

INTEGRATED LOUVRE SYSTEMS

OTHER RANGES AVAILABLE INCLUDE:

- STANDARD PERFORMANCE LOUVRES
- MOVABLE BLADE LOUVRES
- SITE ASSEMBLY LOUVRES
- ACOUSTIC LOUVRES



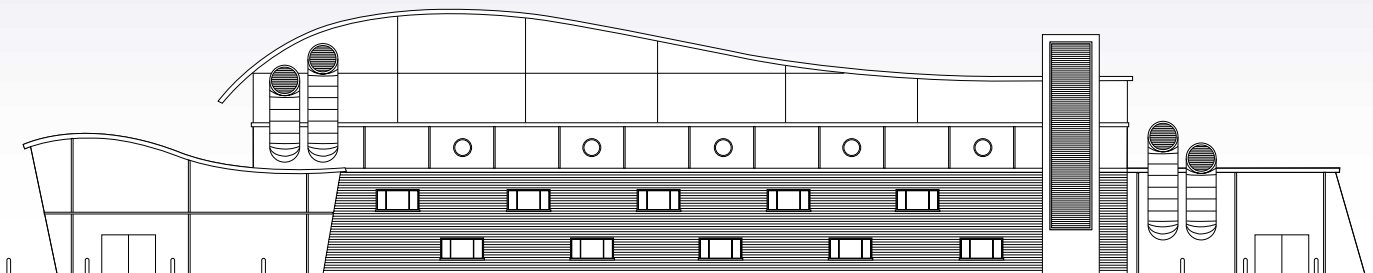
GILBERTS

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LOUVRES 3	
MAY 2007	



GILBERTS

(BLACKPOOL LTD)

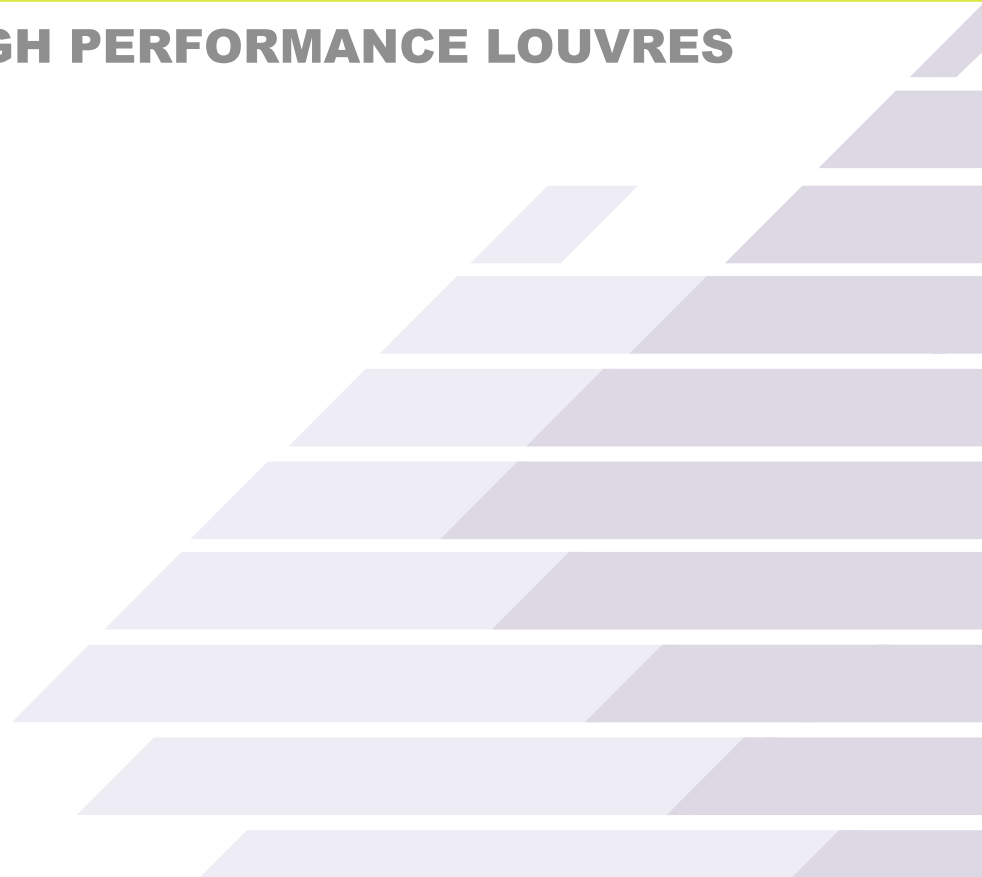
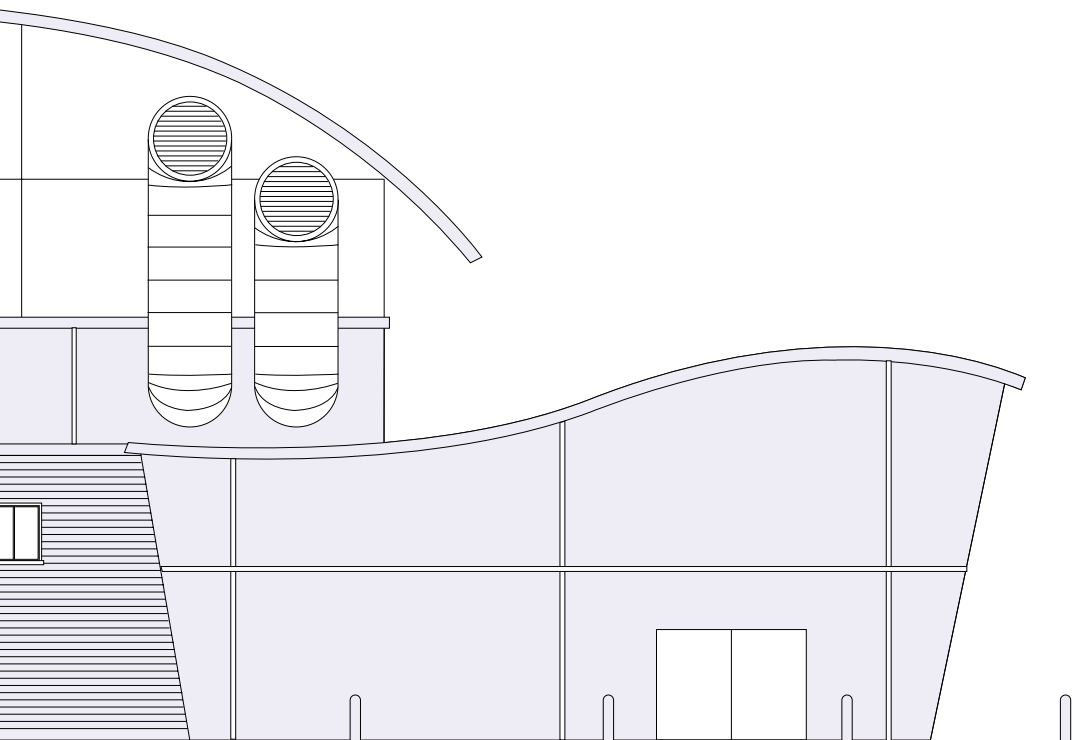


