ZEFYR SMOOTHFLOW LOUVRE

SMOOTHFLOW ARCHITECTURAL PERFORMANCE LOUVRES

zefyrgroup.com

Zefyr

Innovative Building Solutions

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GENERAL SPECIFICATION

The following descriptions apply to the entire range of Smoothflow louvres:

MATERIAL
Sigma louvres are manufactured in mill finish aluminium

MATERIAL FINISHES
Aluminium louvre units can be mill finish, polyester powder-coated or PVF2 coated to any British Standard using RAL or Zefyr colours

BLADES
Manufactured from extruded aluminium BS 1474 - 6063T6

BLADE PROFILES
Blade profiles can be used as single pass or double pass louvres or as double pass operable louvres

BLADE JOINTS
Blades are joined at mullion centres with stainless steel dowel pins, ensuring absolute alignment. Where thermal expansion is to be accounted for on long elevations, blade joints are spaced accordingly

BLADE CLIP
A versatile clip device allows for choice of pitch arrangement

RANGE OF PITCH
Sigma louvres are available in 50, 80 and 100mm pitch. Range of pitch with free area:

- 50mm up to 48% through the blades
- 80mm up to 65% through the blades
- 100mm up to 52% through the blades

BIRDGUARD / INSECT SCREENS
A range of designed birdguards and insect screens are available as optional extras to complement the Sigma louvres

MULLIONS
Press formed aluminium steel 2mm thick to BS 1470 - 1050 H14

FASTENERS
Either aluminium or stainless steel

CORNERS
Both internal and external to suit angles and produced from parent blade material

PERFORMANCE
Blade design has been tested for structural and aerodynamic performance to provide optimum spanning and pressure loss characteristics

BIRDSCREEN
Available as an optional extra in 12 X 12mm square mesh, PVC-coated galvanised steel. In certain applications this has the effect of reducing the louvre free area by 16%

INSECT MESH
Available as an optional extra in expanded aluminium material with 1.875mm square apertures. In certain applications this can effectively reduce the louvre free area by 32%

ACOUSTIC ARRANGEMENT
Although not shown in this technical data guide, Zefyr can offer louvres in lean back configuration, and can include acoustic baffles behind the louvre fascia to alleviate noise control problems. For further information please consult the ventilation department

BLANKING PANELS
Available as an optional extra in aluminium to match louvres, blanking panels are insulated / uninsulated and can have a mill finish or be coated to a specified material finish

OPERATING CONTROLS
A wide range of unobtrusive pneumatic or electrical actuators are available for the double pass operable louvre

MAINTENANCE
It is essential that the system is tested regularly in accordance with the operating maintenance instructions provided for each installation

QUALITY ASSURANCE
Zefyr operates a quality assurance system in accordance with BS 5750 Part 1 and ISO 9001

SMOOTHFLOW 50 – TECHNICAL DATA

The Smoothflow 50mm pitch louvre blade is offered in 4 standard configurations

- 50mm continuous single pass
- 50mm single pass box arrangement.
- 50mm single pass – Formawall/Trimapanel louvre panel
- 50mm double pass – Formawall/Trimapanel louvre panel

The blade design has been fully tested for structural and aerodynamic performance to provide optimum spanning and pressure loss characteristics. Weather tests have also been carried out

Geometric free area through the blade is 48%. For reductions due to bird mesh, insect mesh and other configurations please call our technical department

TABLE 1 – CONTINUOUS LOUVRES

50MM PITCH	MULLION CENTRES		
Wind load(KN/m²)	1000 (mm)	1250 (mm)	MAX RAIL SPACING (MM)
1.0	2115	1960	
1.5	1845	1710	
2.0	1650	1475	
2.5	1475	1320	

Note: Based on deflection limitation of span divided by 180

TABLE 2 - BOX LOUVRES

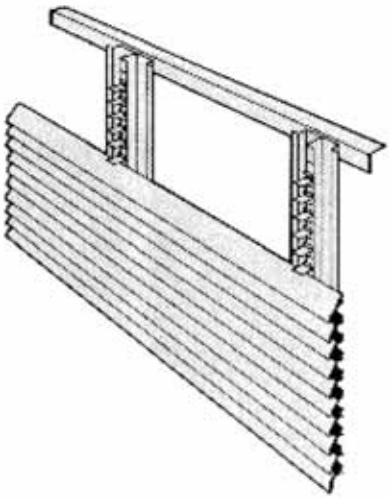
50MM PITCH	MULLION CENTRES			
Wind load(KN/m²)	1000 (mm)	1250 (mm)	1500 (mm)	MAX RAIL SPACING (MM)
1.0	2005	1855	1740	
1.5	1755	1625	1525	
2.0	1595	1475	1385	
2.5	1483	1370	1250	

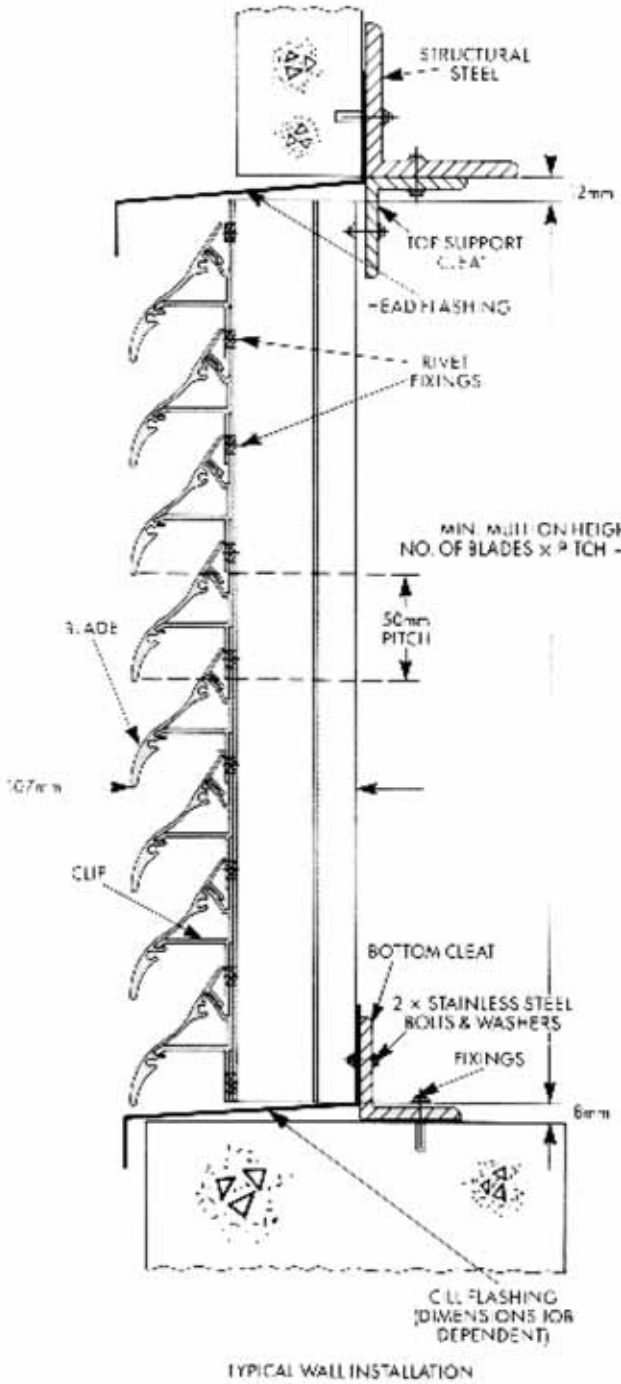
Note: Based on deflection limitation of span divided by 180

WEIGHTS

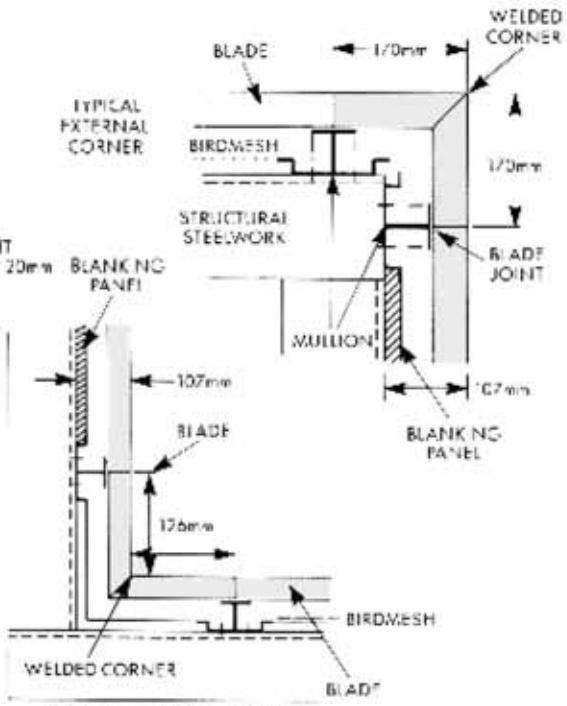
- 50mm single pass 15.68 kg/m²
- 50mm double pass 21.00 kg/m²
- 50mm continuous single pass 16.61 kg/m²
- 50mm single pass box 14.77 kg/m²

