



Products of WB Air



WB Air

air distribution products

form function reliability



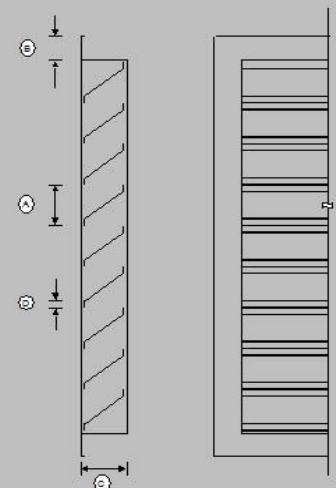
Fabricated Louvres

Fixed Louvres 35mm height WB - FL35

Fixed Louvres 50mm height WB - FL50

Weatherproof Fixed Louvres 50mm height WB - WL50

V-SHAPED LOUVRE WB-VL50



FABRICATED LOUVRES

INTRO

Model : WB - FL35 and WB - FL50

Generally used in areas where rain protection is not a requirement . For exhaust , return and even fresh air applications .

Model : WB - WL50

Generally used in areas where rain protection is a requirement . The WL50 is a weather louvre designed to protect air intake and exhaust openings in building exterior walls . The design incorporates an additional 'rain hook' in each blade which is intended to provide extra protection against water penetration while providing minimum resistance to airflow .

Material Options

Standard Aluminum constructed. Can custom made of Steel or Stainless steel upon request.

OPTIONS

- Opposed blade damper	Model	D
- Aluminum insect screen	Model	SB
- Removable washable filter	Model	F
- Removable core spring mechanism	Model	RS
- Removable core hinge mechanism	Model	RH
- A variety of finish : anodised or powder coated		

LOUVRE SELECTION AND APPLICATION

Applications of any louvre involves selecting an airflow velocity through the louvre free area (free area velocity in m/s) that produces an acceptable pressure drop and for intake applications minimises carry through of normally encountered rain water .

No manufacturer warrants their louvres to prevent water penetration under all possible combinations wind and rain . Water penetration through Model WB-WL50 begins at about 3.5m/s free area velocity . Intake air louvre selection using free area velocity below 3.5m/s is recommended .

Louvre selection involves the following two steps , and depending on given conditions , either step may come first .

1 Select free area velocity

Use airflow resistance chart .

select a free area velocity that produces an acceptable pressure drop with minimal water penetration .

(Note : Water penetration may not be considered when selecting exhaust louvres)

2 Determine louvre free area

Use physical free area chart .

Using the free area velocity and total cmh,determine louvre free area required by dividing airflow over velocity .

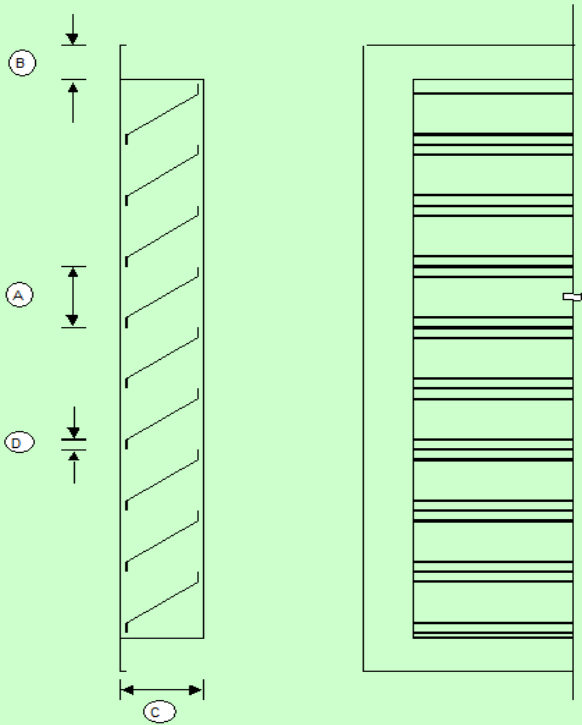
Using physical free area chart , select a louvre with at least the required free area . These sizes are 1meter length . If the height , due to site constrains is to be

restricted to a certain dimension , use required free area divided by tabulated physical free area of that height .

That will give the length of the louvre .

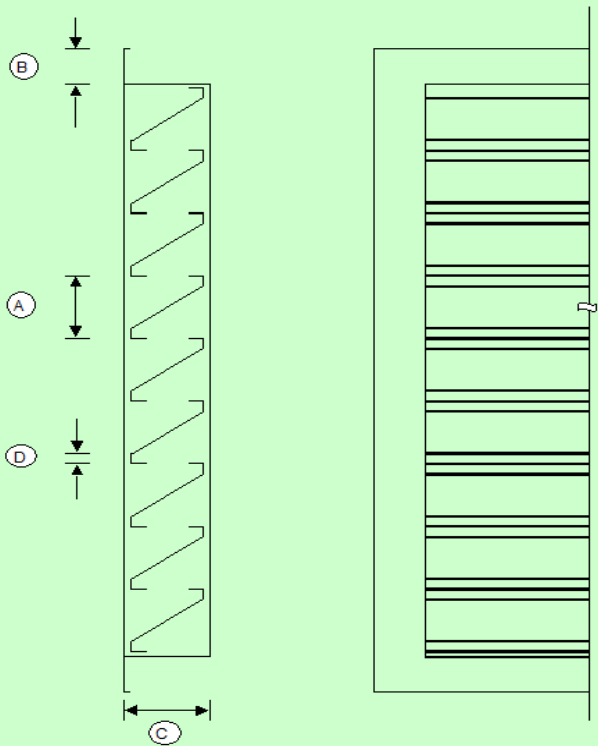
FABRICATED FIXED LOUVRES

MODEL :WB - FL35 and WB - FL50



Model	A	B	C	D	K factor	Ce / Cd
WB - FL35	35	30	34	6	11.89	0.29
WB - FL50	50	30	43	10	13.02	0.274

