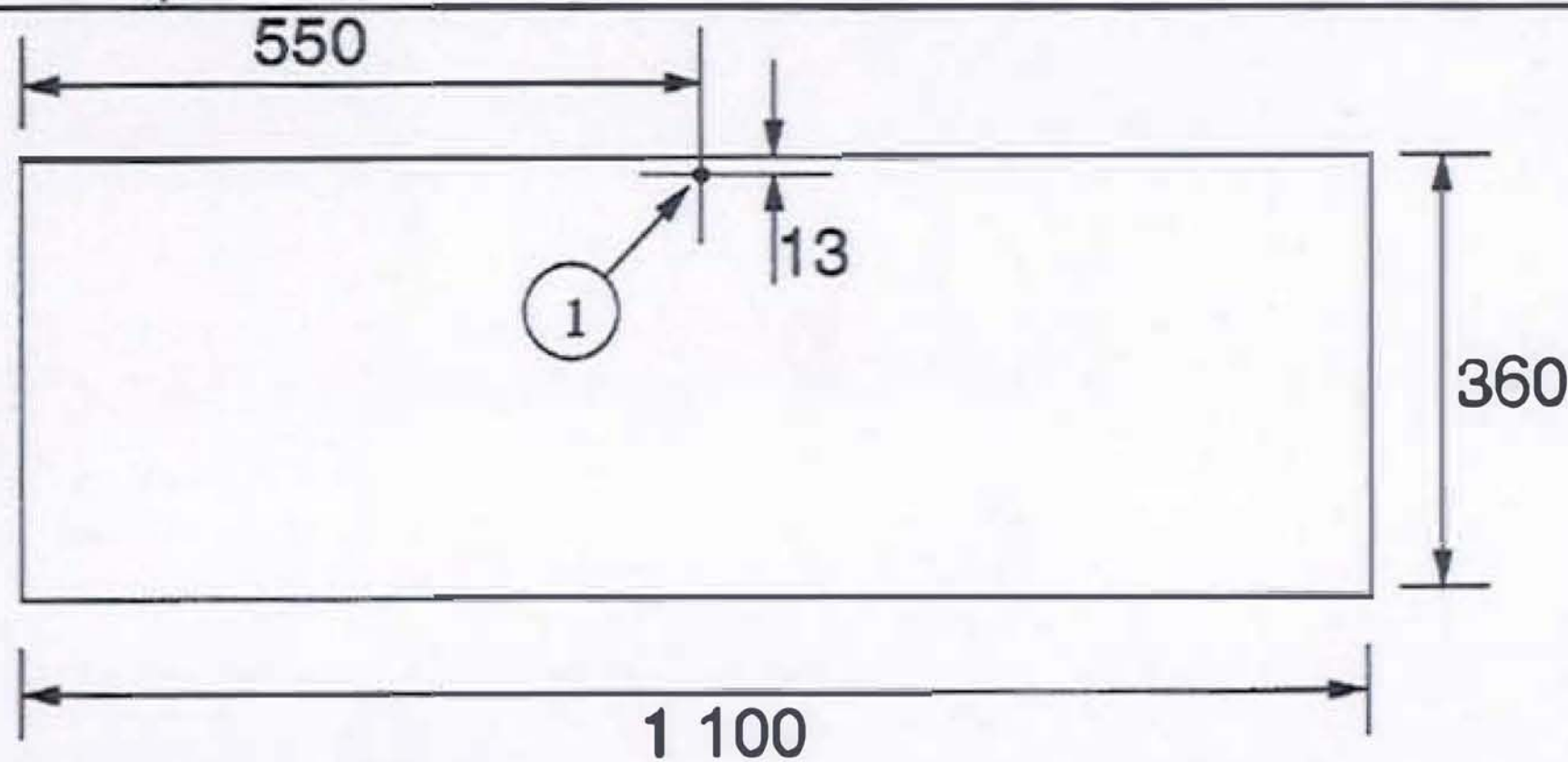
Signed for and behalf of
Lander Testing Lab