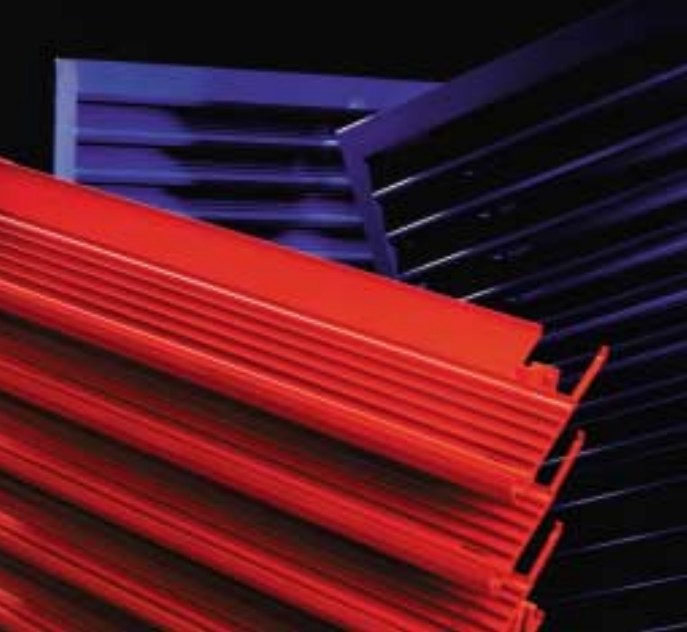
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INTEGRATED LOUVRE SYSTEMS

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The information contained in this leaflet is correct at time of going to press © 2007

HIGH PERFORMANCE LOUVRES





HIGH PERFORMANCE LOUVRES

INTRODUCTION

Gilberts high performance range of louvres augment the standard louvre series by providing a complementary and comprehensive package of high weather protection louvre units. Conventional louvres, including Gilberts own WG Series offer a balanced design, combining a high free area (around 50%) with good all round weather protection. Indeed standard louvres will often meet with all necessary performance requirements, particularly for exhaust or simple screening applications where weather ingress under most conditions is limited.

For other more sensitive applications where limited water ingress is important, then a high performance louvre is an essential consideration and especially so for intake louvres where airborne throughflow of moisture is an obvious danger or for units in exposed areas with high wind or rain factors.

PERFORMANCE LOUVRE

The traditional approach to high performance louvre design has been to bank conventional louvre panels into double or even triple bank assemblies. Whilst effective in practice this does incur significant penalties which, on the physical side, include basic size, weight and handability and on the performance side a greatly increased pressure loss, not to mention cost.

Our patented WH and WP Series represent a radical new departure in terms of high performance louvre offering a simple SINGLE bank louvre assembly with outstanding weather resistance. Little removed from a standard louvre unit in terms of physical size or weight, testing in accordance with European Standard EN13030 for weather louvre performance shows the WH unit for example to be 99.5% effective in screening/exhaust applications and 99% effective even with face velocities of up to 1m/sec.

EFFICIENCY GRAPH

The performance graph is designed to illustrate the effectiveness of the louvre under differing selection parameters. All testing was conducted in accordance with European Standard EN 13030 ie: simulated conditions of 13m/sec (30mph) wind speed with heavy rain. Clearly even at extremes of selection the unit offers excellent weather protection. More weather test data is available separately.

Similarly the pressure loss graph clearly indicates the minimal pressure losses incurred by the WH and WP design/profiles.

Performance at this level rank the units alongside the very best in performance louvres and adds exiting new dimension to louvre options.

- HIGH WEATHER PERFORMANCE.
- STRIKING DESIGN AND APPEARANCE.
- SINGLE BANK LOUVRE
- HIGH FREE AREA (50%).
- LOW PRESSURE RESISTANCE.
- COMPREHENSIVE RANGE.

BLADE

The unique blade profile utilised on the WH Series has been designed to offer maximum weather protection when spaced at the standard louvre pitch of 75mm. This pitch arrangement also ensures the unit retains a good free area ratio (rated at 50%) with minimal pressure resistance.

The high lip on the leading edge of the blade is featured to reduce water run off down onto the lower blades and thus eliminate the cascade effect of cumulative water building up. The series of channels further up the blade retard penetration both from direct and airborne water spray as well as preventing the upward migration of water.

SELECTION PROCEDURE WH SERIES

In order to effectively size a high performance louvre you should firstly establish the parameters that are important to the system design. These may be:-

- Maximum pressure drop through the louvre as calculated from Table 1.
- Maximum effectiveness based upon a wind velocity of 13m/s established from Table 2.

EXAMPLE 1

If the maximum pressure drop that can be accommodated is 16Pa, then the ventilation rate per m² of louvre area that can be handled from Table 1 would be 1.5m³/s. If this is now related to Table 2 the effectiveness of the louvre would then be 98%.

EXAMPLE 2

If the effectiveness or water repellent nature of the louvre is paramount and a 99% efficiency is important, then from Table 2 a 1m/s face velocity or 1m³/s per square metre of louvre area would be the maximum volume that can be accommodated. This would then give a pressure drop from Table 1 of 7.5Pa.

CLASSIFICATION

From the European Standard EN13030, louvres will be classified using both the CO-EFFICIENT OF ENTRY or DISCHARGE (CE or CD) and a water penetration rate.

Classifications are as follows:-

CLASS	LOSS CO-EFFICIENT
1	0.4 and above
2	0.3 to 0.399
3	0.2 to 0.299
4	0.199 to and below

The water repellent classification is denoted by the following chart:-

CLASS	EFFECTIVENESS
A	1 to 0.99
B	0.989 to 0.95
C	0.949 to 0.80
D	below 0.8

ie. 0.99 EFFECTIVENESS = 99% water repellent efficiency. The combined classification would have the water repellent class reference first followed by the coefficient of entry or discharge ie. A - 2 (up to 1m/s face velocity).

