

LATEST IN HIGH PERFORMANCE GARAGE DOORS



Smartech™

FOCUS

The National Construction Code has been updated and currently the industry is in a transition period and implementation is to start from May 2023. This means that several of the relevant Australian Standards applying to Domestic housing as well as multi-residential, have been updated in line with previous changes that applied to the industrial commercial sector.

The principal change is through AS1170 & AS 4055-2021 which deal with the design wind loads that now will apply to garage and other large openings. These are now to be treated as dominant openings and must meet the design wind load applying to the site

All garage and other large doors either fitted to the main building or to a shed or garage must meet the site Wind Classification applying and for Cyclonic regions, they must meet the further provisions of AS 4505

What does this mean?

Manufacturers of garage doors of all types must ensure now that their door meets the Wind Classification applying, be suitability engineered and tested as per the standards, made to meet the safety requirements applying when motorised, and be suitability labelled and identified.

Smartech has been manufacturing High quality and fully engineered Garage doors for many years. The Smartech Façade Garage Door (FGD) has many great features that exceed the new NCC requirements and largely meet the requirements of AS2047 which is the Standard apply to windows and doors in housing. The door incorporates specially designed jambs and header that allows the door to flush finish. They also can incorporate energy efficient features which improves the living experience within the garage or room.

Want the best?

Then Step up with a Smartech Façade Garage Door



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FEATURES AND BENEFITS

The benefit of choosing **Smartech products** is that they are designed and manufactured in **Australia**. This means you can trust that our products are specifically made and designed to Australia's highest standards, weather conditions and focus on Safety with a proprietary anti-finger crushing system concealed in the drive ramp design.

Smartech customises the design of the frame to suit many different cladding options. The most important feature is that our Façade Garage Doors can accommodate an unprecedented 400kg of cladding weight in addition to the weight of the frame. By specifying the door size and cladding material, Smartech will ensure to fabricate a door that has consistent and smooth operation.

Not many people know that the Tilt door (the basic design principle of the FGD) is an Australian invention and Smartech have developed this basic design into a high-performance door using aluminium.

Using our proprietary structural aluminium jambs, we enable the door to be flush with the façade or front wall of the building hence it is called the **Flush Finish Façade Garage Door**.

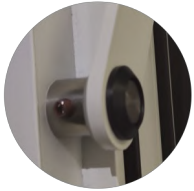
The **Façade Garage Door** comes in either a single panel tilt, or two panel vertically folding system. They are designed to be structurally riveted together using Smartech proprietary structural, aluminium extrusions. There is no welding involved, so we can supply the entire door and components packed as a kit for a cost effective option.

Façade Garage Doors are electrically operated, but in the event of a power outage, they have a simple means of converting to manual operation for ease of use.

Custom Solutions
Is our point of difference



GARAGE DOOR FEATURES OUTSIDE VIEW



- ① LINK ARM ASSEMBLY**
Powder Coated stainless steel link-arms and stainless connectors.



- ② TRIPLE SIDE SEALS**
For drought and acoustic proofing, allows thermal control.



- ③ TRACK SEAL**
Allows the track seals and frame seals together.



- ④ RAMP WITH ANTI-FINGER-CRUSH DESIGN**
This powder coated electro-plated steel ramp and bearing allows safe and smooth operation.

- ⑤ AUTO LOCK FUNCTION**
Keeping your garage safe from unwanted intruders.



- ⑥ MANUAL DOORS**
Can have internal locking.

- ⑥ CUSTOM CLADDING**
Up to 400Kg of the cladding of your choice can be applied.

- ⑦ AXLE DESIGN**
Tested 25mm Chrome nickel hardened shaft.



GARAGE DOOR FEATURES

INSIDE VIEW

① **Chain drive motor systems**

Allowing years of operation.

② **COMMERCIAL DRIVE SYSTEM**

Proven for 50,000 cycles.

③ **HIDDEN COUNTERWEIGHTS**

High tech engineered operation—
controlled and safe.

④ **CHAIN TENSIONER DESIGN**

Assists the chain for spring loading
and allows smoother operation.

⑤ **OPTIONAL INSULATION**

50mm polystyrene panelling with
an internal 'skin' of aluminium
panel or plywood sheeting, or
100mm rockwool with aluminium
panel or plywood sheeting.