ALAN.LIU
Lab Manager
Date: 10/22/2014



EN 12150-1:2000			
Clause	Requirement - Test	Result	Verdict
4	Glass products		P
5	Fracture characteristics		P
	In the event of breakage, thermally toughened soda lime silicate safety glass fractures into numerous small pieces, the edges of which are generally blunt.		P
6	Dimensions and tolerances		
6.1	Nominal thickness and thickness tolerances		—
	Nominal thickness d=4mm thickness tolerances= $\pm 0,2\text{mm}$	-0,2mm	P
	Nominal thickness d=5mm thickness tolerances= $\pm 0,2\text{mm}$	-0,17mm	P
	Nominal thickness d=6mm thickness tolerances= $\pm 0,2\text{mm}$	-0,14mm	P
	Nominal thickness d=8mm thickness tolerances= $\pm 0,3\text{mm}$	-0,15mm	P
6.2	Width and length (sizes)		—
6.2.1	General		—
	<p>When thermally toughened soda lime silicate safety glass dimensions are quoted for rectangular panes, the first dimension shall be the width, B, and the second dimension the length, H, as shown in Figure 1. It shall be made clear which dimension is the width, B, and which is the length, H, when related to its installed position.</p> 	<p>4mm :300X300 5mm: 300X300 6mm: 300X300 8mm: 300X300</p>	P
6.2.2	Tolerances and squareness		—
	Nominal dimension of side, B or H<2000mm nominal glass thickness=4mm Tolerance, t= $\pm 2.5\text{mm}$		P
	Nominal dimension of side, B or H<2000mm nominal glass thickness=5mm Tolerance, t= $\pm 2.5\text{mm}$		P
	Nominal dimension of side, B or H<2000mm nominal glass thickness=6mm Tolerance, t= $\pm 2.5\text{mm}$		P

EN 12150-1:2000			
Clause	Requirement - Test	Result	Verdict
	Nominal dimension of side, B or H<2000mm nominal glass thickness=8mm Tolerance, $t = \pm 2.5\text{mm}$		P
6.3	Flatness		—
6.3.2	Measurement of overall bow		—
	The value for the bow is then expressed as the deformation, in millimetres, divided by the measured length of the edge of the glass, or diagonal, in millimetres, as appropriate.		P
	nominal glass thickness=4mm:Overall bow $\leq 0.003\text{mm/mm}$	0.002 mm/mm	P
	nominal glass thickness=5mm:Overall bow $\leq 0.003\text{mm/mm}$	0.002 mm/mm	P
	nominal glass thickness=6mm:Overall bow $\leq 0.003\text{mm/mm}$	0.002 mm/mm	P
	nominal glass thickness=8mm:Overall bow $\leq 0.003\text{mm/mm}$	0.001mm/mm	P
6.3.3	Measurement of local bow		—
	Local bow is expressed as millimetres/300 mm length.		P
	nominal glass thickness=4mm :Local bow: $0.5 \leq \text{mm}/300 \text{ mm}$	0.0mm/300 mm	P
	nominal glass thickness=5mm :Local bow: $0.5 \leq \text{mm}/300 \text{ mm}$	0.0mm/300 mm	P
	nominal glass thickness=6mm :Local bow: $0.5 \leq \text{mm}/300 \text{ mm}$	0.0mm/300 mm	P
	nominal glass thickness=8mm :Local bow: $0.5 \leq \text{mm}/300 \text{ mm}$	0.0mm/300 mm	P
7	Edge work, holes, notches and cut-outs		
7.1	Warning		—
	WARNING: Thermally toughened soda lime silicate safety glass should not be cut, sawed, drilled or edge worked after toughening.		P
7.2	Edge working of glass for toughening		—
	Every glass which is to be thermally toughened has to be edge worked prior to toughening.	Smooth ground edge	P
7.3	Profiled edges		—
	Various other edge profiles can be manufactured with different types of edgework.		P
7.4	Round holes		N/A
7.5	Notches and cut-outs		—
	Many configurations of notches and cut-outs can be supplied.		N/A
7.6	Shaped panes		—

