



NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200
FAX (717) 767-4100
www.nctlinc.com

**AAMA/WDMA/CSA 101/I.S.2/A440-11
CSA A440S1-17**

TEST REPORT SUMMARY

Rendered to:

**Oknoplast Spolka z.o.o.
Ochmanow 117, 32-003 Podleze**

PRODUCT TYPE: Fixed Lite

SERIES/ MODEL: "Pixel"

Title	Summary of Results
Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-11	Class CW-PG90: Size tested 1524 x 1524 mm (~60 x 60 in) - Type FW
Positive Design Pressure	+4320 Pa (+90.23 psf)
Negative Design Pressure	-4320 Pa (-90.23 psf)
Air Infiltration	0.1 L/s/m ² (<0.01 cfm/ft ²)
Canadian Air Infiltration/Exfiltration	Fixed Level
Water Penetration Resistance Test Pressure	720 Pa (15.04 psf)
Uniform Load Structural Test Pressure	±6480 Pa (±135.34 psf)
Forced Entry Resistance	ASTM F588-07 - Grade 10 Pass

Test Completed: 12/12/17

Reference must be made to Report No. NCTL-110-20684-1 dated 01/02/18 for complete test specimen description and data.

For National Certified Testing Laboratories

DIGITAL SIGNATURE

Jay Leader
Technician



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**AAMA/WDMA/CSA 101/I.S.2/A440-11
CSA A440S1-17**

STRUCTURAL TEST REPORT

NCTL-110-20684-1

REPORT TO:
OKNOPLAST SPOLKA z.o.o.
OCHMANOW 117, 32-003 PODLEZE

REPORT NUMBER: NCTL-110-20684-1
REPORT DATE: 01/02/18

PRODUCT TYPE: FIXED LITE

SERIES/ MODEL: "PIXEL"



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Report Number NCTL-110-20684-1

Report Date 01/02/18

Report To Oknoplast Spolka z.o.o.
Ochmanow 117, 32-003 Podleze

Date Testing Started 12/11/17
Date Testing Completed 12/12/17

Specification AAMA/WDMA/CSA 101/I.S.2/A440-11
NAFS 2011 - North American Fenestration Standard/Specification for windows, doors, and skylights

CSA A440S1-17
Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS - North American Fenestration Standard/ Specification for windows, doors, and skylights

Performance Results AAMA/WDMA/CSA 101/I.S.2/A440-11
Class CW-PG90: Size tested 1524 x 1524 mm (~60 x 60 in)-Type FW

Description of Specimen Tested

Note: All dimensions are in the order (Width x Height x Thickness) unless otherwise noted.

Model/ Series "Pixel"

Configuration Fixed Lite

Frame Size Overall
1524 mm x 1524 mm (60" x 60")

Viewing Area 1394 mm x 1394 mm (54.875" x 54.875")

Frame Type Extruded vinyl

Joint Construction Frame
Mitered, welded

Glazing Components
Overall 24.41 mm (0.961") nominal
Glass Thickness (2) Lites of 4 mm (0.151") nominal annealed glass
Spacer Type/Size 16.74 mm (0.659") Desiccant-filled stainless steel spacer (Type SS-D)
Glazing System Interior glazed against a single-leaf bulb-vinyl gasket and a snap-in (2)-leaf dual durometer rigid vinyl glazing bead

Weatherstrip No weatherseals employed

Operating Hardware No operating hardware employed

Auxiliary No auxiliary items employed

Reinforcement
Type Tube-shaped galvanized steel
Thickness 1.30 mm (0.051")
Location Frame perimeter secured with evenly spaced screws

Weep Description	
Size	29 mm (1.125”) Wide by 4.78 mm (0.188”) high with plastic weep cover
Location	152 mm (6”) From each end and midspan of the exterior sill face
Size	6.35 mm (0.25”) Diameter weep hole
Location	105 mm (4.125”) From each end of the head
Size	28.58 mm (1.125”) wide by 4.78 mm (0.188”) high
Location	15.88 mm (0.625”) From each end of the head glazing track and 15.88 mm (0.625”) from each end and midspan of the sill glazing track
Interior/ Exterior Surface Finish	
	White vinyl (PVC)
Sealant	
	No apparent sealant applied
Insect Screen	
	No screen employed
Installation Method	
	The window was installed in a 50.8 mm x 254 mm (2” x 10”) spruce-pine-fir lumber test buck and was fastened through the frame with (1) #10 x 117 mm (4.625”) flat head screw located at 152 mm (6”) from each end and 254 mm (10”) on center thereafter at the frame perimeter. The exterior perimeter was sealed with silicone sealant.