PRESSURE DROP

$$P_s = \sqrt{\frac{1}{2} P \times V^2} \times \frac{C_e}{C_d}$$

TEST RESULTS

All Gilberts louvres have been subject to simulated weather conditions on the BSRIA Test Rig, which follows the requirements and specification of the European Standard EN13030. All graphs and information are developed from test results.

The WH/75 louvre assemblies have a CD/CE of approximately 0.3.

WP/75 assemblies have a CD/CE of approximately 0.27

WH/75 = Class A3 up to 1 m/s

WP/75 = Class B3 up to 0.5 m/s

EXAMPLE LOUVRE SIZING

Required a louvre with an effectiveness of no less than 0.99 and a maximum pressure drop of 16 Pa.

TOTAL INTAKE VOLUME 5m³/s

From Table 2 maximum ventilation rate per m² of louvre area that will give 0.99 effectiveness = 1m³/s.

From Table 1 pressure drop = 7.5Pa, which is below the maximum requirement. Therefore, louvre area required = 5/1 = 5m² FACE AREA.

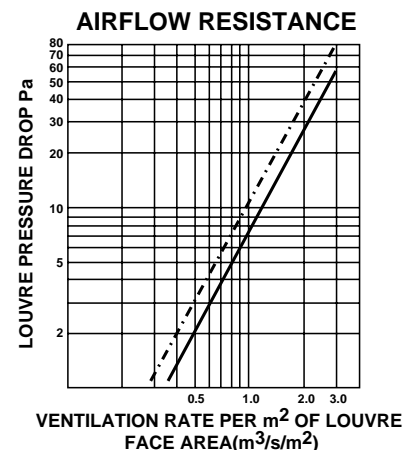
ALTERNATIVE

If an effectiveness of 0.98 would suffice, then from Table 2 a volume of 1.5m³/s per m² face area would be allowed. This would give a pressure drop of 16Pa.

Therefore, new louvre size would be:-
 $\frac{5}{1.5} = 3.33\text{m}^2$ FACE AREA.

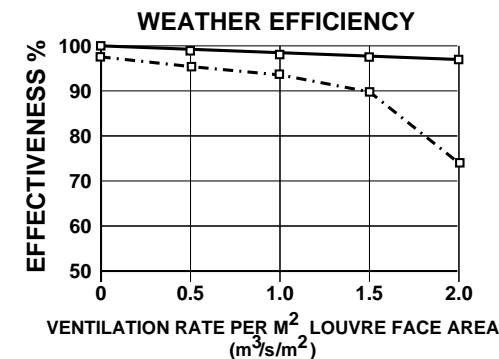
PENTHOUSE LOUVRES

For Penthouse louvres the face area of all sides should be calculated and the addition related to the above calculations for total face area.



— WH Series
- - - WP Series

Table 1



— WH Series
- - - WP Series

Table 2

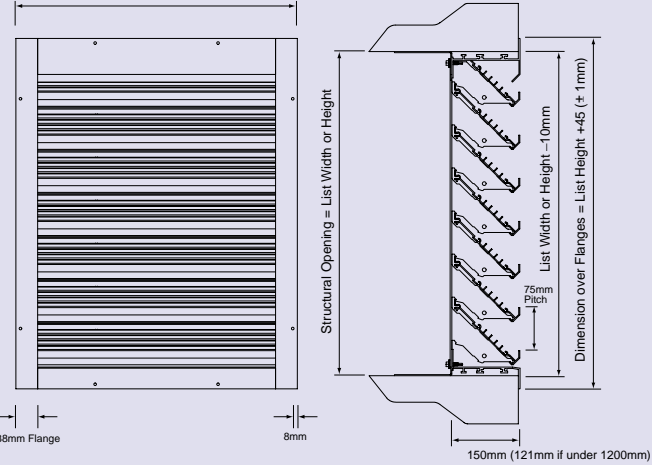
NOTE: A) 13m/s WIND SPEED IN ALL TESTS

B) 75mm/m² WATER SPRAY ONTO LOUVRE FACE IN ALL TESTS

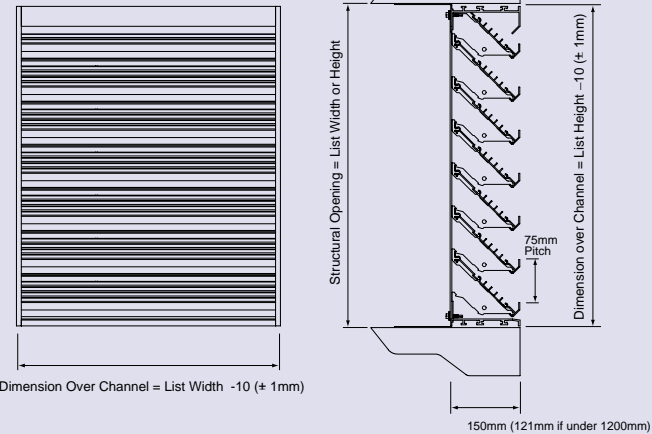
WH-75 SERIES

WHF-75

Dimension Over Flanges = List Width + 49 (± 1mm)



WHC-75



SERIES:	Flanged - WHF Channel Frame - WHC	WHF
BLADE PITCH:	75mm	75
SIZE:	(mm Width x Height)	1200 x 800
OPTIONS:	Birdguard - BG Insect Screen - IS	BG
EXTRA OPTIONS:	Weather Cill - WC	WC
SPECIAL FIXING OPTIONS:	Rear Lug Fixing - RLF	RLF
BLANKING PLATE OPTIONS:	Standard - SBP Insulated - IBP	SBP
FINISH:	(Please Specify)	Mill Finish (Standard Finish)
NUMBER REQUIRED:		15



WH-75 HIGH PERFORMANCE LOUVRES

WH-75 HIGH PERFORMANCE LOUVRES

Series WH75 is the principle profile in the Gilberts high performance range offering a 75mm blade pitch which is equally suitable for both small and large louvre panels and screens.

The blade design on the WH Series is not only unique but is also a critical factor in the louvres weathering performance which, ultimately, revolves around drainage and the need to remove water from the louvre surface.

In line with the detailed performance and test data (separate) this unit offers exceptional resistance to weather ingress combined with low pressure loss and a good 50% free area and both flanged and recessed channel frame options can be selected along with standard Birdguard and Insect Screen accessories.

SERIES OPTIONS

WHF/75: Comprises of 16 SWG Louvres on 75mm Centres in a 38mm wide flanged frame.
WHC/75: Comprises of 16 SWG Louvres on 75mm Centres in 121mm deep channel frame.

SIZE RANGE

Available sizes range from 300mm square up to 2500 square in one unit. Above this size Louvres are supplied as multiple units with a continuous appearance for assembly on site.