SMOOTHFLOW 50 - CONTINUOUS LOUVRE

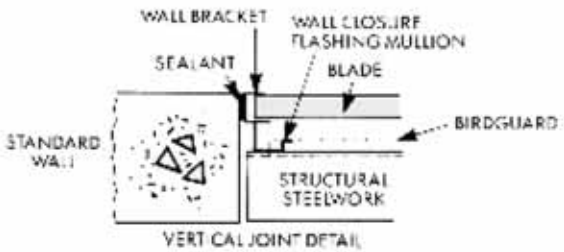




TYPICAL WALL INSTALLATION

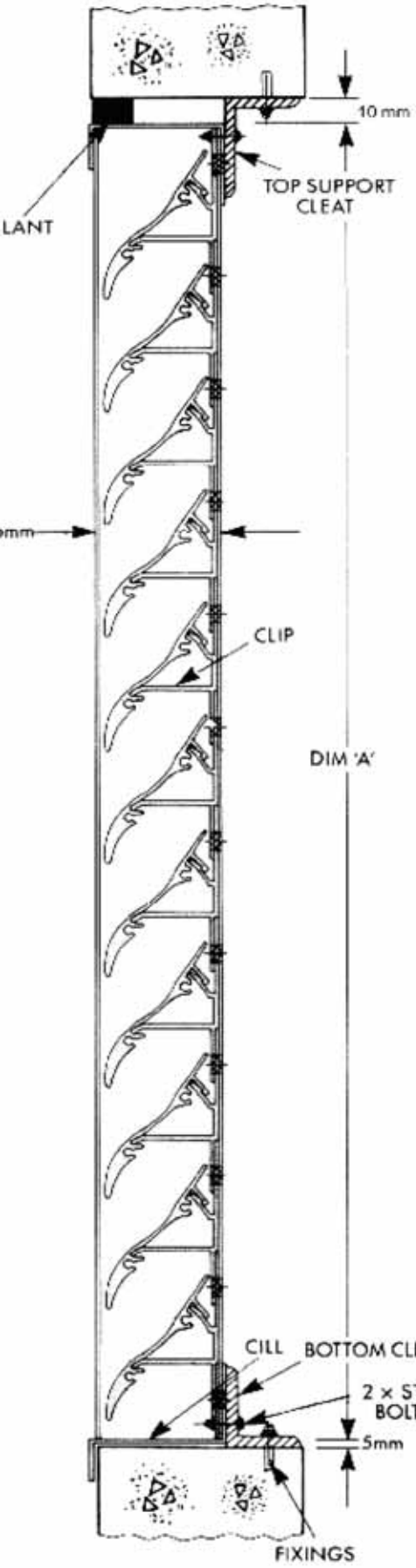


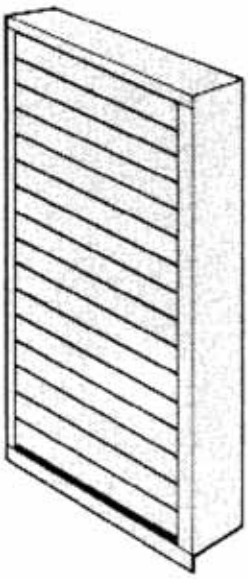
TYPICAL INTERNAL CORNER

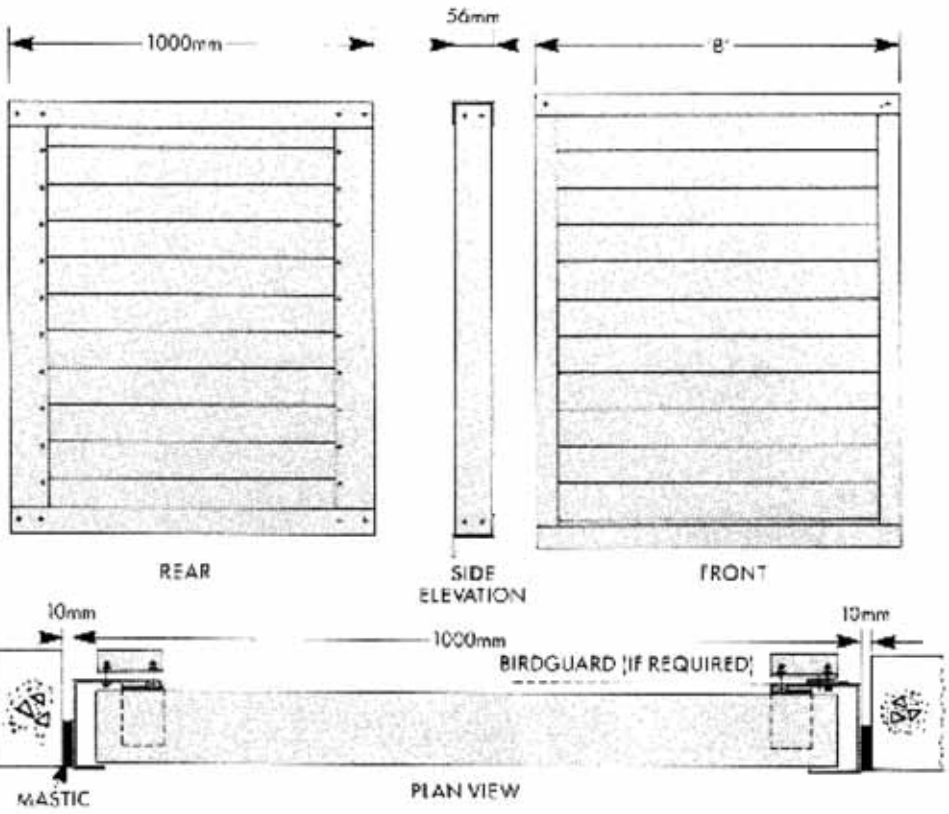


VERTICAL JOINT DETAIL

SMOOTHFLOW 50 - FIXED BLADE BOX LOUVRE

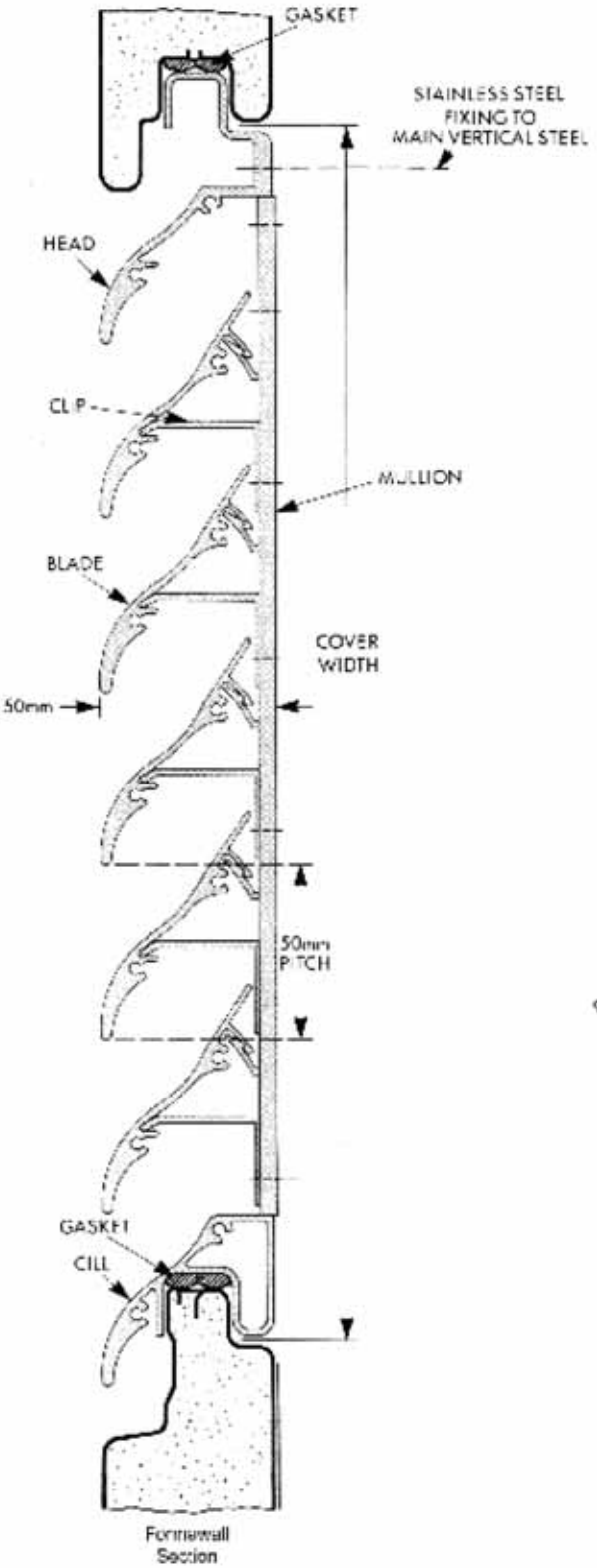




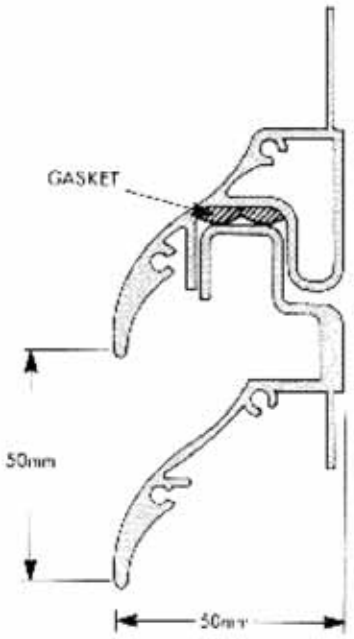


Blades	9	10	11	12	13	14	15	16	17	18	19	20	21
Dim"A"	485	535	585	635	685	735	785	835	885	935	985	1035	1085
Dim"B"	500	750	1000	1250	1500								

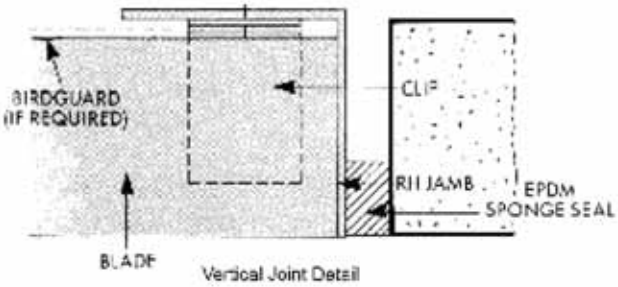
SMOOTHFLOW 50 – FORMAWALL / TRIMPANEL CONTINUOUS LOUVRE



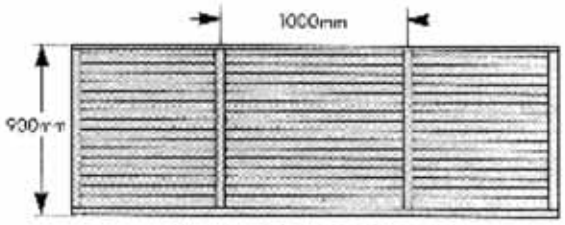
Formawall Section



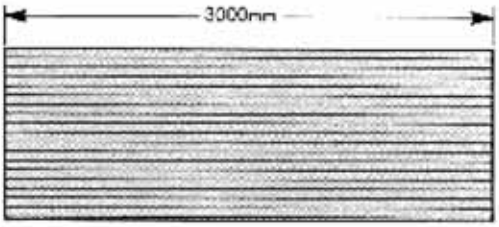
Horizontal Joint Detail Between Two Louvre Panels