MODEL :WB - WL50



Model	A	B	C	D	K factor	Ce / Cd
WB - WL50	50	30	43	10	14.35	0.264

TABULATION OF PHYSICAL FREE AREA

MODEL : WB - FL50 , WB - WL50

Louvre Height(mm)	Number of Blades	Neck Area (sqm)	Number of Spacings	Smallest gap Space (mm)	Physical Free Area (sqm)	% of actual free area vs Grille neck size
100	2	0.1	1	28.28	0.02828	28.28
150	3	0.15	2	56.56	0.05656	37.71
200	4	0.2	3	84.84	0.08484	42.42
250	5	0.25	4	113.12	0.11312	45.25
300	6	0.3	5	141.4	0.1414	47.13
350	7	0.35	6	169.68	0.16968	48.48
400	8	0.4	7	197.96	0.19796	49.49
450	9	0.45	8	226.24	0.22624	50.28
500	10	0.5	9	254.52	0.25452	50.90
550	11	0.55	10	282.8	0.2828	51.42
600	12	0.6	11	311.08	0.31108	51.85
650	13	0.65	12	339.36	0.33936	52.21
700	14	0.7	13	367.64	0.36764	52.52
750	15	0.75	14	395.92	0.39592	52.79
800	16	0.8	15	424.2	0.4242	53.03
850	17	0.85	16	452.48	0.45248	53.23
900	18	0.9	17	480.76	0.48076	53.42
950	19	0.95	18	509.04	0.50904	53.58
1000	20	1	19	537.32	0.53732	53.73
1050	21	1.05	20	565.6	0.5656	53.87
1100	22	1.1	21	593.88	0.59388	53.99
1150	23	1.15	22	622.16	0.62216	54.10
1200	24	1.2	23	650.44	0.65044	54.20
1250	25	1.25	24	678.72	0.67872	54.30
1300	26	1.3	25	707	0.707	54.38
1350	27	1.35	26	735.28	0.73528	54.47
1400	28	1.4	27	763.56	0.76356	54.54
1450	29	1.45	28	791.84	0.79184	54.61
1500	30	1.5	29	820.12	0.82012	54.67
1550	31	1.55	30	848.4	0.8484	54.74
1600	32	1.6	31	876.68	0.87668	54.79
1650	33	1.65	32	904.96	0.90496	54.85
1700	34	1.7	33	933.24	0.93324	54.90
1750	35	1.75	34	961.52	0.96152	54.94
1800	36	1.8	35	989.8	0.9898	54.99
1850	37	1.85	36	1018.08	1.01808	55.03
1900	38	1.9	37	1046.36	1.04636	55.07
1950	39	1.95	38	1074.64	1.07464	55.11
2000	40	2	39	1102.92	1.10292	55.15
2050	41	2.05	40	1131.2	1.1312	55.18

MODEL : WB - FL35

70	2	0.07	1	21.21	0.02	30.30
105	3	0.105	2	42.42	0.04	40.40
140	4	0.14	3	63.63	0.06	45.45
175	5	0.175	4	84.84	0.08	48.48
210	6	0.21	5	106.05	0.11	50.50
245	7	0.245	6	127.26	0.13	51.94
280	8	0.28	7	148.47	0.15	53.03
315	9	0.315	8	169.68	0.17	53.87
350	10	0.35	9	190.89	0.19	54.54
385	11	0.385	10	212.10	0.21	55.09
420	12	0.42	11	233.31	0.23	55.55
455	13	0.455	12	254.52	0.25	55.94
490	14	0.49	13	275.73	0.28	56.27
525	15	0.525	14	296.94	0.30	56.56
560	16	0.56	15	318.15	0.32	56.81
595	17	0.595	16	339.36	0.34	57.04
630	18	0.63	17	360.57	0.36	57.23
665	19	0.665	18	381.78	0.38	57.41
700	20	0.7	19	402.99	0.40	57.57
735	21	0.735	20	424.20	0.42	57.71
770	22	0.77	21	445.41	0.45	57.85
805	23	0.805	22	466.62	0.47	57.97
840	24	0.84	23	487.83	0.49	58.08
875	25	0.875	24	509.04	0.51	58.18
910	26	0.91	25	530.25	0.53	58.27
945	27	0.945	26	551.46	0.55	58.36
980	28	0.98	27	572.67	0.57	58.44
1015	29	1.015	28	593.88	0.59	58.51
1050	30	1.05	29	615.09	0.62	58.58
1085	31	1.085	30	636.30	0.64	58.65
1120	32	1.12	31	657.51	0.66	58.71
1155	33	1.155	32	678.72	0.68	58.76
1190	34	1.19	33	699.93	0.70	58.82
1225	35	1.225	34	721.14	0.72	58.87

Length of unit is 1000mm

Blades are spaced at 35mm centers for FL35 and 50mm for FL/WL50.

Any variations to spacings will result in a differences in values .

