Breezway Louvre Windows

DESIGN MANUAL

SOUTH EAST ASIA

breezway®

Altair® Louvre General Information

Altair® Louvre Window Systems

Altair® Stronghold™ System

Altair® Louvres for other frames

Product Performance Warranty: Easyscreen™ Window Systems

	Wind Speed		Wind Speed		Wind Speed	
	Design¹	Ultimate²	Design¹	Ultimate²	Design¹	Ultimate²
	1000Pa 41m/sec 146km/h 91mph	1500Pa 50m/sec 180km/h 111mph	1500Pa 50m/sec 180km/h 111mph	2300Pa 61m/sec 222km/h 138mph	2200Pa 60m/sec 218km/h 135mph	3000Pa 70m/sec 254 km/h 158mph
	200Pa Water Pass		200Pa Water Pass		300Pa Water Pass	
	Max Blade Length³	Max Window Height	Max Blade Length³	Max Window Height	Max Blade Length³	Max Window Height
Easyscreen Louvre Window System Single Bay						
152mm Altair Louvre	900	3031	750	3031	600	2471
102mm Altair Louvre	750	3061	750	3061	600	2521
Easyscreen Louvre Window System with the Stronghold System⁴ (Malaysia Only)						
152mm Toughened Glass	1127	2191	1127	2191	–	–
Easyscreen Louvre Window System Multiple Bays (maximum bay widths as per single bay windows)						
Easyscreen Mullion	–	3061	–	3061	–	2521
Easyscreen Louvre Window System Multiple Windows (coupled head-to-sill)*						
Easyscreen Coupler	–	3061	–	3061	–	2521

Product Performance Warranty: Slimline™ Window Systems

	Wind Speed		Wind Speed		Wind Speed	
	Design¹	Ultimate²	Design¹	Ultimate²	Design¹	Ultimate²
	1000Pa 41m/sec 146km/h 91mph	1500Pa 50m/sec 180km/h 111mph	1500Pa 50m/sec 180km/h 111mph	2300Pa 61m/sec 222km/h 138mph	2200Pa 60m/sec 218km/h 135mph	3000Pa 70m/sec 254 km/h 158mph
	150Pa Water Pass		200Pa Water Pass		200Pa Water Pass	
	Max Blade Length³	Max Window Height	Max Blade Length³	Max Window Height	Max Blade Length³	Max Window Height
Slimline Louvre Window System Single Bay						
152mm Altair Louvre	900	3005	750	3005	600	2445
102mm Altair Louvre	750	3035	750	3035	600	2495
Slimline Window System Multiple Bays (maximum bay widths as per single bay windows)						
Medium Duty (38 x 25) Mullion	–	1430	–	1320	–	1250
Slimline Louvre Window System Multiple Windows (coupled head-to-sill)*						
Slimline Coupler	–	1451	–	1340	–	1261

*For jamb-to-jamb coupling please consult Breezway.

The above tables outline the maximum variations that Breezway will warrant per wind pressure. Exceeding these constraints will void this Warranty. The limitations have been generated through Australian Standard AS2047 test results generated in a National Association of Testing Authorities (NATA) approved testing laboratory and over 60 years of experience manufacturing louvre windows. The design constraints below only apply to product sold as a fully assembled Louvre Window System with Altair® Aluminium Blades or glass blades to Breezway's specifications that is maintained according to the Breezway "Louvre Care and Maintenance" instructions.

For commercial applications, please consult Breezway with your specific project requirements.

1. Design Wind Speed = Serviceability Limit State Wind Pressure / Design Wind Pressure / Permissible Stress. The ability of the window to perform the intended function under normal service conditions avoiding excessive deflection or the appearance of buckling.

2. Ultimate Wind Speed = Ultimate Limit State Wind Pressure / Ultimate Strength Pressure. The maximum load carrying resistance of the window. Subjecting the window to wind pressures in excess of the Ultimate Wind Speed is likely to result in the window collapsing.

3. Maximum blade lengths apply regardless of whether annealed glass, toughened glass or aluminium blades are used. Glass blades must be 6mm thick and straight and flat within 0.35mm/m.

4. Using the Stronghold System for 152mm blade lengths greater than 900mm The Stronghold System is an optional feature of the Altair Louvre Window which mechanically fixes the blades into the clips. These mechanical fixings enable bay widths of up to 1200mm to be achieved in some regions. In other regions, the ULS and Water Pass requirements of AS2047-2014 prevent these wider bay widths from being warranted. Easyscreen, or Altair Component System High Profile Sills and standard heights are required.

Product Performance Warranty: ios™ Window Systems (Available in Philippines Only)

The following table outlines the maximum variations that Breezway will warrant per wind pressure. Exceeding these constraints will void this Warranty.

The limitations have been generated through Australian Standard AS2047 test results generated in a National Association of Testing Authorities (NATA) approved testing laboratory and over 60 years of experience manufacturing louvre windows.

The design constraints below only apply to product sold as a fully assembled Louvre Window System with Altair® Aluminium Blades, Altair Timber Blades or glass blades to Breezway's specifications that is maintained according to the Breezway "Louvre Care and Maintenance" instructions.

For commercial applications, please consult Breezway with your specific project requirements.

	Wind Speed		Wind Speed		Wind Speed	
	Design[1]	Ultimate[2]	Design[1]	Ultimate[2]	Design[1]	Ultimate[2]
	1000Pa 41m/sec 146km/h 91mph	1500Pa 50m/sec 180km/h 111mph	1500Pa 50m/sec 180km/h 111mph	2300Pa 61m/sec 222km/h 138mph	2200Pa 60m/sec 218km/h 135mph	3000Pa 70m/sec 254 km/h 158mph
	200Pa Water Pass		200Pa Water Pass		300Pa Water Pass	
	Max Blade Length[3]	Max Window Height	Max Blade Length[3]	Max Window Height	Max Blade Length[3]	Max Window Height
ios Louvre Window System Single Bay						
152mm Altair Louvre	900	3031	750	3031	600	2471
ios Louvre Window System Multiple Bays (maximum bay widths as per single bay windows)						
ios Mullion	–	3061	–	3061	–	2521
ios Louvre Window System Multiple Windows (coupled head-to-sill)*						
ios Coupler	–	3061	–	3061	–	2521

*For jamb-to-jamb coupling please consult Breezway.

1. Design Wind Speed = Serviceability Limit State Wind Pressure / Design Wind Pressure / Permissible Stress. The ability of the window to perform the intended function under normal service conditions avoiding excessive deflection or the appearance of buckling.

2. Ultimate Wind Speed = Ultimate Limit State Wind Pressure / Ultimate Strength Pressure. The maximum load carrying resistance of the window. Subjecting the window to wind pressures in excess of the Ultimate Wind Speed is likely to result in the window collapsing.

3. Maximum blade lengths apply regardless of whether annealed glass, toughened glass, aluminium or timber blades are used. Glass blades must be 6mm thick and straight and flat within 0.35mm/m.

Product Performance Warranty: Altair® Component System

The following table outlines the maximum variations that Breezway will warrant per wind pressure. Exceeding these constraints will void this Warranty. The limitations have been generated through Australian Standard AS2047 test results generated in a National Association of Testing Authorities (NATA) approved testing laboratory and over 60 years of experience manufacturing louvre windows. The design constraints below only apply to Altair Component Systems with Altair Aluminium Blades or glass blades to Breezway's specifications that are maintained according to the Breezway "Louvre Care and Maintenance" instructions.

	Wind Speed		Wind Speed		Wind Speed	
	Design[1]	Ultimate[2]	Design[1]	Ultimate[2]	Design[1]	Ultimate[2]
	1000Pa 41m/sec 146km/h 91mph	1500Pa 50m/sec 180km/h 111mph	1500Pa 50m/sec 180km/h 111mph	2300Pa 61m/sec 222km/h 138mph	2200Pa 60m/sec 218km/h 135mph	3000Pa 70m/sec 254 km/h 158mph
	150Pa Water Pass		200Pa Water Pass		200Pa Water Pass	
	Max Blade Length[3]	Max Louvre Height	Max Blade Length[3]	Max Louvre Height	Max Blade Length[3]	Max Louvre Height
Altair Component System Single Bay						
152mm Altair Louvre	900	2990	750	2990	600	2430
102mm Altair Louvre	750	3020	750	3020	600	2480
Mullion Type[5]		Max Mullion Height		Max Mullion Height		Max Mullion Height
Mullion strip	–	1307	–	1141	–	1080
Medium Duty Mullion (38 x 25)	–	1452	–	1346	–	1274

Max Louvre Heights include top and bottom Altair Weatherstrips.

1. Design Wind Speed = Serviceability Limit State Wind Pressure / Design Wind Pressure / Permissible Stress. The ability of the window to perform the intended function under normal service conditions avoiding excessive deflection or the appearance of buckling.

2. Ultimate Wind Speed = Ultimate Limit State Wind Pressure / Ultimate Strength Pressure. The maximum load carrying resistance of the window. Subjecting the window to wind pressures in excess of the Ultimate Wind Speed is likely to result in the window collapsing.

3. Maximum blade lengths apply regardless of whether annealed glass, toughened glass or aluminium blades are used. Glass blades must be 6mm thick and straight and flat within 0.35mm/m.

4. Using the Stronghold System for 152mm blade lengths greater than 900mm The Stronghold System is an optional feature of the Altair Louvre Window which mechanically fixes the blades into the clips. These mechanical fixings enable bay widths of up to 1200mm to be achieved in some regions. In other regions, the ULS and Water Pass requirements of AS2047-2014 prevent these wider bay widths from being warranted. Easyscreen, or Altair Component System High Profile Sills and standard heights are required.

5. Heavy Duty Mullions are not available with the Altair Component System. Heavy Duty Mullions can only be used within Breezway Window Systems.

6. The Altair Component System Product Performance Warranty is applicable only when Breezway Altair Weatherstrips are used and the system is installed in accordance with Breezway recommended installation procedures.

Warranty

Your Louvre windows from Breezway are warranted against defects arising from faulty workmanship or materials for up to seven (7) years from the date of receipt of goods, provided the following conditions are met.

a. The product is installed in accordance with the manufacturer's Product Performance Warranty, written installation specification and with all relevant Standards.

b. The product has been maintained according to Breezway and industry recommendations.

c. The product has not been subject to misuse, physical abuse or neglect.

d. Manufacturing standards and tolerances are not deemed defects, nor are industry variations in colour of aluminium, plastic and timber componentry.

e. Breezway accepts no responsibility for glass breakage (except for faulty workmanship or materials), toughened and float glass is guaranteed against defects and degradation for three (3) years (if supplied by Breezway).

f. Moving parts, which wear out as part of normal use, are guaranteed for seven (7) years. All electrical components are guaranteed for three (3) years.

g. This Guarantee is limited to the repair or replacement of the faulty product at the company's discretion, but does not extend to the installation or refinishing of a replacement product.

h. Only repairs carried out by Breezway personnel or authorised agents are covered by this Guarantee.

i. Claims under this Guarantee should be made within one month of the defect arising in the product. Copies of documentation showing the purchase date of the product should be included with your written claim and forwarded to the nearest Breezway office.

The Guarantee is in addition to all other rights and remedies in respect of this product to which you are entitled under the local laws.

Care And Maintenance

Maintaining Aluminium Finishes
Regular maintenance of the surface finish will be necessary to reduce the rate of weathering. The frequency of cleaning will depend on the environmental conditions, but as a guide should be done at 3 monthly intervals, or more frequently in aggressive coastal or industrial environments.
- Remove loose deposits by gently brushing or hosing.
- Clean using a sponge or soft brush and warm water with a mild detergent. Avoid cleaning agents with a caustic base, abrasive materials or harsh chemicals.
- Rinse with clean water.
- Dry with a chamois (optional).
- Apply a 'non-abrasive' car polish to maintain the lustre of the finish (optional).

Glass Maintenance
For best results glass blades should be regularly cleaned with mild, non-abrasive detergents. Low e glass blades should be installed with the coated side facing to the inside of the building and should only be cleaned with mild, non-abrasive detergents. Abrasive detergents or cleaning tools will visibly damage the low e coating.

Louvre Maintenance
It is recommended that inspection be carried out at the time of installation and then at yearly intervals. This may be required more frequently depending upon the variation of location, and environmental conditions.

Inspection and checks
- Inspect all fittings and screw fixings for firmness.
- Where handle connectors are used, inspect all pivot points of linkages, connecting links, pins and split pins and/or clips for wear and secure fixings.
- Ensure that all Stronghold System pins (if present) are firmly clicked in place.
- Check the louvre clips for any degradation over time.
- Check that the blade is firmly and safely positioned in the clips.
- Ensure all louvre blades operate freely.
- Ensure that seals are in place and clean.
- The Powerlouvre® Window should be operated at least once per month.

Lubrication
All internal louvre operating mechanisms are pre-lubricated, prior to assembly, with a clear lubricant where required. Under normal conditions this will be satisfactory for the life of the window.

Plastic Maintenance
When cleaning plastic components it is recommended to be done by wetting a cloth with a neutral cleaning agent such as a car wash without wax/polymer, or alternatively a mild furniture polish. Acidic or alkaline cleaning solutions, such as vinegar, detergents and glass cleaners should be avoided.

Selecting The Right Aluminium Finish

The aluminium components of Altair® Louvre windows are available in two different surface finishes: anodised or standard powder coating.

Powder coatings are polyester coatings from leading powder suppliers applied to a thickness of 50-80 μm and anodised finishes are to a thickness of 25 μm.

Over time, weathering of powder coated surfaces should be expected, resulting in a gradual change in appearance. This will be evident in loss of gloss, chalking, colour change and erosion of the powder coatings.

Selecting the right finish for the atmospheric conditions of the site and correct maintenance will be critical to the ongoing appearance of the finish.
Note that industry accepted colour variation can occur during the aluminium anodising process.

