Test Report

Report No	2370/7651671 This Report consists of 9 pages
Client	Smart Systems Limited Arnolds Way Yatton BS49 4QN
Authority & date	Request by Client dated 18 February 2011
Items tested	2 off Aluminium windows, Smart Systems Internally Glazed Tilt/turn Window System BS 7950:1997 Specification for enhanced security performance of windows for domestic applications incorporating Amendments 14289 and 15666
Results	Pass
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Issue Date	24 March 2011
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of *CP0322 'Conditions of contract for testing'*. The results contained herein apply only to the particular sample/s tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the Managing Director, BSI, who reserves the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

UKAS TESTING
0135

TEST AND EXAMINATION OF TWO ALUMINIUM ALLOY WINDOWS SUBMITTED FOR ASSESSMENT, SMART SYSTEMS INTERNALLY GLAZED TILT/TURN WINDOW SYSTEM

INTRODUCTION

At the request of Smart Systems Limited the Aluminium window detailed on page 4, were tested and assessed to the requirements of BS 7950:1997 Specification for enhanced security performance of windows for domestic applications incorporating Amendments 14289 and 15666, as indicated on the following pages of this Report. This request was made in BSI Quotation No 0000302986 dated 18 February 2011.

It is emphasized that assessments have not been made against the other Clauses of the Specification.

TEST SAMPLES

1 off tilt/turn over fixed light window

(Equipment Record No 1012292)

Date sample received: 4 February 2011

SUMMARY OF RESULTS

1.	Manipulation	The test samples met the requirements of the Specification in respect of Clause 7 Annex A.4.
2.	Glazing removal	The test samples met the requirements of the Specification in respect of Clause 7 Annex A.5.
3.	Mechanical loading	The test samples met the requirements of the Specification in respect of Clause 7 Annex A.6.
4.	Manual check test	The test samples met the requirements of the Specification, in respect of Clause 7 Annex A.7.

CLAUSE 4 SAMPLE SELECTION

The samples submitted for tests were selected by the Client.

CLAUSE 5.2 ASSESSMENT

The samples submitted for tests were selected by the Client on behalf of BSI.

CLAUSE 6 TEST APPARATUS AND SAMPLE MOUNTING

The test apparatus used for the manual and mechanical tests is shown in Appendix A of this Report. This apparatus meets the requirements of the Specification.
Each test sample was submitted for test mounted in a 50 x 100mm timber subframe in accordance with the manufacturer's installation requirements.

DESCRIPTION OF SAMPLE

Sample type - Tilt/turn over fixed light

Material - Aluminium

Profile reference -

Outerframe	-	EF011
Sash	-	EF021
Transom	-	EF039

Construction - Cleated

Fittings - Locking: Chrono tilt/turn gearing (four mushroom bolts) And a key locking handle
Chrono hinge (aliplast)

Glass - Double glazed, 4-20-4mm toughened glass sealed units

Glazing system - Internal beads (IP569) and gaskets (ACVG33IW)

Sample dimensions - For information only (nominal sizes)

Overall size
Length: 1085mm Height: 2240mm

Sash size
Length: 1010mm Height: 1090mm

Fixed size
Length: 1085mm Height: 1100mm

EXAMINATION AND TEST

Sample type - Tilt/turn over fixed light

Date of test – 5 March 2011

Laboratory temperature - 20°C

CLAUSE 7 PERFORMANCE REQUIREMENTS	ASSESSMENT

Annex A.4 Manipulation test

The sample was mounted vertically in the test rig as described in Annex A.2.
The test was carried out in accordance with the given objective of this Annex using the implements described in Annex A.3.

The key for the lockable hardware was fully removable.
No entry could be effected within 3 minutes. Pass

Annex A.5 Glazing removal test

Annex A.5.1 Manual test

The sample was mounted vertically in the test rig as described in Annex A.2.
The sample was assessed using a selection of tools as described in Annex A.3.

No entry could be effected within 3 minutes Pass

Annex A.5.2 Mechanical test

The sample was mounted vertically in the test rig as described in Annex A.2.
A perpendicular to plane load of 2.0kN was applied to each corner of the glazing in turn as specified in Annex A.5.2.