TECHNICAL PERFORMANCE DATA**MODEL : WB-FL50 , WB-WL50**

Size (m2)	Flow (l/s)	20	30	40	50	60	70	80	90
	Flow (cmh)	72	108	144	58	216	252	288	324
0.02	P.D	11.6	26.0	47.0	73.0	105			
	NR	19.0	34.0	44.0	51.0	58.0			
0.03	P.D	9.0	23.0	42.0	64.0	95.0	108.0		
	NR	15.0	26.0	32.0	39.0	48.0	51.0		
0.05	P.D		4.5	7.0	11.5	16.5	22.5	29.0	37.0
	NR		<10	11.5	19.5	26.0	31.0	36.0	40.0
0.1	P.D						6.0	7.5	9.0
	NR						10.0	12.5	16.5
Size (m2)	Flow (l/s)	100	200	300	400	500	600	700	800
	Flow (cmh)	360	720	1080	1440	1800	2160	2520	2880
0.1	P.D	11.5	46.0						
	NR	19.5	44.0						
0.2	P.D	3.0	11.5	26.0	46.0	72.5			
	NR	<10	20.5	34.0	44.5	52.5			
0.4	P.D		3.0	6.5	11.5	18.0	26.0	35.5	46.0
	NR		<10	15.5	22.5	29.0	35.0	40.0	44.5
0.6	P.D			3.0	4.0	5.5	8.0	11.5	15.5
	NR			<10	10.5	13.5	19.5	23.5	28.0
0.8	P.D				3.0	4.5	6.5	9.0	11.5
	NR				<10	13.5	17.5	21.5	25.0
1.00	P.D					3.0	4.5	6.0	7.5
	NR					8.5	12.5	16.5	19.5
1.50	P.D								3.0
	NR								12.5
Size (m2)	Flow (l/s)	900	1000	2000	3000	4000	5000		
	Flow (cmh)	3240	3600	7200	10800	14400	18000		
0.4	P.D	59.0							
	NR	48.5							
0.6	P.D	20.5	25.5	52.5					
	NR	32.0	36.0	47.0					
0.8	P.D	14.5	18.0	46.0					
	NR	28.0	31.0	42.0					
1.00	P.D	9.0	11.5	36.5	83.0				
	NR	22.5	26.0	40.0	63.0				
1.50	P.D	4.5	5.5	20.5	46.0	82.0			
	NR	14.5	16.5	36.0	47.5	59.0			
2.00	P.D		3.0	11.5	26.0	46.0	72.0		
	NR		14.5	29.0	41.0	49.5	56.5		
3.00	P.D			5.5	11.5	20.5	32.0		
	NR			25.0	34.0	40.0	45.5		

Size (m2) is based on actual louvre size tested in a square module. (i.e 0.02sqm is a 140mmx140mm and not a 200mmx100mm)

P.D Static Pressure Drops in Pascal

NR Noise rating in dB re 10 -12 watts. Based on 10 db Room Absorption (calibrated to NC values)

Data of performance are based on independent tests conducted in accordance to ADC 1062 . GRD-84

TECHNICAL PERFORMANCE DATA**MODEL : WB-VL50**

Size (m2)	Flow (l/s)	20	30	40	50	60	70	80	90
	Flow (cmh)	72	108	144	58	216	252	288	324
0.02	P.D	17.4	39.0	70.5	109.5	157.5			
	NR	23.8	42.5	55.0	63.8	72.5			
0.03	P.D	13.5	34.5	63.0	96.0	142.5	162.0		
	NR	18.8	32.5	40.0	48.8	60.0	63.8		
0.05	P.D		6.8	10.5	17.3	24.8	33.8	43.5	55.5
	NR		12.5	14.4	24.4	32.5	38.8	45.0	50.0
0.1	P.D						7.5	9.4	11.3
	NR						10.0	12.5	16.5
Size (m2)	Flow (l/s)	100	200	300	400	500	600	700	800
	Flow (cmh)	360	720	1080	1440	1800	2160	2520	2880
0.1	P.D	17.3	69.0						
	NR	24.4	55.0						
0.2	P.D	4.5	17.3	39.0	69.0	108.8			
	NR	12.5	25.6	42.5	55.6	65.6			
0.4	P.D		4.5	9.8	17.3	27.0	39.0	53.3	69.0
	NR		12.5	19.4	28.1	36.3	43.8	50.0	55.6
0.6	P.D			4.5	6.0	8.3	12.0	17.3	23.3
	NR			12.5	13.1	16.9	24.4	29.4	35.0
0.8	P.D				4.5	6.8	9.8	13.5	17.3
	NR				12.5	16.9	21.9	26.9	31.3
1.00	P.D					4.5	6.8	9.0	11.3
	NR					10.6	15.6	20.6	24.4
1.50	P.D								4.5
	NR								15.6
Size (m2)	Flow (l/s)	900	1000	2000	3000	4000	5000		
	Flow (cmh)	3240	3600	7200	10800	14400	18000		
0.4	P.D	88.5							
	NR	60.6							
0.6	P.D	30.8	38.3	78.8					
	NR	40.0	45.0	58.8					
0.8	P.D	21.8	27.0	69.0					
	NR	35.0	38.8	52.5					
1.00	P.D	13.5	17.3	54.8	124.5				
	NR	28.1	32.5	50.0	78.8				
1.50	P.D	6.8	8.3	30.8	69.0	123.0			
	NR	18.1	20.6	45.0	59.4	73.8			
2.00	P.D		4.5	17.3	39.0	69.0	108.0		
	NR		18.1	36.3	51.3	61.9	70.6		
3.00	P.D			8.3	17.3	30.8	48.0		
	NR			31.3	42.5	50.0	56.9		

Size (m2) is based on actual louvre size tested in a square module. (i.e 0.02sqm is a 140x140mm and not a 200x100mm)

P.D Static Pressure Drops in Pascal

NR Noise rating in dB re 10 -12 watts. Based on 10 db Room Absorption (calibrated to NC values)

Data of performance are based on independent tests conducted in accordance to ADC 1062 . GRD-84