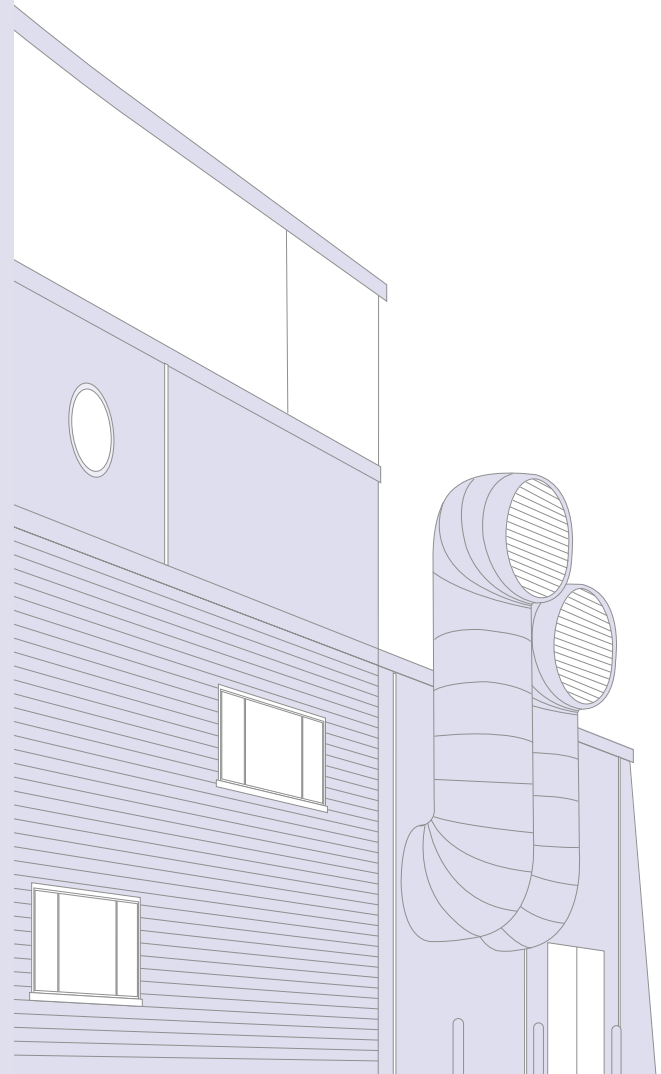
FIXING

WHF/75: Standard method is flange screw fixing using the pre-drilled countersunk fixing Holes and screws. Flanges can be supplied un-drilled upon request although flanges used on multiple assemblies are un-drilled as standard. Alternative method as WHC below.

WHC/75: Screw Fixing through adjustable, sliding fixing angles located at the back of the unit. Building in Lugs are optionally available if the unit is to be built into the opening.

FINISH

Various finishes are available upon request including Polyester Powder Coating, PVF and PVF2. The units can be supplied unpainted if required.



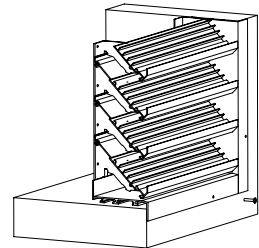
GUIDELINE WEIGHT:	WH75 - Approx. 22Kg/m ²
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LENGTH OF BLADE	VERTICAL MULLION WHEN REQUIRED
Up to 1200	None
1200 - 2000	One
Over 2000	One every 1000



WH-75 SERIES

FRONT FACE



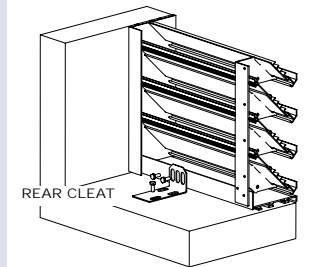
FIXING DETAILS

For all channel frame units angle brackets, adjustable for height, are located on a sliding runner at the rear allowing for flexible positioning and individual adjustment to suit fixing tolerances.

Elongated slotted fixing holes in the bracket are designed for M8 expansion bolt or other suitable fixing.

On flange border units face fixing is available as well as the angle brackets detailed above.

For unusual or complex applications other types of special fixing can be devised.



WHC 75

75mm PITCH HIGH PERFORMANCE CONTINUOUS LOUVRES

HIGH PERFORMANCE CONTINUOUS LOUVRE

For applications where larger Louvre assemblies are required such as for Wall or Rooftop Screening and Ventilation Applications our Series WH75 can be supplied any size in multiple panels, purpose built to assemble into a continuous Louvre Screen. Indeed it is often even practical to mix and match the high performance WH-75 with our Standard WG-75 series louvre, since both units share the same pitch and border detail. In this way maximum economic selection of louvres can be achieved, depending upon exposure and performance requirements, in each specific sectional area. Please check with office for this feature. Dispatched with all the necessary fixing Angles and Bolts for their assembly all louvre panels can be banked both horizontally and vertically and designed to incorporate additional

features such as:

- Internal/External Mitred Corners.
- Dummy, Blanked and Active Sections.
- Horizontal and Vertical Blade Sections.
- Single and Double Hinged Continuous Appearance Doors.

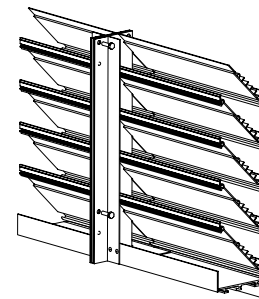
Unusual and irregular profiles can typically be catered for with accurate face alignment provided by the pre-drilled assembly holes and blade alignment pieces. Rear mounted Mullion Supports are provided for additional strength where required.

Our standard fixing and assembly details are illustrated herein. The individuality and complexity of continuous screening applications will however require, in each case, the preparation of detailed manufacturing drawings to ensure that the unit not only meets all the clients requirements but is also easy to assemble, install and fix on Site.

Our Company has been specially tailored to provide this all inclusive services with:

- **Initial Site Surveys to obtain construction work details.**
- **Preparation of detailed manufacturing drawings in accordance with the clients requirements and the results of the initial Survey.**
- **Final manufacture and appropriate finishing to blend or contrast, as required, with the building structure.**
- **Expert Site installation by our own team of Skilled Engineers.**

In this way a thorough and trouble free installation can be ensured and our Technical Department will be pleased to give any advice or guidance you may require for a particular application.