No evidence of bead failure
No entry could be effected Pass

EXAMINATION AND TEST (CONTINUED)

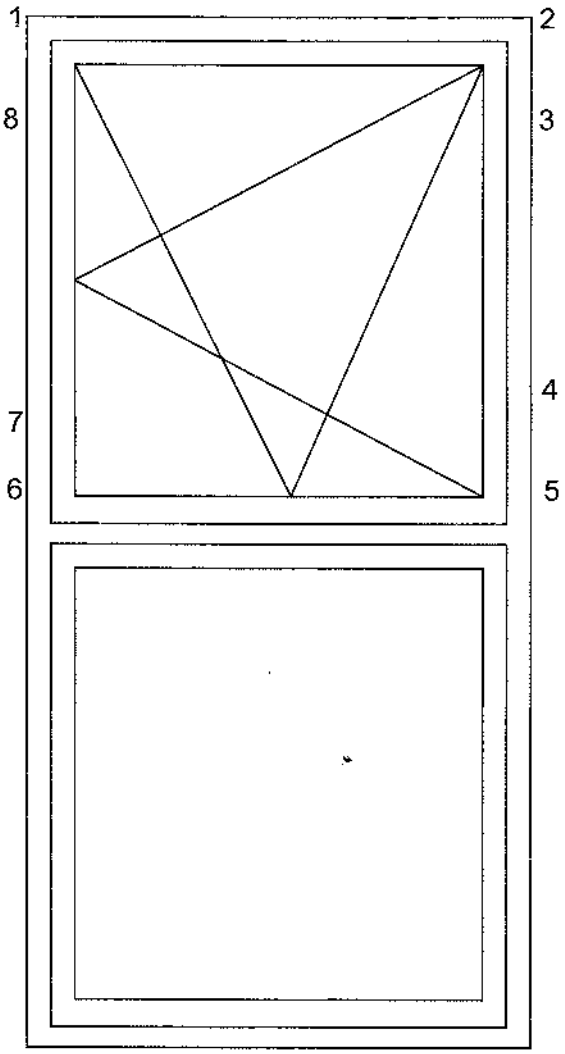
CLAUSE 7 PERFORMANCE REQUIREMENTS

Annex A.6 Mechanical loading test

The sample was mounted vertically in the test rig as described in Annex A.2.

The test was carried out in accordance with the procedures detailed in Annex A.6 and Figure 1 using the test apparatus detailed in Appendix A of this test report.

Diagram of points of application of loads



Annex A.6.2 Loading procedure

Point of application of load

First sequence

1 - Corner (left head)

Standard loading case used: 3
Load applied in plane: 1.0kN in direction to disengage nearest locking point
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Load applied in plane: 1.0kN towards opposite corner
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

EXAMINATION AND TEST (CONTINUED)

Annex A.6.2 Loading procedure

Point of application of load

2 - Corner (right head)

Standard loading case used: 3
Load applied in plane: 1.0kN in direction to disengage nearest locking point
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Load applied in plane: 1.0kN towards opposite corner
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

3 - Mushroom bolt (upper right jamb)

Standard loading case used: 4
Load applied in plane: 1.0kN along edge in direction to disengage bolt
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Loads applied in plane: 1.0kN at right angles to edge and towards opposite edge
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

4 - Mushroom bolt (lower right jamb)

Standard loading case used: 4
Load applied in plane: 1.0kN along edge in direction to disengage bolt
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Loads applied in plane: 1.0kN at right angles to edge and towards opposite edge
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

5 - Corner (right transom)

Standard loading case used: 3
Load applied in plane: 1.0kN in direction to disengage nearest locking point
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Load applied in plane: 1.0kN towards opposite corner
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

6 - Corner (left transom)

Standard loading case used: 3
Load applied in plane: 1.0kN in direction to disengage nearest locking point
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Load applied in plane: 1.0kN towards opposite corner
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

EXAMINATION AND TEST (CONTINUED)

Annex A.6.2 Loading procedure

Point of application of load

7 - Mushroom bolt (lower left jamb)

Standard loading case used: 4
Load applied in plane: 1.0kN along edge in direction to disengage bolt
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Loads applied in plane: 1.0kN at right angles to edge and towards opposite edge
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

8 - Mushroom bolt (upper left jamb)

Standard loading case used: 4
Load applied in plane: 1.0kN along edge in direction to disengage bolt
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

Loads applied in plane: 1.0kN at right angles to edge and towards opposite edge
Load applied perpendicular to plane: 3.0kN applied for 10 seconds

No entry effected Pass

Annex A.7 Manual check test

The sample was mounted vertically in the test rig as described in Annex A.2.