Product	Film Integrity Warranty	Colour Integrity	Recommended End Use
Powder Coated	10 years	7 years	Residential and Light Commercial to 3 Levels; and more than 100 metres from any salt water or surf line
Anodised – 25 μm	10 years	10 years	Suitable for all environments including; severe, industrial, coastal or tropical environments

Energy Efficiency

Breezway Altair® Louvre Windows can help to enhance the energy efficiency and comfort of a building by offering:

Maximum ventilation
With no fixed panes and blades that open almost fully horizontally (88°) Altair Louvre Windows welcome fresh, cooling breezes. These cooling breezes reduce the need for power hungry electric air conditioning systems, thereby helping to save our fragile environment.

Tight Sealing
Altair Louvre Windows have an air infiltration rating that is significantly better than the standard required for residential windows. Tight sealing reduces draughts thereby allowing heating and cooling systems to run more efficiently.

Choice of Glazing
A variety of energy efficient glazing options can be used to meet local requirements. For example, toned glass blades reduce the amount of hot sunlight that enters a building and the improved insulating properties of low e glass blades offer thermal performance comparable to clear double glazing.
Energy ratings of most windows sold in Australia can be found in the Window Energy Rating Scheme (WERS) website, www.wers.net. In Southeast Asia's warm, tropical climate the shading offered by tinted glass or aluminium blades will reduce the solar heat gain through those windows thereby reducing the temperatures within a building. Clear low e glass can similarly reduce the solar heat gain when clear glass is preferred. Low e glass blades offer insulating properties similar to those achieved by windows with clear double glazing.

Airborne Sound Isolation

Size	Sound Transmission Loss	Blade Material
2100 h x 800 w	R' w. 28	Toughened Glass
2400 h x 840 w	R' 45, w. 27	Toughened Glass
2400 h x 840 w	R' 45, w. 25	Aluminium

The Altair Louvre window system has been field tested for sound transmission loss.

The tests were conducted independently by a member firm of the Association of the Australia Acoustical Consultants.
The tests were carried out on Altair windows 2400 high x 840 wide. The windows comprised of a Breezway Louvre Windows aluminium surround frame complete with 152 Altair louvres. The 2400 high windows consisted of louvres of 16 operable blades with a fixed extension blade.
The results of these field tests gave the following sound transmission loss.
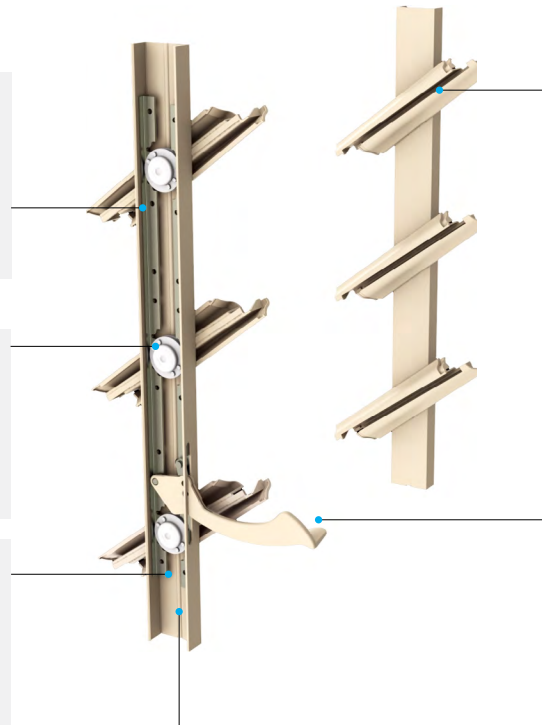
Altair® Louvres Description and Functions

- Worldwide patents approved.

Extruded "T" shaped aluminium operating bars provide a strong, non corrosive, durable and smooth operating mechanism. It also adds extra security as the bars operate to the outside of the channel at all times.

For long and maintenance free use the operating and over centre locking mechanisms are manufactured from non-corrosive material, including all rivets and fasteners.

Injection moulded bearings made of acetal use the living hinge concept to pull the louvre blade against the channel as the window is closed. This results in higher resistance to water and air. Security is now increased by interlocking teeth in the bearing retainer. (Tested to over 40,000 open/close cycles)

Clips are manufactured from UV stabilised polypropylene. The clip colour is solid throughout. Primary and secondary drainage channels within the louvre clips direct the flow of any water to the outside of the building. Colour matching is available for Breezway Standard Colour range.

The handle is made entirely from a UV stabilised acetal. This makes it not only non corrosive, but ideal for commercial areas, as it will spring back to position, even when bent severely. For other handle options see the Altair Handles section. Colour matching is available for Breezway Standard Colour range.

The Altair Louvre channel is made from 6060-T5 extruded aluminium.

Altair® Louvre Systems

Altair Louvres are available in either the fully integrated Easyscreen™ Window System, the Slimline™ Window System, the ios™ Window System (Philippines Only), or a Component System for other frames.

Louvre Window System

Altair Powerlouvre in a Breezway Easyscreen™ Frame. (ex. Australia)

Louvre Window System

Altair Louvres in a Breezway Slimline™ Frame.

Louvre Window System

Altair Louvres in an ios™ Frame (Philippines Only).

Louvre Component System

Altair Louvres used in other Framing System.

Altair® Louvre Gallery Features

Gallery Type Options

- Single Operating Mechanism
- Powerlouvre™ (only available in the Easyscreen Window System)
- The Stronghold™ System

"Standard" Inclusions

- Handle control: Left; single operating (viewed from inside);
- Standard Handle;
- Standard Heights;
- Clips: Suit 6mm blades;
- Screw Holes: With or without.

"Off Standard" Features Available

- Handle Control: Right, single operating (viewed from inside);
- Low Profile Handle;
- Additional Handle or Variable Handle: e.g. 8 Blade with two handles;
- Ring Handle (A13);

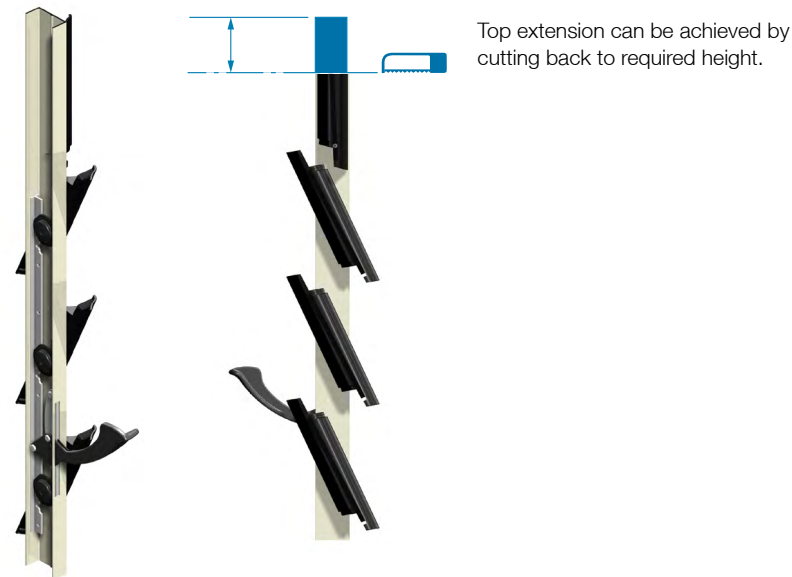## Off Standard Louvre Gallery Heights (Extended Channel)

It is recommended that, wherever possible, Altair Louvre Windows should be designed to a standard height. This will reduce the product cost and ensure effective opening of all blades.

In some circumstances this may not be possible. In these instances the Altair Louvre can be ordered with Extended Channel. The Extended Channel is a continuation of the channel that is cut to size, giving improved appearance and water performance in comparison to an add-on extension piece.

The Louvre is supplied with an Extended Channel that can be cut back to the required height. Note that the part to be cut down is located at the top of the gallery.

Off-standard heights within 5mm of a standard height do not need a fixed blade but the shrouds of the top clips may need to be trimmed for off-standard heights between 5mm and 2mm below a standard height.

Off-standard heights that are not within 5mm of a standard height will be fitted with a top fixed blade. For example, the louvre illustrated is ordered as 3 blade with Extended Channel.

Top extension can be achieved by cutting back to required height.

Handles

Handle Front View

CLOSED
132mm   38mm
31mm
R132mm
184mm Travel
OPEN
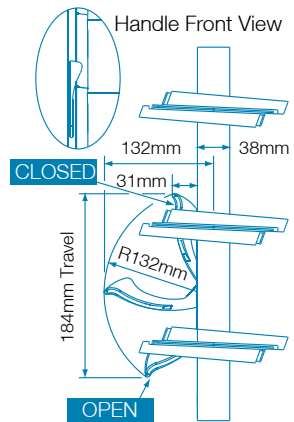
Standard Handle
• Acetal handle
• Ergonomic design for comfortable use

Handle Front View

38mm
105mm
10mm
CLOSED
R105mm
OPEN

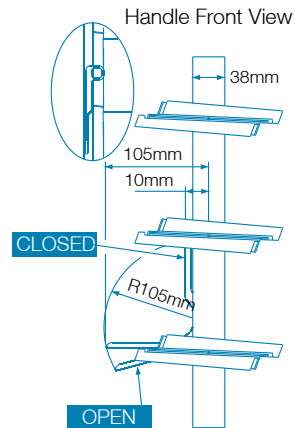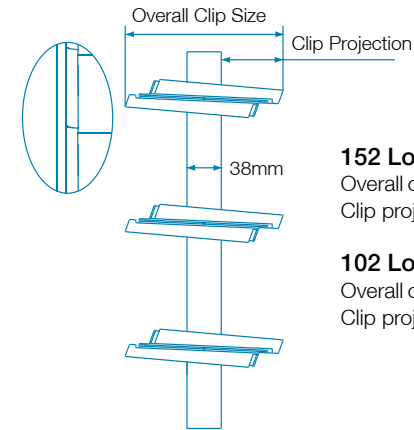**Low Profile Handle**
• Stainless steel handle
• Substitute for Standard Handle when inserting into bi-folding & sliding door panels

Overall Clip Size
Clip Projection

38mm

152 Louvres:
Overall clip size = 171mm
Clip projection = 66mm

102 Louvres:
Overall clip size = 128mm
Clip projection = 44mm

*Available ex. Australia only.

Powerlouvre™ Gallery*
• Concealed motors and connectors for use with Remote Window Control Systems

Handle Front View

Overall Clip Size
Clip Projection
CLOSED
147mm   38mm
206mm Travel
R147mm
OPEN

152 Louvres:
Overall clip size = 171mm
Clip projection = 66mm
102 Louvres:
Overall clip size = 128mm
Clip projection = 44mm
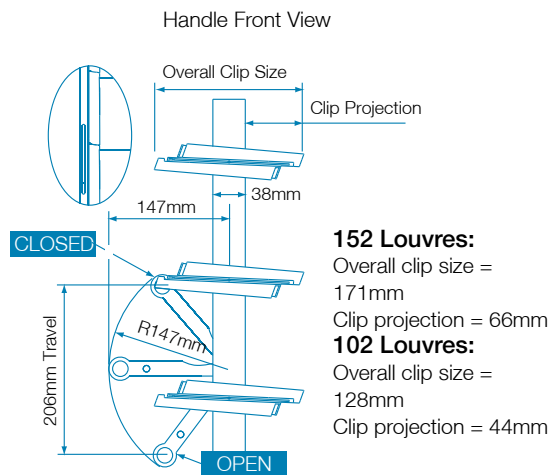
Ring Handle (A13)
• Stainless steel handle for manual operation with Breezway Map Rod when installed out of reach

Handle Front View

2-1/16"
1-15/32"
CLOSED
9-15/32"
6-7/32"
OPEN
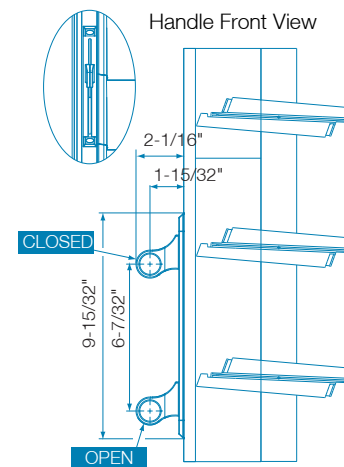
ios™ Inside Screen Slide Handle (Philippines Only)
• Acetal handle
• For manual operation with inside screen ios Window System only
• Should not be operated using a pole

Altair® 152mm Louvre Standard Handle Positions

Formulas for Other Handle Positions

- Low Profile Handle Position   = Standard Handle Position – 3mm
- Ring Handle Position   = Standard Handle Position +22mm