EN 12 150-1:2000			
Clause	Requirement - Test	Result	Verdict
	Many non-rectangular shapes can be manufactured and the manufacturer should be consulted.		N/A
8	Fragmentation test		
	The dimensions of the test specimens shall be 360 mm x 1 100 mm, without holes, notches or cut-outs.		P
	Each test specimen shall be impacted, using a pointed steel tool, at a position 13 mm in from the longest edge of the test specimen at the mid-point of that edge, until breakage occurs		P
	The test specimen shall be laid flat on a table without any mechanical constraint. In order to prevent scattering of the fragments, the specimen shall be simply held at the edges, e.g. by a small frame, adhesive tape, etc., so that the fragments remain interlocked after breakage yet extension of the specimen is not hindered.		P
	 <p>① Impact Point</p>		P
	5 Specimens must be tested and meet the requirements: 1) in any area of 50mmX 50mm, The minimum particle count is 40 Pieces; 2) a few long fragment will be allowed but no longer than 100mm. 3) test for 5mm only	Particle count of 5 specimens were 188,176,176,189 and 194, particle with longest length were 21,19,11,27 and 18mm	P
9	Other physical characteristics		
9.1	Optical distortion		N/A
9.2	Anisotropy (iridescence)		N/A
9.3	Thermal durability		—
	The mechanical properties of thermally toughened soda lime silicate safety glass are unchanged for continuous service up to 250 °C and are unaffected by sub-zero temperatures. Thermally toughened soda lime silicate safety glass is capable of resisting both sudden temperature changes and temperature differentials up to 200 K.	These specimens remain unbroken when suffer both sudden temperature changes and temperature differentials up to 200 K.	P
9.4	Mechanical strength		—