Vertical Joint Detail



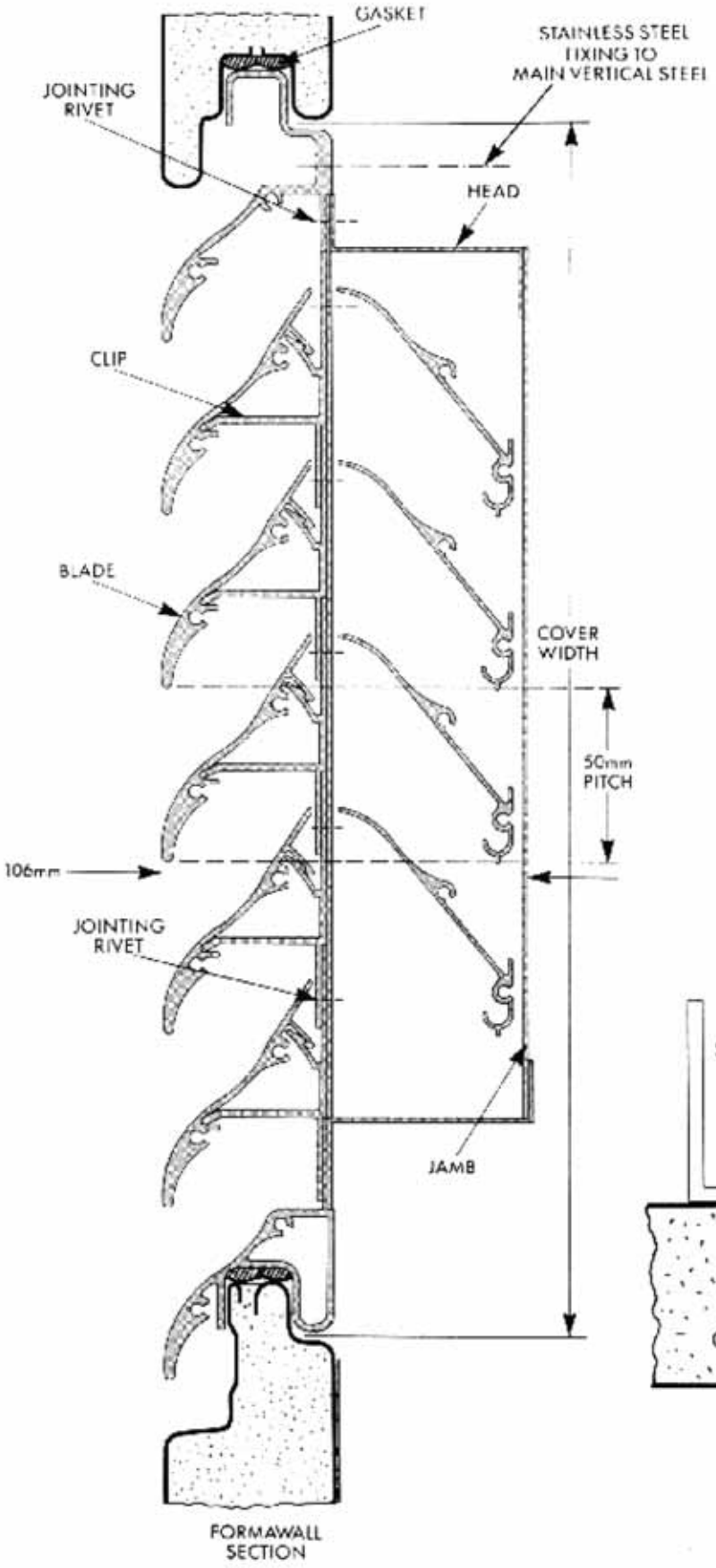
Rear Elevation of Typical Installation

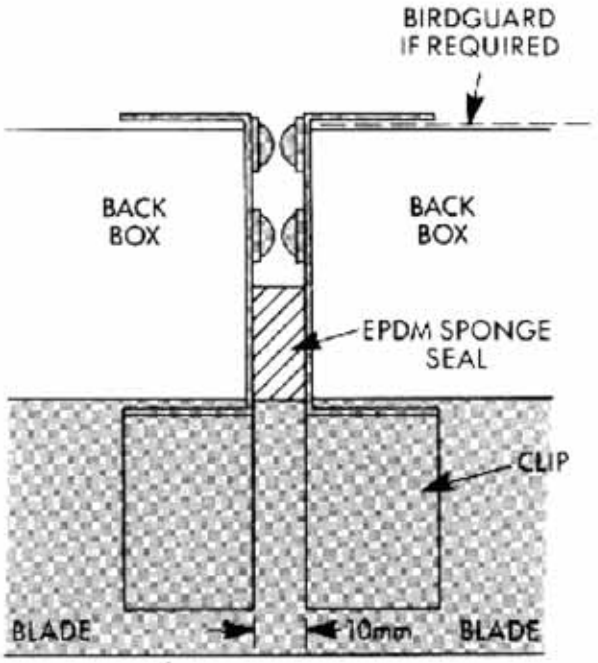


Front Elevation Of Typical Installation

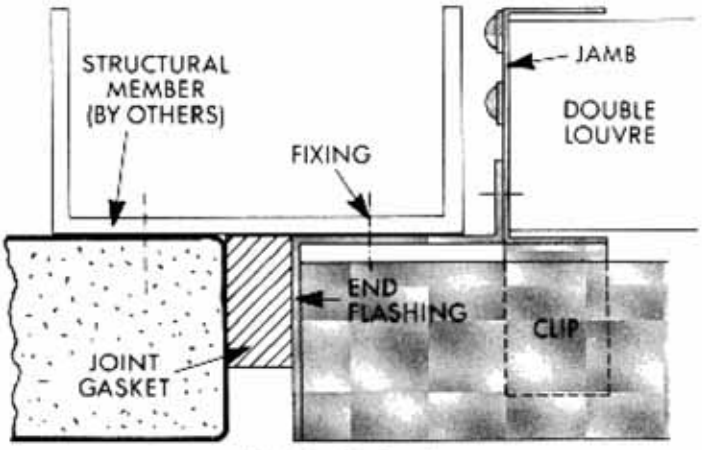
Standard Panel Sizes 3000x900mm
Using above joint detail and horizontal joint sins, louvre can form a continuous look.

SMOOTHFLOW 50 – FORMAWALL / TRIMPANEL CONTINUOUS DOUBLE PASS LOUVRE





Vertical Joint Detail



Vertical Joint Detail

Maximum Back Box
Dimensions 802mm Height x 1250 mm Width

SMOOTHFLOW 80 – TECHNICAL DATA

The Smoothflow 80mm pitch louvre blade is offered in 4 standard configurations:

- 80mm continuous single pass
- 80mm single pass box arrangement
- 80mm double pass fixed
- 80mm double pass operable

The blade design has been fully tested for structural and aerodynamic performance to provide optimum spanning and pressure loss characteristics. Full weather tests have also been carried out. Geometric free area through the blade is 65%. For reductions due to bird mesh, insect mesh and other configurations please call our technical department.

TABLE 1 – CONTINUOUS LOUVRES

80MM PITCH	MULLION CENTRES MM			
Wind load KN/m²	1000	1250	1500	MAX RAIL SPACING (MM)
1.0	3800	3250	3305	
1.5	3300	3000	2730	
2.0	2920	2600	2370	
2.5	2615	2330	2120	

Note: Based on deflection limitation of span divided by 180

TABLE 2 - BOX LOUVRES

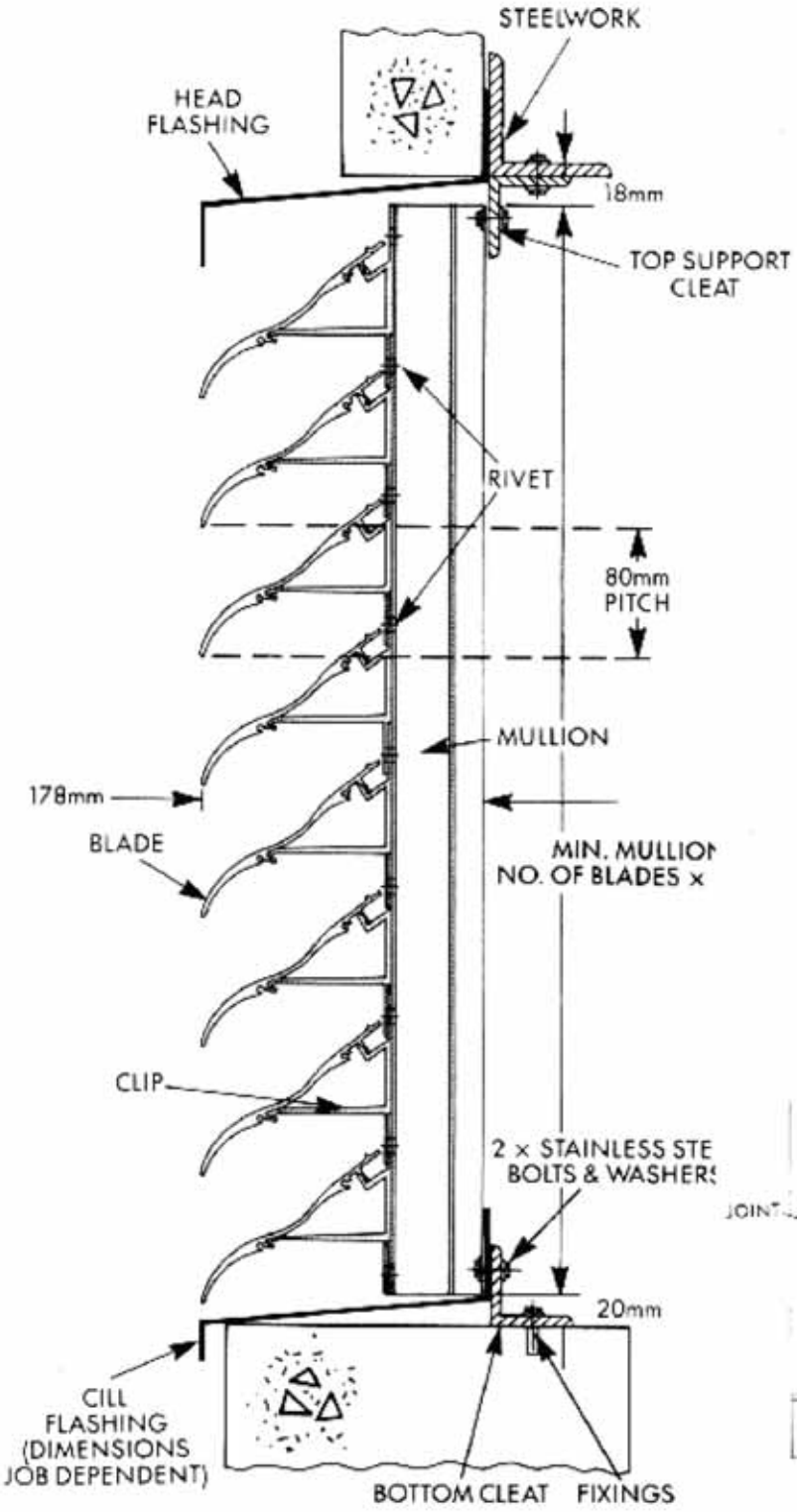
80MM PITCH	MULLION CENTRES MM			
Wind load KN/m²	1000	1250	1500	MAX RAIL SPACING (MM)
1.0	2005	1855	1740	
1.5	1755	1625	1525	
2.0	1595	1475	1385	
2.5	1483	1370	1250	

Note: Based on deflection limitation of span divided by 180

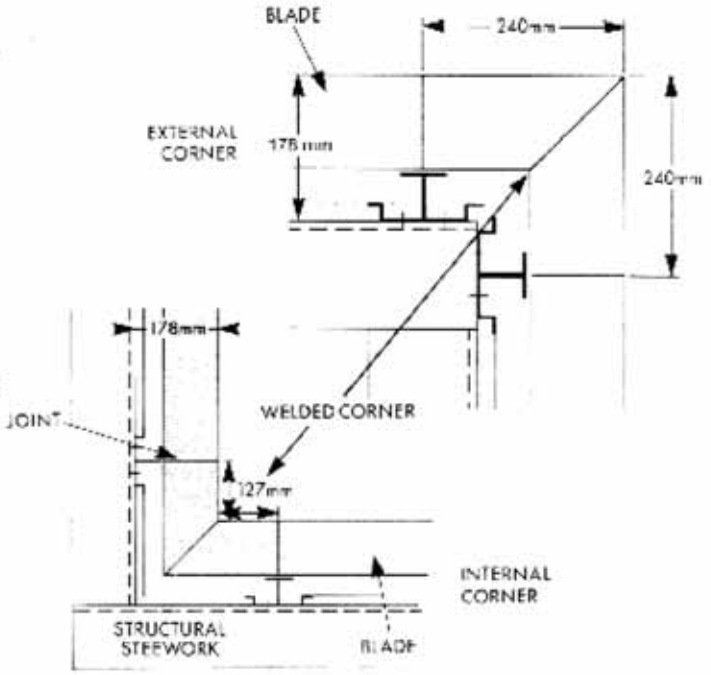
WEIGHTS

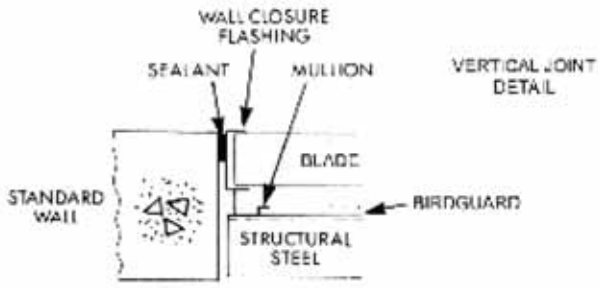
- 80mm continuous single pass 19.05 kg/m²
- 80mm single pass box arrangement 21.62 kg/m²
- 80mm double pass fixed 35.67 kg/m²
- 80mm double pass operable 35.67 kg/m²

