

-:ID:- 120008:- Document Name:- Test Report for 5041

NATA ACCREDITED LABORATORY
Accreditation No: 20267, Site No: 24133
Accredited Laboratory Testing Procedures
conforming to
AS ISO/IEC 17025:2018
AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7



Providing results in line with
NCC 2022 Volume Two



Document Name:- Test Report for 5041

Sponsor Details:

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Technician:- Luigi Cantoni	Test Date:- 2nd September 2024
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Laboratory Details:

Company Name:- FGC Testing Laboratory
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Laboratory Email:- laboratory@fgclab.au
Address:- 21 Wellard St Bibra Lake WA 6163
Postal Address:- PO Box 1007 Bibra Lake DC 6965
ABN:- 17 008 740 109

Test Results Summary:

Specimen being Tested:

Fixed Security Screen

Identifying Make or Model:

ClearShield Escape Screen fixed to 20x25mm U Channels in a back to back

Infill Material Details:

SS08 - 0.8mm Powder coated Stainless Steel

Overall Size: 1500 mm Vertical by 1200 mm Horizontal

Summary of Results of Test:

Test Item	Performance Item	AS 5039 – Tests	PASS/FAIL
AS 5039.3 Section 3	AS 5039.1 Section 4.2	Dynamic Impact Test	PASS 200J

Tested Specimen is Suitable for:

Security Window Grilles used in Residential Structures

Tested Perforated Mesh Specimen is Suitable for:

Security Screen Doors/Windows used in Residential Structures

NOTES:

- This test report, its results and conclusions are provided in good faith. The testing laboratory accepts no responsibility for any loss or damage occurring from the use of this information.
- This report is to be reproduced in full unless permission has been provided in writing for an approved extract from the testing authority.
- All results and conclusions are for the specific specimen provided and any extrapolation by the client or any other individuals to other items should conform to all relevant Australian Standards that may be applicable.
- The contents of the report are confidential to the client and the testing laboratory and may not be disclosed to a third party without the permission of either the client or the testing laboratory.



Approved Signatory

Luigi Cantoni

-:ID:- 120008:- Document Name:- Test Report for 5041

Specimen being Tested Details:

Short Description: ClearShield Escape Screen

Long Description: ClearShield UltraStrength Escape Security Screen

Specimen Dimensions (Actual Size): 1500 mm Vertical x 1200 mm Horizontal

Infill Type: Type 1 - Medium Aperture Infill
Type 2 - Large Aperture Infill
Type 3 - Small Aperture Infill

Infill Material Details: Type 3 Perforated Stainless Steel 0.8mm Thickness 2.0mm Hole 3.0mm Spacing, prior to powder coating

Category Of Security Item A/B/C/D

Category B

DRAWINGS and IDENTIFICATION DETAILS (supplied by Sponsor):

Separate PDF document supplied called: 120008-Drawing

Preparation For Testing:

AS 5039.3:2023 Sec 1-5, 7 Clause (2.4) has been complied with to provide the test specimen size and nature.

AS 5039.3:2023 Sec 1-5, 7 Clause (2.5) the test application as required in this clause has been complied with.

AS 5039.3:2023 Sec 1-5, 7 Clause (2.6) the test sequence has been followed in accordance with this section.

AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 Appendix A (informative) Test sequence flow charts has been followed for those tests performed.

IMPACT TESTS – to be recorded in conjunction with AS 5039.3 Section 3.5

Impact Force 100J / 200J

TEST 200J	1	2	3	4	5	250 mm +/-25 600 mm +/-25	PASS/ FAIL	OBSERVATIONS
5 IMPACTS 100J / 200J	42 mm	51 mm	58 mm	58 mm	60 mm	Y	PASS 200J	

REMARKS:

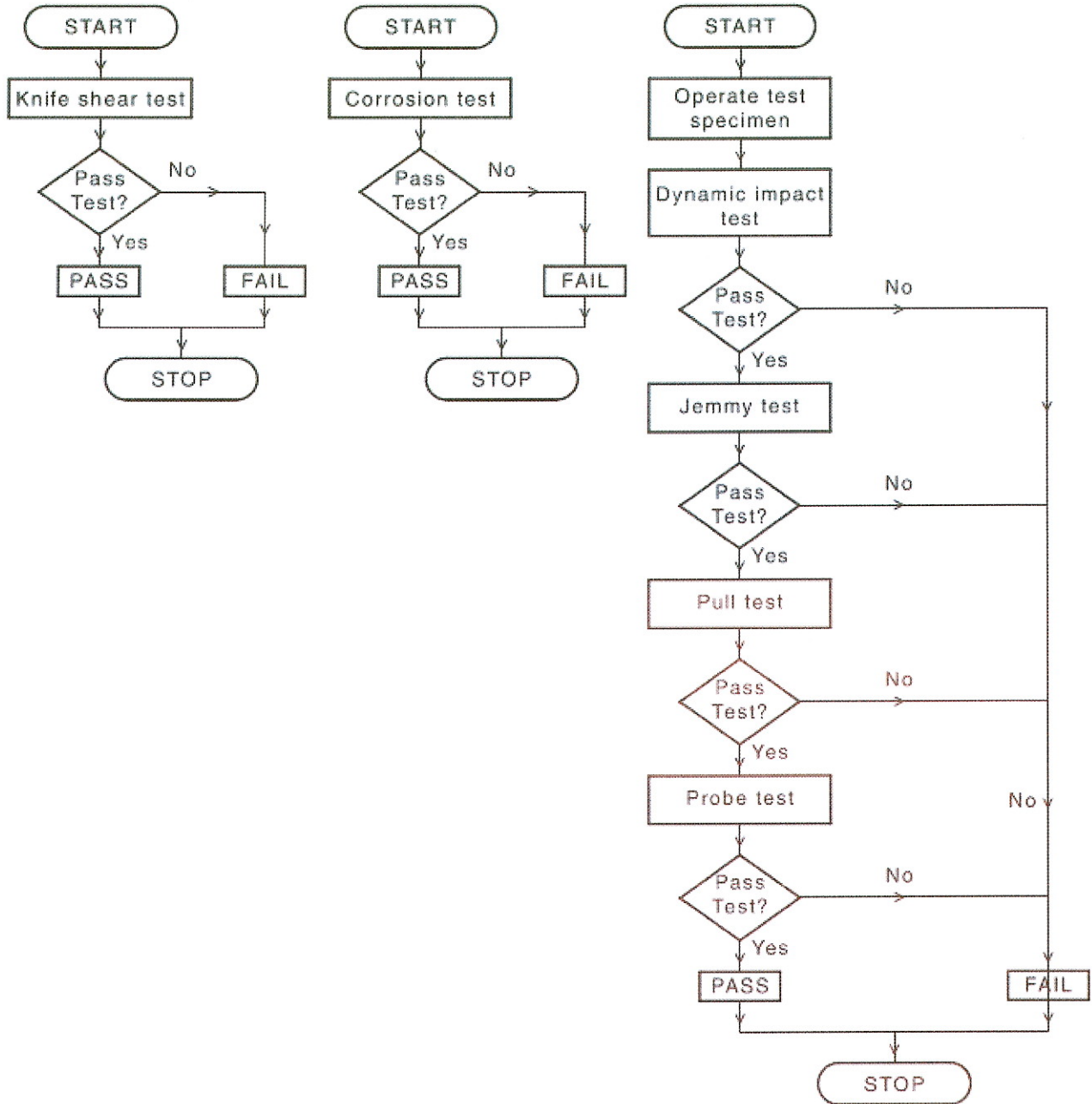


Flow Chart for Test

The flow chart extracted from AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 should be followed as this prescribes the order of tests.

The Corrosion test is not performed by this laboratory.

If a fail point is encountered while performing any tests and the sponsor requests further tests these cannot be certified as any results obtained will be incomplete/invalid. Specimen performance guidance may be obtained by continuing the tests but these are for information only and can never be used in a report.



Methods Followed for the Tests

(Summary of Standards AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7):

AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 – Section 3 Dynamic impact test

3.5 Test procedure

The impact test shall be carried out as follows:

- (a) Attach the test specimen to the support frame in such a way that the frame connection is not weakened in any way by the test and the attachment devices do not impede the path of the deflecting infill. The test specimen shall be positioned so that the impactor strikes the outside face of the security door or window screen on the side where a lock is fitted. If no lock is fitted, either side may be impacted, see positions A and B in [Figure 3.5](#).
- (b) Check and, if necessary, adjust the mass of the impactor to within the prescribed limits.
- (c) Attach the impactor to the suspension cable and suspend it at the point of attachment on the test frame so that the face of the impactor rests on the face of the infill and the suspension cable is vertical.
- (d) Adjust the length of the suspension cable and turnbuckle so that the centre of gravity of the impactor is aligned with a point —
 - (i) 600 mm ± 25 mm from the bottom edge of the test specimen or the centre of the test specimen, whichever is less; and
 - (ii) 250 mm ± 25 mm from the edge of the test specimen (see [Figure 3.5](#)) for each type of door or window.