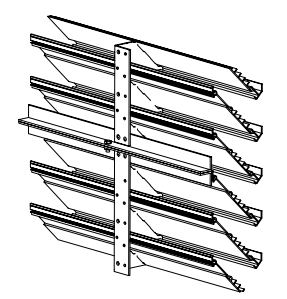


CONCEALED MULLION FEATURE

The unique Mullion feature is not only available for drainage purposes but also has an important role to play in multiple assemblies providing for virtually invisible joining between horizontal louvre panels.

Accurate blade alignment on the face is ensured by the support clips and pre-drilled assembly holes for fixing the closure plate.

Provision for louvre expansion is also made at these junctions by using slotted holes in the closure plate.

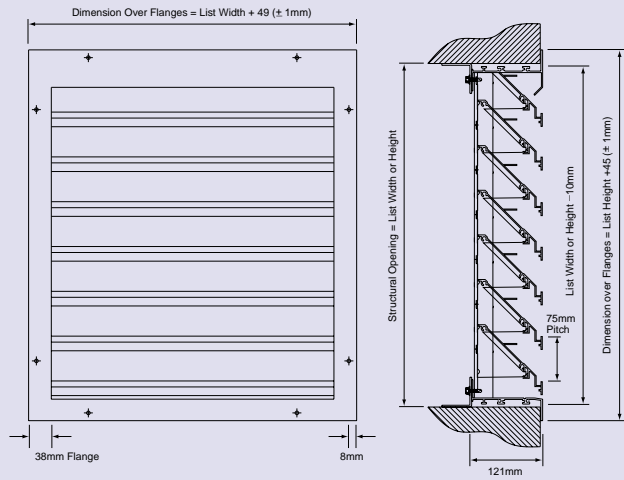


VERTICAL ASSEMBLY

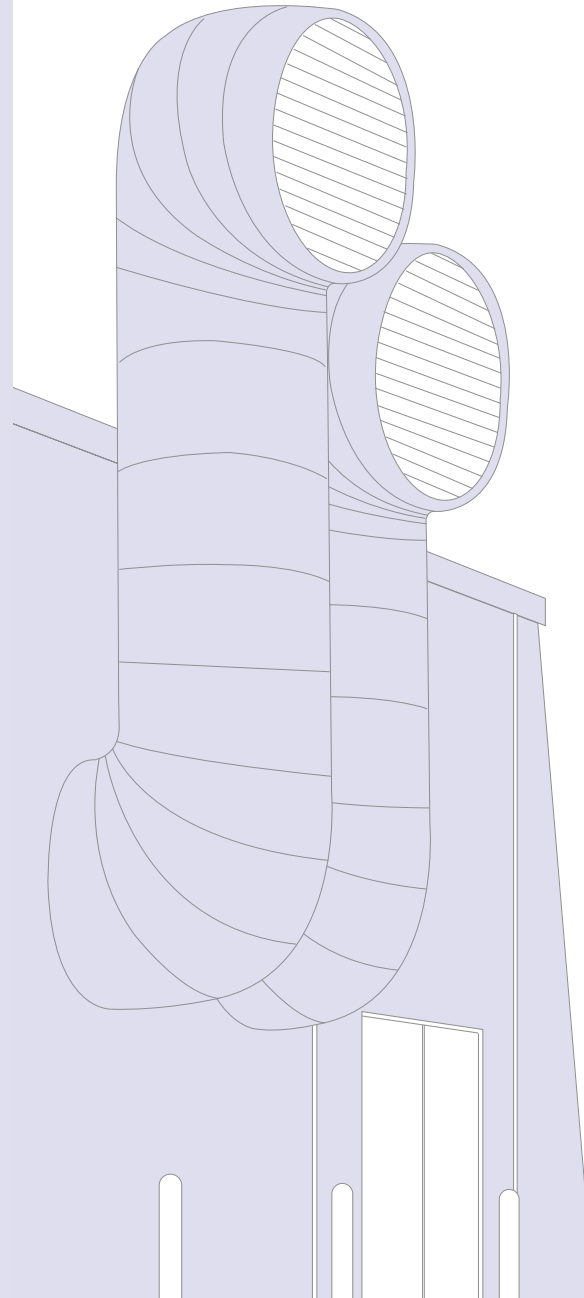
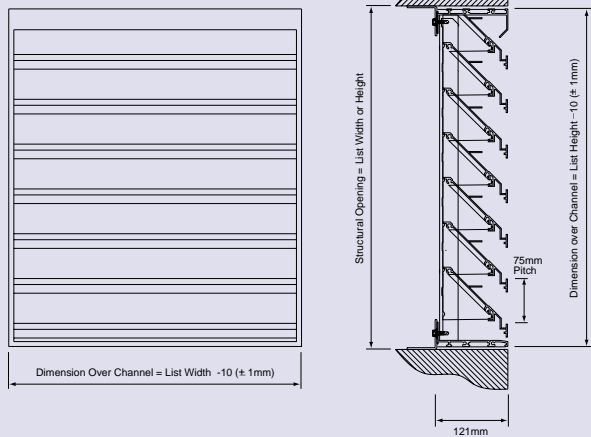
For assembly of Vertical Panels alignment strips are fitted to the Mullions and frame for initial positioning. The joint is then secured with a closure plate. This provides for an accurately and easily assembled joint which maintains the correct blade pitch and external appearance yet remains invisible from the louvre face.

WP-75 SERIES

WPF-75



WPC-75



WP-75 HIGH PERFORMANCE LOUVRES

WP-75 HIGH PERFORMANCE LOUVRES

Series WP75 high performance louvre shares the same 75mm pitch with its WH counterpart but utilises a different blade profile to provide benefits on both weight and cost, with only a slight reduction in weathering performance.

The WP blade profile is equally suitable for both small and large louvre panels, allowing for a balanced appearance across a broad spectrum of sizes. Beneficially however this pitch/profile arrangement also allows the unit to blend well with our standard 75mm pitch WG Series of louvres thus facilitating cost effective mixed use on projects where high weather projection is only required in specific sectional areas. The increased strength and rigidity of this blade section over smaller profiles combined with its physical size advantage has led to its use as the design basis for many other useful high performance configurations such as louvre screens, single and double doors and Penthouse units. In line with the detailed performance and test data (separate) this unit offers exceptional resistance to weather ingress combined with low pressure loss and a good 50% free area and both flanged and recessed channel frame options can be selected along with standard Birdguard and Insect Screen accessories.

SERIES OPTIONS

GUIDELINE WEIGHT:	WP75 - Approx. 19Kg/m ²
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WPF/75: Comprises of 16 SWG Louvres on 75mm Centres in a 38mm wide flanged frame.

WPC/75: Comprises of 16 SWG Louvres on 75mm Centres in 121mm deep channel frame.