SMOOTHFLOW 80 – CONTINUOUS LOUVRE

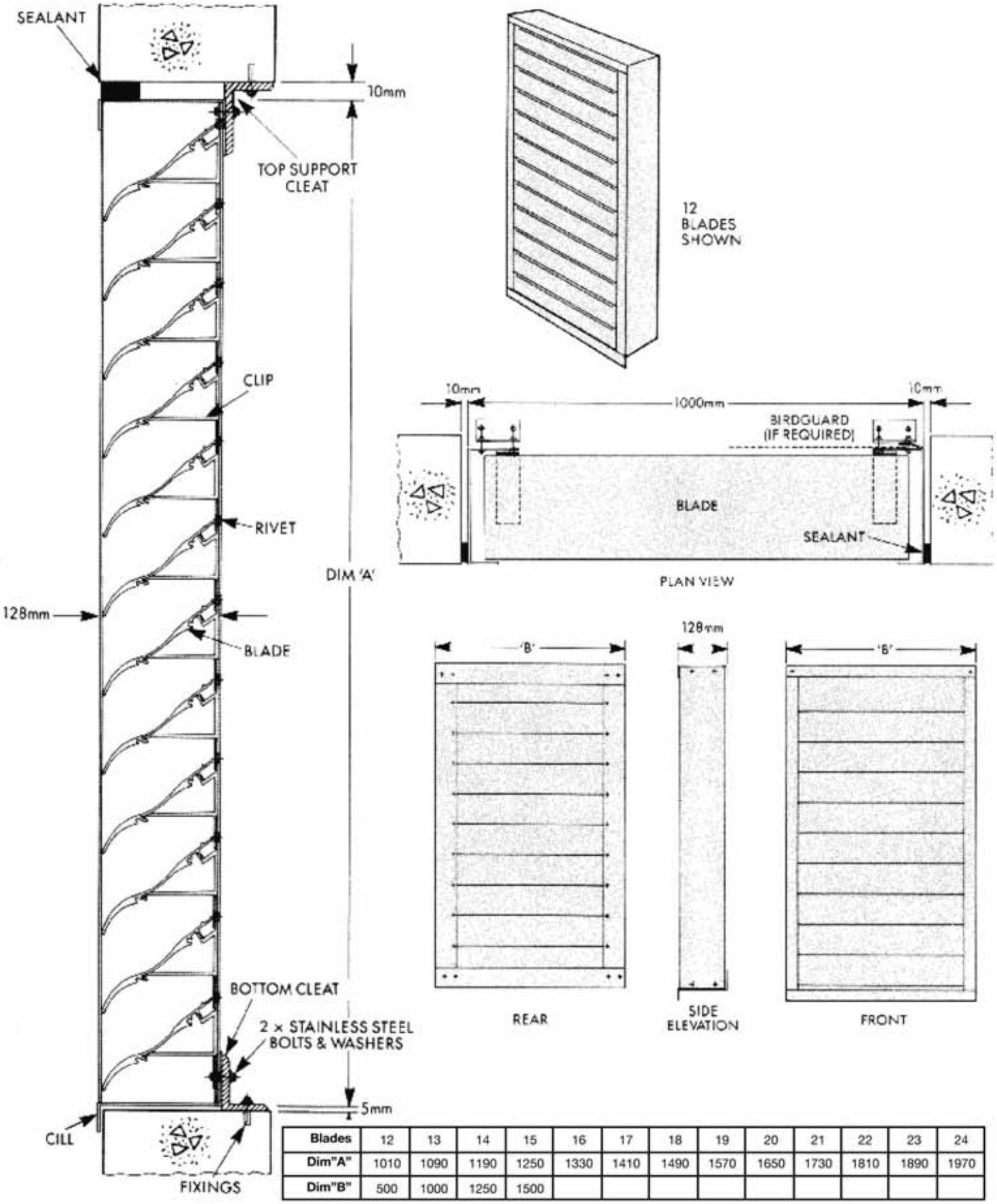


TYPICAL WALL INSTALLATION



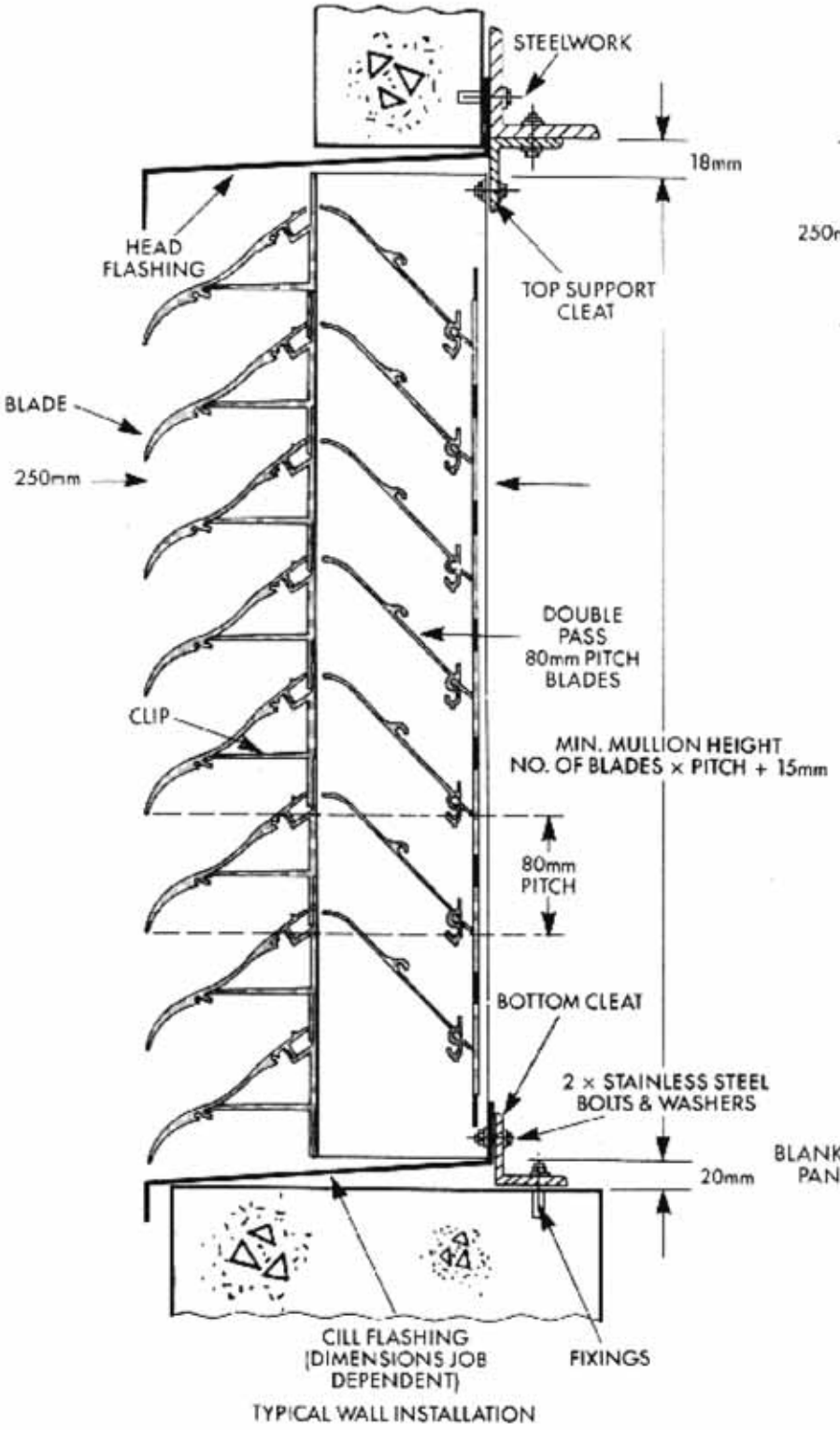


SMOOTHFLOW 80–FIXED BLADE BOX LOUVRE

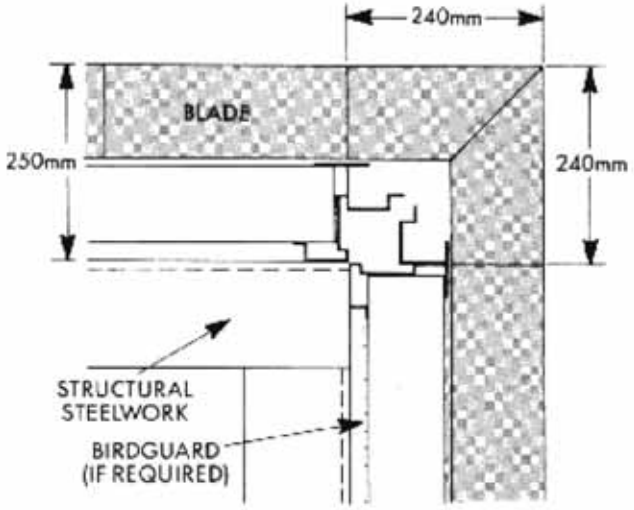


Blades	12	13	14	15	16	17	18	19	20	21	22	23	24
Dim"A"	1010	1090	1190	1250	1330	1410	1490	1570	1650	1730	1810	1890	1970
Dim"B"	500	1000	1250	1500									