⑥ **PULLEY SHEAVE**

A heavy duty pulley design for a
20-Year life cycle.

⑦ **PANELS**

Strong, durable panels providing
longevity of the product.



OTHER FEATURES

- Tilt or folding designs available
- Aluminium and stainless steel components used throughout
- Single- and double-glazing options (instead of cladding)
- Motorised or hand operated
- 2 x handset remote controls and 1 x wall mount wireless button included with motorised versions
- Welded or non-welded frame (knock-down kit) options available
- Optional LED Strip lighting to light up when the door is in the open position

COMPLIANCE BACKGROUND

AS4505-2012 Garage Doors and other large access doors. Issued in 2013 was the first Australian standard that covered Garage Doors in Cyclonic regions. It was the result of an investigation by James Cook University as to why so many garage doors blew in during Cyclone Yasi which devastated Northern Queensland in 2011. So AS4505-2012 specifies that Garage Doors are now to be considered as dominant openings with a high pressure co-efficient applying (in Cyclonic regions) as per Class 2 to 9 Commercial buildings.

Currently (2022) The ABCB is reviewing AS4505 and AS4055 Wind Loads for Housing with the view of making all garage doors included in regions N1 to C4 as dominant openings. The Manufacturers need to test and make their garage doors compliant. Many garage doors are not even compliant with the current standard Wind Loads for the regions.

The AGDA (Aust. Garage Door Assoc.) have requested at least that there be a one year transition period so that Manufacturers can test and make their doors compliant. They state in their submission to the ABCB that, to their knowledge, there are no Manufacturers that have compliant doors!

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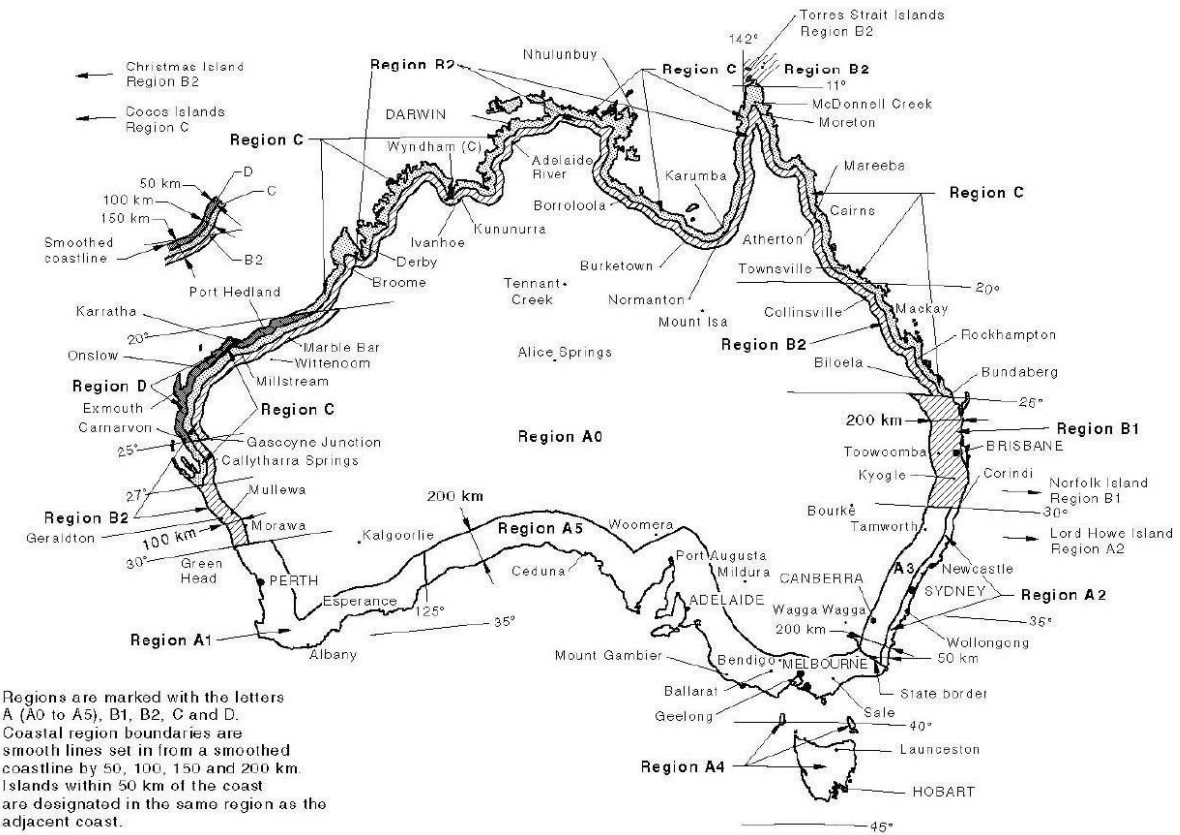
THE IDEAL SOLUTION