Test Results - AAMA/WDMA/CSA 101/I.S.2/A440-2011

<u>Paragraph</u>	<u>Test</u>
9.3.2	Air Leakage Resistance ASTM E283-04(12) The tested specimen meets or exceeds the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-2011 for air infiltration at 75 Pa (1.6 psf). Maximum Allowable = 1.5 L/s/m² (0.3 cfm/ft²) Total Air Leakage = 0.23 L/s (0.48 cfm) Extraneous Air Leakage _{Tare} = 0.18 L/s (0.38 cfm) Net Air Leakage = 0.05 L/s (0.10 cfm) Air Infiltration Rate = 0.1 L/s/m² (<0.01 cfm/ft²)
<u>Paragraph</u>	<u>Test</u>
9.3.3	Water Penetration Resistance ASTM E547-00(09) <u>3.4 L/ (min• m²) (5.0 gph/ft²)</u> No Leakage after 4 cycles of 5 minutes at 720 Pa (15.04 psf) NOTE: Tested without insect screen
<u>Paragraph</u>	<u>Test</u>
9.3.4.2	Uniform Load Deflection at Design Pressure ASTM E330-14 No damage after positive 4320 Pa (90.23 psf) held for 10 seconds No damage after negative 4320 Pa (90.23 psf) held for 10 seconds Measured Deflection _{Positive} = 4.55 mm (0.179 inches) Measured Deflection _{Negative} = 3.99 mm (0.157 inches) Maximum Allowed (_{L/175}) = 8.71 mm (0.343 inches)

Paragraph	Test
9.3.4.3	Uniform Load Structural Test ASTM E330-14
	No damage after positive 6480 Pa (135.34 psf) held for 10 seconds
	No damage after negative 6480 Pa (135.34 psf) held for 10 seconds
	Measured Permanent Set _{Positive} = 0.25 mm (0.010 inches)
	Measured Permanent Set _{Negative} = 0.36 mm (0.014 inches)
	Maximum Allowed (0.3%) = 4.57 mm (0.180 inches)
	NOTE: Deflection and Permanent Set measurements taken on the jamb over a 1524 mm (60") span.

Paragraph	Test
5.3.5/ 9.3.5	Forced Entry Resistance ASTM F588-07
	<u>Type D Window Assembly/ Grade 10:</u> = Pass
	<u>Test</u>
	Disassembly = No Entry
	Sash Manipulation = No Entry
	NOTE: 1. T1 = 5 minutes, L1 = 667 N (150 lbf), L2 = 333 N (75 lbf), L3 = 111 N (25 lbf)
	2. Loads were held for 60 seconds.

Paragraph	Test
5.3.6.2/ 9.3.6.2	Thermoplastic Corner Weld Test (PVC products only) = Pass

Test Results - CSA A440S1-17

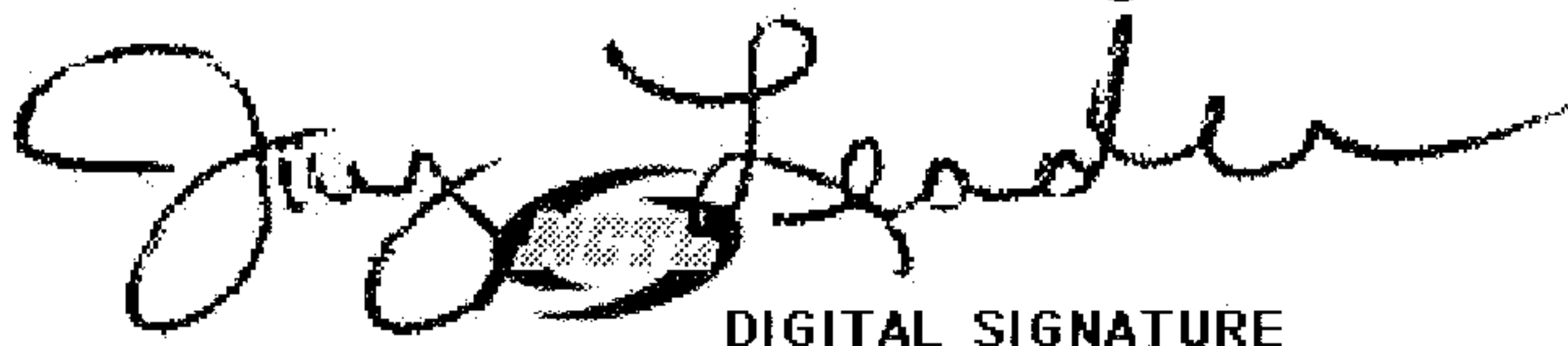
Paragraph	Test
5.3	Canadian Air Infiltration/Exfiltration ASTM E283-04(12)
	The tested specimen meets or exceeds the performance levels specified in CSA A440S1-17 for air infiltration at 75 Pa (1.57 psf)
	Fixed Level Maximum Allowable= 0.2 L/s/m ² (0.04 cfm/ft ²)
	<u>Infiltration</u>
	Total Air Leakage = 0.23 L/s (0.48 cfm)
	Extraneous Air Leakage _{Tare} = 0.18 L/s (0.38 cfm)
	Net Air Leakage = 0.05 L/s (0.10 cfm)
	Air Infiltration Rate = 0.1 L/s/m ² (<0.01 cfm/ft ²)
	<u>Exfiltration</u>
	Total Air Leakage = 0.24 L/s (0.50 cfm)
	Extraneous Air Leakage _{Tare} = 0.18 L/s (0.38 cfm)
	Net Air Leakage = 0.06 L/s (0.12 cfm)
	Air Infiltration Rate = 0.1 L/s/m ² (<0.01 cfm/ft ²)