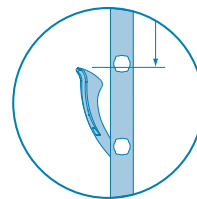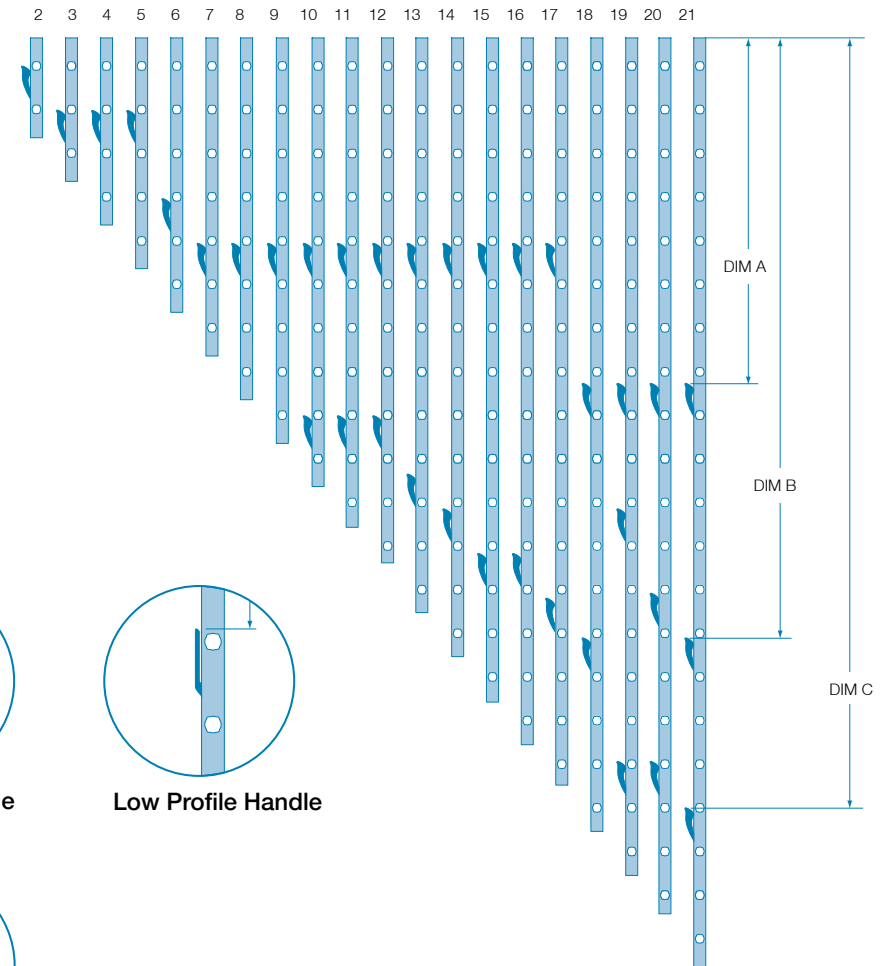| No. of Blades	Banks of Blades Controlled from Head Downwards			Channel Length	Dim A	Dim B	Dim C
2	2			320	72		
3	3			460	212		
4	4			600	212		
5	5			740	212		
6	6			880	492		
7	7			1020	632		
8	8			1160	632		
9	9			1300	632		
10	7	3		1440	632	1192	
11	7	4		1580	632	1192	
12	7	5		1720	632	1192	
13	8	5		1860	632	1332	
14	9	5		2000	632	1472	
15	7	8		2140	632	1612	
16	7	9		2280	632	1612	
17	8	9		2420	632	1752	
18	9	9		2560	1052	1892	
19	9	4	6	2700	1052	1472	2312
20	9	6	5	2840	1052	1752	2312
21	9	7	5	2980	1052	1892	2452

Standard Handle

Low Profile Handle

Ring Pull Handle (A13)

DIM A

DIM B

DIM C

NOTES:

- Additional handles can be specified or relocated to another position. Each handle can operate a maximum of nine clips including at least one clip directly below the handle.

Altair® 102mm Louvre Standard Handle Positions

No. of Blades	Banks of Blades Controlled from Head Downwards			Channel Length	Dim A	Dim B	Dim C	Dim D
3	3			310	88			
4	4			400	178			
5	5			490	178			
6	6			580	268			
7	7			670	268			
8	8			760	268			
9	9			850	268			
10	6	4		940	268	718		
11	6	5		1030	268	718		
12	6	6		1120	268	808		
13	6	7		1210	268	808		
14	7	7		1300	268	898		
15	7	8		1390	268	898		
16	9	7		1480	628	1078		
17	9	8		1570	628	1078		
18	9	9		1660	628	1078		
19	9	5	5	1750	628	988	1438	
20	9	5	6	1840	628	988	1528	
21	9	5	7	1930	628	988	1528	
22	9	6	7	2020	628	1078	1618	
23	9	7	8	2110	628	1078	1618	
24	9	6	9	2200	628	1078	1618	
25	9	9	7	2290	628	1078	1888	
26	9	9	8	2380	628	1078	1888	
27	9	9	9	2470	628	1078	1888	
28	9 6 4 9			2560	628	1078	1528	1978
29	9 6 5 9			2650	628	1078	1528	2068
30	9 7 5 9			2740	628	1078	1618	2158
31	9 7 6 9			2830	628	1078	1708	2248
32	9 7 7 9			2920	628	1078	1708	2338
33	9 7 8 9			3010	628	1078	1708	2428

NOTES:

- Additional handles can be specified or relocated to another position. Each handle can operate a maximum of nine clips including at least one clip directly below the handle.

Formulas for Positions of Non-Standard Handles
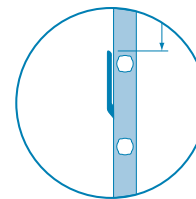
- Low Profile Handle Position   = Standard Handle Position – 8mm
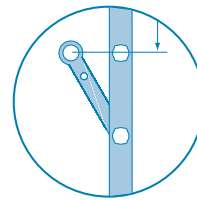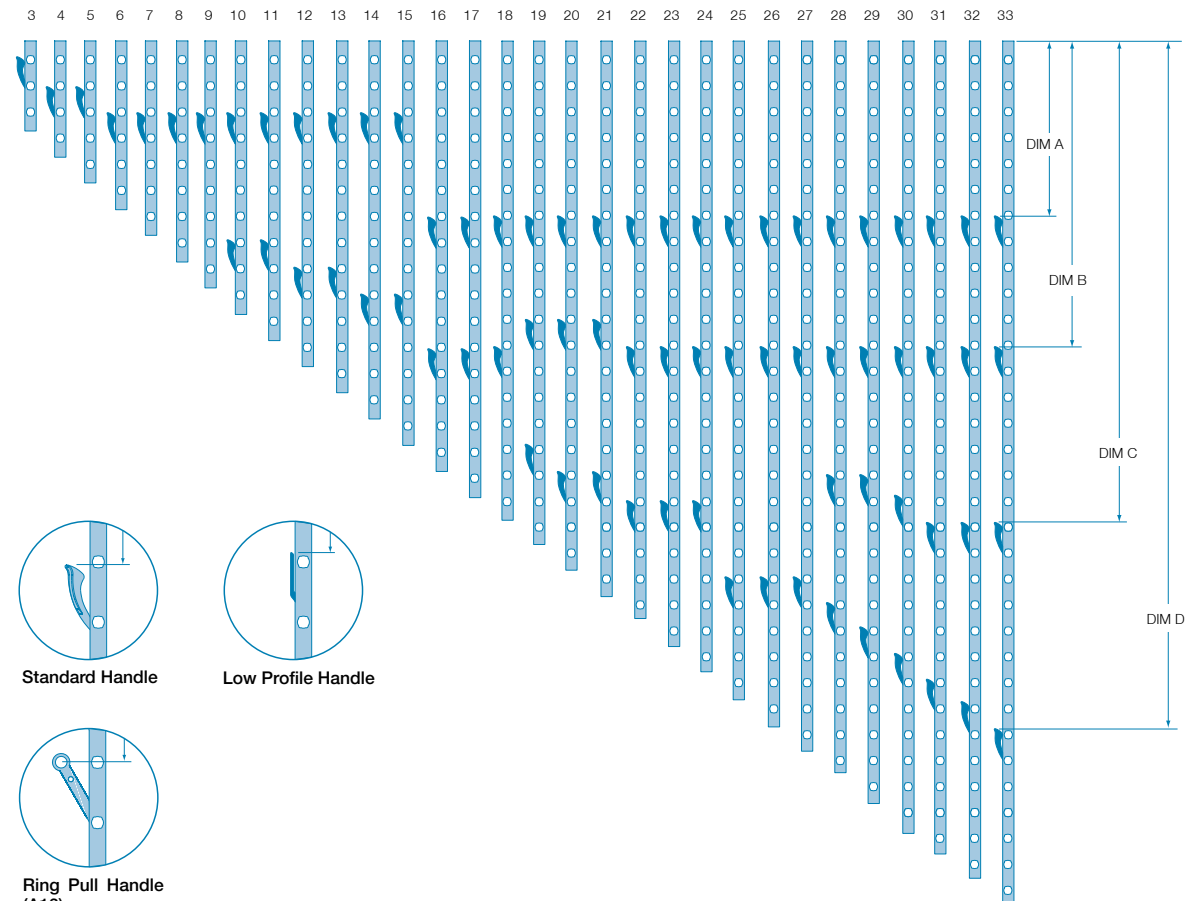- Ring Handle Position   = Standard Handle Position +19mm*

* For 3 and 4 blade galleries: Ring Pull Handle position   = Standard Handle Position –75mm
** For 3 and 4 blade galleries handle position   = Standard Handle Position –48mm

Standard Handle

Low Profile Handle

Ring Pull Handle (A13)

Extruded Aluminium Blades

Refined Design

- Aluminium blades in solid colours can bring a sharp, modern aesthetic to your design and provide shading and privacy benefits.

152mm Aluminium Blade

152.4mm ±0.6mm

Outside Edge

Top Edge

Inside Edge

Co-extruded Santoprene Weatherseal

Bottom Edge

102mm Aluminium Blade

102.6mm ±0.6mm

Outside Edge

Top Edge

Inside Edge

Bottom Edge
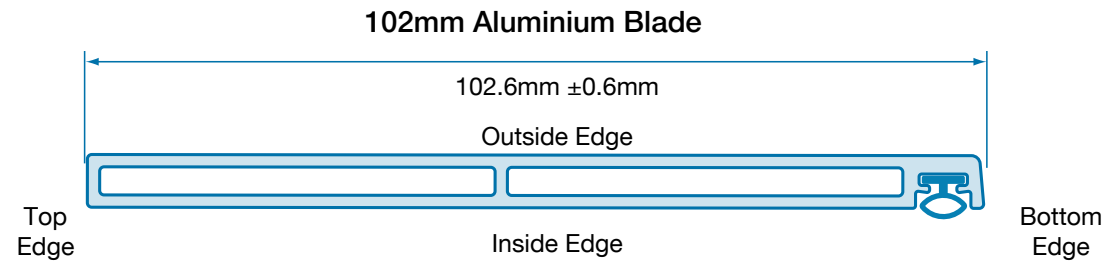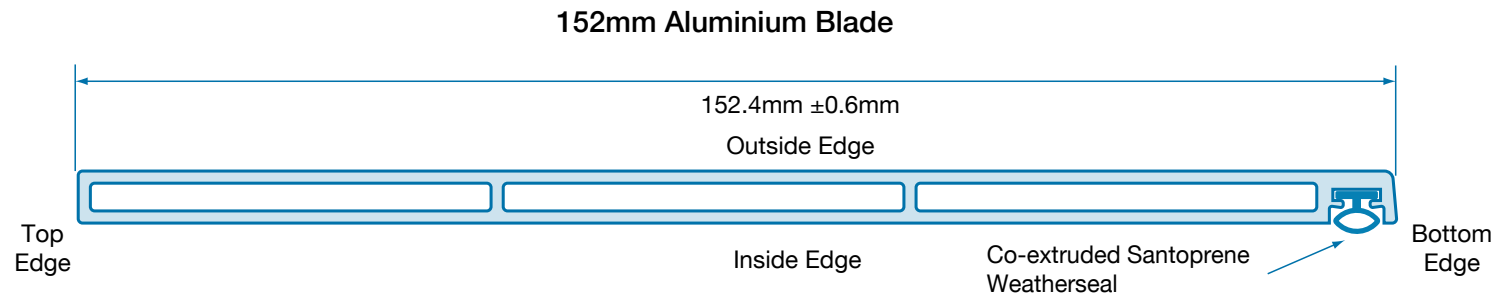
Altair® Louvre Window Systems

Easyscreen™ Window System

Slimline™ Window System

ios™ Window System (Available in Philippines Only)

Choice of Frames
Easyscreen (131mm), Slimline (52mm), or ios (130mm) Surround Frames are available. A wide range of powdercoat colours with matching handles and clips are available.

Custom Designed for Altair Louvres
Altair Louvres clip neatly into the frame with no visible gallery screws.

Durable
Constructed entirely of non-corrosive materials including 6060-T5 aluminium, stainless steel and industrila strength acetal and polypropylene plastics.

Strong
Structural components of the window system are manufactured from 6060-T5 aluminium alloy.

Supply of Extras
Reveals and flashing are available as an option. Breezway is able to supply smooth polished glass blades.

High Performance
Breezway Window Systems are purpose designed Louvre Window Systems. All frames are produced to AS2047-1999 and NZS. 4211-1985. See our Product Performance Warranty for ratings information.

Easyscreen™ Window Systems

Easyscreen™ Window System

Automated or Manual Options
With the optional Altair Powerlouvre™ Window System, Altair louvres can be automated via a motor concealed within the Easyscreen Window System.

Screen Housing
The Breezway Easyscreen Window System includes an integrated insect and security screen housing that allows easy fitting of screens to the frame. Screens can be installed from within the building and are positioned so that they will not interfere with the operation of the louvzre blades. (Screens supplied by others).

Security Options
Integratd security bars are available as an option within the Easyscreen Window Frame. Security screens can be fitted into the Easyscreen Window System's screen housing.

Glazing Options
The Easyscreen Window System can facilitate both louvre and fixed lite configurations, allowing for horizontal louvre fixed lite combinations in a single frame.

Easyscreen™ with D Bar

The Easyscreen Window System with optional integrated D bar security system. To suit 152mm louvre only. Longer lead times may apply, please contact your Breezway representative for more details.