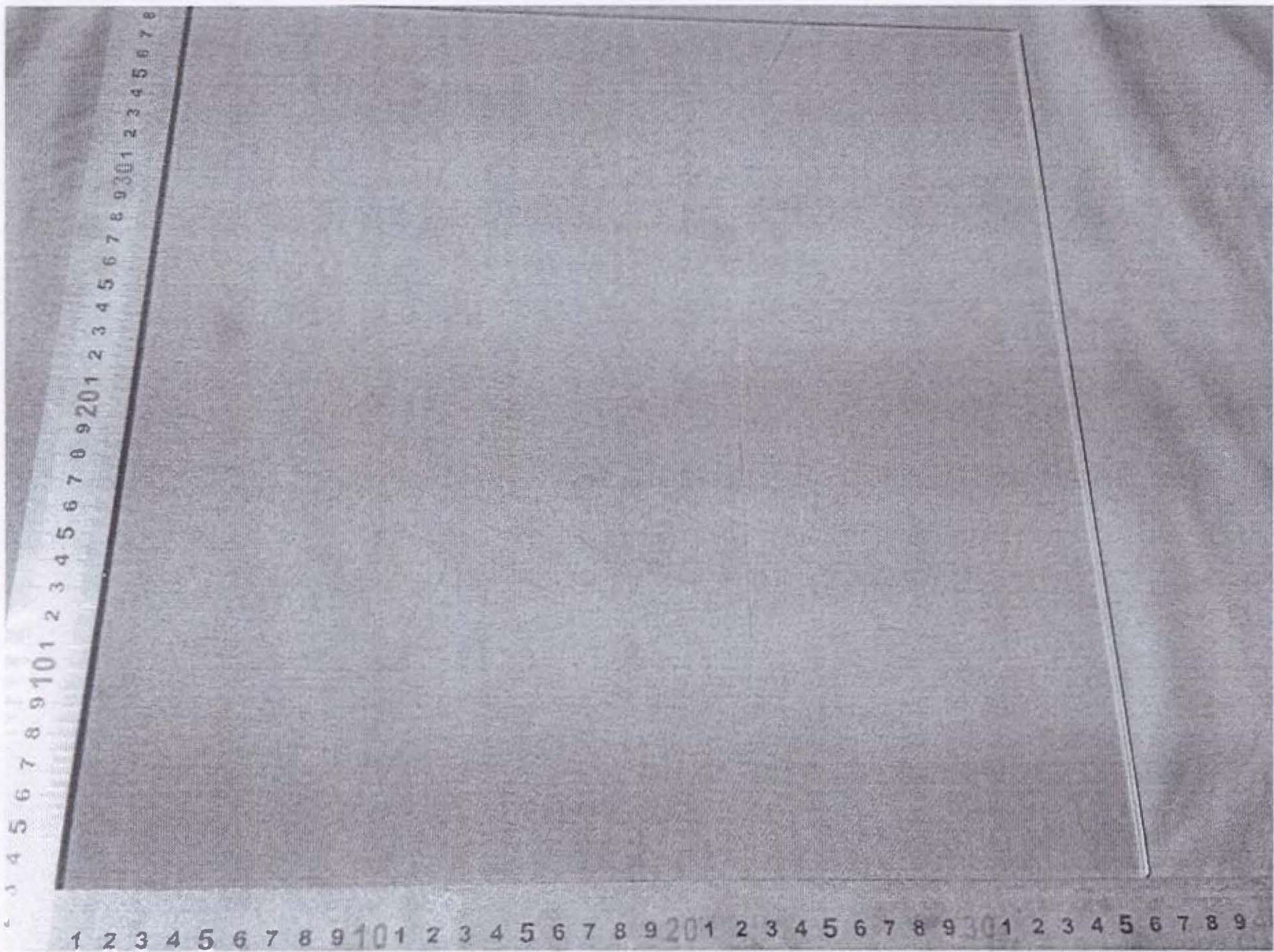


EN 12150-1:2000											
Clause	Requirement - Test	Result	Verdict								
	The value of mechanical strength can only be given as a statistical value associated with a particular probability of breakage and with a particular type of loading.		P								
	The mechanical strength values apply to quasi-static loading over a short time. The values for these glass are greater than 120N/mm ²	4mm thickness:155N/mm ² ,141N/mm ² ,164N/mm ² 5mm thickness:160N/mm ² 150N/mm ² ,170N/mm ² 6mm thickness:178N/mm ² ,168N/mm ² ,191N/mm ² 8mm thickness:210N/mm ² ,191N/mm ² ,181N/mm ²	P								
9.5	Classification of performance under accidental human impact		P								
	Thermally toughened soda lime silicate safety glass can be classified, as to its performance under accidental human impact, by testing in accordance with prEN 12600		P								
	The performance classification should be give as: $\alpha(\beta)\Phi$ Where, α is the highest drop height class at which the product either did not break or broke in accordance with a) or b) of clause 4 of EN 12600. β is the mode of Breakage; Type A-annealed glass Type B-Laminated glass Type C-Toughened glass Φ is the highest drop height class at which the product either did not break or broke in accordance with a) of clause 4 of EN 12600.	1(C)1	P								
	<table><tr><th>Classification</th><th>Drop Height(mm)</th></tr><tr><td>3</td><td>190</td></tr><tr><td>2</td><td>450</td></tr><tr><td>1</td><td>1200</td></tr></table>	Classification	Drop Height(mm)	3	190	2	450	1	1200		P
Classification	Drop Height(mm)										
3	190										
2	450										
1	1200										
10	Marking										
	Thermally toughened soda lime silicate safety glass conforming to this European Standard shall be permanently marked. The marking shall give the following information:		—								
	- name or trademark of manufacturer;	Ningbo Shenying Glass Co.,Ltd.	P								
	- number of this European Standard: EN 12150.		P								