Rather than choosing a standard roller or panel lift door, you now have the option to choose Smartech's innovative, high performance Tilt Garage Doors. Our fully customisable products make it easier than ever to make your garage door compliment the exterior of your home beautifully. Our garage doors are made with an exclusive range of Smartech aluminium extrusions, extruded from structural grade aluminium, which is used in framing and sealing, providing strength and durability to the Façade Garage Door.

Smartech have always designed and engineered their Tilt Garage Doors to **AS1170** Parts 1-2 and have recently tested to the new standard that applies to specifically to large openings in Cyclonic regions , **AS4505-2021** (as well as AS4055-2021 which covers wind loads for housing.)



THE GEOGRAPHIC REGION OF A SITE IS SELECTED FROM THE MAP



What does Terrain Category mean?

Terrain Category 1 is exposed open terrain for a 10km radius, no trees, other buildings or hills. Terrain Category 2 is open terrain with few trees, surrounding buildings, normally a paddock. Terrain Category 2.5 is small acreage blocks. Terrain Category 3 is a suburban backyard.

What does wind region mean?

Region A is 90% of Australia and equates to winds of 41m/s or 147.5km/h. Region B is the coastal region of Northern NSW/Gold Coast or greater than 50kms from the coast where Region C is applicable. It equates to 49m/s or 176km/h. Region C is typically cyclonic, this is along the coastline from Bundaberg north, including Darwin. It equates to 57m/s or 205km/h. Region D is severe cyclonic and is only applicable to the area around Karratha, WA. It equates to 69m/s or 248km/h. These regions are as per Australian Standards

GREAT NEWS!

Here are the provisions of AS4505-2012 which determine the performance of our Façade Garage Doors. AS4505-2012 Defines a series of ratings or tests to be done to verify that the door complies.



Classification Rating

For the door to be classified as a Domestic Door or High Cycle Door (as per carparks, etc.) they must undergo a minimum amount of cycles without failure.

Classification	Application		
	Australia	New Zealand	Number of Cycles
Domestic	Class 1 & Class 10 Buildings	Household units and garages	20,000
General Purpose	Classes 1 to 10 Buildings	All buildings	(See below table)

Duty Cycle	Cycles	Description	Typical Application
Low	10,000	A door opened less frequently than once a day	Long-term storage facility
Medium	20,000	More than once a day	Garage Door
High	50,000	More than five cycles per day	Multi-use car park

Based on a test of a full scale door, our Façade Garage Door was cyclic tested as a Domestic Door to 20,000 cycles. It passed this testing easily without any wear or fatigue induced problems. So the test continued to 50,000 cycles. It also passed this very high cyclic usage without failure.

Classification Rating Continued

The Façade Garage Door is not only classed as a Domestic Door, but can be used in commercial carparks for instance. In this application its operator is changed to a quality, high use geared motor, and can incorporate additional functions like lights and sirens if required.

Ultimate Wind Pressure Rating

The Factored design wind loads both ULS & SLS are taken from AS4055-2021 Wind Loads for Housing. These values are averaged and labelled from N1 to C4 based on their regions. Please refer to Table. Testing is in two parts, Door and Door Components.

Ultimate Wind Pressure Rating			
Classification Rating		Region	Test Results
N1	ULS-600Pa SLS- 400Pa	VIC	Passed
N1	ULS- 600 SLS – 400	NSW	Passed
N2	ULS- 900 SLS – 600	Gold Coast	Passed
N2	ULS- 900 SLS – 600	Brisbane	Passed
C1	0-50 ULS 1800 SLS 600	Bundaberg	Passed
C1	0-50 ULS 1800 SLS 600	Cairns	Passed
C3	0-25 ULS 4000 SLS 1200	Darwin	Passed

Facade Garage Door

Because there are several frame designs and three regional Wind Loads test to. N1, N3, & C3, static analysis was used for the balance of doors as well as a full scale door being tested. In cases like this, AS4505 allows static analysis for verification and certification.