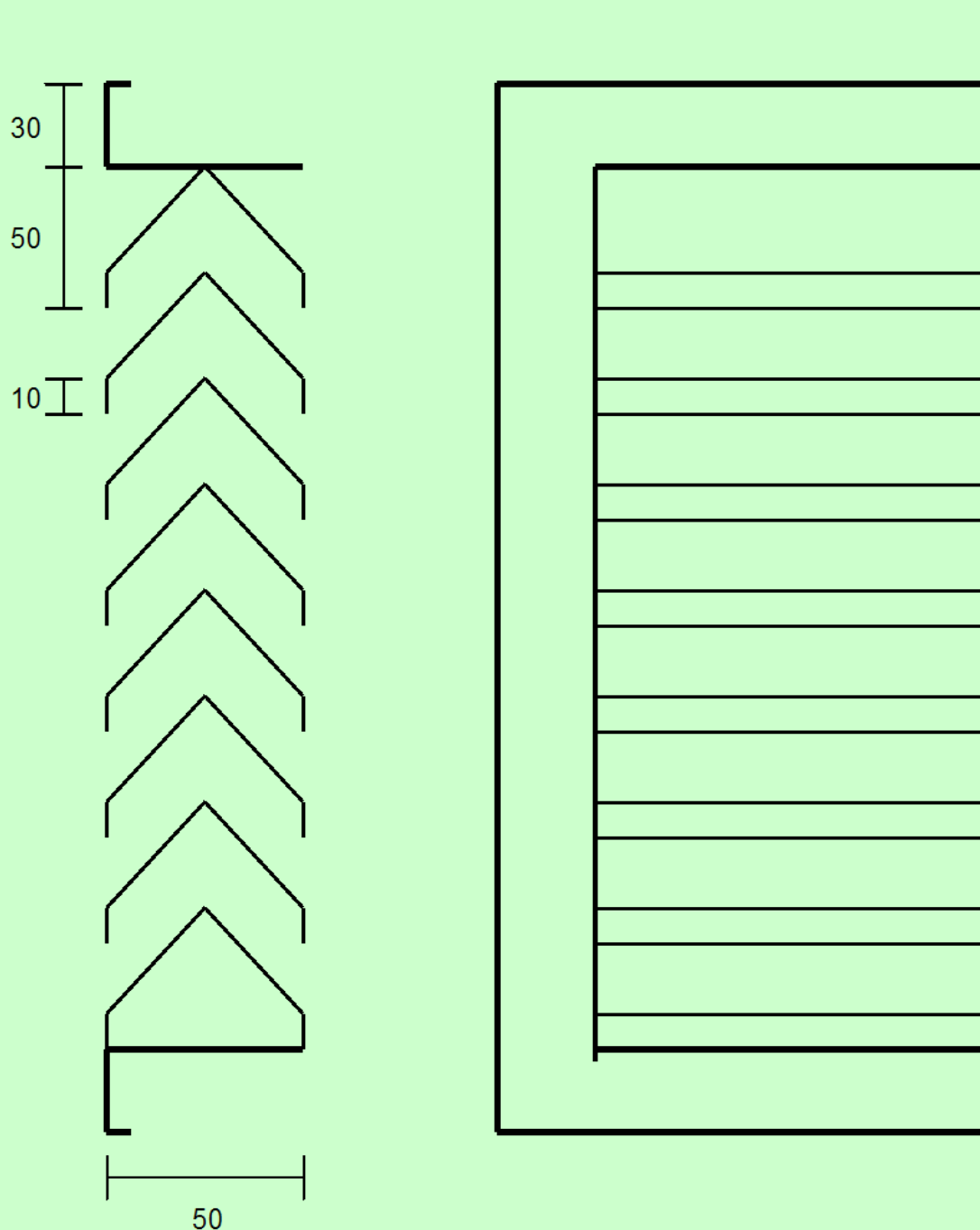
FIXED LOUVRES - vision proof

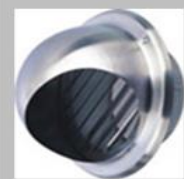
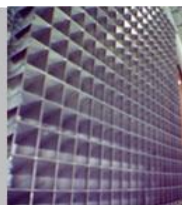
MODEL : WB - VL50

INTRO

Model : WB - VL50

Generally used in areas where vision proof is a requirement . For exhaust , return and even transfer of fresh air . Also used as a transfer grille through doors and partitions.





WB Air

air distribution products

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WB Air Techniques Pte Ltd

7 Toa Payoh Industrial Park

#01-1245

Singapore 319059

tel : 65 6252-6707

fax : 65 6253-4435

email wbsales@singnet.com.sg

www.wbair.sg

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The purchase should independently determine the suitability of the product for intended application. Thank you for choosing WB Air for your air distribution needs.

26 Julius Avenue
Riverside Corporate Park
North Ryde, NSW 2113
Australia
Tel 61-2-9499-5343
Fax 61-2-9499-5448

Airflow and Acoustic Research and Development
of Wong Brothers Fabricated Louvres

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Date 17th June 1995


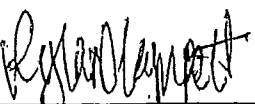
Airflow and Acoustic Research and Development of Wong Brothers Fabricated Louvers

Testing Services	a	To conduct airflow and acoustic test tabulating noise and static pressure
		at different air quantity and louver sizes.
	b	To tabulate louver effective free area .

Specimen Description	Aluminum louvers model : WB-FL50 and WB-WL50
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Drawing	As per catalog for model : WB-FL50 and WB-WL50
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Testing Standards	a	Acoustics	Australian standards 1217.2 - 1985
			Acoustics - Determination of sound power levels of noise
			source Part 2-Precision methods of broad band sources
			in reverberation rooms .
	b	Air flow & static	Air diffusion council (USA)
		pressure	Equipment Test Code 1062 ; GRD - 84

	Name	Signature	Title	Date
Project Leader	Foster Wojcik		Project Scientist	17-Jun-95
O'Brien Signatory	Rylan Clampett		General Manager	17-Jun-95

Airflow and Acoustic Research and Development of Wong Brothers Fabricated Louvers**TECHNICAL PERFORMANCE DATA
MODEL : WB-FL50 , WB-WL50**