<u>Paragraph</u>	<u>Test</u>
5.4	Water Penetration Resistance ASTM E547-00(09) <u>3.4 L/ (min• m²) (5.0 gph/ft²)</u> No Leakage after 4 cycles of 5 minutes at 720 Pa (15.04 psf) NOTE: Tested without insect screen

This test report was prepared by National Certified Testing Laboratory (NCTL), for the exclusive use of the above named client and it does not constitute certification of this product. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the ASTM E330 test. Forced entry resistance test equipment used is in compliance with Section 7 of the ASTM F588-07 test method. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. It is the assertion of this laboratory that any film employed during testing does not affect measurement values. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. The results in this report are actual tested values and are applicable to the specimen tested only, using the components and construction methods described herein.

Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. Component drawings were reviewed for product verification. The bill of materials contains details with any deviations noted. Ambient conditions during the referenced testing are available upon request. A copy of this report along with representative sections of the test specimen will be retained per applicable requirements by NCTL. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. Tests were performed in the order set forth by the applicable standard or specification. This report is the joint property of National Certified Testing Laboratories Inc. and the Client to whom it is issued. Permission to reproduce this report by anyone other than National Certified Testing Laboratories Inc and the Client must be granted in writing by both of the above parties. This report may not be reproduced, except its entirety, without the written consent of NCTL.

National Certified Testing Laboratories


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Jay Leader
Technician


DIGITAL
SIGNATURE

Robert H. Zeiders, P.E.
Vice-President Engineering & Quality

NJL/ dro
Attachments
Appendix A – Revision Summary
Appendix B – Drawings

Appendix A

Revision Log

<u>Identification</u>	<u>Date</u>	<u>Page & Revision</u>
Original Issue	01/02/18	Not Applicable