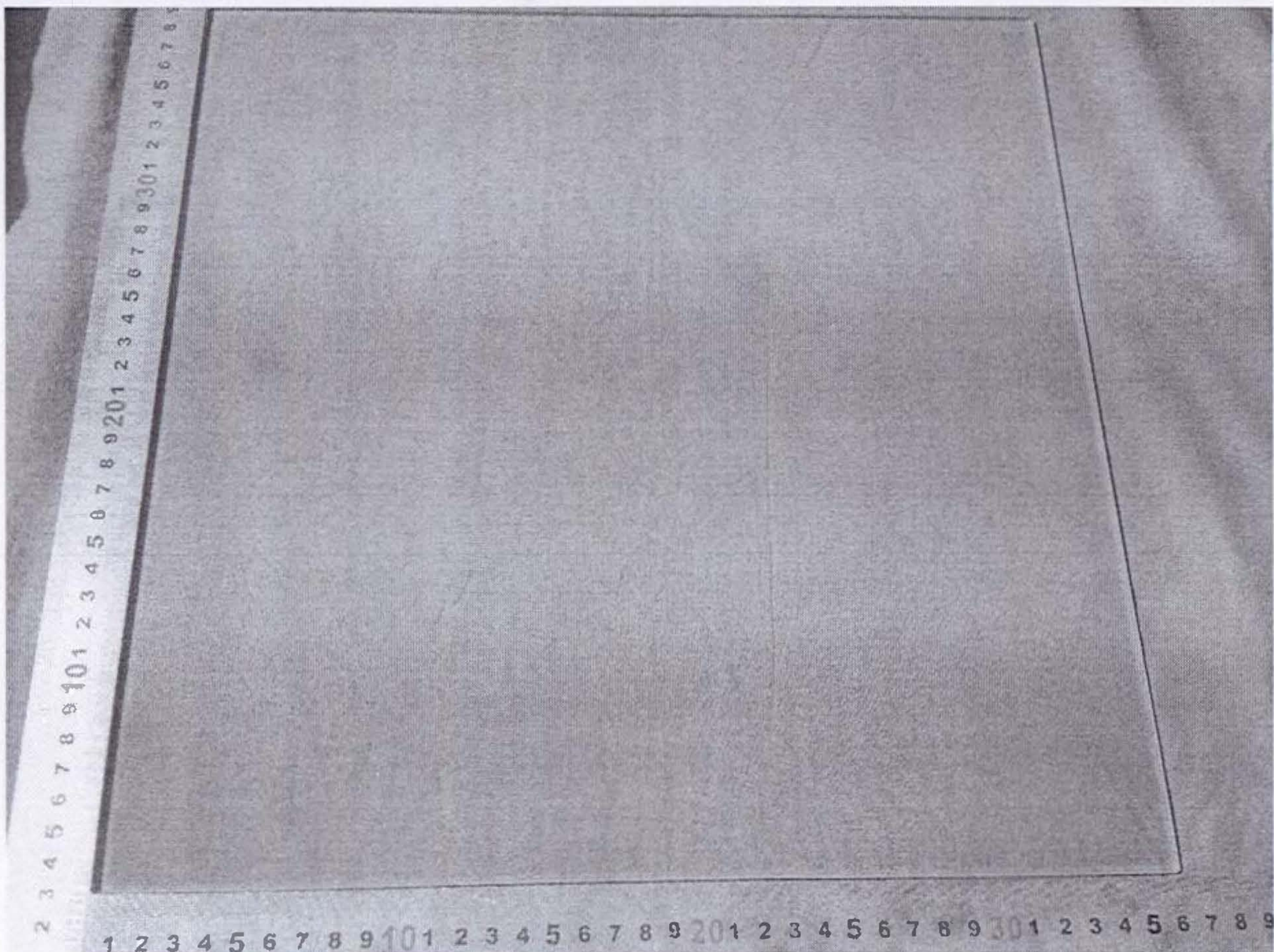


PHOTOGRAPHS

4mm photograph



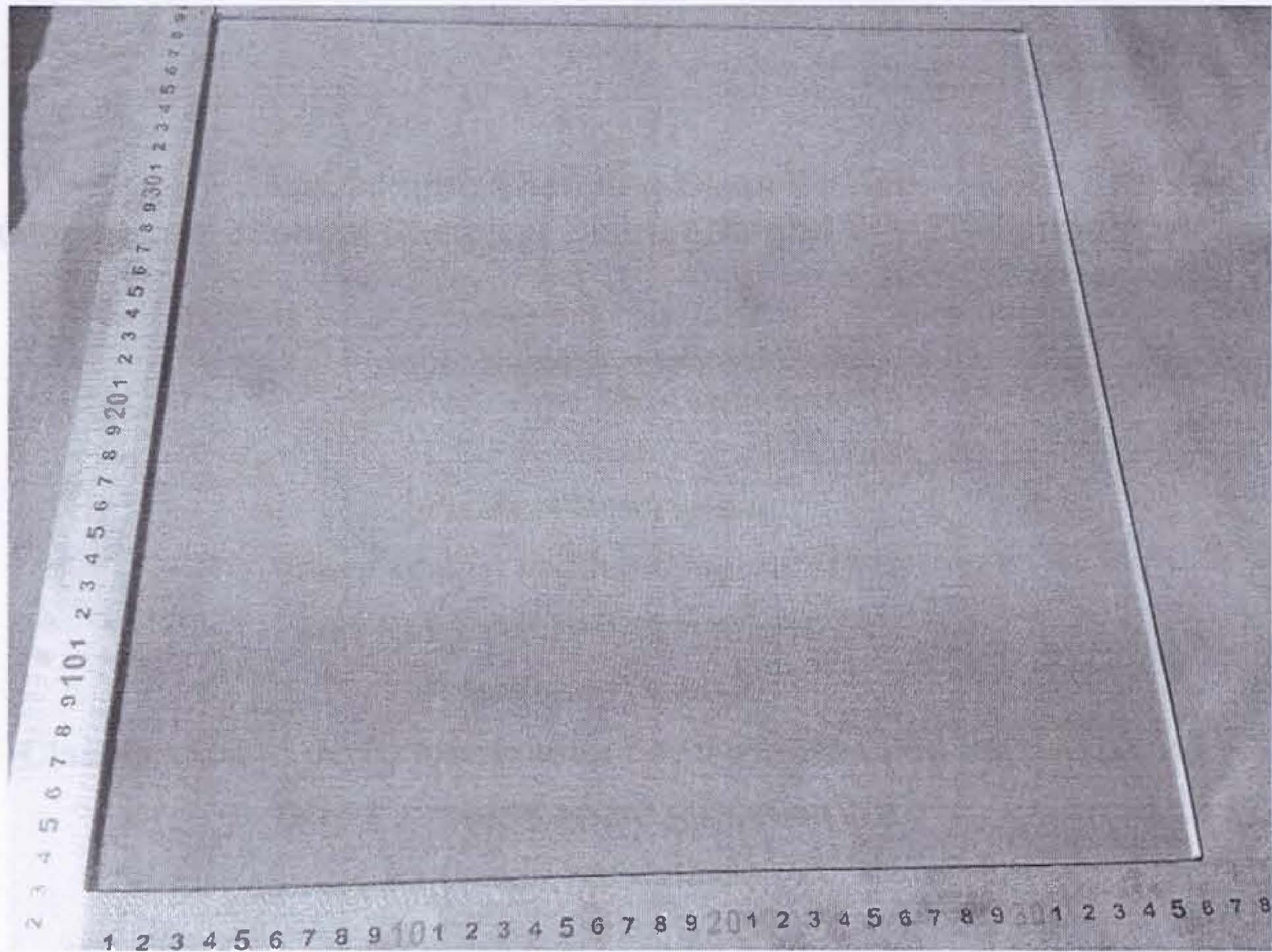
5mm photograph



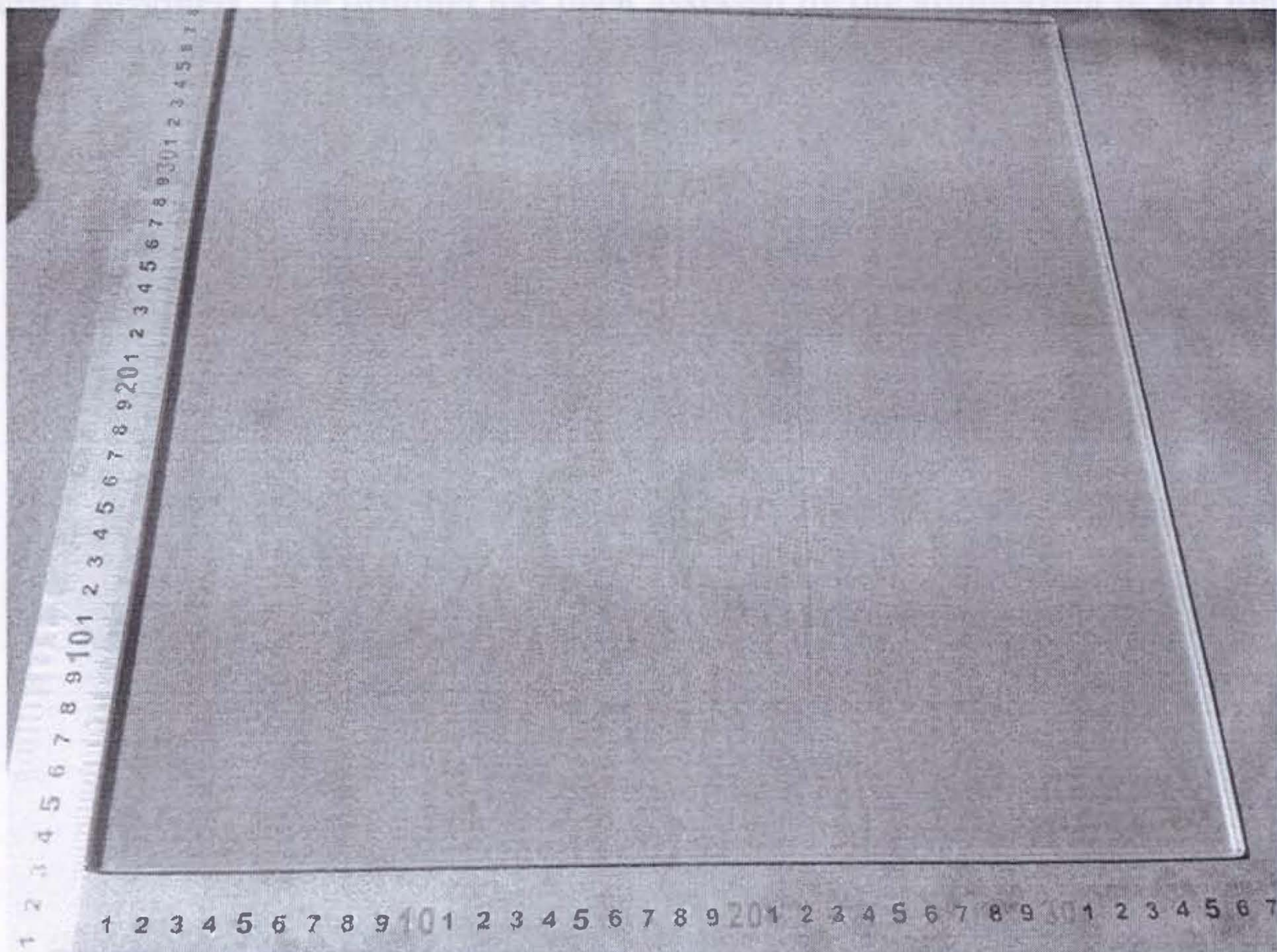
EC Declaration of Conformity

Council Directive 89/106/EC & (EU) 305/2011 on Construction products

6mm photograph



8mm photograph



Issue place and date

Company stamp and Signature
of authorized personnel



EVALUATION REPORT

EN 12150-2 Glass in building —Thermally toughened soda lime silicate safety glass —Part 2: Evaluation of conformity/Product standard

Equipment Under Test (EUT)

Name: Tempered Glass
Model No.: 4mm,5mm,6mm,8mm.
Rating and principal Characteristics: See Test EN 12150-1 Report
Test standards: EN 12150-2:2004
Date of Tests: Oct.15, 2014
Date of Issue: Oct.20, 2014

Test Result:	PASS*
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Remarks:

This report detail the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Signed for and behalf of
Lander Testing Lab

ALAN.LIU
Lab Manager
Date: 10/22/2014



EN 12150-2:2004			
Clouse	Requirement - Test	Result	Verdict
4	Requirements		P
4.1	Product description		P
	For conformity purposes the thermally toughened soda lime silicate glass manufacturer is responsible for the preparation and maintenance of the product description. This description shall describe the product and/or product families.	See EC Declaration of Conformity	P
4.2	Conformity with the definition of thermally toughened soda lime silicate safety glass		P
	Products shall conform to the definition and fulfil the requirements of thermally toughened soda lime silicate safety glass as defined in EN 12150-1.	See EN 12150-1 Report	P
4.3	Determination of the characteristic's performances		P
	Panes shall be made of soda lime silicate glass according to EN 572-1, EN 572-2, EN 572-4, EN 572-5. The panes may be coated according to EN 1096-1, EN 1096-2, EN 1096-3 and/or enamelled according to EN 12150-1.	Resistance against sudden temperature changes and temperature differentials:250K Reaction to fire:NPD Classification of performance under accidental human impact:1(C)1 Direct airborne sound insulation:NPD Explosion resistance:NPD	P
4.4	Durability		P
	When products conform to the definition of thermally toughened soda lime silicate glass as 4.2 then the characteristics' performances in 4.3.2 are ensured during an economically reasonable working life. The durability of glass products including their characteristics, shall be ensured by the following:		P
	Compliance with this document		P
	Compliance with instructions from the glass product manufacturer or supplier		P
4.5	Dangerous substances		P