SIZE RANGE

Available sizes range from 300mm square up to 2500 square in one unit. Above this size Louvres are supplied as multiple units with a continuous appearance for assembly on site.

FIXING

WPF/75: Standard method is flange screw fixing using the pre-drilled countersunk fixing Holes and screws. Flanges can be supplied un-drilled upon request although flanges used on multiple assemblies are un-drilled as standard.

WPC/75: Screw Fixing through adjustable, sliding fixing angles located at the back of the unit. Building in Lugs are optionally available if the unit is to be built into the opening.

FINISH

Various finishes are available upon request including Polyester Powder Coating, PVF and PVF2. The units can be supplied unpainted if required.

LENGTH OF BLADE	VERTICAL MULLION WHEN REQUIRED
Up to 1500	None
1500 - 2000	One
Over 2000	One every 1000

SERIES:	Flanged - WPF Channel Frame - WPC	WPF
BLADE PITCH:	75mm	75
SIZE:	(mm Width x Height)	1200 x 800
OPTIONS:	Birdguard - BG Insect Screen - IS	BG
EXTRA OPTIONS:	Weather Cill - WC	WC
SPECIAL FIXING OPTIONS:	Rear Lug Fixing - RLF	RLF
BLANKING PLATE OPTIONS:	Standard - SBP Insulated - IBP	SBP
FINISH:	(Please Specify)	Mill Finish (Standard Finish)
NUMBER REQUIRED:		15



HIGH PERFORMANCE LOUVRE DOORS

LOUVRED DOORS

For applications where ventilation and access is required to Plant Room or Generator equipment Gilberts single and double leaf, inward or outward opening, Louvred Doors can provide an ideal solution. Designed for use both as stand alone units or as part of a continuous Louvre Screen they constitute ready made units complete with all necessary equipment such as Door Stays, Mortice Locks, Barrel Bolts, and, if required, Birdguard or Insect Screens. When used in continuous screens Louvre Doors incorporate a blade appearance frame and concealed pivot hinge mechanism. This ensures that the continuous line of the Louvre is not compromised in any way.

SERIES OPTIONS

WHDS/75: Single hinged louvre door comprising 16 SWG louvres on 75mm Centres. Class A/B

WHDD/75: Double hinged louvre doors comprising 16 SWG louvres on 75mm Centres. Class A/B

WPDS/75: Single hinged louvre door comprising 16 SWG louvres on 75mm Centres. Class B/C

WPDD/75: Double hinged louvre doors comprising 16 SWG louvres on 75mm centres. Class B/C

Semi-continuous appearance also available utilising an angle frame not box section.

SIZE RANGE

Available sizes on the single option range from 500 x 500 up to 1200 x 2100mm. The double ranges from 600 x 600 up to 2400 x 2200mm. Standard sizes as detailed.

For larger sizes, a box section frame is provided. Please check with our Head Office for details.

FIXING

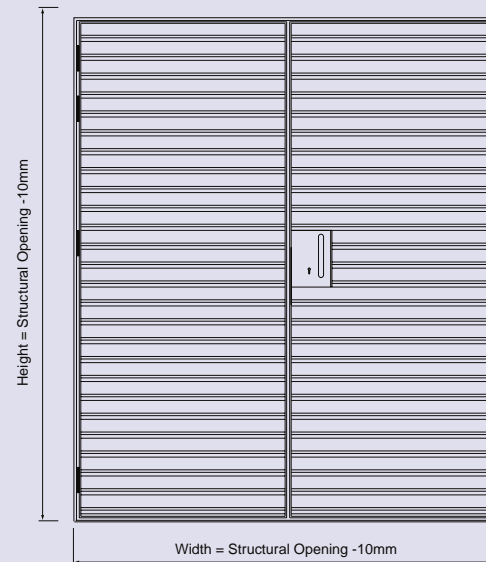
Two alternative fixing methods are available on Louvred Doors as detailed.

FINISH

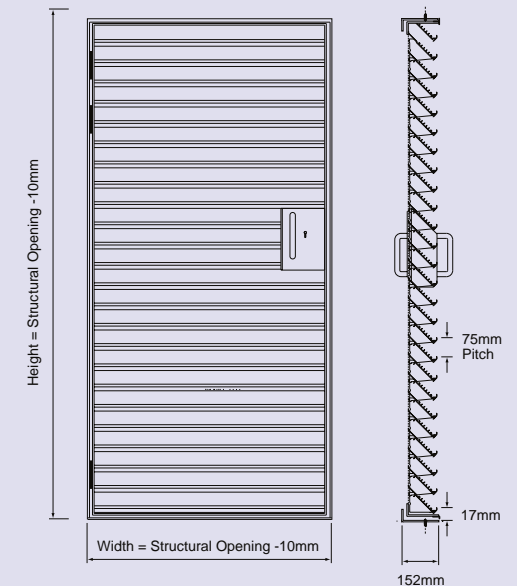
Various finishes are available upon request including Polyester Powder Coating, PVF and PVF2. The units can be supplied unpainted if required.

WHD SERIES

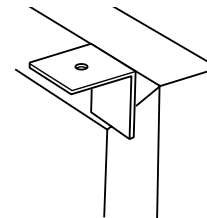
TYPE WHDD / WPDD



TYPE WHDS / WPDS

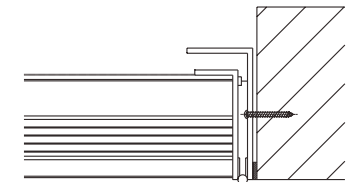


FIXING ARRANGEMENT A



UNIT SECURED WITH M6 EXPANSION BOLTS THROUGH FIXING ANGLE CLEATS MOUNTED AT 600mm CENTRES AT REAR

FIXING ARRANGEMENT B



UNIT SECURED WITH M6 EXPANSION BOLTS ON 600mm CENTRES THROUGH OUTER FRAME

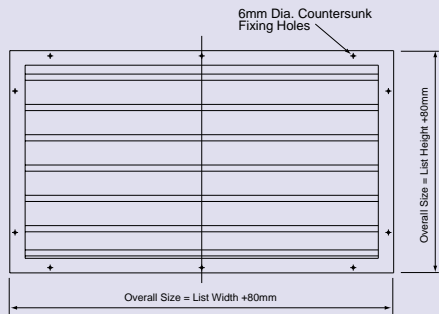
SERIES:	WHDS / WPDS	WHDS
DOOR:	Single - S Double - D	S
BLADE PITCH:	75mm	75
SIZE:	(mm Width x Height)	1200 x 800
OPTIONS:	Birdguard - BG Insect Screen - IS	BG
OPENING DETAILS:	Inward Opening - IO Outward Opening - OO	IO
HINGE DETAILS (Single door):	Left hand Hinge - LH Right Hand Hinge - RH	LH
DOOR FIXING ARRANGEMENT:	A or B	A
FINISH:	(Please Specify)	Mill Finish (Standard Finish)
NUMBER REQUIRED:		15