Appendix B

Drawings

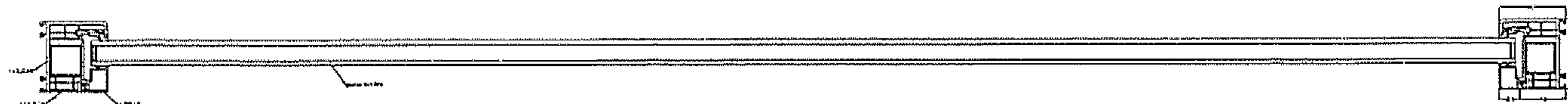
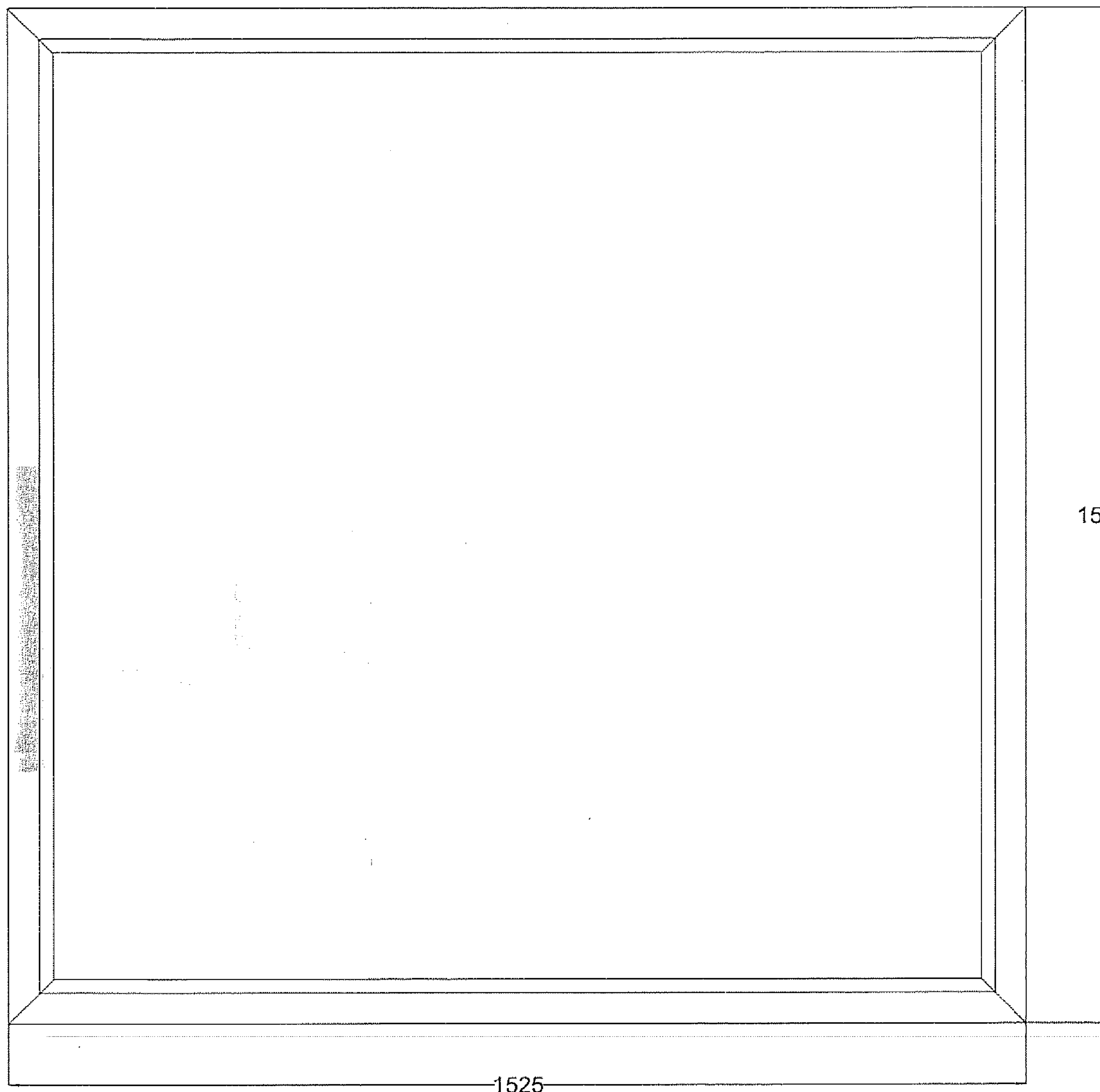
Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were reviewed (as submitted) for Product Verification. Detailed assembly drawings showing wall thicknesses of all members, corner construction and hardware application are on file and have been compared to the test sample submitted.

(Reference: NCTL-110-20684-1)

See Attached Documentation;
any deviations noted.