Size (m2)	Flow (l/s)	20	30	40	50	60	70	80	90
	Flow (cmh)	72	108	144	58	216	252	288	324
0.02	P.D	11.6	26.0	47.0	73.0	105			
	NR	19.0	34.0	44.0	51.0	58.0			
0.03	P.D	9.0	23.0	42.0	64.0	95.0	108.0		
	NR	15.0	26.0	32.0	39.0	48.0	51.0		
0.05	P.D		4.5	7.0	11.5	16.5	22.5	29.0	37.0
	NR		<10	11.5	19.5	26.0	31.0	36.0	40.0
0.1	P.D						6.0	7.5	9.0
	NR						10.0	12.5	16.5
Size (m2)	Flow (l/s)	100	200	300	400	500	600	700	800
	Flow (cmh)	360	720	1080	1440	1800	2160	2520	2880
0.1	P.D	11.5	46.0						
	NR	19.5	44.0						
0.2	P.D	3.0	11.5	26.0	46.0	72.5			
	NR	<10	20.5	34.0	44.5	52.5			
0.4	P.D		3.0	6.5	11.5	18.0	26.0	35.5	46.0
	NR		<10	15.5	22.5	29.0	35.0	40.0	44.5
0.6	P.D			3.0	4.0	5.5	8.0	11.5	15.5
	NR			<10	10.5	13.5	19.5	23.5	28.0
0.8	P.D				3.0	4.5	6.5	9.0	11.5
	NR				<10	13.5	17.5	21.5	25.0
1.00	P.D					3.0	4.5	6.0	7.5
	NR					8.5	12.5	16.5	19.5
1.50	P.D								3.0
	NR								12.5
Size (m2)	Flow (l/s)	900	1000	2000	3000	4000	5000		
	Flow (cmh)	3240	3600	7200	10800	14400	18000		
0.4	P.D	59.0							
	NR	48.5							
0.6	P.D	20.5	25.5	52.5					
	NR	32.0	36.0	47.0					
0.8	P.D	14.5	18.0	46.0					
	NR	28.0	31.0	42.0					
1.00	P.D	9.0	11.5	36.5	83.0				
	NR	22.5	26.0	40.0	63.0				
1.50	P.D	4.5	5.5	20.5	46.0	82.0			
	NR	14.5	16.5	36.0	47.5	59.0			
2.00	P.D		3.0	11.5	26.0	46.0	72.0		
	NR		14.5	29.0	41.0	49.5	56.5		
3.00	P.D			5.5	11.5	20.5	32.0		
	NR			25.0	34.0	40.0	45.5		

P.D

Static Pressure Drops in Pascal

NR

Noise rating in dB re 10-12 watts. Based on 10 db Room Absorption (calibrated to NC values)

Data of performance are based on independent tests conducted in accordance to ADC 1062 . GRD-84

Airflow and Acoustic Research and Development of Wong Brothers Fabricated Louvers**TABULATION OF PHYSICAL FREE AREA****MODEL : WB - FL50 , WB - WL50**

Louvre Height(mm)	Number of Blades	Neck Area (sqm)	Number of Spacings	Smallest gap Space (mm)	Physical Free Area (sqm)	% of actual free area vs Grille neck size
100	2	0.1	1	28.28	0.02828	28.28
150	3	0.15	2	56.56	0.05656	37.71
200	4	0.2	3	84.84	0.08484	42.42
250	5	0.25	4	113.12	0.11312	45.25
300	6	0.3	5	141.4	0.1414	47.13
350	7	0.35	6	169.68	0.16968	48.48
400	8	0.4	7	197.96	0.19796	49.49
450	9	0.45	8	226.24	0.22624	50.28
500	10	0.5	9	254.52	0.25452	50.90
550	11	0.55	10	282.8	0.2828	51.42
600	12	0.6	11	311.08	0.31108	51.85
650	13	0.65	12	339.36	0.33936	52.21
700	14	0.7	13	367.64	0.36764	52.52
750	15	0.75	14	395.92	0.39592	52.79
800	16	0.8	15	424.2	0.4242	53.03
850	17	0.85	16	452.48	0.45248	53.23
900	18	0.9	17	480.76	0.48076	53.42
950	19	0.95	18	509.04	0.50904	53.58
1000	20	1	19	537.32	0.53732	53.73
1050	21	1.05	20	565.6	0.5656	53.87
1100	22	1.1	21	593.88	0.59388	53.99
1150	23	1.15	22	622.16	0.62216	54.10
1200	24	1.2	23	650.44	0.65044	54.20
1250	25	1.25	24	678.72	0.67872	54.30
1300	26	1.3	25	707	0.707	54.38
1350	27	1.35	26	735.28	0.73528	54.47
1400	28	1.4	27	763.56	0.76356	54.54
1450	29	1.45	28	791.84	0.79184	54.61
1500	30	1.5	29	820.12	0.82012	54.67
1550	31	1.55	30	848.4	0.8484	54.74
1600	32	1.6	31	876.68	0.87668	54.79
1650	33	1.65	32	904.96	0.90496	54.85
1700	34	1.7	33	933.24	0.93324	54.90
1750	35	1.75	34	961.52	0.96152	54.94
1800	36	1.8	35	989.8	0.9898	54.99
1850	37	1.85	36	1018.08	1.01808	55.03
1900	38	1.9	37	1046.36	1.04636	55.07
1950	39	1.95	38	1074.64	1.07464	55.11
2000	40	2	39	1102.92	1.10292	55.15
2050	41	2.05	40	1131.2	1.1312	55.18

Length of unit is 1000mm

Blades are spaced at 35mm centres. Any variations to spacings will result in a differences in values .