STANDARD DOOR SIZES

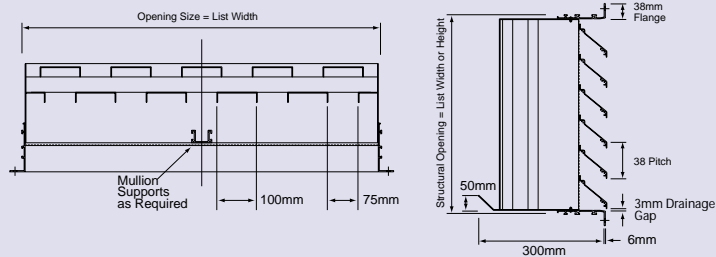
Single: Standard size designed to suit structural opening of 1000 x 2100. This gives a door size of 1340 x 2390 with a clear opening of 1230 x 2280

Double: Standard size designed to suit structural opening of 2000 x 2100. This gives a door size of 2090 x 2390 with a clear opening of 1980 x 2280.

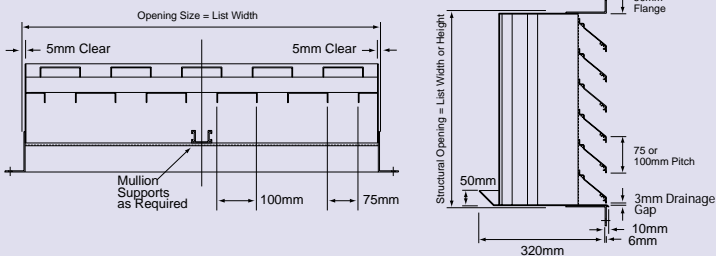
WSL SERIES



TYPE WSL 38



TYPE WSL 75, 100



SERIES:	WSL	WSL
BLADE PITCH (mm):	38, 75, 100	75
SIZE:	(mm Width x Height)	2500 x 2000
OPTIONS:	Birdguard - BG Insect Screen - IS	BG
EXTRA OPTIONS:	Weather Cill - WC	WC
SPECIAL FIXING OPTIONS:	Rear Lug Fixing - RLF	RLF
FINISH:	(Please Specify)	Mill Finish (Standard Finish)
NUMBER REQUIRED:		15



38/75/100 PITCH WSL HIGH PERFORMANCE LOUVRES

WSL LOUVRES

Although our WH and WP Series High Performance Louvres are designed to offer outstanding resistance to the ingress of rain, sleet and hail etc. (up to 99.5% efficient), they cannot by nature of its single bank design and free area, provide complete weather protection. For applications where negligible water ingress is required the WSL has been developed to offer improved weathering performance over even the WH Series profile, with tests demonstrating the unit to have improved weather protection characteristics even under the most adverse of weather conditions.

These all aluminium construction units consist, in effect, of a Standard Louvre Panel Assembly with Twin Filtering Baffles at the rear.

The first bank of horizontal blades can be selected in either 38, 75 or 100mm Pitch Louvre Assemblies according to architectural preference. The concealed vertical channels at the rear then filter out most, if not all, the rain particles that pass the first screen. Flanged units are available as standard with optional Birdguard and Insect Screen Accessories. Units can be incorporated into Penthouse Louvre Assemblies if required.

SERIES OPTIONS

WSL/38: Comprises of 16 SWG Louvres on 38mm Centres in a 50mm wide Flanged Frame.

WSL/75: Comprises of 16 SWG Louvres on 75mm Centres in a 50mm wide Flanged Frame.

WSL/100: Comprises of 14 SWG Louvres on 100mm Centres in a 50mm wide Flanged Frame.

SIZE RANGE

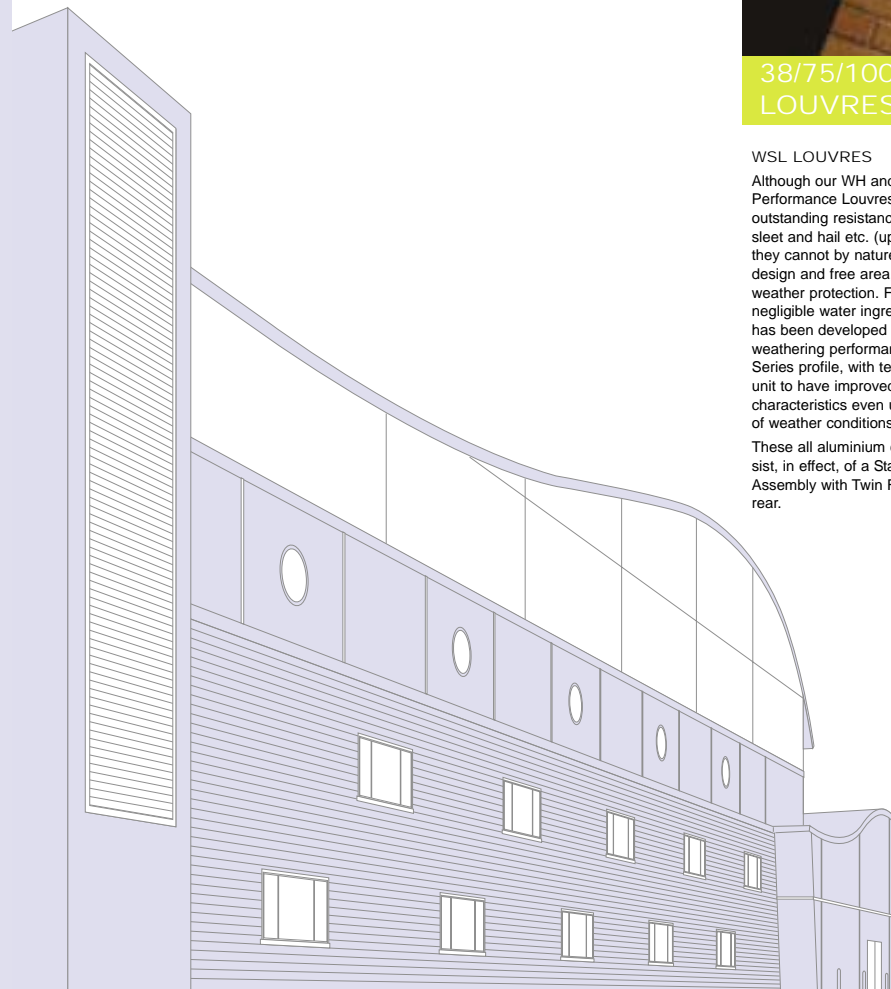
Available sizes range from 300mm square up to 1500mm in one unit. Above this size units are supplied as multiple units for assembly on site. Free area approx. 33%.