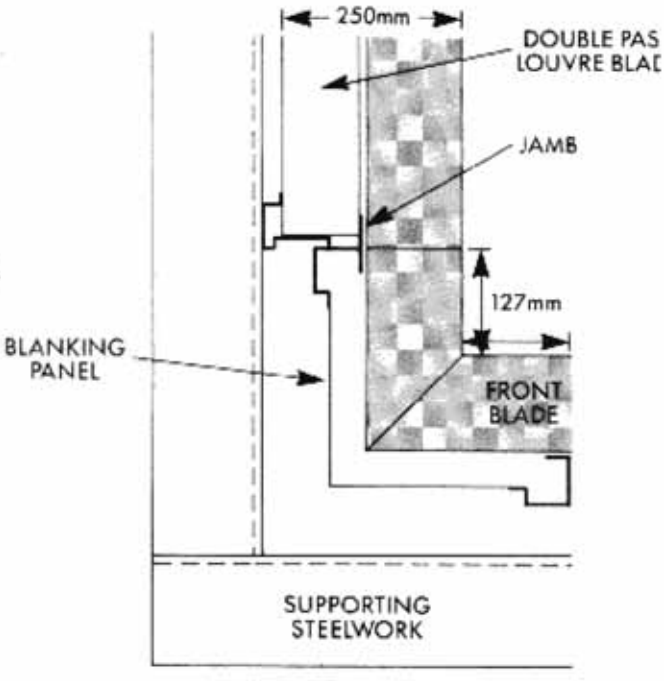
SMOOTHFLOW 80 – DOUBLE PASS FIXED AND OPERATED CONTINUOUS LOUVRE



TYPICAL WALL INSTALLATION

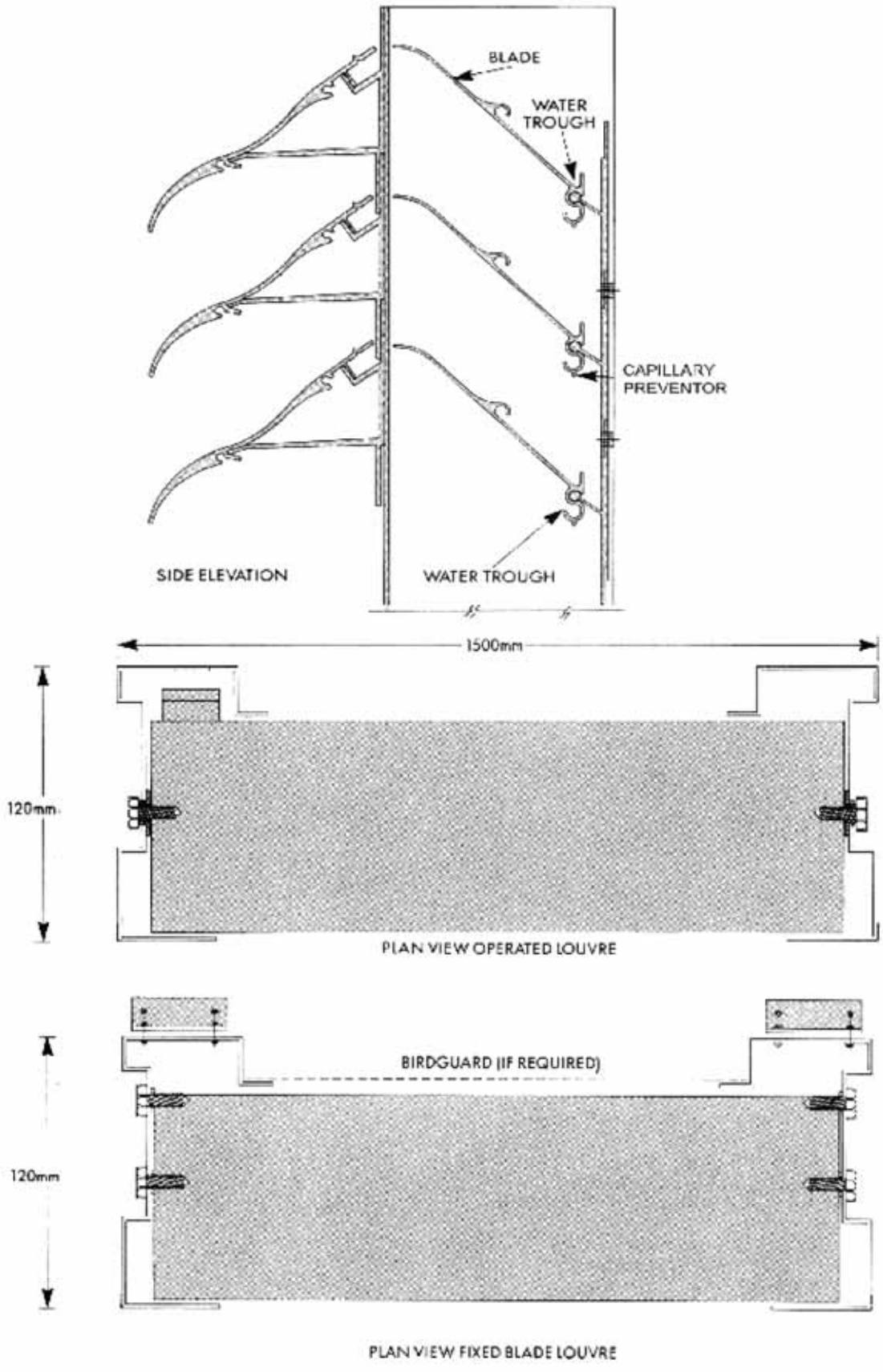


EXTERNAL CORNER

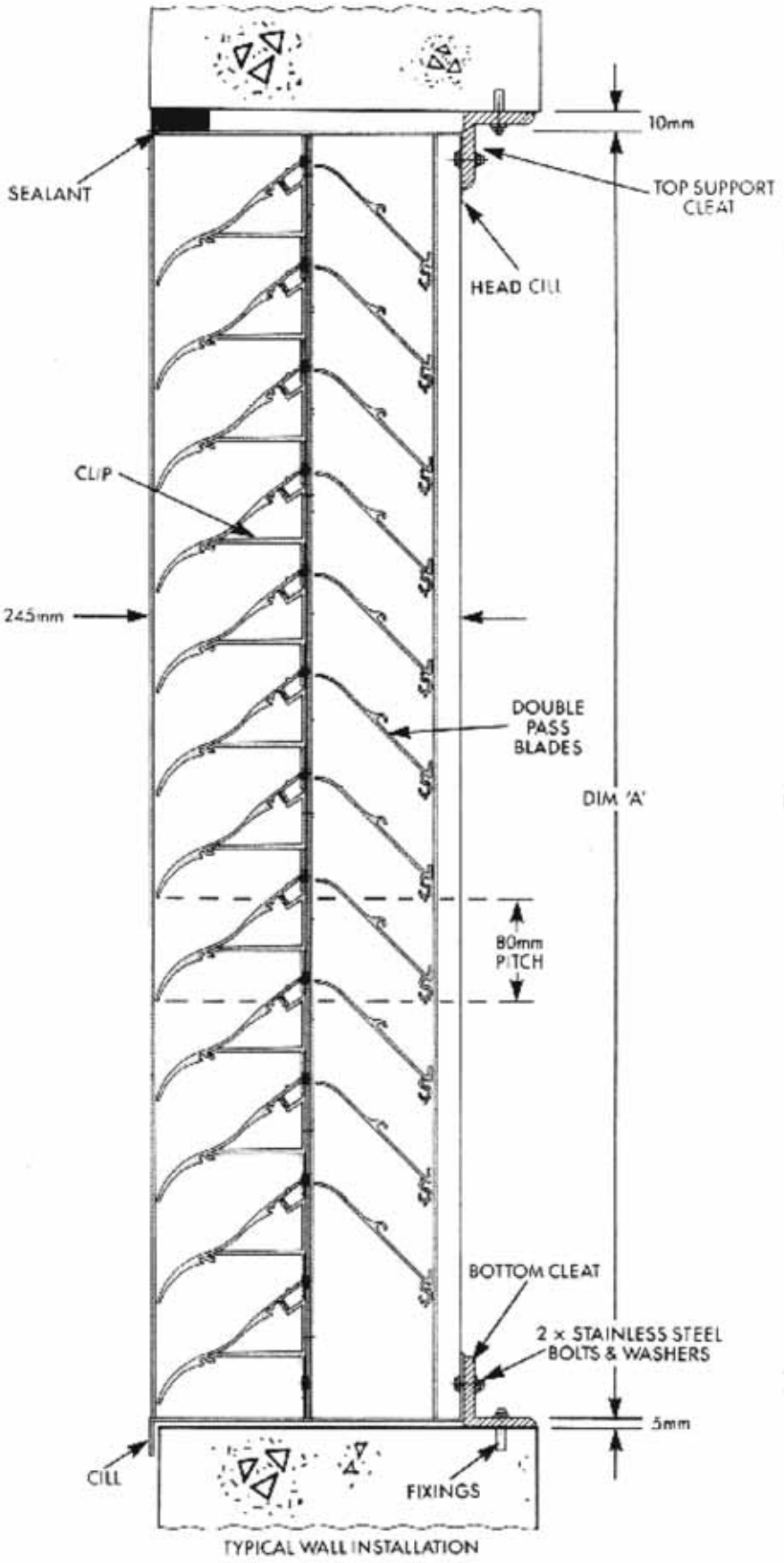


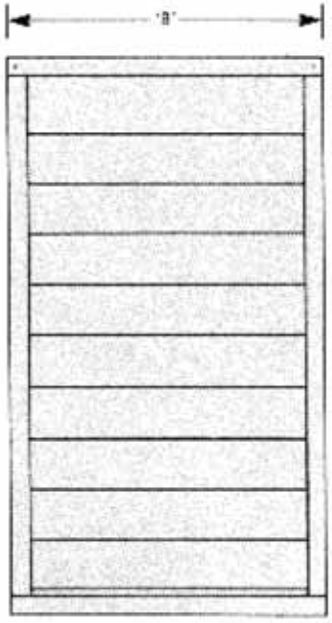
INTERNAL CORNER

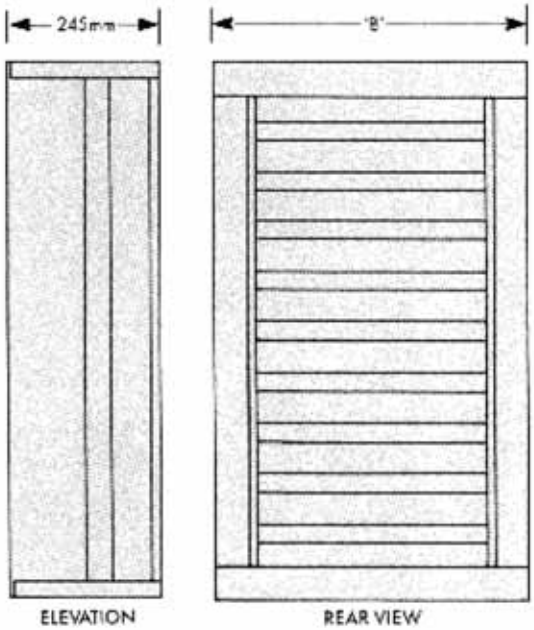
SMOOTHFLOW 80 – DOUBLE PASS FIXED AND OPERATED CONTINUOUS LOUVRE



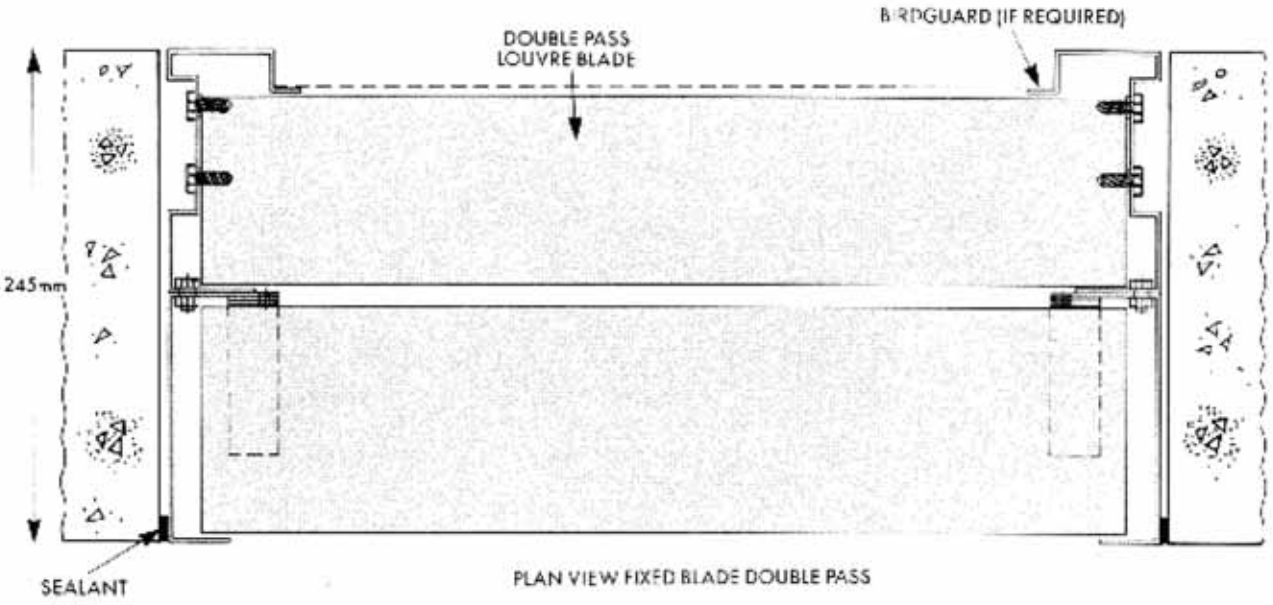
SMOOTHFLOW 80 – DOUBLE PASS FIXED AND OPERATED BOX LOUVRE



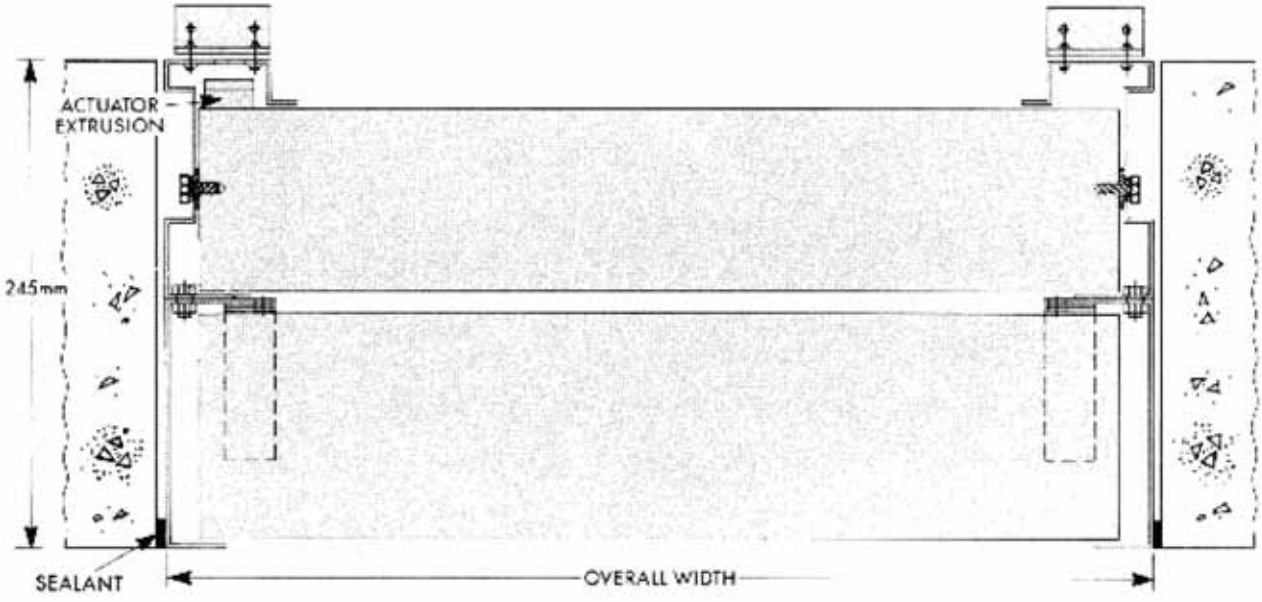




SMOOTHFLOW 80 – DOUBLE PASS FIXED AND OPERATED BOX LOUVRE



PLAN VIEW FIXED BLADE DOUBLE PASS



PLAN VIEW OPERABLE DOUBLE PASS

Blades	12	13	14	15	16	17	18	19	20	21	22	23	24
Dim"A"	1010	1090	1190	1250	1330	1410	1490	1570	1650	1730	1810	1890	1970
Dim"B"	500	1000	1250	1500									

SMOOTHFLOW 100 – TECHNICAL DATA

The Smoothflow 100mm pitch louvre blade is offered in 4 standard configurations:

- 100mm continuous single pass
- 100mm single pass box arrangement
- 100mm double pass fixed
- 100mm double pass operable

The blade design has been fully tested for structural and aerodynamic performance to provide optimum spanning and pressure loss characteristics. Full weather tests have also been carried out. Geometric free area through the blade is 52%. For reductions due to bird mesh, insect mesh and other configurations please call our technical department.