EN 12150-2:2004			
Clouse	Requirement - Test	Result	Verdict
	Materials used in products shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the Member State of destination.	Compliance with ROHS Directive	P
5	Evaluation of conformity		P
5.1	General		P
	Evaluation of conformity in accordance with this document shall be as a result of FPC and ITT in accordance with this document		P
	1) Factory production control; This shall include the following:		P
	a) Inspection of samples taken at the factory in accordance with a prescribed test plan;		P
	b) Initial inspection of the factory and of factory production control;		P
	c) Continuous surveillance and assessment of the factory production control.	ISO 9001 Quality Management System	P
	2) Initial type testing of the product;	EN 12150-1 Test Report	P
5.2	Initial type testing of the product		P
	The product's characteristics shall be initial type tested to verify they are in conformity with the requirements.		P
5.2.2	Initial type testing of thermally toughened soda lime silicate safety glass		P
5.2.2.1	General		P
	To establish if a product conforms to the definition of thermally toughened soda lime silicate safety glass, initial type testing shall consist of: a) mechanical strength measurement in accordance with EN 12150-1;	See EN 12150-1 Test Report	P
	b) fragmentation test in accordance with EN 12150-1	See EN 12150-1 Test Report	P
5.2.2.2	Test specimens		P
	The test specimens needed for the initial type test shall be processed from float glass according to EN 572-1 and EN 572-2 in accordance with this document.		P

EN 12150-2:2004			
Clouse	Requirement - Test	Result	Verdict
	For mechanical strength measurement ≥ 2	See EN 12150-1 Test Report	P
	For fragmentation 5 test specimens per thickness are required.	See EN 12150-1 Test Report	P
5.2.2.3	Test results		P
	a) When the mechanical strength is measured, no measured value shall be below that given in Clause 9.4 of EN 12150-1:2000. However, if one value falls below then the manufacturer shall ensure that the results relate to a 5 % probability of breakage at the lower limit of the 95 % confidence interval.	See EN 12150-1 Test Report	P
	b) In the fragmentation test, no test specimen shall exhibit a fragmentation assessment that does not meet Clauses 8.5 and 8.7 of EN 12150-1:2000.	See EN 12150-1 Test Report	P
5.2.2.4	Measurement of surface pre-stress		N/A
	The manufacturer may also use surface pre-stress measurement as a means of product control. If this is done then all test specimens shall be measured prior to testing. This will show the relationship between surface pre-stress and mechanical strength/fragmentation.		N/A
5.2.2.5	Thermally toughened patterned glass		N/A
	Initial type testing of thermally toughened patterned glass may not be undertaken as a result of the wide variety of patterned surfaces of patterned glass in accordance with EN 572-5.		N/A
5.2.3	Initial type testing of characteristic's performances		P
	All characteristics in 4.3.2 shall be subject to initial type testing in accordance with Clause 5.2.1.	See EN 12150-1 Test Report	P
5.3	Factory production control and inspection of samples in accordance with a prescribed test plan		P

EN 12150-2:2004			
Clouse	Requirement - Test	Result	Verdict
	All elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures. This production control system documentation shall ensure a common understanding of quality assurance and enable the achievement of the required product characteristics and the effective operation of the production control system to be checked.		P
	A factory production control system similar to EN ISO 9001 made product specific to this document is deemed to satisfy the requirements of this clause.	Compliance with ISO9001 Quality Management System	P
5.4	Initial inspection of factory and of factory production control		P
	The initial inspection of the factory and of the factory production control shall be limited to the parameters listed in table 3 in conjunction with Annex A.	See Annex A	P
5.5	Continuous surveillance and assessment of the factory production control		P
	The continuous surveillance and assessment of the factory production control shall cover the parameters listed in table 3 in conjunction with Annex A.		P
	The frequency of production surveillance shall be twice per year for new production facilities or for facilities that do not already have an established factory production control system in accordance with this document.		N/A
	When assessment of FPC fails to identify major non-conformances during four successive assessments, the frequency can be reduced to once a year	Once a year	P
6	Marking and/or labelling		P
	The thermally toughened soda lime silicate safety glass product shall be marked in accordance with Clause 10 of EN 12150 – 1:2000.	See EN 12150-1 Test Report	P
Annex A	Factory production control		P



EN 12150-2:2004			
Clouse	Requirement - Test	Result	Verdict
	The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control [raw and other] incoming materials or components, equipment, the production process and the product.		P
	An FPC system conforming with the requirements of EN ISO 9001 and made specific to the requirements of this document is deemed to satisfy the requirements of this document.	Compliance with ISO9001 Quality Management System	P