Easyscreen™ with Fixed Lite

The Easyscreen Window System can facilitate 5mm and 6mm fixed lite glazing, allowing for louvre fixed lite combinations. Recommended fixed lite glass sizes will display on Breezway quote confirmations.
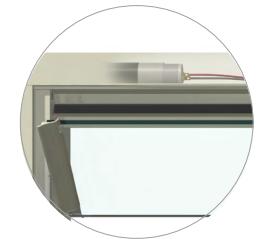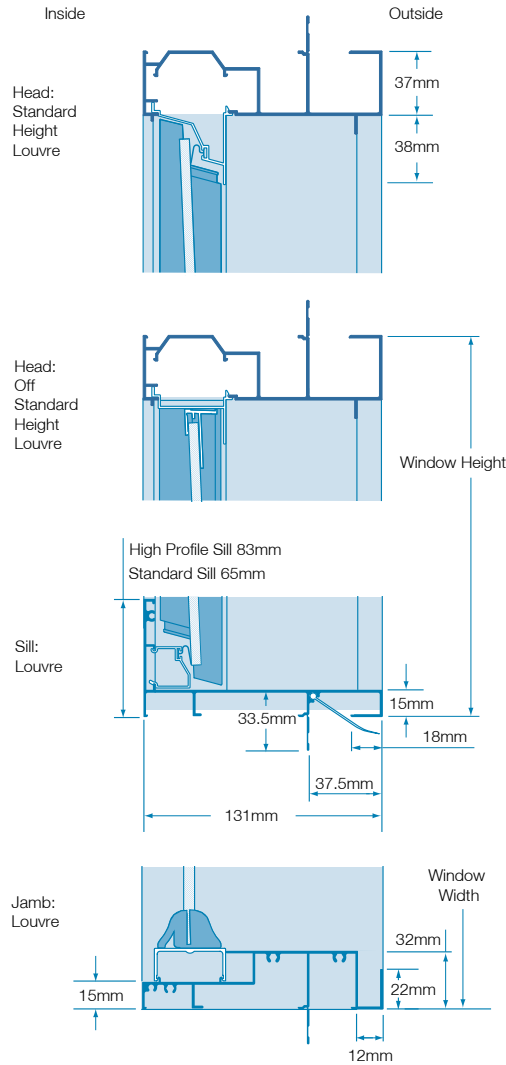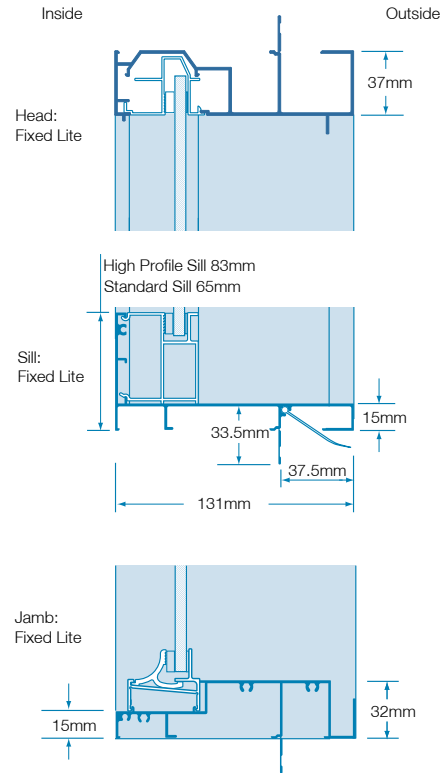
Powerlouvre™ Window Motor

The Powerlouvre Window motor is neatly concealed within the Easyscreen Window System.

Easyscreen™ Louvre Window System Dimensions

Inside — Outside

Head:
Standard
Height
Louvre

37mm

38mm

Head:
Off
Standard
Height
Louvre

Window Height

High Profile Sill 83mm
Standard Sill 65mm

Sill:
Louvre

15mm
33.5mm
18mm
37.5mm
131mm

Jamb:
Louvre

Window Width

32mm
22mm
15mm
12mm

Easyscreen™ Fixed Lite Window System Dimensions

Inside — Outside

Head:
Fixed Lite

37mm

High Profile Sill 83mm
Standard Sill 65mm

Sill:
Fixed Lite

15mm
33.5mm
37.5mm
131mm

Jamb:
Fixed Lite

15mm
32mm

Easyscreen™ Window System Accessories

Easyscreen Coupler

2mm
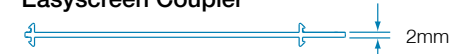
Couple Easyscreen Window Systems together. (2mm extra height or width)

Easyscreen Cover Plate

2mm

When the Easyscreen Window System extends beyond the building frame, a cover plate can be used to trim the assembly. (2mm extra height or width)

Easyscreen™ Window System Mullion

Mullion:
Louvre to
Louvre

58.8mm
18.5mm
25mm
12mm

NOTES:

Design Registrations apply.

Slimline™ Window System
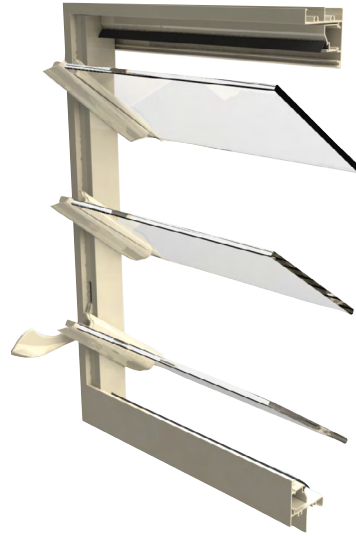
Slimline Window System

Custom designed for Altair Louvres
Altair Louvres clip neatly into the frame with no visible gallery screws.
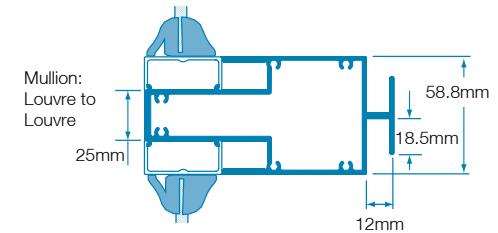
Durable
Constructed entirely of non-corrosive materials including 6060-T5 aluminium, stainless steel and industrial strength acetal and polypropylene plastics.

Strong
Structural components of the window system are manufactured from 6060-T5 aluminium alloy.

Slimline™ Window System Dimensions

Inside   Outside

Standard Height Head — 12mm, 50mm

Example shows the Glass / Aluminium Fixed Blade Carrier. A Timber Fixed Blade Carrier is also available.

Off Standard Height Head

Standard Height

Sill — 50mm, 12mm, 25mm, 52mm

Jamb — 12.5mm

Medium Duty Mullion — 25mm, 38mm

ios™ Window System (Philippines Only)

ios Window System

Custom designed for Altair Louvres
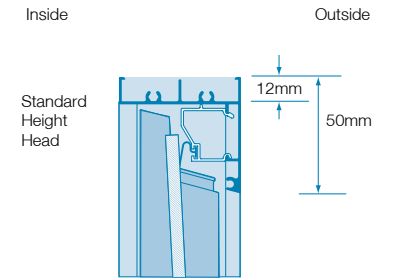Altair Louvres clip neatly into the frame with no visible gallery screws.

Durable
Constructed entirely of non-corrosive materials including 6060-T5 aluminium, stainless steel and industrial strength acetal and polypropylene plastics.
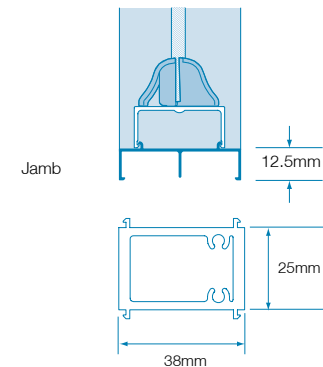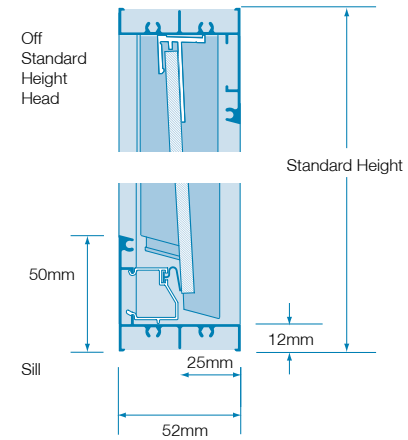
Strong
Structural components of the window system are manufactured from 6060-T5 aluminium alloy.

Screen Housing
The Breezway ios Window System includes an integrated insect and security screen housing that allows easy fitting of screens to the frame. Screens can be installed from within the building and are positioned so that they will not interfere with the operation of the louvre blades. (Screens supplied by others).

ios™ Window System Dimensions
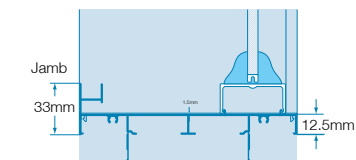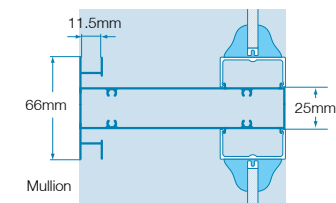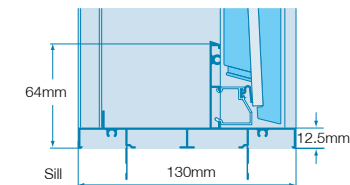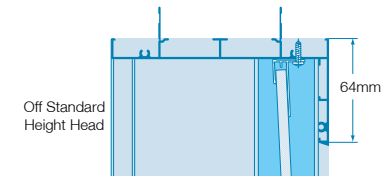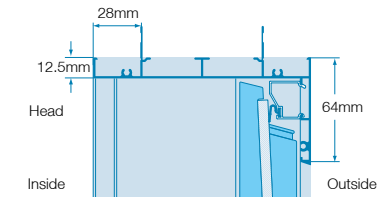
ios Coupler and Cover Plate
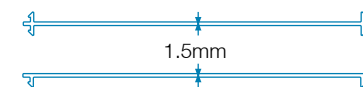
Couple ios Window Systems together or trim assembly that extends beyond the building frame. (1.5mm extra height or width)

Standard Heights

No. of Blades	152mm Galleries		
	Easyscreen™ Window System	Slimline™ Window System	ios™ Window System (Philippines Only)
	Standard Height (mm)	Standard Height (mm)	Standard Height (mm)
2	371	345	346
3	511	485	486
4	651	625	626
5	791	765	766
6	931	905	906
7	1071	1045	1046
8	1211	1185	1186
9	1351	1325	1326
10	1491	1465	1466
11	1631	1605	1606
12	1771	1745	1746
13	1911	1885	1886
14	2051	2025	2026
14 Ext	2100	2100	2100
15	2191	2165	2166
16	2331	2305	2306
16 Ext	2400	2400	2400
17	2471	2445	2446
18	2611	2585	2586
19	2751	2725	2726
20	3891	2865	2866
21	3031	3005	3006

No. of Blades	102mm Galleries	
	Easyscreen™ Window System	Slimline™ Window System
	Standard Height (mm)	Standard Height (mm)
3	361	335
4	451	325
5	541	515
6	631	605
7	721	695
8	811	785
9	901	875
10	991	965
11	1081	1055
12	1171	1145
13	1261	1235
14	1351	1325
15	1441	1415
16	1531	1505
17	1621	1595
18	1711	1685
19	1801	1775
20	1891	1865
21	1981	1955
22	2071	2045
22 Ext	2100	2100
23	2161	2135
24	2251	2225
25	2341	2315
26	2431	2405
27	2521	2495
28	2611	2585
29	2701	2675
30	2791	2765
31	2881	2855
32	2971	2945
33	3061	3035

Standard Height sizes are measured from bottom of visible metal to top of visible metal.

NOTES:
- Slimline windows with multiple bays and heights of over 10 and 16 blades respectively for 152mm Galleries will require Heavy Duty Mullions.
- Off-standard heights that are not within 5 mm of a standard height have a fixed blade at the top to achieve the specific height.
- Refer to the product performance warranty on possible height restrictions for different blade types and bay widths.
- Standard sizes will save money and improve lead times.
- Maximum width = 4000mm (frames over these dimensions will need to be coupled together on site or at a window fabricator's factory).
- Up to 6 bays (sets of galleries) can be included in a single surround frame.
- Window Systems with Fixed Galleries consist of 152mm clips and blades. Fixed galleries are permanently fixed with the blades at a 45 degree angle.
- Window Systems with Fixed Galleries do not meet water penetration requirements.
- Window Systems with Fixed Galleries are only available in standard heights.

Size Range
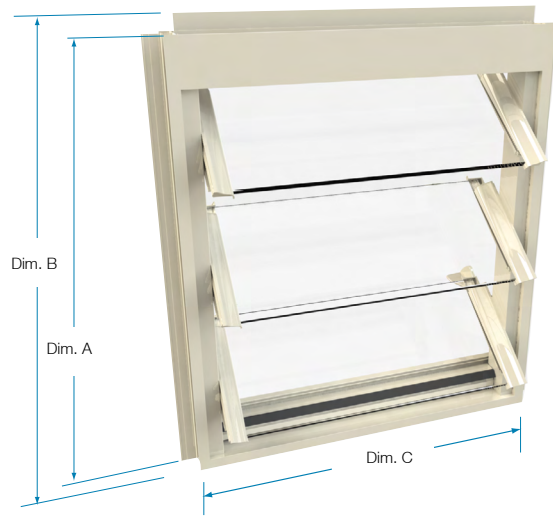
Dim. A　= Actual Height / Standard Height
Dim. B　= Dim A+40mm
Dim. C　= Frame Width

Louvre Window System Dimensions	
Frame Width	Dim. C
Stud opening	Dim. C + 10mm
Easyscreen™ Frame: Glass & aluminium blade length	Dim. C – 82mm
Slimline™ Frame: Glass & aluminium blade length	Dim. C – 77mm
Easyscreen™ Frame: Glass & aluminium Stronghold™ blade length	Dim. C - 78mm
Slimline™ Frame: Glass & aluminium Stronghold™ blade length	Dim. C - 73mm
ios™ Frame: Glass & aluminium blade length	Dim. C - 77mm
ios™ Frame: Glass & aluminium Stronghold™ blade length	Dim. C - 73mm

Extension Blade Dimensions

Louvre Blade

x

Blade thickness 6mm

Blade Cut Length ±0.6mm
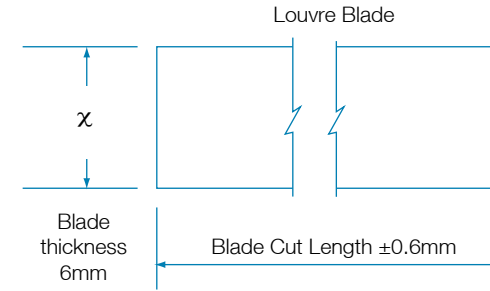
Easyscreen Frame	
Glass & Aluminium blades	x = Channel extension +13mm

Slimline Frame	
Glass & Aluminium blades	x = Channel extension +20mm

ios Frame (Philippines Only)	
Glass & Aluminium blades	x = Channel extension +20mm

Blade Span Calculations for Multiple Bay Window Systems

Blade Type	Easyscreen™ Window System Blade Span Calculations				
	1 bay	2 bay	3 bay	4 bay	5 bay
Glass, Aluminium	Window Width - 82mm	(Window Width - 159mm) / 2	(Window Width - 236mm) / 3	(Window Width - 313mm) / 4	(Window Width - 390mm) / 5
Glass, Aluminium with Stronghold System	Window Width - 78mm	(Window Width - 151mm) / 2	(Window Width - 224mm) / 3	(Window Width - 297mm) / 4	(Window Width - 370mm) / 5

Blade Type	ios™ Window System Blade Span Calculations (Philippines Only)				
	1 bay	2 bay	3 bay	4 bay	5 bay
Glass, Aluminium	Window Width - 77mm	(Window Width - 154mm) / 2	(Window Width - 206mm) / 3	(Window Width - 283mm / 4	(Window Width - 360mm) / 5
Glass, Aluminium with Stronghold System	Window Width - 73mm	(Window Width - 146mm) / 2	(Window Width - 194mm) / 3	(Window Width - 267mm) / 4	(Window Width - 340mm) / 5

Blade Type	Slimline™ Window System Blade Span Calculations				
	1 bay	2 bay	3 bay	4 bay	5 bay
Glass, Aluminium	Window Width - 77mm	(Window Width - 154mm) / 2	(Window Width - 231mm) / 3	(Window Width - 308mm) / 4	(Window Width - 385mm) / 5
Glass, Aluminium with Stronghold System	Window Width - 73mm	(Window Width - 146mm) / 2	(Window Width - 219mm) / 3	(Window Width - 292mm) / 4	(Window Width - 365mm) / 5

For off-set bay widths, contact Breezway

Maximum Bay Widths For Standard Sizes

This table indicates the maximum Easyscreen™ Window System width that Breezway will warrant, per wind category.