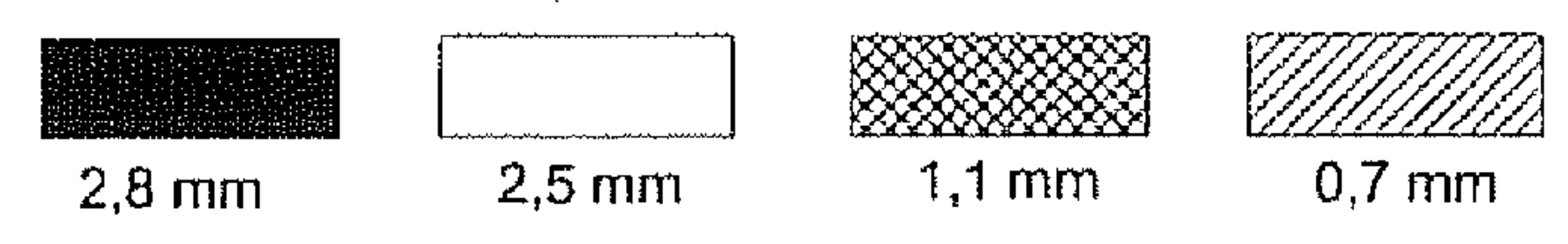
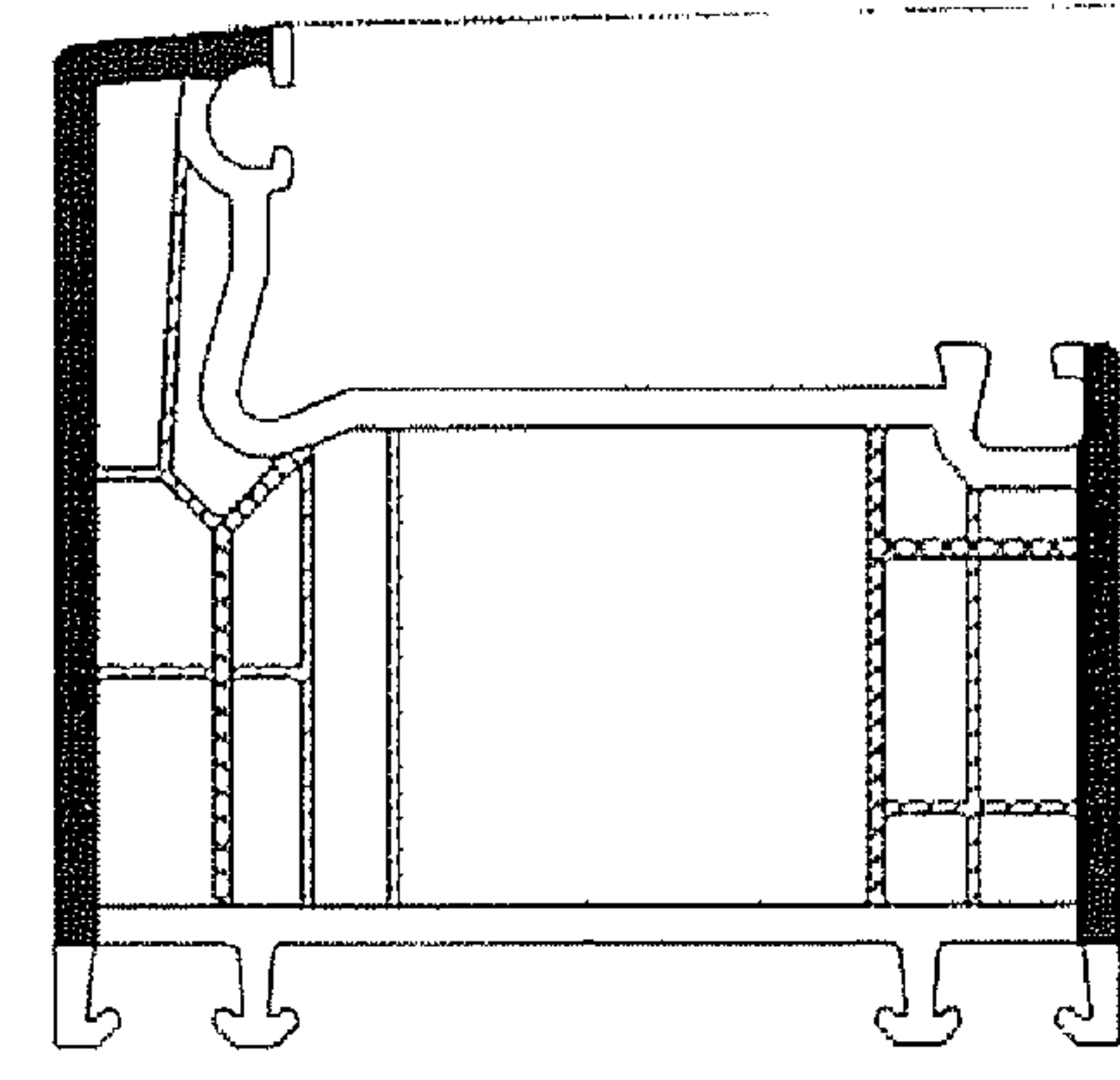
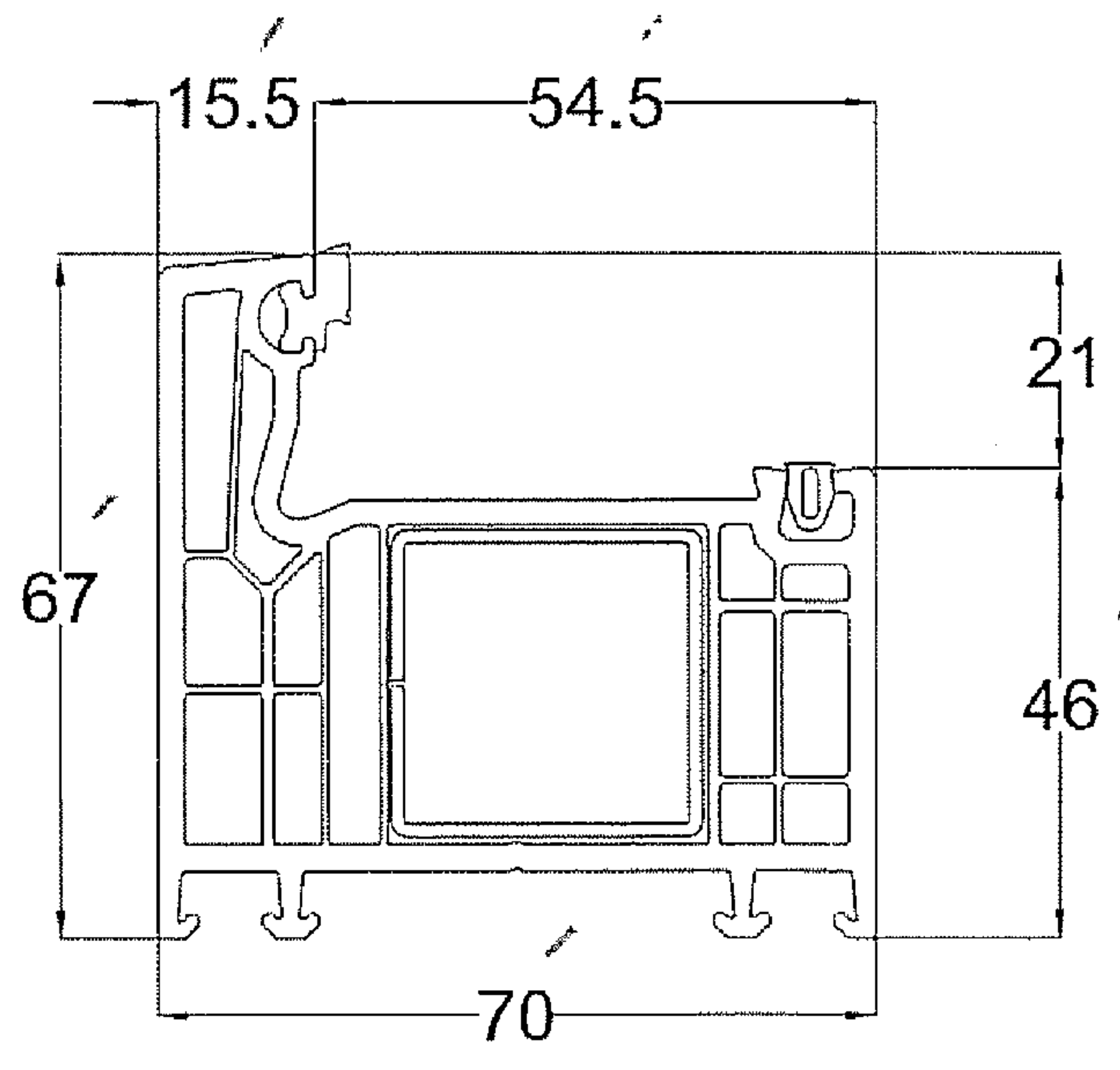
Note: The above referenced component drawings (if applicable) along with representative sections of the test specimen will be retained by NCTL per applicable retention requirements. This testing facility assumes that all information provided by the client is accurate.