Foster

PROJECT REFERENCES

AIR DISTRIBUTION PRODUCTS



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	PROJECT TITLE	DATE	CONTRACTOR	Remarks	CONSULTANT / ARCHITECT
1	Orchard View Condo @ Anguilla	2010	Sanyo Engineering	Grilles & Dampers	
2	78 Shenton Major A&A	2010	Kurihara Kogyo Co., Ltd	Grilles & Dampers/Actuator	
3	Inter Roller @ Boon Lay	2010	Sing Wah Enterprise	Grilles & Dampers/Actuator	
4	Nestoil	2010	APP Engineering	Grilles & Dampers/Actuator	
5	Creates @University Town	2010	Dai Dan CO., Ltd	Grilles & Dampers/Actuator	
6	Heritage Museum	2010	Kurihara Kogyo Co., Ltd	Grilles & Dampers/Actuator	
7	Changi Cove Hotel	2010	Great Resources	Grilles & Dampers/Actuator	
8	United World College @ Tampines	2010	Great Resources	Grilles & Dampers/Actuator	
9	IBP Changi Phase 3	2010	Powen Electrical	Grilles & Dampers/Actuator	
10	DrillQuip Factory @ Tuas	2010	Powen Electrical	Grilles & Dampers/Actuator	
11	Canadian International Sch	2010	Chester Technologies	Grilles & Dampers/Actuator	
12	SRC @ Jurong Island	2011	Kurihara Kogyo Co., Ltd	Grilles & Dampers/Actuator	
13	Heraeus @ Tuas Ave 5	2011	Kurihara Kogyo Co., Ltd	Grilles & Dampers/Actuator	
14	No 8 Claymore Hill Condo	2011	V3 Construction P/L	Grilles & Dampers/Actuator	
15	HSBC @ Mapletree	2011	BWH Engrg P/L	Grilles & Dampers/Actuator	
16	Jln Tepong	2011	BWH Engrg P/L	Grilles & Dampers/Actuator	
17	S.T @ Chin Bee Rd	2011	BWH Engrg P/L	Grilles & Dampers/Actuator	
18	NJC	2011	Double Mechanical Pte Ltd	Grilles & Dampers/Actuator	
19	Jurong Ville Sec Sch	2011	Double Mechanical Pte Ltd	Grilles & Dampers	
20	LV @ MBS	2011	BWH Engrg P/L	Grilles & Dampers	
21	Woh Hup HQ	2011	Powen Electrical	Grilles & Dampers/Actuator	
22	Jotun @ Tuas	2011	Technical Frigecon	Grilles & Dampers/Actuator	
23	Gombak Camp major A & A	2011	TKK Facility Management	Grilles & Dampers/Actuator	
24	Unilever Asia P/L @ Mapletree biz	2011	Hoong Fung Engrg Works	Grilles & Dampers/Actuator	
25	ITE HQ @ AMK	2011	Great Resources	Aluminum Flexible Duct	
26	Seacare Hotel @ Chin Swee Rd	2011	Shan Ming	Aluminum Flexible Duct	
27	Dorsett Hotel	2011	Bintai Kindenko P/L	Grilles & Dampers/Actuator	
28	Sage @ Nassim Hill	2011	Sanyo Engrg	Grilles & Dampers	
29	St Thomas Walk	2011	Powen Electrical	Grilles & Dampers/Actuator	
30	PLB @ Changi T2	2011	Natural Cool A/C & Engrg P/L	Grilles & Dampers	
31	Quayside Isle	2012	Bintai Kindenko P/L	Grilles & Dampers/Actuator	
32	The Pinnacle Collection @ Sentosa	2012	Powen Electrical	Grilles & Dampers/Actuator	

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	PROJECT TITLE	DATE	CONTRACTOR	Remarks	CONSULTANT / ARCHITECT
33	Korean Church	2012	Bintai Kindenko P/L	Grilles & Dampers/Actuator	
34	Centennia Suites @ Kim Seng	2012	Powen Electrical	Grilles & Dampers	
35	Metropolis @ Buona Vista	2012	Powen Electrical	Aluminum Flexible Duct	
36	Metropolis @ Buona Vista	2012	Quantum Automation P/L	VAV Box	
37	LucasFilm @ Fusionopolis	2012	Kurihara Kogyo Co.,Ltd	Grilles & Dampers/Actuator	
38	Anguillia Park Condo	2012	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	
39	Singapore Turf Club-Contract 3	2012	Luova Engrg P/L	Grilles & Dampers/Actuator	
40	2M2P	2012	Sing Wah Enterprise P/L	Grilles & Dampers/Actuator	
41	Soundstage @ Mediapolis	2012	Evergreen Engrg & Contrt P/L	Grilles & Dampers/Actuator	
42	Super Coffee Factory @ Tuas West	2013	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	
43	Westgate @ Boon Lay Way	2013	Bintai Kindenko P/L	Grilles & Dampers/Actuator	
44	Holiday Inn Express @ Clemenceau	2013	Guthrie Engrg(S) P/L	Grilles & Dampers/Actuator	
45	Nucleos @ Biopolis 5	2013	Powen Electrical	Grilles & Dampers/Actuator	
46	One KM @ Tanjong Katong	2013	Great Resources	Grilles & Dampers/Actuator	
47	Pixel Red @ Tai Seng	2013	Powen Electrical	Grilles & Dampers/Actuator	
48	Hillier Condo @ Hillview Ave	2013	Great Resources	Grilles & Dampers/Actuator	
49	Palms @ Sixth Ave	2013	Natural Cool A/C & Engrg P/L	Grilles & Dampers	
50	Singapore Turf Club-Contract 4	2013	Natural Cool A/C & Engrg P/L	Aluminum Flexible Duct	
51	Changi Civil Services Club	2014	Powen Electrical	Grilles & Dampers/Actuator	
52	Fusionopolis Way Tower A/B	2014	Kurihara Kogyo Co.,Ltd	Grilles & Dampers/Actuator	
53	Ngee Ann Poly	2014	Luova Engrg P/L	Grilles & Dampers/Actuator	
54	Ripple Bay @ Pasir Ris Dr4	2014	Powen Electrical	Grilles & Dampers/Actuator	Square Mech
55	Marina Sq A&A	2014	Powen Electrical	Grilles & Dampers/Actuator	Meinhardt
56	Essec @ Nepal Park	2014	Kurihara Kogyo Co.,Ltd	Grilles & Dampers/Actuator	
57	DBS A&A	2014	Dai-Dan Co;Ltd	Aluminum Flexible Duct	KTPI
58	Changi Prison	2014	Great Resources	Grilles & Dampers/Actuator	CPG
59	Genting Hotel @ Juring Town Hall Rd	2014	Bintai Kindenko P/L	Grilles & Dampers/Actuator	
60	Carlton Hotel A&A	2014	Powen Electrical	Grilles & Dampers/Actuator	Beca
61	Sky Green Condo @ Macphenson	2014	Powen Electrical	Grilles & Dampers/Actuator	
62	Woodsville Condo @ 18 Woodsville Close	2014	Natural Cool A/C & Engrg P/L	Grilles & Dampers	CPG
63	Keppel Shipyard @ 51 Pioneer Sector 1	2014	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	
64	Sennett Condo @ Pheng Geck Ave	2014	Natural Cool A/C & Engrg P/L	Grilles & Dampers	T.Y.Lin