Blade Type		Easyscreen Window System Widths (mm)				
		1 bay	2 bay	3 bay	4 bay	5 bay
Up to 1000Pa Design Wind Speed	Glass, Aluminium - 152mm	982	1959	2936	3913	4000
	Glass, Aluminium - 102mm	832	1659	2486	3313	4000
Up to 1500Pa Design Wind Speed	Glass, Aluminium	832	1659	2486	3313	4000
Up to 2200Pa Design Wind Speed	Glass, Aluminium	682	1359	2036	2713	3390

Maximum Window System Dimensions (Before Coupling).

Maximum Dimensions supplied in one continuous window are 3061mm high x 4000mm wide

This table indicates the maximum Slimline™ Window System width that Breezway will warrant, per wind category.

Blade Type		Slimline Window System Widths (mm)				
		1 bay	2 bay	3 bay	4 bay	5 bay
Up to 1000Pa Design Wind Speed	Glass, Aluminium - 152mm	977	1954	2931	3908	4000
	Glass, Aluminium - 102mm	827	1654	2481	3308	4000
Up to 1500Pa Design Wind Speed	Glass, Aluminium	827	1654	2481	3308	4000
Up to 2200Pa Design Wind Speed	Glass, Aluminium	677	1354	2031	2708	3385

Maximum Window System Dimensions (Before Coupling).

Maximum Dimensions supplied in one continuous window are 3035mm high x 4000mm wide

This table indicates the maximum ios™ Window System width that Breezway will warrant, per wind category (Available in Philippines Only).

Blade Type		ios Window System Widths (mm)				
		1 bay	2 bay	3 bay	4 bay	5 bay
Up to 1000Pa Design Wind Speed	Glass, Aluminium - 152mm	977	1954	2931	3908	4000
	Glass, Aluminium - 102mm	827	1654	2481	3308	4000
Up to 1500Pa Design Wind Speed	Glass, Aluminium	827	1654	2481	3308	4000
Up to 2200Pa Design Wind Speed	Glass, Aluminium	677	1354	2031	2708	3385

Maximum Window System Dimensions (Before Coupling).

Maximum Dimensions supplied in one continuous window are 3036mm high x 4000mm wide

NOTES:

Frames over 4000mm wide will need to be coupled on site or at the window fabricators factory.
An additional 2mm will be included onto the overall window height & width with each Coupler or Cover Plate added.

Altair® Powerlouvre™ System

The Powerlourve Window motor is neatly concealed within the Easyscreen™ Frame.

Automated Windows
Automated windows allow integration of passive ventilation into automated climate control systems and also offer an easy way to operate windows that are high up and out of reach.

Durable Construction
Manufactured from 6060-T5 extruded aluminium for strength and long, low-maintenance life.

Integrated Motor and Gearbox
The Breezway Altair Powerlouvre Window incorporates a motor and gearbox concealed within the Easyscreen Window Frame, resulting in an automated louvre window with no visible motors, rods or arms.

Integrated System
Altair Louvres clip neatly and flush against the frame, with no visible gallery screws. Security bars can be integrated as an optional extra.

Integrated Screen Housing
The Breezway Easyscreen Window System includes an integrated insect and security screen housing that allows easy fitting of screens to the frame. Screens can be installed from within the building and are positioned so that they will not interfere with the operation of the louvre blades. (Screens supplied by others).

Powerlouvre™ System Operating Condition

Tests Passed	
Cyclical open / closed	30,000 cycles
Salt mist	1,000 hours
Extreme humidity	90% humidity at 35 ºC
Extreme heat	60 ºC
Extreme cold	0 ºC
Electromagnetic Compatibility	Complies with the requirements of EN61000–6–3 and AS/NZS 4251.1

Powerlouvre™ System Opening Configurations

Powerlouvre Windows that are 2-9 blades tall contain one motor per bay and are wired such that the entire window opens and closes simultaneously.
Powerlouvre Windows that are 10-18 blades tall contain 2 motors per bay, one motor drives the blades in the top half of the bay and the other motor drives the blades in the bottom half of the bay. Powerlouvre Windows with 10-18 blades are wired such that the top halves of all the bays open and close simultaneously and the bottom halves of all the bays open and close simultaneously. Labelled wires emerge 1 metre from the top right hand side of the Easyscreen™ frame.

Breezway Altair® Powerlouvre Window Opening Configurations

No. of Blades	Motors per bay	Banks of Blades Controlled from Head Downwards
2	1	2
3	1	3
4	1	4
5	1	5
6	1	6
7	1	7
8	1	8
9	1	9
10	2	5 5
11	2	5 6
12	2	6 6
13	2	6 7
14	2	7 7
15	2	7 8
16	2	8 8
17	2	8 9
18	2	9 9

Powerlouvre™ System Maintenance

Breezway Powerlouvre Windows should be operated at monthly intervals. Frames should be cleaned periodically as per Breezway care and maintenance recommendations.
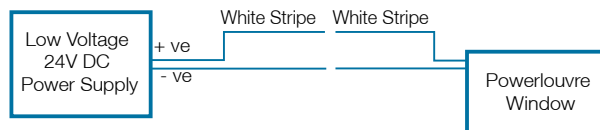
Electrical Requirements

- Operating voltage: 24V DC
- Maximum allowed voltage   29V DC
- Maximum constant current: 0.25A per motor
- Maximum startup current: 0.4A per motor
- Opening time: Approx 14 seconds
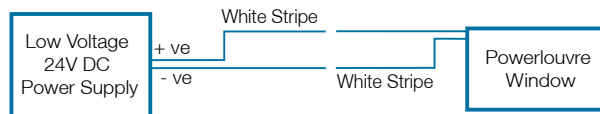- Working temperature: -20 to +60 degrees Celsius

Maximum Constant Current Requirements		
Powerlouvre Window Type	Motors per bay	Maximum Constant Current Required
2-9 Blades High Without Remote Control	1	0.25 amps per bay
10-18 Blades High Without Remote Control	2	0.5 amps per bay

The direction in which the Powerlouvre Window moves is determined by the polarity of the low voltage current supplied. Once the Powerlouvre Window has fully opened or fully closed, an electronic circuit stops power being delivered to the motors to prevent the motor being damaged should power be supplied continuously.

To **close** the Powerlouvre Window:

| Low Voltage 24V DC Power Supply | + ve | White Stripe | White Stripe | Powerlouvre Window |
| - ve |

To **open** the Powerlouvre Window:

| Low Voltage 24V DC Power Supply | + ve | White Stripe | Powerlouvre Window |
| - ve | White Stripe |

NOTES:

In extreme cold conditions the windows will not operate if there is excessive ice build up or if the louvre blades are frozen together.

Breezway Transformer

Breezway supplies transformers (as an optional extra) that have been specified to meet the particular requirements of Powerlouvre Windows.

- 240V AC current transformed to 2.9 amp, 24V DC constant current.
- Able to provide sufficient instantaneous startup current for up to 6 Powerlouvre Motors.
- Built-in overload protection to prevent accidental short circuits from damaging the transformer.

Controlling Powerlouvre™ Windows

Control options include:

- Breezway Powerlouvre Apptivate™ Control Units, which allow control via a touch sensitive wall plate, remote control via a smartphone application, or automatic operation in response to temperature or timer events.
- Building management systems, which allow control along with other automated building products and automatic operation in response to various sensors and inputs.
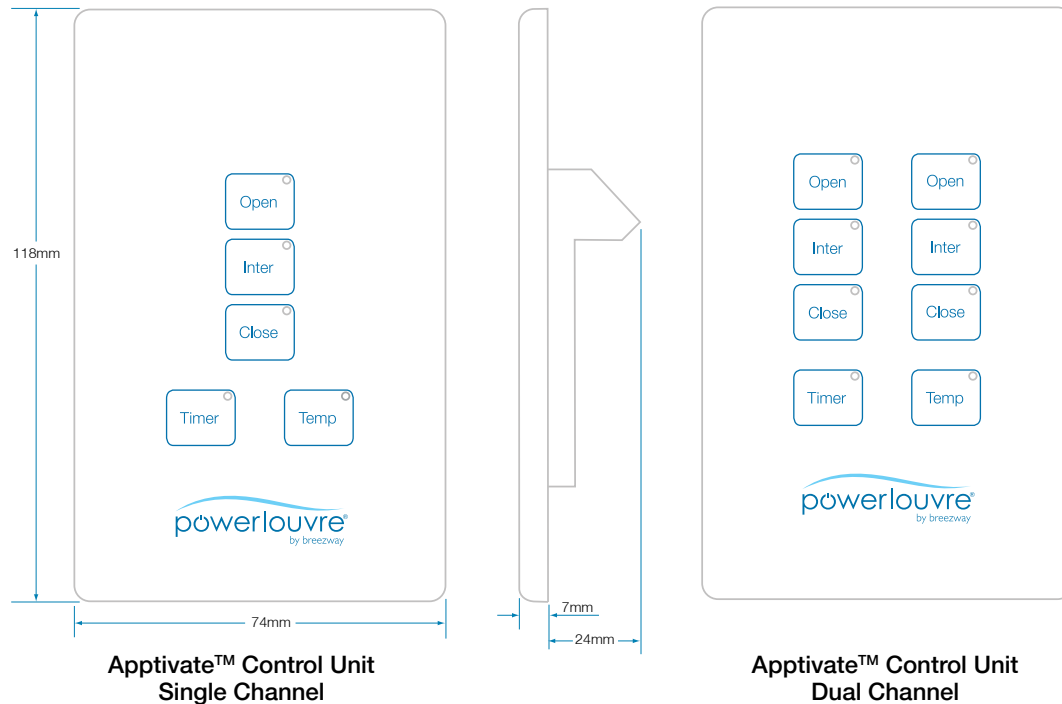
Powerlouvre™ Apptivate™ Control Unit

The Powerlouvre Apptivate Control Unit is a plastic, touch-sensitive wall switch.

Features include:

- White, standard sized wall switch.
- Single channel and dual channel models.
- Control of up to 6 Powerlouvre Motors per channel.
- Fully open, fully close or open to an intermediate (half-open) position at a single touch.
- Precise control of opening angle by touching and then releasing when the window is in the desired position, or by touching another button to stop the window in the desired position.
- Automatic operation in response to an in-built temperature sensor.
- Bluetooth® module to allow control by and communication with compatible smartphones and tablets.

Additional features accessible through the Powerlouvre™ App:

- Remote control.
- Automatic operation in response to an in-built temperature sensor.
- Automatic operation in response to pre-set timers.
- 'Night mode' which adjusts the brightness of LED lights overnight to minimise potential sleep disruptions.

118mm
74mm
7mm
24mm

Apptivate™ Control Unit Single Channel

Apptivate™ Control Unit Dual Channel

Powerlouvre™ App

The Apptivate™ Control Unit includes a Bluetooth® Smart™ modules which allows wireless communication between a compatible device running the Powerlouvre App and the Apptivate Control Unit.

Remote control

The Powerlouvre app enables:

- Remote opening and closing of each Apptivate Control Unit. The range of the Bluetooth signal is approximately 10m - 20m. (The range will be maximised by maintaining a clear line of sight between the device running the Powerlouvre App and the Apptivate Control Unit.)
- Naming of Apptivate Control Units, and channels of Apptivate Control Units for easy identification.
- An indication of the open/close position of the Powerlouvre Windows connected to each Apptivate Control Unit.

Compatible devices

Compatible devices will have Bluetooth® Smart™ modules installed and have an iOS or Android operating system. Devices include:

Apple products running iOS 7 or newer:
- iPhone 4s and newer
- iPad 3 and newer
- iPad Mini and newer
- iPod Touch 5

Devices running Android 4.3 and newer, including:
- Samsung Galaxy Range
- HTC One, MAX
- Sony Experia Range
- Droid RAZR, Ultra, Maxx, Mini
- Google Nexus 4, Nexus 5, Nexus 7 and Nexus 10

NOTES:

- As the temperature sensor will be located within the wall cavity it may be susceptible to environmental conditions so the temperature readings will be indicative of the air temperature within the room, but will not exactly reflect the air temperature within the room.
- When responding to temperatures both channels of Dual Channel Apptivate Control Units will respond simultaneously to the temperature sensor.