For Type 2 infill material, the impactor shall directly impact upon a chord as close as possible to this range of dimensions. The pendulum length should remain in the range 1 850 mm ± 100 mm, see [Figure 3.3.1](#).
- (e) Using the bridle, swing the impactor away from the infill until the centre of gravity mark is the drop height distance (calculated using [Equation 3.4](#) or [3.5](#)) above the impact plane, see [Figure 3.3.1](#). The following requirements shall be met:
 - (i) The line of swing shall be perpendicular to the plane of the infill.
 - (ii) The suspension cable shall be taut.
- (f) Release the impactor without jerking or impeding its swing in any way; the impactor is prevented from hitting the door or window screen after the rebound.
- (g) Examine the security door or window screen and record any observed damage, such as cracks, gaps or breakage, in the test report.
- (h) Record the impact deformation for each strike of the impact bag in the test report.
- (i) Repeat Steps (e) to (h) four more times to give a total of five impacts to achieve the required impact security level.

The security door or window screen being tested shall remain within the screen door or window framing after being subjected to an impact energy of —

 - (i) five impacts of 100 J and remain within the screen door or window framing to achieve a Security Level 100 (SL100); or
 - (ii) five impacts of 200 J to achieve a Security Level 200 (SL200) rating.
- (j) Record any deformation or fracture of the test specimen infill material and the size of the largest hole in the infill material in the test report.
- (k) Record any deformation or fracture of the test specimen infill material to framing section interface and the size of the largest hole formed at that interface in the test report.
- (l) For a Type 1 infill material, attempt to pass a probe of (65 mm × 25 mm × 15 mm) ± 0.5 mm (refer to AS 5039.1) through any part of the infill material including the infill to framing section.
- (m) For a Type 2 infill material —
 - (i) if the supplied aperture size is greater than 300 mm in either direction, attempt to pass a rigid spherical probe of 125 mm diameter through any opening in the test specimen using a force of 250 Nm; or
 - (ii) if the supplied aperture size is less than 300 mm in both directions, attempt to pass a rigid spherical probe of 213 mm diameter through any opening in the test specimen using a force of 250 Nm.
- (n) For a Type 3 infill material, after performing the impact test, if the standard attachments used for pull testing can be affixed to the security screen door or window, proceed to the pull test.

B.2 Methodology

A series of dynamic impact tests were conducted on a typical mesh-filled security door that was rigidly supported along the hinged edge and followed the test method in AS 5039.3 with varying theoretical energy levels calculated by varying the impactor drop height (labelled as Drop 1 to Drop 3a). A load cell was installed on the non-hinged edge to measure the load applied over time. A series of kicks of varying types (front, side and back) was performed on the same screen and the load applied over time was measured. [Table B.1](#) shows the measured force (load) over time of each of the kicks and the dynamic impact tests using an impactor. The equivalent energy level has been calculated by equating the measured force over time to the theoretical calculated energy. The observed damage between drops and kicks were nominally identical for equivalent energy levels.

Table B.1 — Summary of physical tests

Description	Measured force over time	Theoretical calculated energy	Equivalent energy level
	(Ns)	(J)	(J)
Drop 1	88	100	
Drop 1a	85	100	
Drop 2	101	150	
Drop 2a	103	150	
Drop 3	116	200	
Drop 3a	118	200	
Kick 1	124	–	220
Kick 1a	103	–	150
Kick 1b	72	–	50
Kick 1c	156	–	320
Kick 2	70	–	45
Kick 3	106	–	160