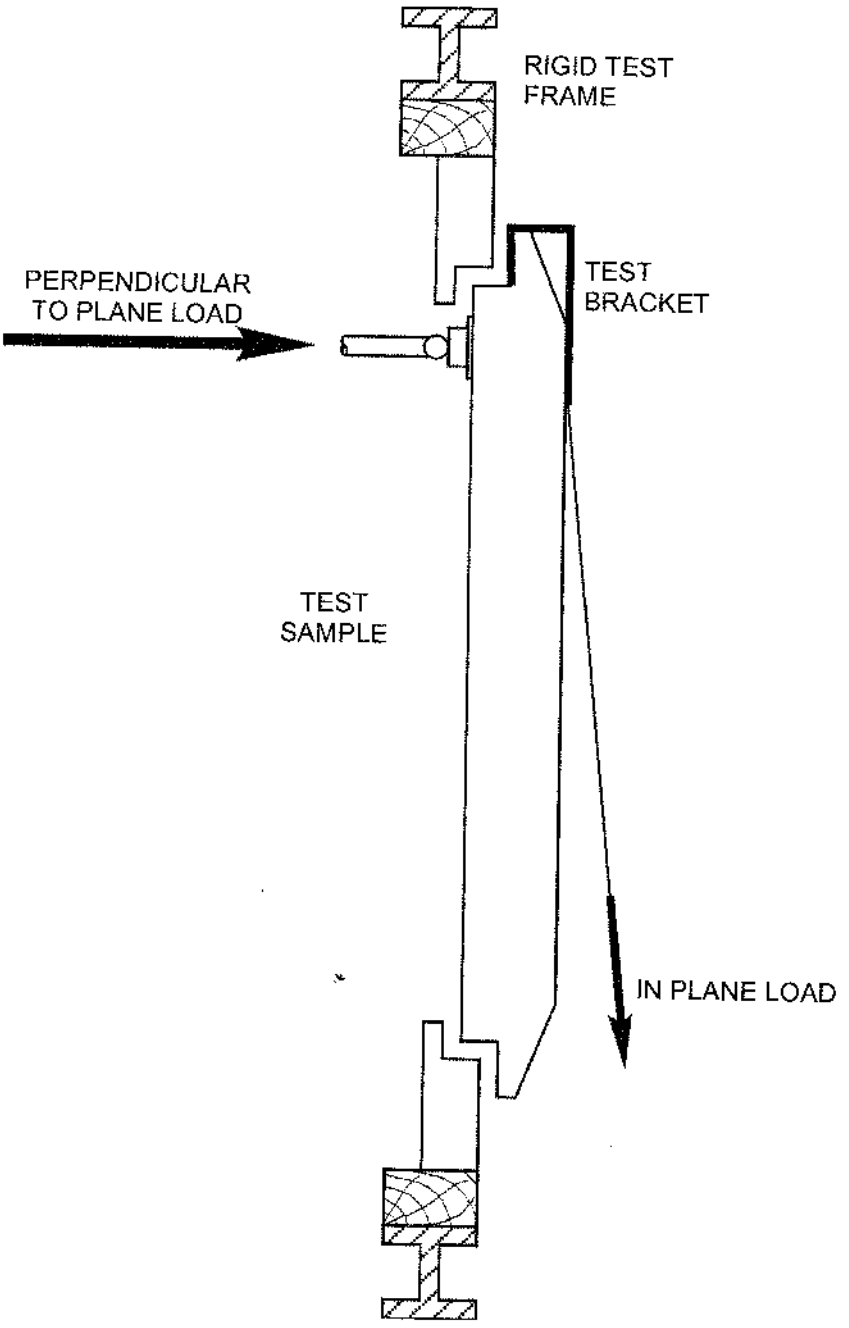
The test was carried out using the tools described in Annex A.7.2 in accordance with the procedures detailed in Annex A.7.3.

No alternative method of entry could be effected Pass

Annex A.8 Additional mechanical loading test

Not applicable as an alternative method of entry was not identified under Annex A.7.

APPENDIX A



END OF REPORT