FIXING

Standard method is Flange Screw Fixing using pre-drilled 6mm countersunk fixing holes. Flanges can be supplied un-drilled on request.

FINISH

Various finishes are available upon request including Polyester Powder Coating, PVF and PVF2. The units can be supplied unpainted if required.





HIGH PERFORMANCE PENTHOUSE LOUVRES

PENTHOUSE LOUVRES

These are a range of roof mounting fixed Blade Louvre Housings suitable for air intake or discharge over ventilation shafts etc. Designed upon the two High Performance profile blades the Penthouses are supplied complete with continuous corners, sloping roof and Birdguards.

Available with alternative fixing borders to suit plinth or flat roof mounting the units offer a good 50% free area combined with the excellent weathering characteristics associated with this design.

SERIES OPTIONS

PHH/75: Comprises of 16 SWG Aluminium Louvres on a 75mm Pitch with blade drainage features and rear mounted Birdguard Screen. Insect screens available as an optional extra.

PPH/75: Comprises of 16 SWG Aluminium Louvres on a 75mm Pitch with rear mounted Birdguard Screen. Insect screens available as an optional extra.

SIZE RANGE

Available sizes range from 500 x 500 x 300mm upwards. For maximum unit sizes in one piece please refer to Head Office. Multiple assemblies can be supplied upon request.

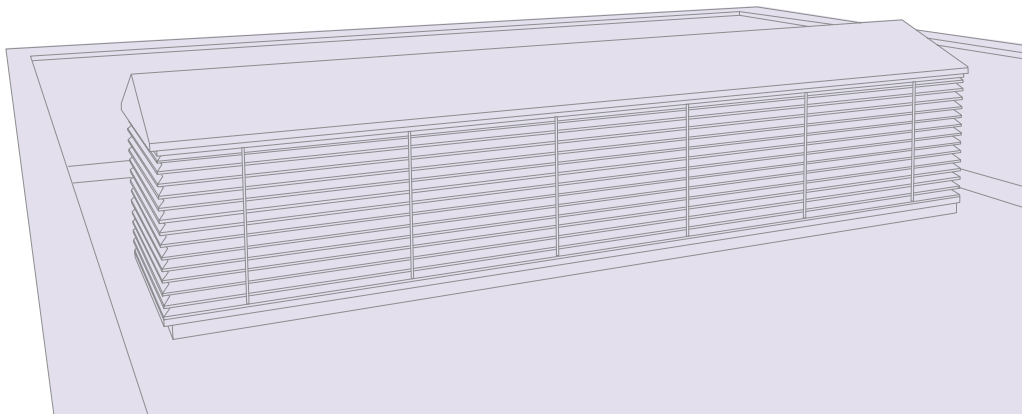
FIXING

The PH series Penthouse Louvres are available with two types of Base Border options to suit either plinth or flat roof mounting. These borders are supplied with fixing holes to suit M8 expansion bolts on standard 600mm centres. Other fixing details available to order.

FINISH

The standard Louvre finish is mill finish (ie un-treated), Polyester Powder Coatings, and PVF Finishes are also available on request.

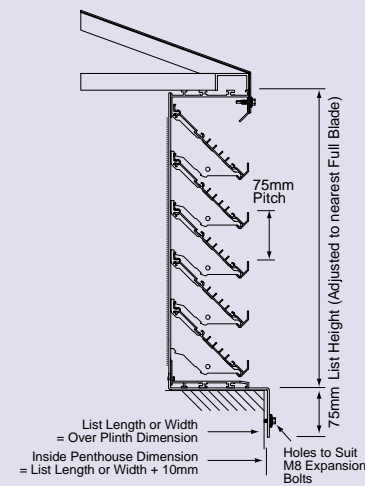
LENGTH OF BLADE	VERTICAL MULLION WHEN REQUIRED
Up to 1500	One
1500 - 2000	Two
Over 2000	One every 1000



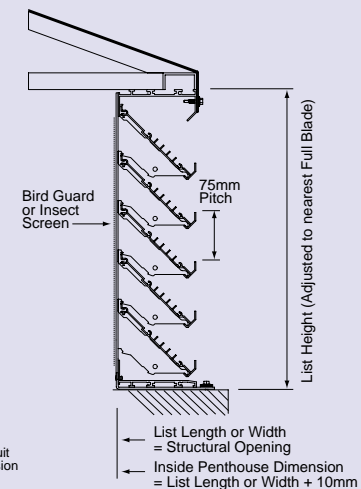
PHH SERIES

PHH

BORDER STYLE 1

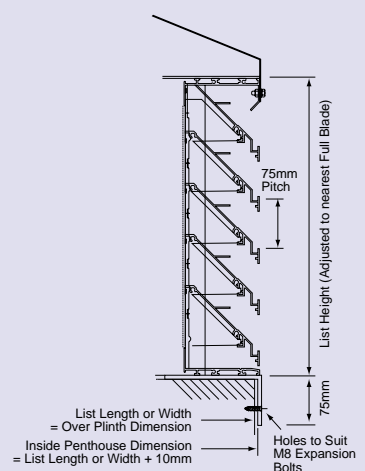


BORDER STYLE 2

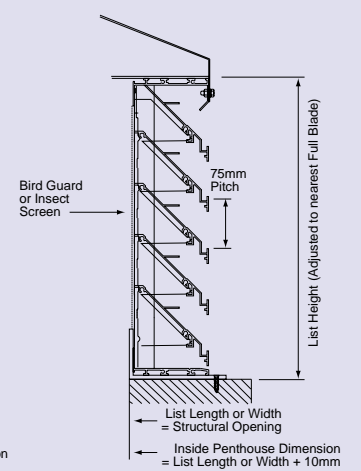


PPH

BORDER STYLE 1



BORDER STYLE 2



SERIES:	PHH 75 / PPH 75	PHH 75 / PPH 75
SIZE:	(mm Length x Width x Height)	1200 x 1200 x 800
OPTIONS:	Insect Screen - IS	IS
BASE BORDER STYLE:	Border Style 1 - B1 Border Style 2 - B2	B1
FINISH:	(Please Specify)	Mill Finish (Standard Finish)
NUMBER REQUIRED:		15