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	PROJECT TITLE	DATE	CONTRACTOR	Remarks	CONSULTANT / ARCHITECT
65	PLB @ T1/T2	2014	Natural Cool A/C & Engrg P/L	Grilles & Dampers	CPG
66	Greenwood Mews Condo	2014	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	Rankine & Hill
67	Kong Meng San @ 88 Brighthill Road	2014	Koyo M&E P/L	Grilles & Dampers/Actuator	
68	Crown Plaza Hotel Extension @ T3	2015	Powen Engrg P/L	Grilles & Dampers/Actuator	Surbana
69	OUE Tower 1 @ 6 Shenton Way	2015	Powen Engrg P/L	Grilles & Dampers/Actuator	KTPI
70	Downtown Line 3 (16 Station)	2015	Bintai Kindenko P/L	Grille/Alum Flex Duct	P.B
71	Mixed Development @ 15 Cairnhill Rd	2015	Powen Engrg P/L	G&D/Alum Flex Duct	Beca
72	Changi T1/T2 Gangway	2015	Trans Equatorial Engrg P/L	WPC Bargrille	
73	Katong Hotel @ 86 East Coast Rd	2015	Great Resources	Grilles & Dampers/Actuator	UPC
74	Lee Kong Chian(Yunnan)@ NTU	2015	Bintai Kindenko P/L	VAV Box	Meinhardt
75	Lee Kong Chian(Novena)@ Mandalay Rd	2015	Bintai Kindenko P/L	VAV Box	Meinhardt
76	Duo @ Rochor/Beach Rd/Ophir Rd	2015	Kurihara Kogyo Co.Ltd	Grilles & Dampers/Actuator	Beca
77	Amore @ Punggol Central	2015	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	United Project
78	PLB @ T4	2015	Natural Cool A/C & Engrg P/L	Grilles & Dampers	CPG
79	Thomson Three Condo @ Brighthill Drive	2015	Kembla A/C P/L	Grilles & Dampers/Actuator	
80	Link Hotel @ Tiong Bahru	2015	Supersonic A/C Elect.Engrg P/L	Grilles & Dampers/Actuator	
81	The Scotts Tower @ 38 Scotts Rd	2015	Co-AI Engrg Intergrated Services	Grilles & Dampers	
82	The Glade @ Bedok Rise	2016	Powen Engrg P/L	Grilles & Dampers/Actuator	Beca
83	Goodwood Grand @ 28 Balmoral Rd	2016	Natural Cool A/C & Engrg P/L	Grilles & Dampers	Meinhardt
84	DSO @ 12 Science Park Drive	2016	Shan Ming A/C	Aluminum Flex Duct	
85	Bedok Integrated Complex	2016	Bintai Kindenko P/L	VAV Box/Grille & Dampers/Actuator	Rankine & Hill
86	Downtown East @ Pasir Ris Close	2016	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	Beca
87	Mapletree @ Tai Seng	2016	Powen Engrg P/L	VAV Box/Grille & Dampers/Actuator	Bescon
88	GSK HQ @ Vista Exchange Green	2016	Powen Engrg P/L	VAV Box/Grille & Dampers/Actuator	Squire Mech
89	Kampung Admiralty@Woodlands Close	2016	Powen Engrg P/L	VAV Box/Grille & Dampers/Actuator	Aecom
90	Jurong Town Hall	2016	Sing Wah Enterprise P/L	Grilles & Dampers/Actuator	Parson
91	Pioneer Polyclinic @Jurong West St61	2016	Bintai Kindenko P/L	Grilles & Dampers/Actuator	Mott Mac
92	St Joseph Nursing Home@Jurong West	2016	Natural Cool A/C & Engrg P/L	Grilles & Dampers/Actuator	Bescon
93	NorthPoint Shopping@Yishun Ave 2	2016	Bintai Kindenko P/L	Grilles & Dampers/Actuator	Squire Mech
94	The Gallery Hotel@Nanson Rd	2016	General Thermal Engrg P/L	Grilles & Dampers/Actuator	JRP
95	Coco Palms Condo	2016	SAS M&E P/L	Grilles & Dampers/Actuator	Meinhardt
96	Clifford Center	2016	Powen Engrg P/L	Grilles & Dampers/Actuator	JRP

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	PROJECT TITLE	DATE	CONTRACTOR	Remarks	CONSULTANT / ARCHITECT
97	Singapore Tourism Board	2016	Siew Engineering P/L	VAV Box	
98	NTU SPC L5	2016	Siew Engineering P/L	VAV Box/Grille & Dampers/Actuator	
99	NTU EMB L7	2016	Siew Engineering P/L	VAV Box/Grille & Dampers/Actuator	
100	HDB Punggol NC1	2016	Great Resources	Grille & Dampers/Actuator	Bescon
101	AMK THK Hospital	2017	Quantum Automation P/L	VAV Box	
102	Bayview Hotel@Bencoolen Street	2017	Accon Engrg P/L	Grille & Dampers/Actuator	EWC
103	Farrer Park Hotel	2017	General Thermal Engrg P/L	Grille & Dampers	JRP
104	Raffles Hospital Extension	2017	Powen Engrg P/L	VAV Box/Grille & Dampers/Actuator	JRP
105	ST Omega @ AMK Electronics Park Rd	2017	Powen Engrg P/L	Grille & Dampers/Actuator	BELMAC
106	JTC Space @ 14 Tuas Ave 1	2017	Bintai Kindenko P/L	Grille & Dampers/Actuator	Aecom
107	The Creek Condo@Toh Tuck Road	2017	Great Resources M&E	Grille & Dampers	KTP
108	Shaw Center/Shaw House	2017	Natural Cool A/C & Engrg P/L	Grille & Dampers/Actuator	Bescon
109	Data Centre @ 27 Tampines St 92	2017	Amcool P/L	Grille & Dampers/Actuator	Plan One Engrg Services
110	Data Centre @ 21 Defu Ave 1	2017	Amcool P/L	Grille & Dampers/Actuator	Plan One Engrg Services
111	Data Centre @ 20 Tampines St 92	2017	Amcool P/L	Grille & Dampers/Actuator	CPG
112	German European Sch@Dairy Farm Rd	2017	Great Resources M&E	Grille & Dampers/Actuator	Beca
113	Changi Airport PLB T1E	2017	Natural Cool A/C & Engrg P/L	Grille & Dampers	J.Roger Preston
114	Bus Depot@Seletar RD299	2017	Natural Cool A/C & Engrg P/L	Grille & Dampers/Actuator	Rankine & Hill
115	1&3 Kallang Junction	2017	Accon Engrg P/L	Grille & Dampers/Actuator	Gims & Associate P/L
116	Proxima@Gambas	2017	Accon Engrg P/L	Grille & Dampers/Actuator	PDC Consultant Engrg
117	Bus Depot@Ulu Pandan RD300	2017	Natural Cool A/C & Engrg P/L	Grille & Dampers/Actuator	Rankine & Hill
118	Housing Development@Canberra Link	2017	Natural Cool A/C & Engrg P/L	Grille & Dampers/Actuator	Bescon
119	Maamunagau Maldives	2018	A Venture Engineering Pte Ltd	Grille & Dampers/Actuator	Ace-Tech Design Pte Ltd
120	National Archives Of Spore	2018	BMS Engrg & Trading P/L	VAV Box	Squire Mech
121	Warehouse @ Bulim Ave	2018	Kurihara Kogyo Co;Ltd	Grille & Dampers/Actuator	Squire Mech
122	Stars Of Kovan Condo	2018	Powen Engrg P/L	Grille & Dampers	T.Y.Lin International P/L
123	68 Residence (Myanmar)	2018	Bintai Kindenko P/L	Grille & Dampers/Actuator	
124	Alps Residence	2018	Great Resources M&E	Grille & Dampers/Actuator	UPC Consultant
125	JTC Furniture Hub	2018	Great Resources M&E	VAV Box/Grille & Dampers/Actuator	Arup Spore P/L
126	Boys Complex	2018	Great Resources M&E	Grille & Dampers/Actuator	CPG
127	No1 Gul St5	2018	Powen Engrg P/L	Grille & Dampers/Actuator	Neam Solution/Vincent Han A
128	45 Leng Kee Rd	2018	Natural Cool A/C & Engrg P/L	Grille & Dampers/Actuator	Tritont Consultant LLP