Automatic operation in response to temperature

Temperatures can be set at which the Apptivate Control Unit will:

- Automatically open the windows to naturally cool the room, or
- Automatically close the windows to retain warmth within the room.

Automatic response to temperature can be enabled or disabled:
- Remotely from the Powerlouvre App, or
- Directly on the Apptivate Control Unit.

Security

Establishing associations between the Powerlouvre App and Apptivate Control Units requires:

- Close physical proximity between the Powerlouvre App and the Apptivate Control Unit, and
- An access code (defined by the first Powerlouvre App to be associated to the Apptivate Control Unit).

If the Access Code is forgotten, a factory reset button can be activated by snapping off the front cover plate of the Apptivate Control Unit and pushing a paperclip through a small hole to hold a button down for a brief period. Security will be maximised by positioning the Apptivate Control Unit in a location that restricts unauthorised access.

If restricting access to the Apptivate Control Unit is not practical then users can seal the hole to block access to the factory reset button from the front panel necessitating the unscrewing of the Apptivate Control Unit from the wall in order to carry out a factory reset.
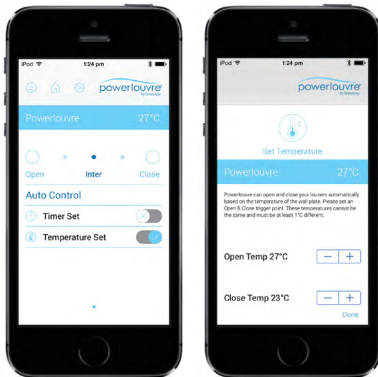
Automatic operation in response to timers

Timer events (time of day and day of week) can be set to:

- Open the windows
- Move the window to an intermediate position
- Close the windows
- Begin responding automatically to temperatures.

This allows the windows to be set to operate in anticipation of the building occupant's daily routine. For example, opening before employees arrive to pre-cool the building, or responding to temperatures from when a homeowner goes to bed so that the windows close when the temperature drops in the early hours of the morning.
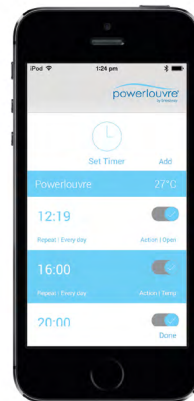
Timer events can be enabled or disabled:
- Remotely from the Powerlouvre™ App, or
- Directly on the Apptivate® Control Unit.
This allows timer events to easily be disabled as the homeowner leaves the house or enabled as they arrive home.

NOTES:

- When responding to timer events both channels of Dual Channel Apptivate Control Units will respond simultaneously.

Control of multiple Apptivate™ Control Units

Up to 6 Apptivate Control Units can be associated to each Powerlouvre App allowing building occupants to control windows around their home from their Powerlouvre App. For ease of identification:

- Each of the Apptivate Control Units can be given a customised name.
- Each of the channels of a Dual Channel Apptivate Control Unit can be given a customised name.
- The Powerlouvre App will indicate any Apptivate Control Units which are out of range, or with which a Bluetooth® Smart connection cannot be made.
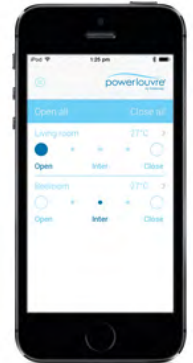
For maximum control and ease of use, all the Apptivate Control Units associated to a Powerlouvre App can be operated simultaneously or independantly.

Control by multiple Powerlouvre™ Apps

Associations can be established between multiple Powerlouvre Apps and each Apptivate Control Unit, to allow all family members to control the windows from their smartphones.

NOTES:

- Only one Powerlouvre App will be able to maintain an active Bluetooth® Smart connection with an Apptivate Control Unit at any given time.

For example: Both John and Mary's Powerlouvre Apps are associated to the Apptivate Control Unit operating the Powerlouvre Windows in their living room. If John opens the windows using his Powerlouvre App, Mary will not be able to close the windows using her Powerlouvre App until John minimises the Powerlouvre App on his smartphone or his smartphone enters 'sleep' mode.

Apptivate™ Control Unit Standard Wiring

Powerlouvre™ Motors and Apptivate Control Units require 24v DC power. For ease of wiring the Apptivate Control Unit senses the polarity of the current provided from the transformer and automatically adjusts accordingly.
It is recommended that transformers are located in a position that enables easy power cycling.

Up to 6 Powerlouvre Motors can be wired in parallel to each Apptivate Control Unit motor group.

Dual Channel Apptivate™ Control Unit Wiring
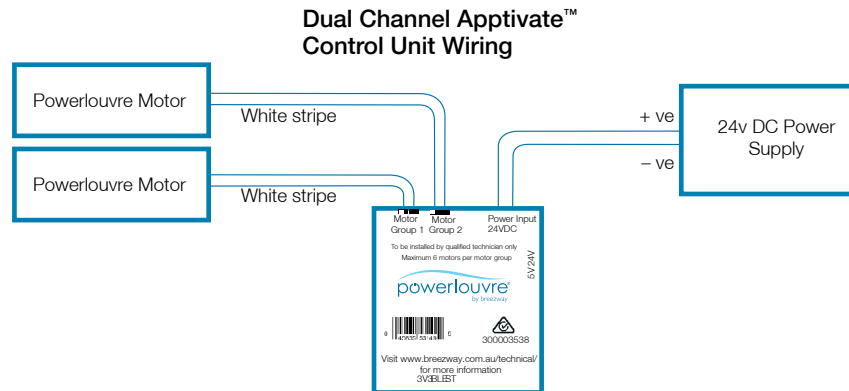
Building Management System Compatibility

The Altair® Powerlouvre Window System has been reviewed for compatibility by the leading suppliers of building management systems. When considering integration into a building management system, the following should be considered:

- Breezway does not supply the various sensors which could be used to instigate opening or closing of the windows (eg temperature or rain sensors).
- Transformer requirements may differ from the requirements of Powerlouvre Windows controlled by Apptivate Control Units.
- The Powerlouvre Window System does not include an inbuilt electronic mechanism to inform the building management system of its current open or close position.
- Powerlouvre Motors include limit switches which prevent the motors from continuing to attempt to open or close the window once the window is fully open or fully closed, thereby preventing damage to the motors and electronics.

Apptivate Control Units are not compatible with building management systems.

Cabling Requirements

Total wire length must not exceed value given in table

240v AC Power Supply

Switches
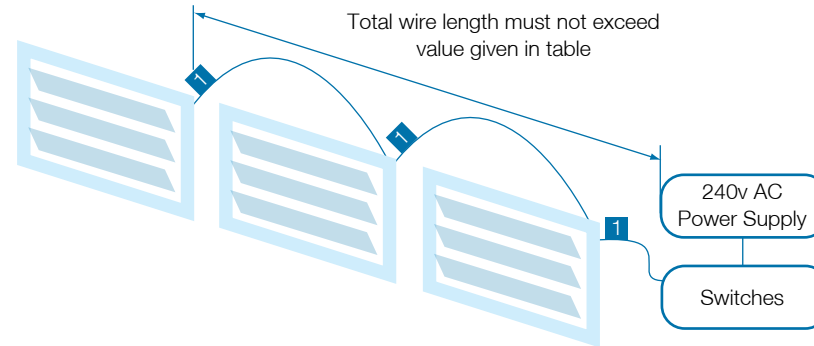
NOTES:

Max of 6 Motors per 2.9 amp transformer.

Multiple Windows in parallel

Wire Size	Max Distance from Power Supply to Motor in metres Number of Motors (1 - 12)								
	1	2	3	4	5	6	8	10	12
0.5mm² (20AWG)	60m	30m	20m	15m	12m	10m	–	–	–
0.8mm² (18AWG)	90m	45m	30m	23m	18m	15m	–	–	–
1.3mm² (16AWG)	150m	75m	50m	38m	30m	25m	20m	15m	12m
2mm² (14AWG)	230m	120m	80m	60m	50m	40m	30m	24m	20m
3.5mm² (12AWG)	370m	185m	125m	90m	75m	60m	45m	35m	30m
4mm² (10AWG)	550m	294m	200m	150m	120m	100m	75m	55m	45m
10mm² (8AWG)	1000m	500m	330m	250m	200m	150m	120m	100m	80m
17mm² (6AWG)	1500m	750m	500m	375m	300m	250m	175m	150m	125m
26mm² (4AWG)	8000m	4000m	2500m	2000m	1500m	1250m	1000m	800m	650m

Tables calculated using a window current of 0.25A and a voltage drop of 5% or 1V @ 24V.

Battery Backup

The Powerlouvre Window has no integrated battery back up. If the power supply fails the window cannot be operated. If battery back up is required, systems are readily available and can be integrated by qualified suppliers.

Easyscreen™ Powerlouvre™ Window Sizes

Blade Count	Easyscreen Powerlouvre Window System Standard Heights	
	152mm Gallery	102mm Gallery
2	371mm	NA
3	511mm	361mm
4	651mm	451mm
5	791mm	541mm
6	931mm	631mm
7	1071mm	721mm
8	1211mm	811mm
9	1351mm	901mm
10	1491mm	991mm
11	1631mm	1081mm
12	1771mm	1171mm
13	1911mm	1261mm
14	2051mm	1351mm
15	2191mm	1441mm
16	2331mm	1531mm
17	2471mm	1621mm
18	2611mm	1711mm

- Maximum width = 4000mm (Frames over these dimensions will need to be coupled on site or at a window fabricator's factory).
- Minimum bay width (2-9 blade tall windows) = 400mm
- Minimum bay width (10-18 blade tall windows) = 500mm
- Standard heights only.
- Up to 6 galleries (bays) can be included in a single surround frame.
- Combination louvre and fixed light bays are available.
- Off-Standard Frame Heights between 6mm and 42mm greater than a Standard Height are unavailable for 152mm Powerlouvre in the Easyscreen Frame.

- Off-Standard Frame Heights between 1mm and 5mm below a Standard Height are unavailable for 102mm Powerlouvre in the Easyscreen Frame.
- Off-Standard Frame Heights between 6mm and 44mm greater than a Standard Height are unavailable for 102mm Powerlouvre in the Easyscreen Frame.
- Some off-standard heights are unavailable when using the 102mm Altair Louvre Galleries with the Stronghold System. For the Easyscreen System these include: Standard Height + 26mm to Standard Frame Height + 36mm.

Four Powerlouvre Window bays within a single Easyscreen Frame
Ex. Australia Only

Altair® Louvre Window System Checklist

REQUIRED INFORMATION viewed from inside	OPTIONAL INFORMATION
• Design Pressure	• Left or Right Handed
• Manual or Automated	• Offset Mullions
• Frame Size	• Couplers & Cover Plates
• Gallery Clip Size	
• With or without the Stronghold™ System	
• Height & Width	
• Number of Bays	
• Frame Color	
• Gallery Color	
• Clip & Handle Color	
• Gallery Clip Size	
• Handle Type	
• Blade Type	

Altair® Louvre Window System Recommended Specifications

A tight specification will help to make sure that what you specify ends up in your building thereby achieving your design objectives.

The louvre windows shall be Breezway® Altair® Louvre Windows

Unique features:
- Unique drainage channels for superior water perfromance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Passed testing to 40,000 open/close cycles for long operational life.
- Altair Louvres have passed AS2047 testing at 3,000mm high.

The louvre windows shall be Breezway® Altair® Powerlouvre™ Windows

Unique features:
- Unique drainage channels for superior water perfromance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Motors are concealed within the head of the window frame.
- Motors are easily accessible for maintenance.
- Each low voltage motor only requires 0.25 amps to reduce transformer and wiring requirements.
- Motors can be powered by appropriately specified transformers from any supplier.
- Controlled by touch sensitive Apptivate Control Units and the Powerlouvre App, enabling automatic operation in response to timer events or an in-built temperature sensor.

The louvre windows shall be Breezway® Altair® Louvre Windows with the Stronghold™ System

Unique features:
- Unique drainage channels for superior water performance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Altair Louvres have passed testing to 40,000 open/close cycles for long operational life.
- Altair Louvre keylocks have passed testing to 15,000 lock/unlock cycles for long operational life.
- Altair Louvres have passed AS2047 testing at 3,000mm high.
- Pinned design that mechanically retains blades within the clips to prevent blade dislodgement under human impact.
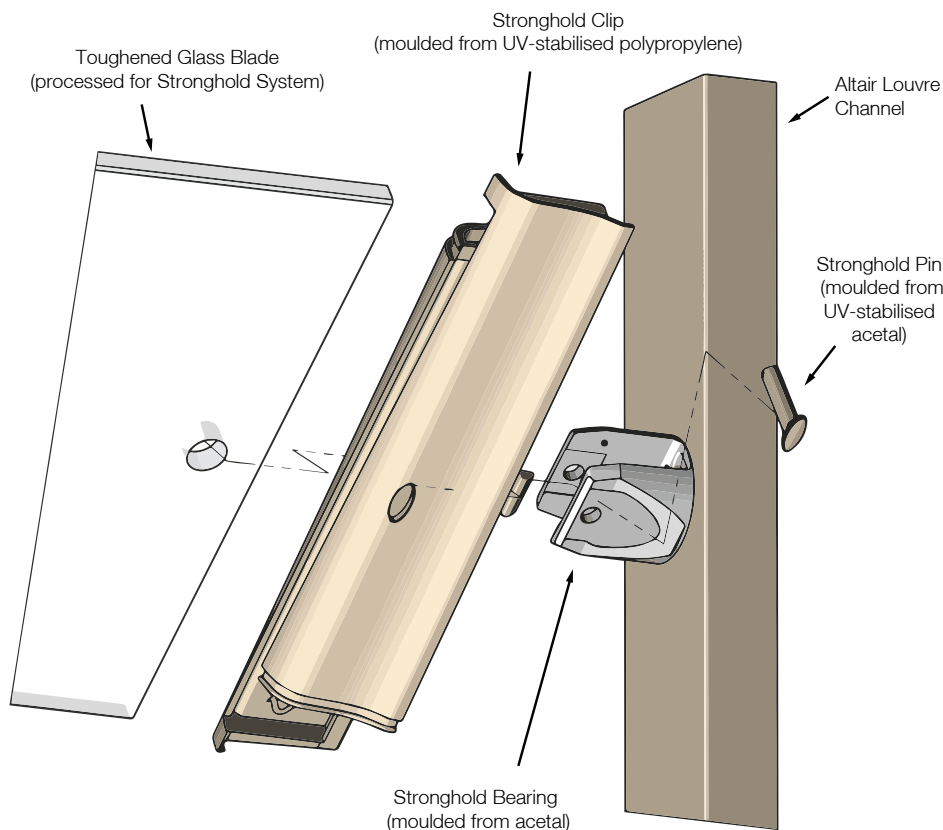
The louvre windows shall be Breezway® Altair® Powerlouvre™ Windows with the Stronghold™ System

Unique features:
- Unique drainage channels for superior water performance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Motors are concealed within the head of the window frame.
- Motors are easily accessible for maintenance.
- Each low voltage motor only requires 0.25 amps to reduce transformer and wiring requirements.
- Motors can be powered by appropriately specified transformers from any supplier.
- Pinned design that mechanically retains blades within the clips to prevent blade dislodgement under human impact.