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-20684-1
TEST DATE 12/12/17

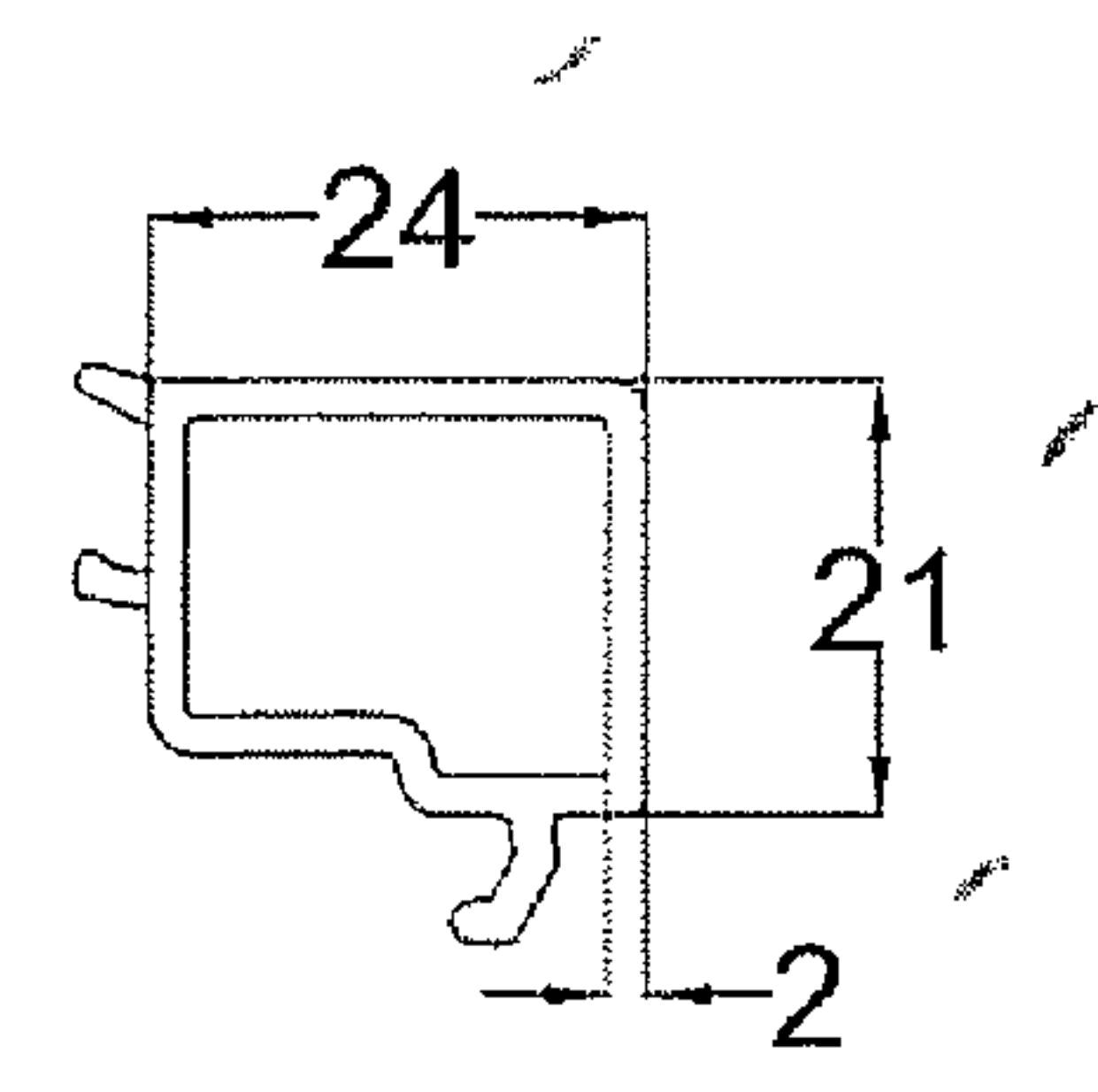
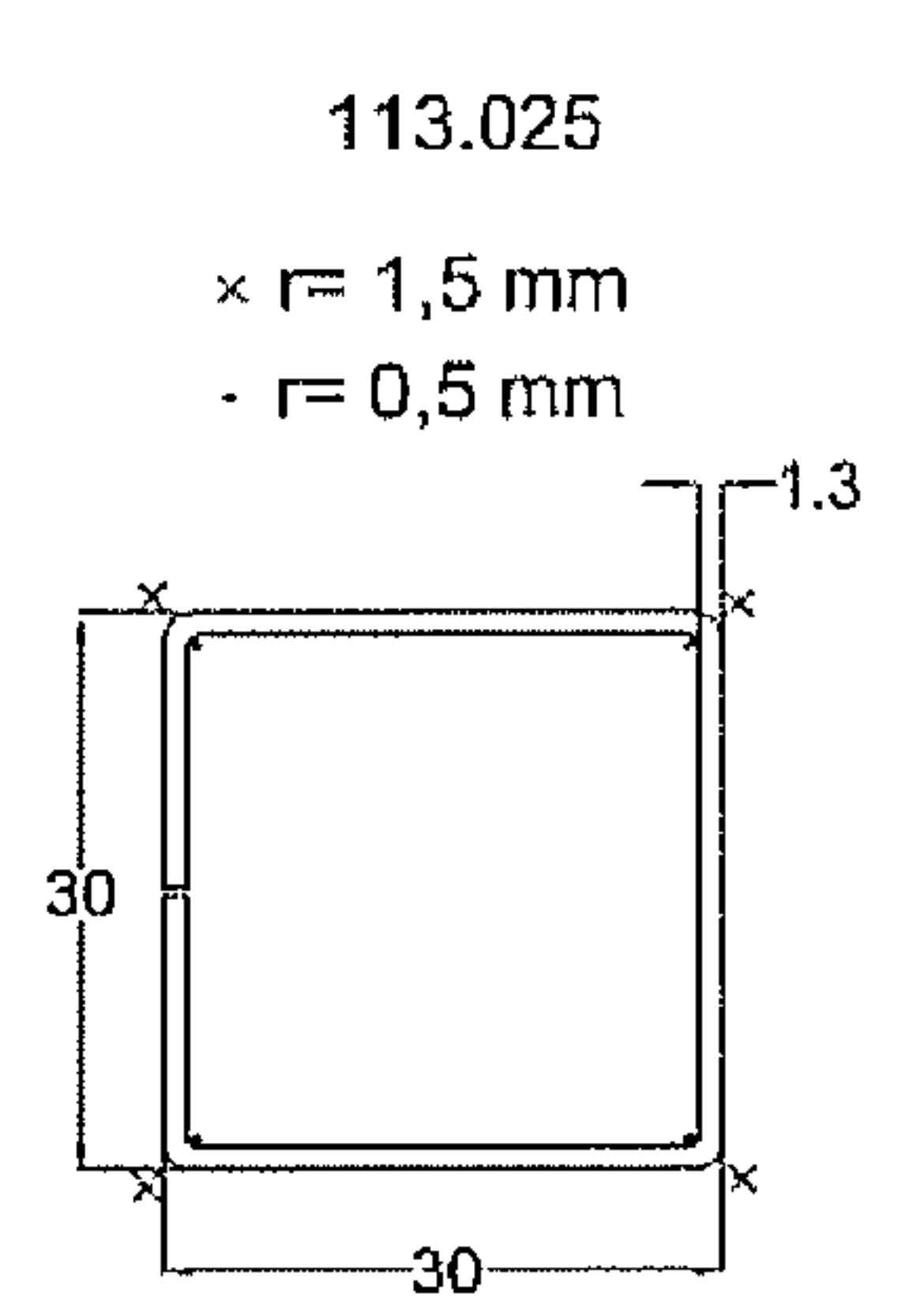
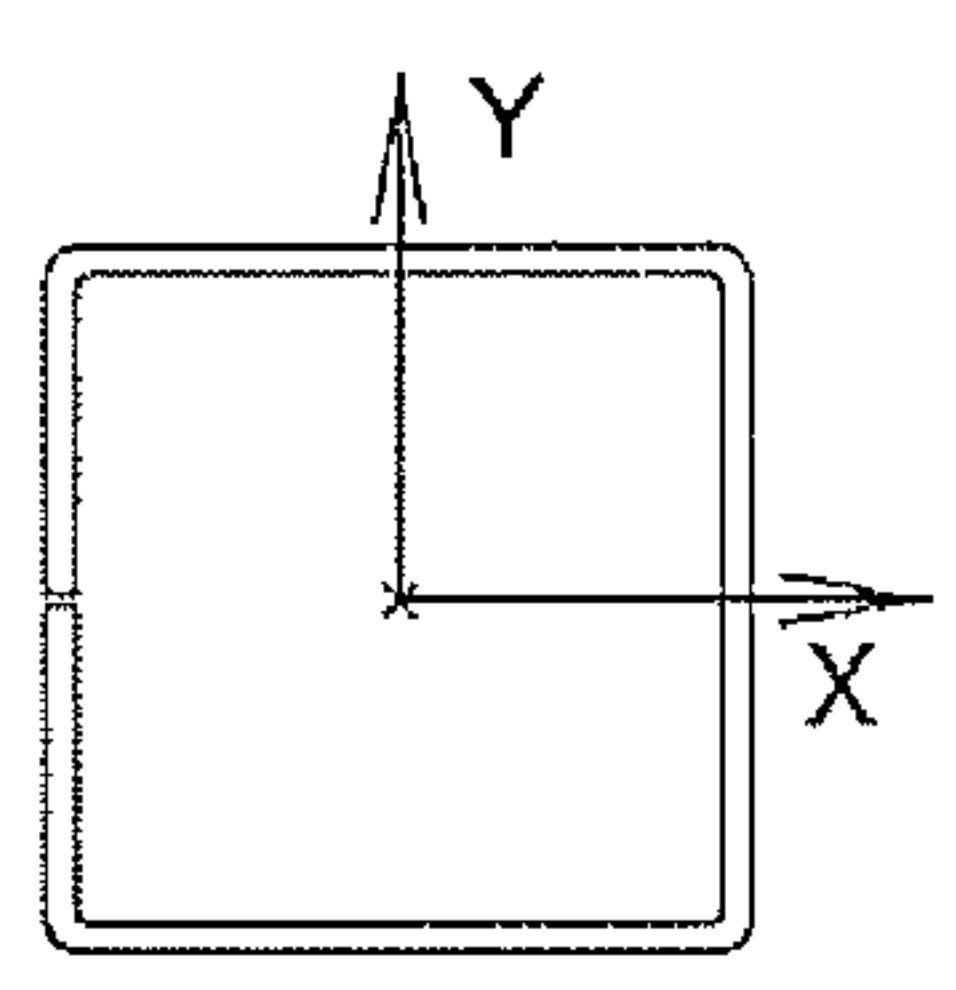


TYTUŁ: PIXEL 1525x1525 1678981 poz. 3		
NARYSOWAŁ: BERNADETA KOPEĆ	SPRAWDZIŁ: JAROSŁAW RUDKA	ZATWIERDZIŁ: JAROSŁAW RUDKA
SKALA: 1:1	WERSJA:	DATA: 22.09.2017
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TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED
 REPORT NO. NCTL-110- 20684-1
 TEST DATE 12/12/17



MOMENT OF INERTIA:
 $I_x: 1,94 \text{ cm}^4$
 $I_y: 1,94 \text{ cm}^4$



AP818

		TYTUŁ: PIXEL 1525x1525 1678981 poz. 3	
NARYSOWAŁ: BERNADETA KOPEĆ		SPRAWDZIŁ: JAROSŁAW RUDKA	ZATWIERDZIŁ: JAROSŁAW RUDKA
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