TABLE 1 – CONTINUOUS LOUVRES

80MM PITCH	MULLION CENTRES MM			
Wind load KN/m²	1000	1250	1500	MAX RAIL SPACING (MM)
1.0	3800	3250	3305	
1.5	3300	3000	2730	
2.0	2920	2600	2370	
2.5	2615	2330	2120	

Note: Based on deflection limitation of span divided by 180

TABLE 2 - BOX LOUVRES

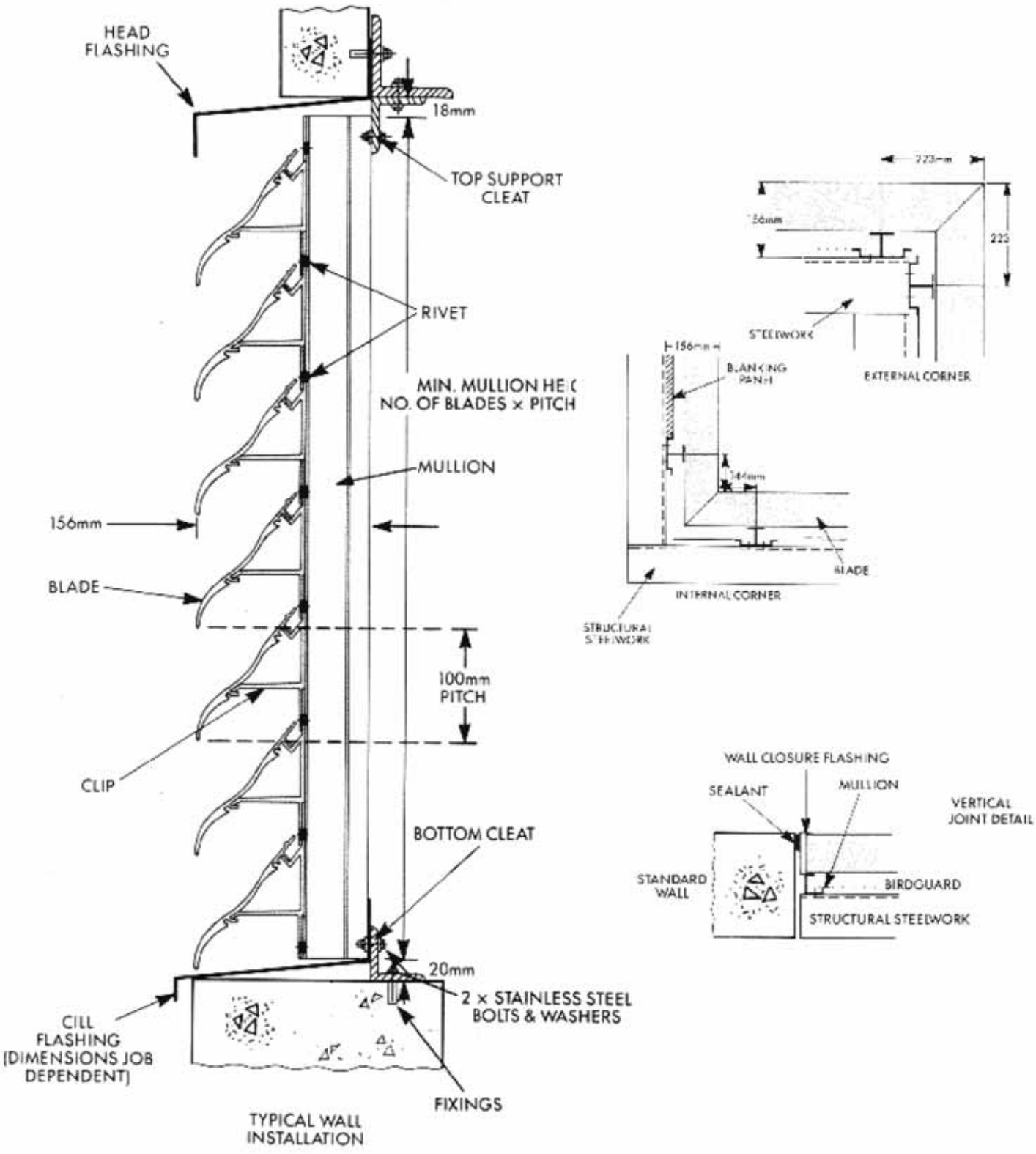
80MM PITCH	MULLION CENTRES MM			
Wind load KN/m²	1000	1250	1500	MAX RAIL SPACING (MM)
1.0	3240	3000	2820	
1.5	3840	3650	2435	
2.0	2580	2325	2110	
2.5	2335	2080	1890	

Note: Based on deflection limitation of span divided by 180

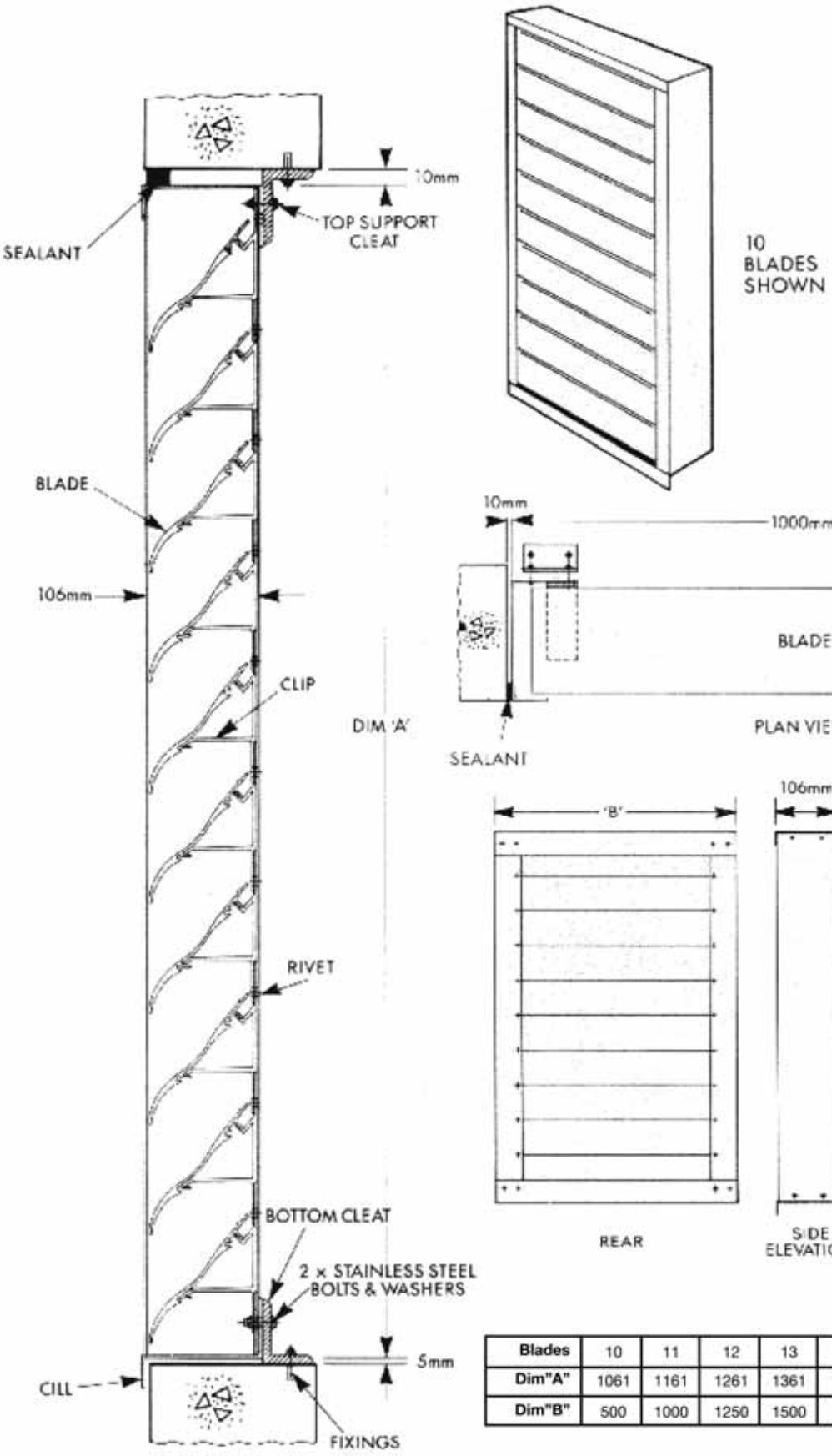
WEIGHTS

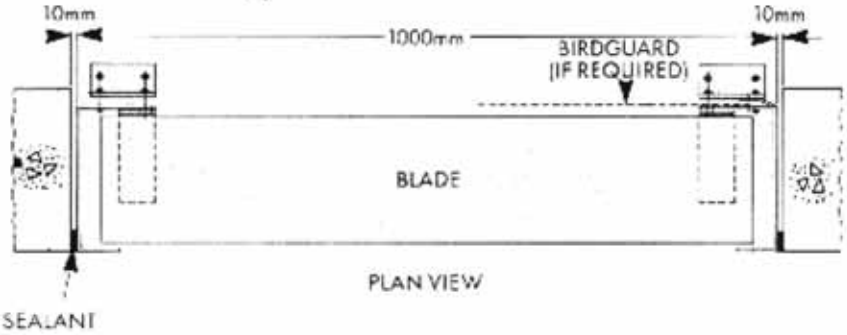
- 100mm continuous single pass 16.25 kg/mÇ
- 100mm single pass box arrangement 17.25 kg/mÇ
- 100mm double pass fixed 31.60 kg/mÇ
- 100mm double pass operable 31.60 kg/mÇ