Altair® Louvres with the Stronghold™ System

Viewed from inside

Toughened Glass Blade
(processed for Stronghold System)

Stronghold Clip
(moulded from UV-stabilised polypropylene)

Altair Louvre
Channel

Stronghold Pin
(moulded from
UV-stabilised
acetal)

Stronghold Bearing
(moulded from acetal)

Blade Retention System

Blades are retained in Stronghold Clips by a pin that passes through the clips, bearing and blade. Once installed, the pins cannot be removed without tools and the blades are prevented from being removed from the clips. Pins are visible on the inside/underside of the clips.

High Rise Applications

Breezway Altair Stronghold Louvres are fit for purpose for installation more than 2 metres above ground level. As the entire glazed area can be opened to allow airflow they can be used to maximise natural ventilation and cooling in multi level applications. They are also ideal for creating winter gardens as they can be opened for ventilation in warmer weather or closed for protection in colder weather.

Frame Options

Altair Stronghold Louvre Windows are available as complete window systems within the Breezway Easyscreen™ and Slimline™ Window Systems, or in component form for installation into other manufacturer's framing systems.

Fall Prevention

Altair Louvre Windows with the Stronghold System are ideal for use in bedrooms, early childhood centres and other situations where there is a significant height from the window sill to the outside ground. With openings on both sides of every blade, they deliver real ventilation benefits for naturally cool, healthy and safe spaces. Performance is proven by successful testing to the Australian Industry Code of Practice "ICP.005 - Protection of Openable Window Testing Specification" and AS5203:2016.

Blade Options

Processed and toughened glass and processed aluminium blades can be used in the Stronghold System. Heat soak testing of glass blades already processed for use with the Stronghold System is also available. The Altair Stronghold System is available for use with both 152mm and 102mm high blades.

NOTES:

Patented design.

Louvre blades are mechanically retained within the clips by the Stronghold System.

Blade Type Compatibility

	152mm High	102mm High
Annealed glass	N	N
Toughened glass	Y	Y
Aluminium	Y	Y

Powerlouvre™ System Compatibility

Altair Stronghold Clips are fully compatible with the Powerlouvre Systems and have no impact on minimum and maximum Powerlouvre Window sizes.

Maintenance

If blades need to be removed from an Altair Stronghold Louvre Window or if broken blades need to be replaced, the pins must be removed. The removal process requires tools and will destroy the pins so new pins will be required when blades are re-installed.

Compliance With Balustrading Requirements

The Stronghold System is a window, not a balustrade system. The Stronghold System has been tested to AS2047 "Windows in Buildings" and has completed static load, swing bag and sphere tests. Test reports are available from the Breezway website. It is the responsibility of the building designer to specify systems and products that meet the barrier and balustrade requirements for a building.

Window Sizes

Window Size Constraints
The Altair Product Performance Warranty size constraints for Ultimate Limit State Pressure, Serviceability Limit State Pressure and Water Pass must be adhered to in order to ensure compliance with AS2047.

Standard Heights
The standard heights of Breezway Window Systems with Altair Stronghold Louvres are identical to the standard heights of Breezway Window Systems with regular Altair Louvres.

Off-Standard Heights
It is recommended that, whenever possible, Altair Louvre Windows with the Stronghold System should be desigend to a standard height. This will reduce the product cost and ensure effective opening of all blades.

Some off-standard heights are unavailable when using the 102mm Altair Louvre Galleries with the Stronghold System.

	Unavailable Off-Standard Heights when using 102mm Altair Galleries with the Stronghold System
Easyscreen Window System	Standard height + 26mm to standard height + 36mm
Slimline Window System	Standard height + 19mm to standard height + 30mm

Altair® Stronghold System Recommended Specifications

A tight specification will help to make sure that what you specify ends up in your building thereby achieving your design objectives.

The louvre windows shall be Breezway® Altair® Louvre Windows with the Stronghold™ System
Unique features: • Unique drainage channels for superior water performance. • Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration. • Pinned design that mechanically retains blades within the clips to prevent blade dislodgement under human impact.

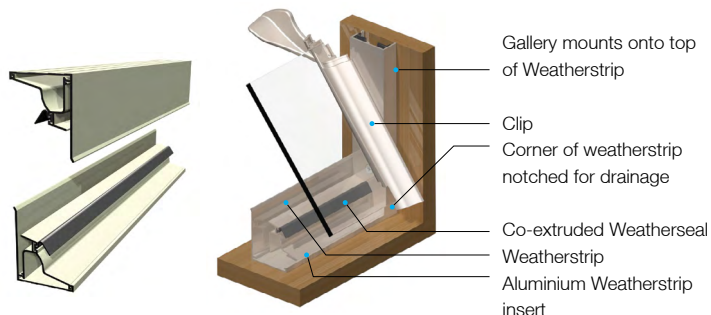| The louvre windows shall be Breezway® Altair® Powerlouvre™ Windows with the Stronghold™ System |
|---|
| Unique features:
• Unique drainage channels for superior water performance.
• Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
• Motors are concealed within the head of the window frame.
• Motors are easily accessible for maintenance.
• Each low voltage motor only requires 0.25 amps to reduce transformer and wiring requirements.
• Motors can be powered by appropriately specified transformers from any supplier.
• Pinned design that mechanically retains blades within the clips to prevent blade dislodgement under human impact. |

Altair® Louvres For Other Frames

In component form, Breezway Altair louvre galleries can be used in most regular timber, aluminium and uPVC window frames. In such instances, Altair galleries and weatherstrips are simply screwed or clipped into place within the window frame. If installed in a frame that is plumb and true, and according to Breezway's installation instructions, the Altair performance warranty applies in full.

Altair® Louvre Component System

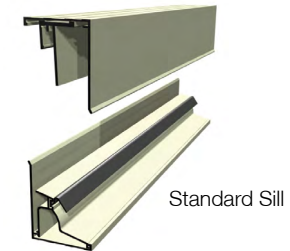| Gallery	Mullion	Weatherstrip
Available in 102mm and 152mm heights to suit 6 mm thick glass or aluminium blades.	Medium Duty Mullion 38 x 25 Louvre Gallery simply clips to Mullion.	Standard Weatherstrip and Insert.

Standard Height Louvre Weatherstrip

- Gallery mounts onto top of Weatherstrip
- Clip
- Corner of weatherstrip notched for drainage
- Co-extruded Weatherseal Weatherstrip
- Aluminium Weatherstrip insert

- The same Weatherstrip is used on both the head and sill for standard glass and aluminium louvres.
- Weatherstrip, complete with seal, must be used to gain manufacturer's performance warranty.
- Altair Weatherstrip does not require notching to accomodate the louvre gallery.
- Weatherstrips to head and sill add 10mm to overall gallery height.
- Off Standard Height Galleries that are within 5mm of a Standard Height Gallery will not have a top fixed blade and will therefore require Standard Height Weatherstrip sets.

Off Standard Height Weatherstrip

Used in Conjunction with Extended Louvre Channel.

Standard Sill

- Off Standard Height Galleries that are within 5mm of a Standard Height Gallery will not have a top fixed blade and will therefore require Standard Height Weatherstrip sets.

Extension Clip

Weatherstrip Glass/ Alum. Blade Carrier

Side Profile
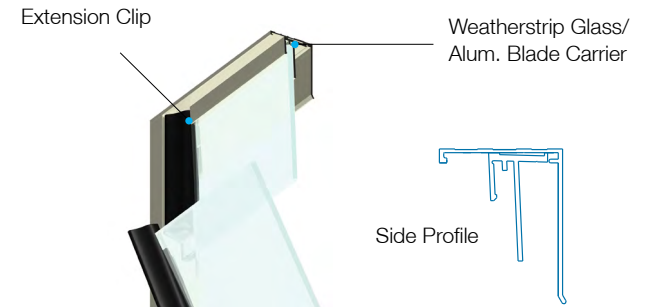
Off Standard Height Head for Glass or Aluminum Blades

- Off Standard Height Galleries that are more than 5mm greater than or less than a Standard Height Gallery will have a top fixed blade and will therefore require Off Standard Height Weatherstrip sets.
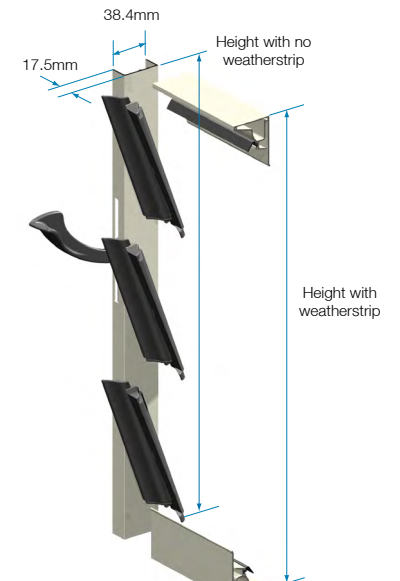
Standard Heights

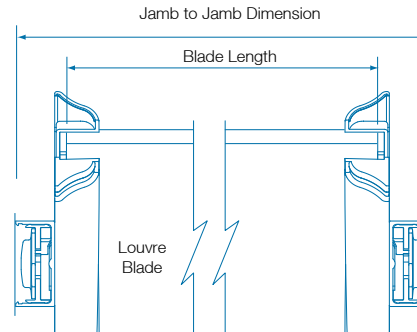### Heights for 102mm Blade Louvre Gallery

No. of Blades	Height (mm) No W'strip	Height (mm) With W'strip	Blades Controlled in Banks from Head Down			
3	310	320	3			
4	400	410	4			
5	490	500	5			
6	580	590	6			
7	670	680	7			
8	760	770	8			
9	850	860	9			
10	940	950	6	4		
11	1030	1040	6	5		
12	1120	1130	6	6		
13	1210	1220	6	7		
14	1300	1310	7	7		
15	1390	1400	7	8		
16	1480	1490	9	7		
17	1570	1580	9	8		
18	1660	1670	9	9		
19	1750	1760	9	5	5	
20	1840	1850	9	5	6	
21	1930	1940	9	5	7	
22	2020	2030	9	6	7	
23	2110	2120	9	7	8	
24	2200	2210	9	6	9	
25	2290	2300	9	9	7	
26	2380	2390	9	9	8	
27	2470	2480	9	9	9	
28	2560	2570	9	6	4	9
29	2650	2660	9	6	5	9
30	2740	2750	9	7	5	9
31	2830	2840	9	7	6	9
32	2920	2930	9	7	7	9
33	3010	3020	9	7	8	9

Heights for 152mm Blade Louvre Gallery

No. of Blades	Height (mm) No W'strip	Height (mm) With W'strip	Blades Controlled in Banks from Head Down		
2	320	330	2		
3	460	470	3		
4	600	610	4		
5	740	750	5		
6	880	890	6		
7	1020	1030	7		
8	1160	1170	8		
9	1300	1310	9		
10	1440	1450	7	3	
11	1580	1590	7	4	
12	1720	1730	7	5	
13	1860	1870	8	5	
14	2000	2010	9	5	
15	2140	2150	7	8	
16	2280	2290	7	9	
17	2420	2430	8	9	
18	2560	2570	9	9	
19	2700	2710	9	4	6
20	2840	2850	9	6	5
21	2980	2990	9	7	5

38.4mm

17.5mm

Height with no weatherstrip

Height with weatherstrip

Blade Formulas

Jamb to Jamb Dimension

Blade Length

Louvre Blade

Blade Cut Length

Glass & Aluminium Blades:
Blade Length = jamb to jamb - 52mm

152 Louvre Blade

152.0mm ±0.6mm

Blade thickness 6mm

Blade Cut Length ±0.6mm
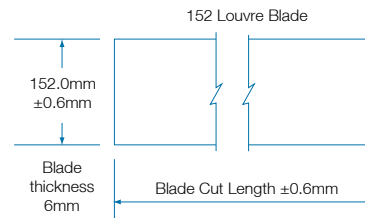
Standard Louver Blade Dimensions

Louvre Blade

x

Blade thickness 6mm

Blade Cut Length ±0.6mm
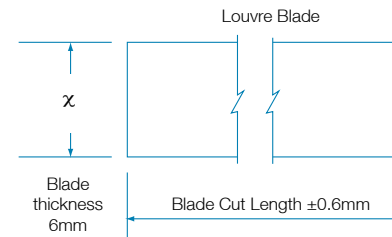
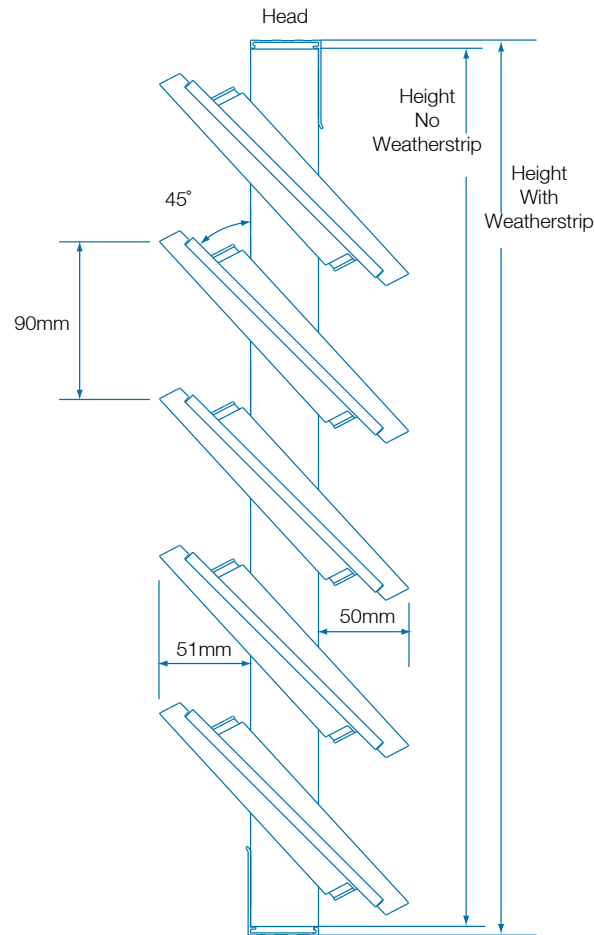### Extension Blade Dimensions

Glass & Aluminium blades:

X = Channel extension +21mm

NOTES:

Laminated glass is not recommended for external use due to the risk of de-lamination.