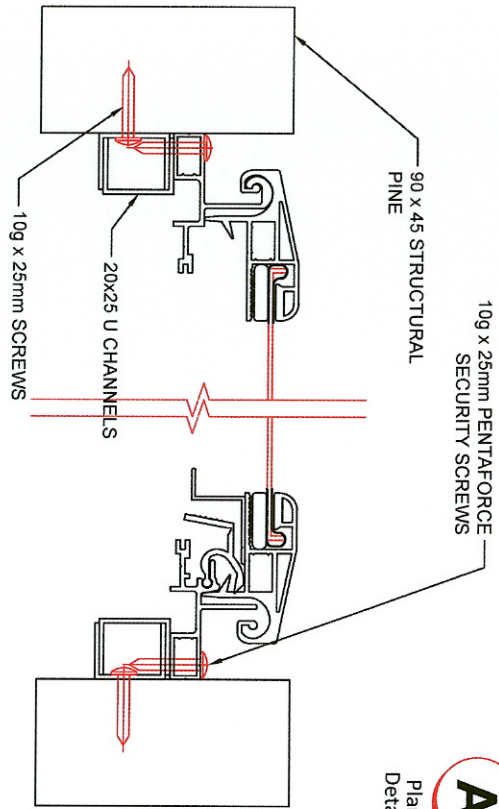
NOTES and REFERENCES:

- NATA the National Association of Testing Authorities which has its headquarters at 7 Leeds Street, Rhodes NSW 2138 with an office located at 2A Brodie Hall Drive, Bentley WA 6102. The association was formed in 1947 to govern testing laboratory standards of practice within Australia and to maintain the integrity of test reporting issued by members.
- All Australia Standards are as laid down by Standards Australia which has its headquarters at Level 10, The Exchange Centre 20 Bridge Street, Sydney NSW 2000.
- This testing laboratory has been accredited by NATA for mechanical testing in conformance with AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 and operates under its regulations.
- This test report certifies the performance of the specimen submitted to this NATA accredited testing laboratory #20267 located at Address:- 21 Wellard St Bibra Lake WA 6163. This laboratory’s accreditation at any time can be checked using the NATA web site and is operated by approved technicians.
- The tests carried out are only those as stated and results as given. Any other tests performed and information derived is not part of this report and are not included in this report.
- The tests carried out may consist of all or part of the tests specified in AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 and results established by NCC 2022 Volume Two, AS 2047:2014 Amd 2:2017, AS 5039.1:2023 AS 5039.3:2023 Sec 1-5, 7 or AS 1288:2021
- This report, its results and conclusions are provided in good faith. The testing laboratory accepts no responsibility for any loss or damage occurring from the use of this information.
- The Approved Signatory is an employee approved by this laboratory as a signatory of these endorsed test results.
- All results and conclusions are for the specific specimen provided and any extrapolation by the client or any other individuals to other items should conform to all relevant Australian Standards that may be applicable.
- The measurement results in this report are traceable to the International System of Units (SI) through NATA Accredited Calibration Laboratories and certificates issued for the measuring devices used.
- Summary and Standards information is provided for clarity only and are not a substitute for the actual standards which should be read in full in conjunction with this report.
- This report is to be reproduced in full unless permission has been provided in writing for an approved extract from the testing authority. Pages 1 and 2 may be supplied as a summary with the product described in this report as proof of rating/compliance but the entire report must be supplied if requested.
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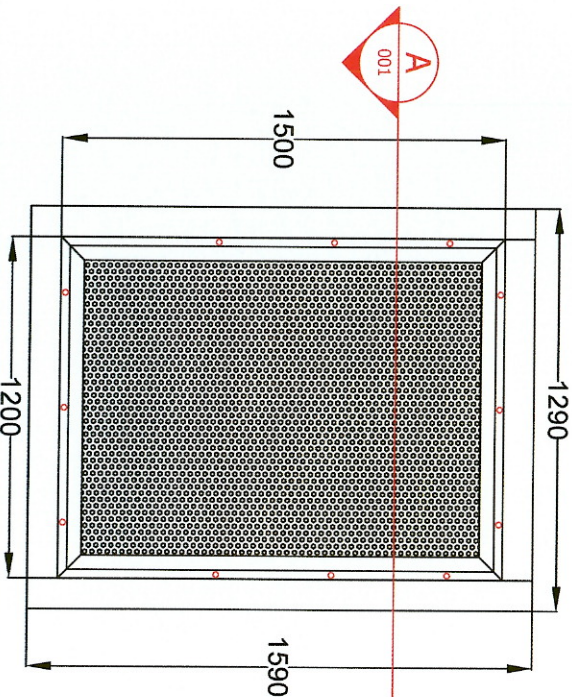
LABORATORY TOLERANCES AND CERTAINTIES:

Item	Requirement	Achieved*	Date	Certainty*	Certainty with P/T
Displacement Measuring Device	+/-0.25 mm	+/-0.20mm	26 Aug 24	99.90%	99.90%
Pressure Measuring Device	+/-2% test pressure	1.9%	9 Aug 24	99.90%	99.90%
Force Measuring Device	+/-2N and +/-5N	0.2N/0.9%	15 Aug 23	99.50%	99.50%
Low Volume Airflow Meter	5% airflow	1.0% airflow	18 Oct 23	95.00%	95.00%
Water Volume Flow Rate	+/-10% Catch Box OK	0.8% measuring	21 Nov 23	95.00%	95.00%
Pressure Plate 125mm	+0.0mm -0.5mm	-0.27	10 Jul 17	95.00%	95.00%
Rigid Sphere 125mm	Smooth Surface	-0.16	10 Jul 17	95.00%	95.00%
Long Force Test Object 125mm	+0.0mm -0.5mm 150mm – 200mm	-0.20	20 Sep 17	95.00%	95.00%

* Worse device value if many
 Worse of Calibration/Internal



A
Plan Detail



TECHNICAL DETAILS

SPECIMEN DESCRIPTION

ClearShield Escape Screen fixed to 20x25mm U Channels in a back to back configuration in a Structural Pine assembly

SPECIMEN SIZE

Structural Pine Outer size = 1590x1290
ClearShield Screen size - 1500x1200

COMPONENTRY

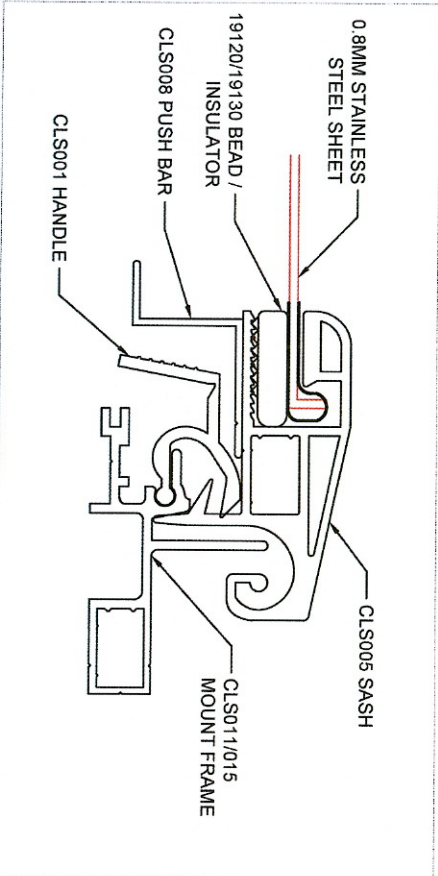
- CLS011 - Escape Mount Hinge Frame
- CLS005 - Sash Frame
- 19120 - Ultrastrong Insulator
- CLS008 - Push Bar
- SS08 - 0.8mm Powdercoated Stainless Steel Sheet
- CLS015 - Escape Mount Frame
- 19130 - Ultrastrong Co-Ex Bead
- CLS001 - Locking Bar

FIXINGS

Security Screen to Mounting Channels = 10g x 25mm Pentaforce Security Screws
Mounting Channels to Pine Assembly = 10g x 25mm Alum Screws

SPACINGS

Screen Fixings - 1st screw at 100mm from corner and then every 300mm



ClearShield AUSTRALIA

CLEARSHIELD AUSTRALIA
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Malaga 6090
PHONE: (08) 9248 2088

- NOTES**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
 2. ALL FRAMES AND FITTINGS UNLESS SPECIFIED ARE TO BE FINISHED TO THE FINISH OF THE SURROUNDING WALL
 3. ALL DIMENSIONS PRELIMINARY UNTIL OPENING SIZE CAN BE SITE MEASURED
 4. ALL ITEMS DRAWN AS VIEWED FROM OUTSIDE

Project Name	AS5039.1 2023 TESTING
Project No.	120008 ESCAPE SCREEN
Project Manager	
Checked By	
Drawn By	
Scale	300
Date	4/9/24

4/9/24