Smartech commissioned a Certifying Engineering Company to verify the various Façade Garage Doors applying the ULS & SLS from N1, N3, & C3 (For doors in C4 region, please contact Smartech).

Door Components

AS4505-2012 allows testing of the major door components separately to ensure that they are adequate. Smartech commissioned Melbourne Testing Facilities to undertake testing of the axles, gussets, bearings, and track components. The components did not fail under the loads applied for the required wind pressures.

All of these components are adequate for the applied factored dead, live, and wind loads. Façade Garage Doors are counterweight balanced and use quality wire rope. The main working component is the wire rope. Therefore they need to be inspected for wear (broken wires) and lubricated at least every three to six months for high use doors.

Wind Borne Debris Impact Rating

Testing the door for wind borne debris applies to Cyclonic regions and is an optional test. As Smartech commissioned Ian Bennie Pty Ltd in Melbourne to test a full scale Façade Garage Doors to do the Ultimate Wind Pressure testing from N1 to C3, they also used the opportunity to do a debris test.

The resistance of the door comes down to the type and thickness of the cladding used. If it is penetrated during the test then it is considered as a failure.

Please note that typically Smartech do not apply the cladding as Façade Garage Doors often have cladding that matches the front of the wall of the building or garage which will blend in seamlessly to the front of the building.

Smartech's Façade Garage Door passed all impact locations from A1 to A7. (Please refer to Test Results).

Labelling of Doors

AS4505 sets out the requirements for durable labels to be fitted to the door frame so that it can be identified by Manufacturer, date of manufacture, Applicable Wind Load, Ratings, etc.

Also safety labels are mandatory at pinch points and the entrapment zone at the bottom of the door.



KEY FEATURES

- 100, 125, 150 or 200 Frame Depth
- 50mm Slight Line generally
- AS/NZS 110.2-2011 Large Body Debris Impact Test to AS/NZS 5405:2012
- Compliant with all relevant Australian standards
- Variety of standard Frame Designs or Custom made
- Accepts the propriety Smartech Double Q-Ion Seal System