Fixed Louvre

No. of Blades	Height (mm) No Weatherstrip	Height (mm) With Weatherstrip
3	310	320
4	400	410
5	490	500
6	580	590
7	670	680
8	760	770
9	850	860
10	940	950
11	1030	1040
12	1120	1130
13	1210	1220
14	1300	1310
15	1390	1400
16	1480	1490
17	1570	1580
18	1660	1670
19	1750	1760
20	1840	1850
21	1930	1940
22	2020	2030
23	2110	2120
24	2200	2210
25	2290	2300
26	2380	2390
27	2470	2480
28	2560	2570
29	2650	2660
30	2740	2750
31	2830	2840
32	2920	2930
33	3010	3020

152mm Fixed Louvre

Applications for Fixed Vent Louvres

Use fixed vent louvres where permanent ventilation, light, privacy and a degree of weatherproofing is required. Some typical applications include:
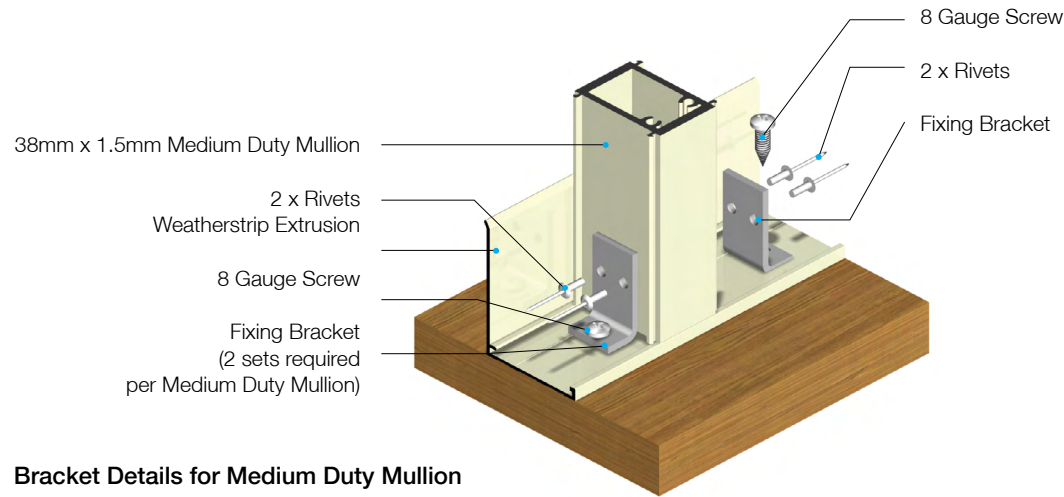
- Vented roofs
- Laundries (industrial, domestic)
- Bathrooms
- Public Amenities
- Housing for air conditioning units

NOTES:

- Not Available in 102mm
- This product does not meet AS2047 water penetration requirements.
- Fixed louvres are only available in standard heights ie. extended channel not available.

Altair® Mullions

Altair Mullions can be secured from the outside of the window frame using the screw flutes, or secured from the inside of the frame using brackets. Installers are responsible for ensuring that appropriate fixings are used for the frame and site wind ratings.

8 Gauge Screw

2 x Rivets

Fixing Bracket

38mm x 1.5mm Medium Duty Mullion

2 x Rivets
Weatherstrip Extrusion

8 Gauge Screw

Fixing Bracket
(2 sets required
per Medium Duty Mullion)

Bracket Details for Medium Duty Mullion

Altair® Louvres For Other Frames Checklist

REQUIRED INFORMATION	OPTIONAL INFORMATION
• Gallery Clip Size	• Left or Right Handed
• Gallery Height	• Handle Type
• Gallery Colours	• Variable Handle Position/Additional Handles
• With or without the Stronghold™ System	
• Clips & Handle Colour	
• Blade Length & Type	
• Weather strip for head & sill	

Altair® Louvres For Other Frames Recommended Specification

A tight specification will help to make sure that what you specify ends up in your building thereby achieving your design objectives.

The louvre windows shall be Breezway® Altair® Louvre Windows
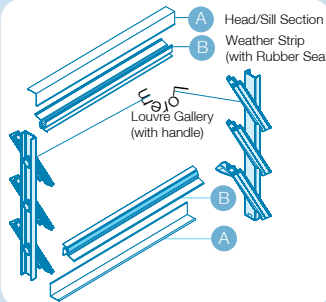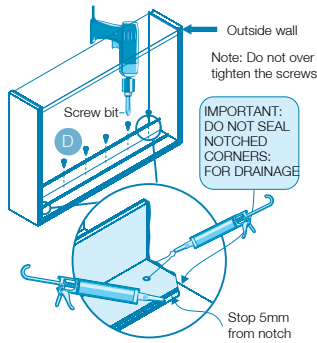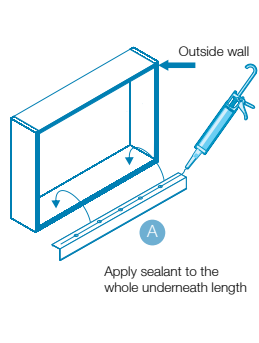
Unique features:
- Unique drainage channels for superior water performance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Passed testing to 40,000 open/close cycles for long operational life.
- Altair Louvres have passed AS2047 testing at 3,000mm high.

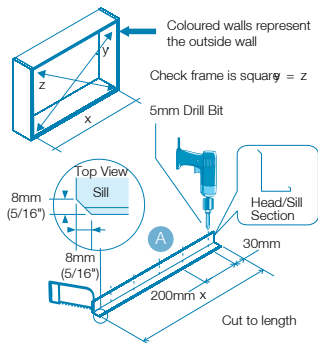### The louvre windows shall be Breezway® Altair® Louvre Windows with the Stronghold™ System

Unique features:
- Unique drainage channels for superior water performance.
- Unique 'Living Hinge' design that pulls the clips tightly against the channel when closed for superior water performance and air infiltration.
- Altair Louvres have passed testing to 40,000 open/close cycles for long operational life.
- Altair Louvre keylocks have passed testing to 15,000 lock/unlock cycles for long operational life.
- Altair Louvres have passed AS2047 testing at 3,000mm high.
- Pinned design that mechanically retains blades within the clips to prevent blade dislodgement under human impact.
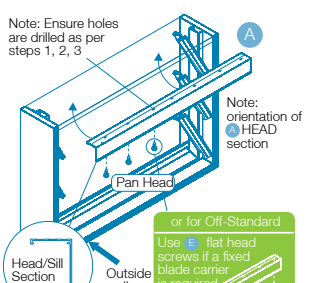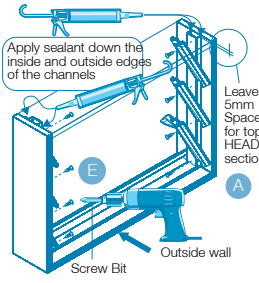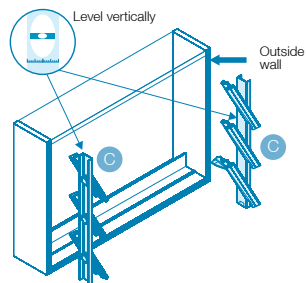
Installation Instructions

Standard Height Gallery

- A Head/Sill Section
- B Weather Strip (with Rubber Seal)
  Louvre Gallery (with handle)

Fixings

- D Stainless Steel Pan Head Screws 6 Gauge x 20mm Long
- E Stainless Steel Flat Head Countersunk Screws 8 Gauge x 30mm Long
- F Power Drill (long drill bit required)
- G Sealant
- H Spirit Level
- I Hacksaw (Off-Standard Gallery Only)

Off-Standard Height

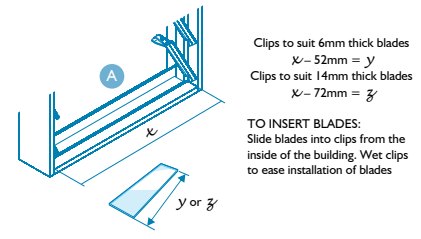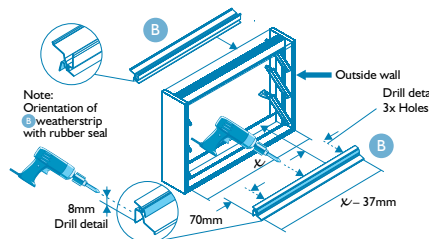- J Glass or Aluminium Extension Blade Carrier

1 Check frame to be true, drill holes in sill

Coloured walls represent the outside wall

Check frame is square $y = z$

5mm Drill Bit

Top View
Sill

8mm (5/16")
8mm (5/16")

Head/Sill Section

30mm
200mm x
Cut to length

2 Apply sealant to sill

Outside wall

Apply sealant to the whole underneath length

3 Attach sill

Outside wall

Note: Do not over tighten the screws

Screw bit

IMPORTANT: DO NOT SEAL NOTCHED CORNERS: FOR DRAINAGE

Stop 5mm from notch

4 Insert louvre galleries

Level vertically

Outside wall

5 Attach Louvre galleries

Apply sealant down the inside and outside edges of the channels

Leave 5mm Space for top HEAD section

Screw Bit

Outside wall

Note: Do not over tighten the screws - Some aluminium frames DO NOT require screw holes

6 Insert and attach head section

Note: Ensure holes are drilled as per steps 1, 2, 3

Note: orientation of A HEAD section

Pan Head

Head/Sill Section

Outside wall

or for Off-Standard
Use E flat head screws if a fixed blade carrier is required

7 Check galleries to be true and plumb (Standard Height Only)

Note: Orientation of B weatherstrip with rubber seal

Outside wall

Drill detail 3x Holes

8mm Drill detail

70mm

$x - 37mm$

8 Calculation of blade width (Standard Height Only)

Clips to suit 6mm thick blades
$x - 52mm = y$
Clips to suit 14mm thick blades
$x - 72mm = z$

TO INSERT BLADES:
Slide blades into clips from the inside of the building. Wet clips to ease installation of blades

x

y or z

7a Cut blade carrier to length (Off-Standard Height Only)

Cut J or K blade carrier to length

$x - 80mm$

8a Assemble blade carrier and blade into galleries (Off-Standard Height Only)

Cut blade to length

Cut blade to length

y or z

Clips to suit 6mm thick blades
$x - 52mm = y$
Clips to suit 14mm thick blades
$x - 72mm" = z$
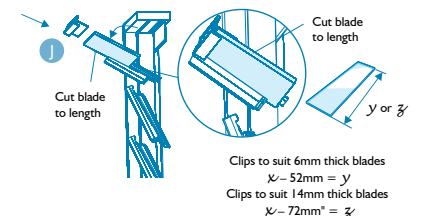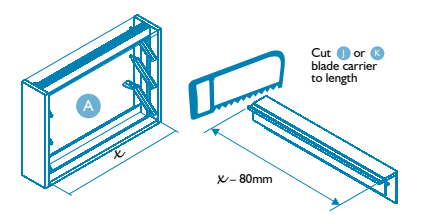
8b Rotate blade and attach (Off-Standard Height Only)

Section

Note: Drill screw holes in Blade Carrier before assembly (long drill bit and Phillips head required)

>3 screws
Screw bit

Note: Do not over tighten the screws

9 Insert blades and close louvres (Off-Standard Height Only)

Note: Ensure blade seal is in correct orientation

Aluminium Blade
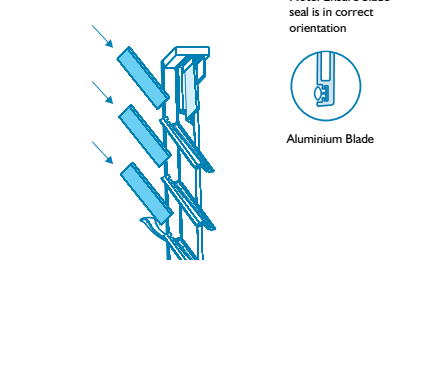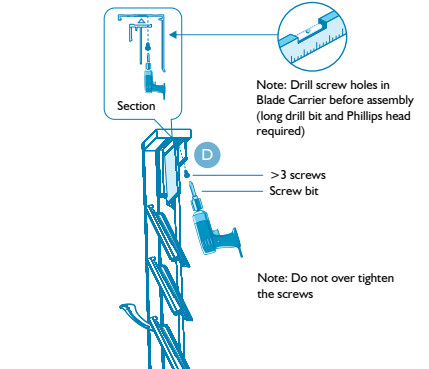
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