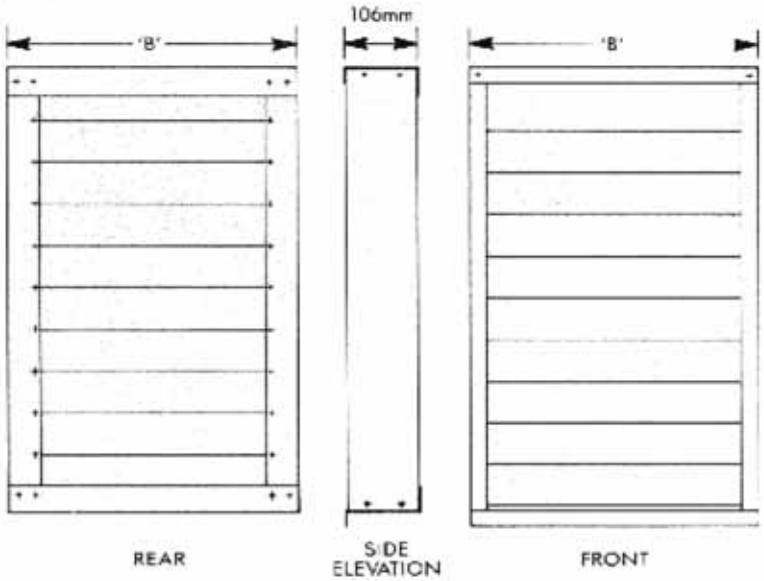
SMOOTHFLOW 100 – CONTINUOUS LOUVRE



SMOOTHFLOW 100 – FIXED BLADE BOX LOUVRE

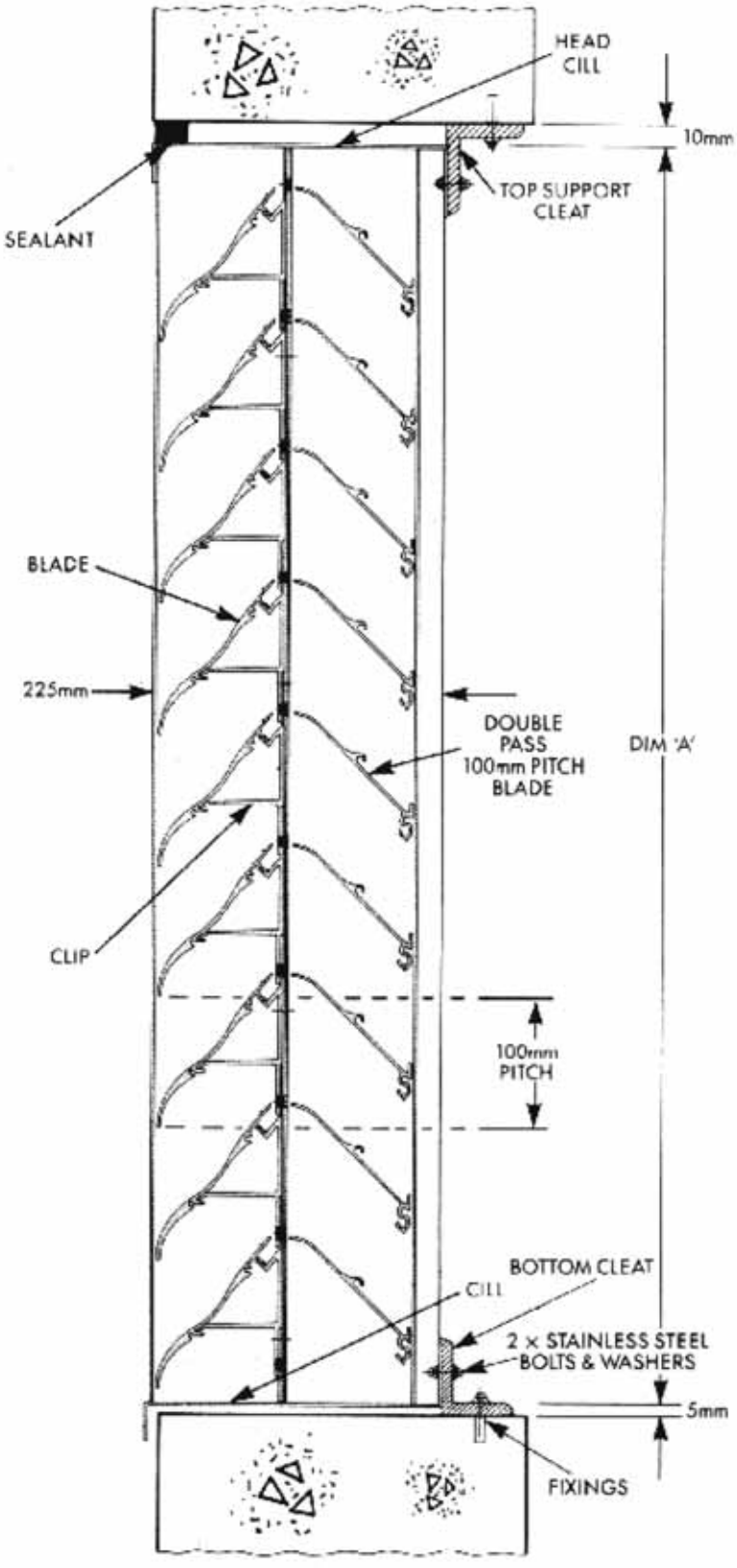




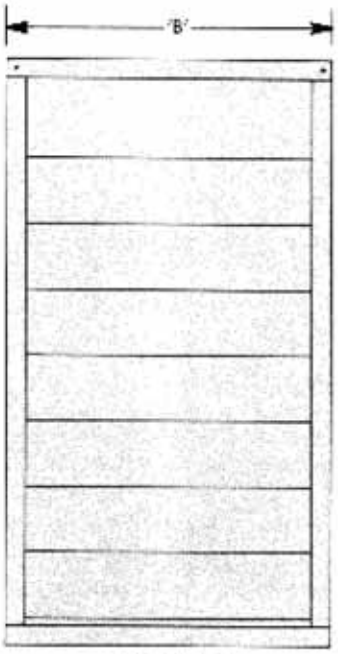


Blades	10	11	12	13	14	15	16	17	18	19
Dim"A"	1061	1161	1261	1361	1461	1561	1661	1761	1861	1961
Dim"B"	500	1000	1250	1500						

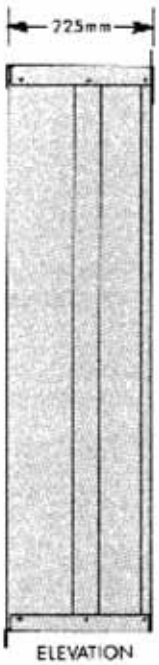
SMOOTHFLOW 100 – DOUBLE PASS FIXED AND OPERATED LOUVRE



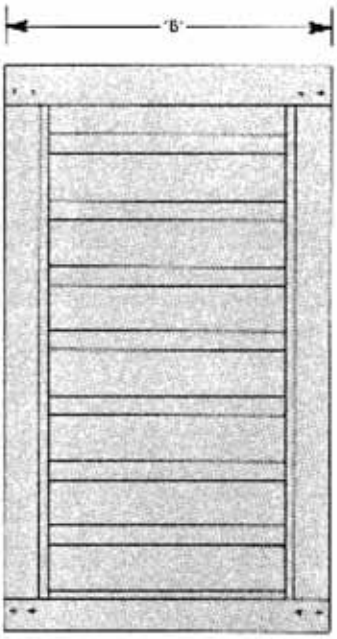
TYPICAL WALL INSTALLATION



FRONT VIEW



ELEVATION



BACK VIEW

BOX DIMENSIONS HEIGHT & WIDTH
AS 100mm. PITCH FIXED BLADE.

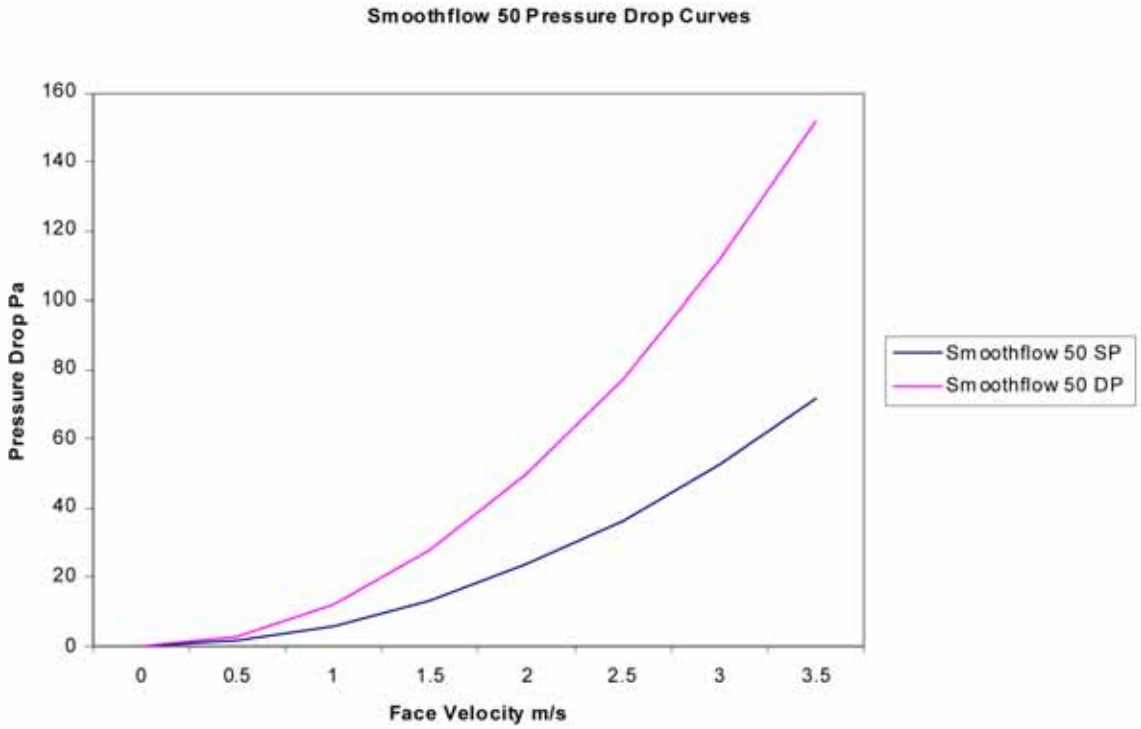
AERODYNAMIC PERFORMANCE

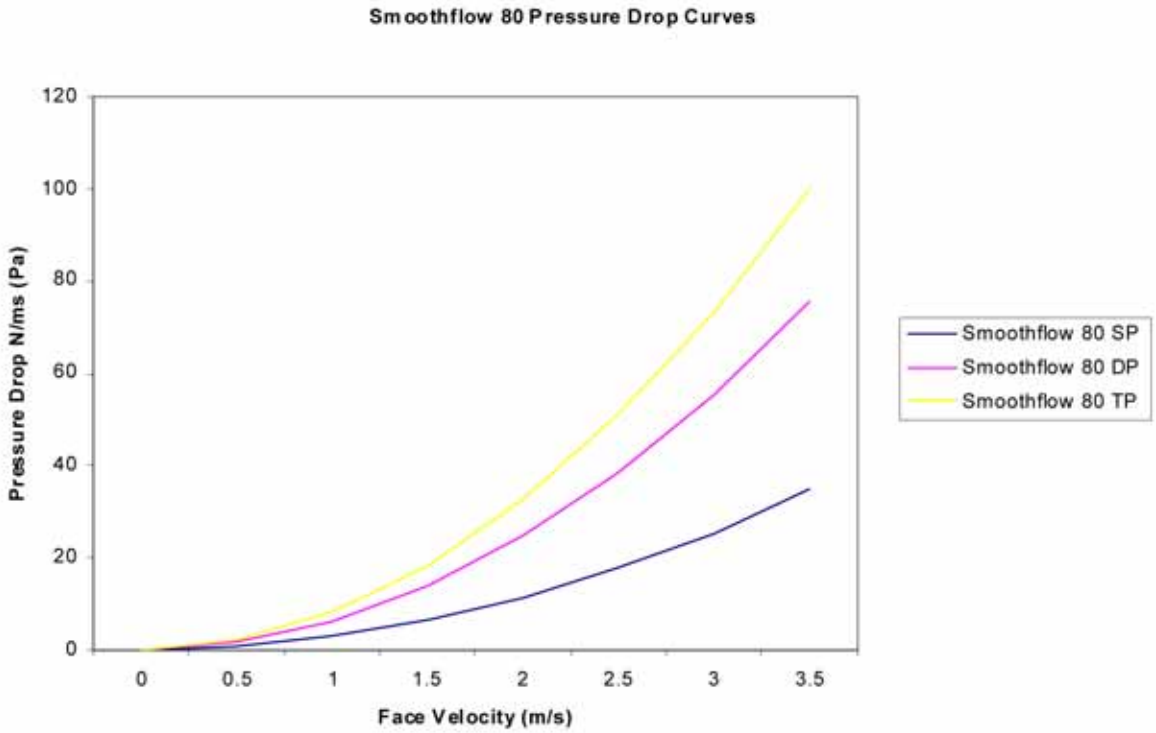
The SMOOTHFLOW Louvre system has been comprehensively tested. The testing data has been presented in System format. Other suppliers of louvres often use performance data for the louvre blades only; this is misleading and can result in the incorrect selection if not used correctly. The development of these louvres systems is part of a major programme spanning over 30 years independently controlled in the USA and the UK by Loughborough Consultants, a specialist division of the University of Technology at Loughborough.