FABRICATION

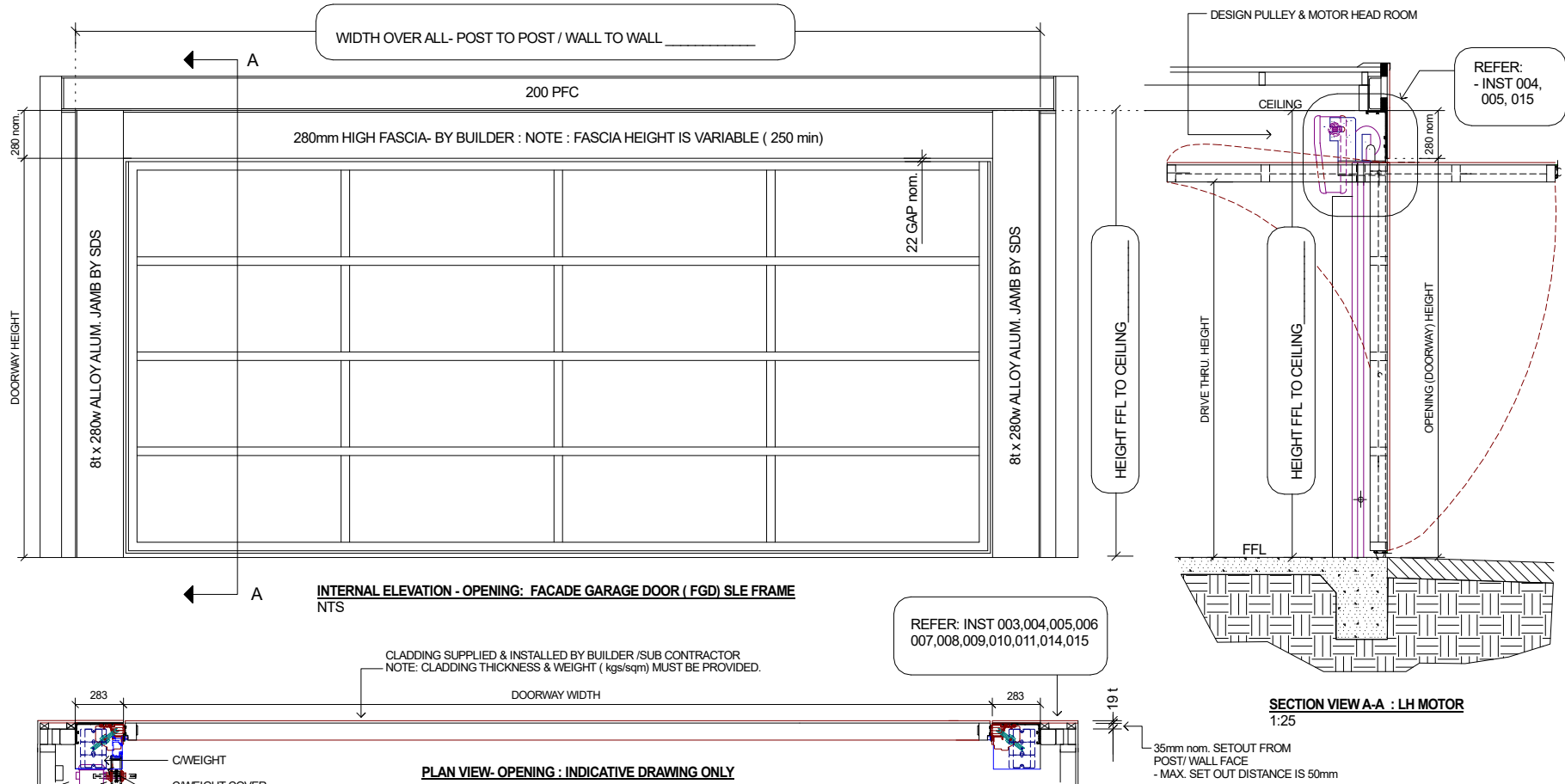
- Easy Structural and Rivet and Cornerstake
- Joinery Fabrication
- Simple assembly with range of standard design
- Aluminium frame and twin acoustic vertical seals

PRODUCT APPLICATIONS

- Garage Door, High Cycle Door, Heavily Cladded Doors that can hold up to 43Kg per m2.
- Generally up to 7500mm Wide (Consult Smartech for larger widths).

OPERATION

- Counterweighted electric operation as standard.
- Guided, quiet and smooth operation with minimal maintenance.
- Tilts out and upwards giving clear, unimpeded view.



DESIGN NOTES: Smartech FACADE GARAGE DOOR - SW100 OR SR100 (COUNTERWEIGHT BALANCED)

- DOOR FRAME FABRICATED FROM STRUCTURAL ALLOY ALUMINIUM SECTIONS; EITHER FULLY WELDED OR FULLY ASSEMBLED & STRUCTURALLY RIVETTED.
- DOOR FRAME & COMPONENTS Duralloy POWDERCOAT FINISHED Dulux- Mannex Black AS STANDARD
- SMARTTECH DO NOT SUPPLY OR INSTALL THE CLADDING. DOOR FRAME SUPPLIED READY TO BE CLAD BY BUILDER / SUB CONTRACTOR
- Smarttech WILL DESIGN DOOR TO SUIT THE THICKNESS & WEIGHT OF SELECTED CLADDING
- DOOR DESIGNED TO FINISH FLUSH WITH ADJACENT JAMBS SO THAT THE DOOR CLADDING CAN BE FITTED IN THE PLANE OF THE ADJACENT CLADDING.
- DOOR IS MANUALLY OPERATED. IT CAN BE MOTORISED ON LH SIDE (AS STD) USING A 24v DC/ 240v COMMERCIAL OPERATOR / DOOR DRIVE AS A OPTIONAL EXTRA : OPERATOR CAN BE FITTED EITHER SIDE.
- OPERATOR HAS LOGIC, RADIO CONTROL FUNCTION WITH 3 x HAND TRANSMITTERS ISSUED.
- DOORWAY FITTED WITH PE SAFETY BEAM IF REQUIRED.
- THE 280mm WIDE FF JAMBS ARE SUPPLIED BY SDS TO BE FASTENED TO STRUCTURE BY INSTALLER. DOOR TRACKS ARE TO BE FITTED TO THE JAMBS SUPPLIED.
- C/WEIGHT COVERS ARE SUPPLIED. THEY ARE TO BE SITE MEASURED & FITTED TO ENCASE THE C/WEIGHT AREAS AS INDICATED.

CONSTRUCTION NOTES: OPENING TO SUIT FACADE GARAGE DOOR.
ALSO REFER Tech Data sheets : INST 003, 004, 005, 007, 008, 009, 010, 011, 014, 015

- BUILDER TO SUPPLY & INSTALL A 280mm nom. HIGH FASCIA ACROSS THE OPENING.
- SDS WILL SUPPLY L-SHAPED ALUM. ALLOY FF JAMBS FULL HEIGHT.
- DOORWAY WIDTH BETWEEN ANGLE JAMBS WILL REDUCE BY 566mm
- REFER TO REFERENCED TECH. DATASHEETS TO ASSIST IN CONSTRUCTING THE OPENING. THERE ARE MANY VARIATIONS.
- AS PER DIMENSIONS ABOVE : DOORWAY FINISHED WIDTH : _____ mm
- DESIGN DOORWAY HEIGHT WILL BE _____ ABOVE FFL
- NOTE ALL DIMENSIONS TO BE CONFIRMED PRIOR TO FABRICATION.

GENERIC SHOP DRAWING

Smartech		PROJECT: Facade Garage Door:	
DATE: _____		TITLE: FACADE GARAGE DOOR - PROPOSED DESIGN	
DRWN: JN/sgp	SCALE: 1:25	SHEET No:	REV: A3
APPROVED DATE: _____	CHKD: _____	DWG No:	
FILE: _____			

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TESTING PERFORMANCES
From Ian Bennie Associates
Test Report 2021-020-51

SAMPLE DETAILS

A Smartech Door systems - Smartech Facade Garage door sample was provided by the client, the sample was mounted into a perimeter aluminium frame and fixed off to IBA support structure for testing. The sample consisted of a door measuring 4760mm in width by 2325mm in height with operating hardware on internal left-hand side of door. The general configuration of sample is shown in figure 1. Full details of the cladding system were provided by the Client and relevant details are included in Appendix C. Drawings received -- July 2022

TEST CONFIGURATION
Appendix B Wind-Borne Debris Impact Test

The perimeter aluminium frame was clamped to a rigid steel frame for testing. The debris catapult was placed in front of the sample at as distance so that rear end of the impactor cleared the front of the catapult just before the front end of the impactor made contact with the sample.

TEST PROCEDURE

AS/NZS 1170.2-2011 Large Body Debris Impact tests to AS/NZS4505:2012

Appendix B-B4. Impacts at a minimum of 3 different points on the sample, including -

- i) Centre of panel
- ii) Centre of supported edge within 300mm of edge;
- iii) In a corner of the door; and
- iv) Where other materials (e.g., windows) are used, in the centre of the feature

TEST CONFIGURATION
Appendix C Door Classification Test

The door was setup fixed to a rigid steel frame for testing to support the sample while it operated complete cycles of open to close, with a full view of the sample both internally and externally. The operating mechanism was attached to the door at the manufactures recommended attachment point and testing facility counting mechanisms fitted at both ends of the operation distance to record the cycles.

TESTING PERFORMANCES
From Ian Bennie Associates
Test Report 2021-020-51

TEST LOCATION

Ian Bennie and Associates Pty. Ltd.

1 Luisa Avenue, Dandenong South, VIC 3175

TEST DATE(S)

15th of July 2021 to 16th of December 2021

CONCLUSION

The Smartech Facade Garage Door test sample passed testing to Wind- borne Debris Impact testing to the requirements of region C as specified in AS/NZS 1170.2 to the methods of AS/NZS 4505:2012.

After two rounds of testing requiring mechanical modifications Test 3 was conducted and the Smartech Facade Garage Door test sample successfully completed 50,000 operation cycles and passed testing for Door Classification to general purpose, high duty cycle requirements as specified in AS/NZS 4505:2012.



Smartech[™]
Moving spaces.

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