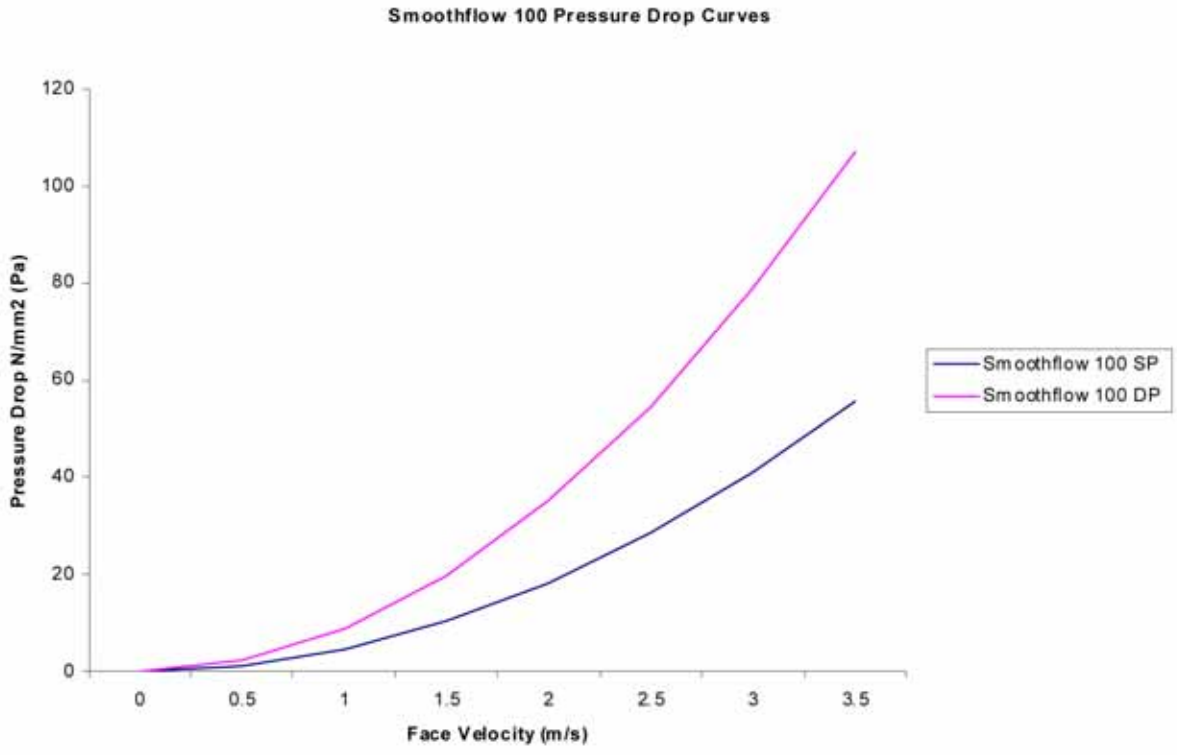
TEST PROCEDURE

Louvre modules were fitted into the EPTC wind tunnel calibrated wall. The airflow was increased and the pressure drop across the louvre was recorded using calibrated measuring equipment.

TEST RESULTS / GRAPHS




Smoothflow 80 Pressure Drop Curves
Pressure Drop N/ms (Pa)
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
3.5
Face Velocity (m/s)
Smoothflow 80 SP
Smoothflow 80 DP
Smoothflow 80 TP


Smoothflow 100 Pressure Drop Curves
Pressure Drop N/mm2 (Pa)
120
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
3.5
Face Velocity (m/s)
Smoothflow 100 SP
Smoothflow 100 DP

WEATHERABILITY

TEST PROCEDURE – EPTC / HEVAC

Zefyr Standard Test Criteria:
Method of test for water rejection and louvres subject to simulated rainfall – DT208/93

Test to extreme conditions

No wind	No ventilation
No wind	Ventilation 5 m/s

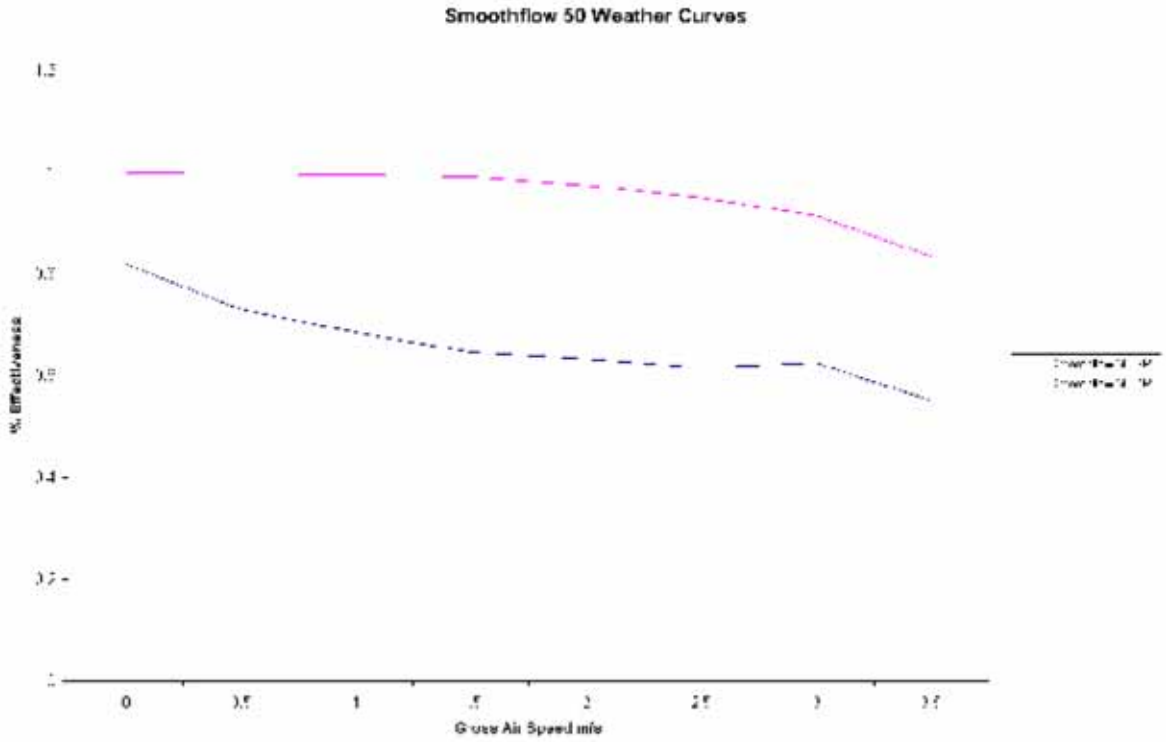
Wind speed and ventilation combined	- 8 m/s
Wind speed	- 13m/s

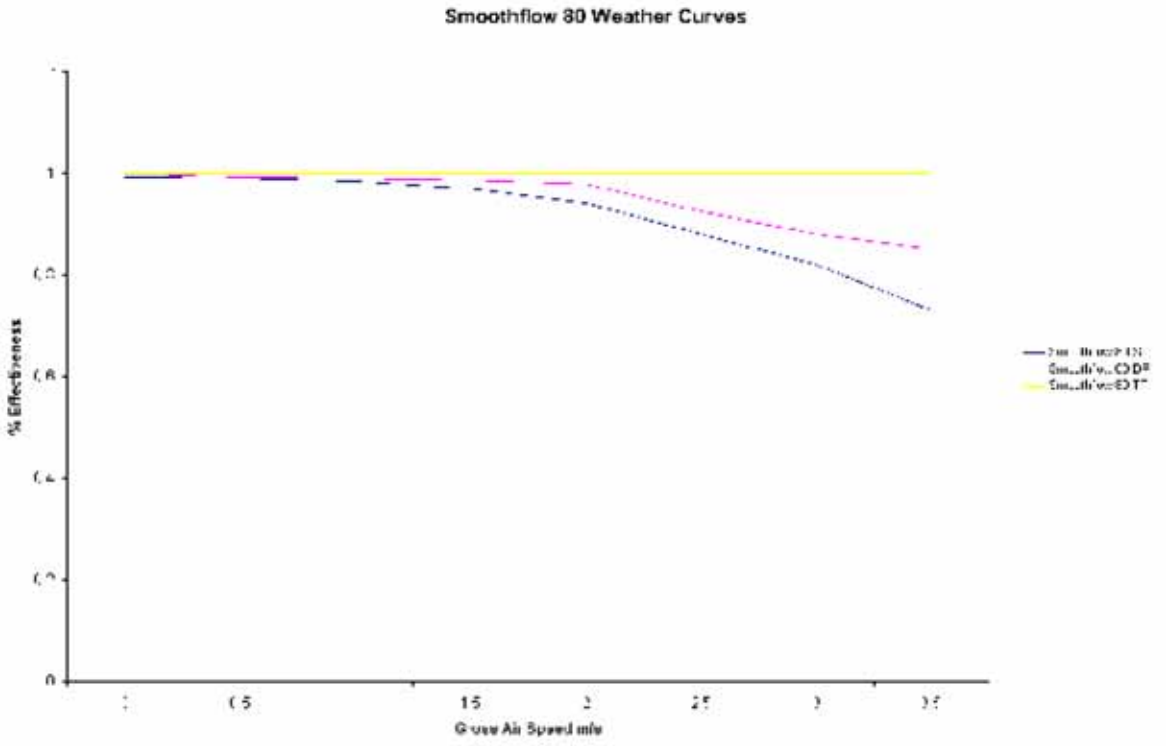
Constant rainfall at 75 mm/hr

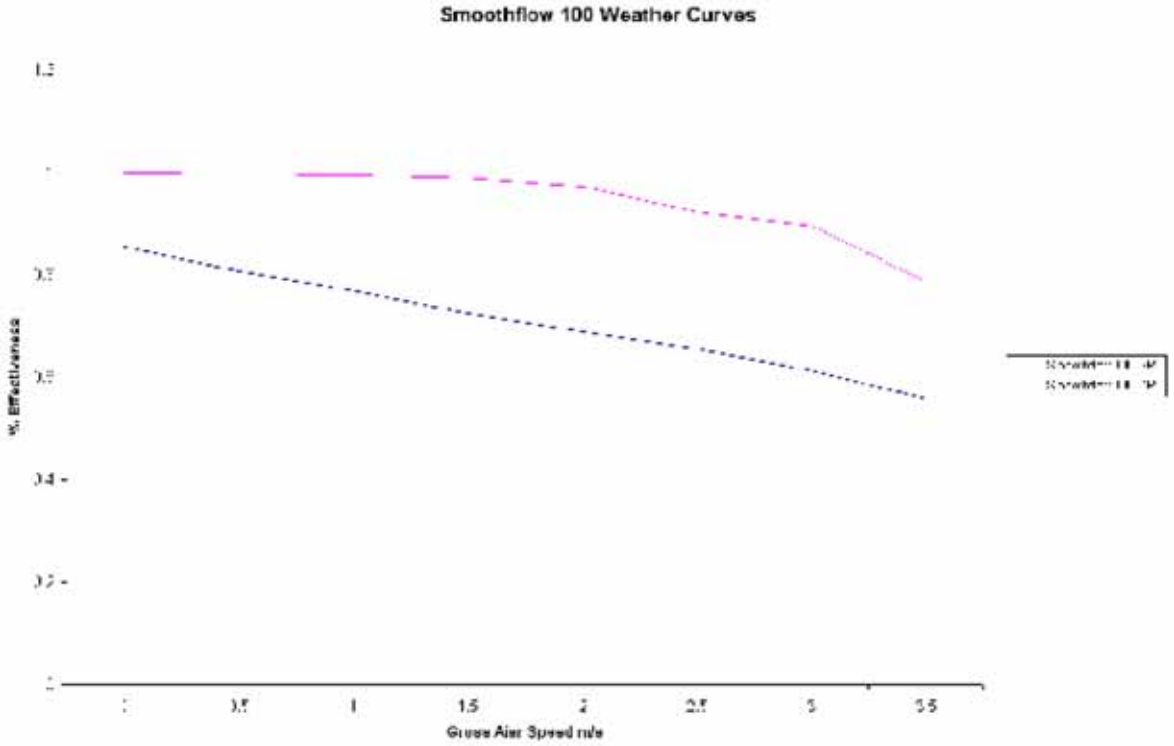
Note – the test incorporates the performance requirements required by the HEVAC standard. Note the HEVAC standard only requires a through ventilation rate of 3.5m/s, compared to the Zefyr standard of 5.0m/s

The attached graph summarises the results under the extreme weather conditions for each of the louvre options

WEATHER TEST RESULT – GRAPHS






Smoothflow 100 Weather Curves
Gross Air Speed m/s