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	PROJECT TITLE	DATE	CONTRACTOR	Remarks	CONSULTANT / ARCHITECT
129	Data Centre @ 15 Defu Ave 1	2018	Amcool P/L	Grille & Dampers/Actuator	Plan-One Building Services
130	Paterson Services Apt	2018	D.I.S A/C & Elect P/L	WPC Bargrille/Grille	JRP
131	YTC office @ Peninsula Plaza	2018	Accon Engrg P/L	WPC Bargrille/Grille	CMP Consultants P/L
132	Bollore Blue Hub @ Sunview Rd	2018	Sing Wah Enterprise P/L	Bspot/Grille & Dampers/Actuator	
133	Marina East Desailination Plant	2018	Bintai Kindenko P/L	Grille & Dampers/Actuator	Mott Macdonald Consultant
134	Outram Community Hospital	2018	Bintai Kindenko P/L	Dampers/PIR Duct	Surbana Jurong Consultant P/L
135	SMU	2019	Quantun Automation P/L	VAV Box	
136	Toa Payoh West CC	2019	Narural Cool A/C&Engrg P/L	Grille & Dampers	HT M&E Consultant
137	The Verge@2 Serangoon Road	2019	Powen Engrg P/L	Grille & Dampers/Actuator	KTPI
138	Spore Exam & Accessment Board	2019	BMS Engrg & Trading P/L	VAV Box	
139	Woodland Regional Bus Interchange	2019	Kin Xin Engrg P/L	Grille & Dampers/Actuator	Elead Associate P/L
140	Madrasah Education Institute@toa payoh	2019	Luova Engrg P/L	Grille & Dampers	
141	Huamin Pri Sch	2019	Luova Engrg P/L	Grille & Dampers	Squire Mech P/L
142	Naval Base Pri Sch	2019	Luova Engrg P/L	Grille & Dampers	Squire Mech P/L
143	Orchid Park Sec Sch	2019	Luova Engrg P/L	Grille & Dampers	Squire Mech P/L
144	Tampines Pri Sch	2019	Luova Engrg P/L	Grille & Dampers	Squire Mech P/L
145	PSA @ 34 Harbour Drive	2019	Powen Engrg P/L	VAV Box/Grille & Damper	Surbana Jurong Consultant
146	Temasek Poly	2019	Kin Xin Engrg P/L	VAV Box	
147	Punggol Pri Sch	2019	Natural Cool A/C & Engrg P/L	Grille & Dampers	Arup Spore P/L
148	Chin Cheng Polyclinics	2020	M&C Engrg&Trading P/L	VAV Box	
149	JTC Logistic Hub@Gul Circle	2020	Kimly Construction P/L	Grille & Dampers	Meinhardt
150	Changi T2	2020	A&L Engrg P/L	VAV Box	CAG
151	SJSM @ 30 Dover Ave	2021	Natural Cool A/C & Engrg P/L	Grille & Dampers	Squire Mech P/L
152	Senja Nursing Home	2021	Yitac(S) P/L	VAV Box/Grille & Dampers	Surbana Jurong Consultant
153	JTC-WNC @ Woodland Ave 4&9	2021	Powen Engrg P/L	Grille & Dampers	WSP Consultancy P/L
154	Sembawang Sports Hub	2021	Great Resources M&E	VAV Box/Grille & Dampers	Aecom
155	Tee Yih Jia	2021	Great Resources M&E	Grille & Dampers	Surbana Jurong Consultant
156	Fixed Gangway@ T1/T2/T3	2022	PBT Engrg	WPC Bar Grille	JRP
157	Condo @ 21 Stirling Road	2022	Great Resources M&E	Grille & Dampers	Rankine & Hill
158	JTC-MSRF	2022	Sing Wah Enterprise P/L	Grille & Dampers	JRP
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PROJECT REFERENCES

Highlights

It's not about superficial aesthetics, it's about a perfect unison of form function & reliability

AIR DISTRIBUTION PRODUCTS

WB Air

Over the past decades, we have corrected, enhanced and are still constantly re-engineering our products, services & operations to meet with the ever demanding and changing economy.

This has led us through numerous projects of different fields & functions. From small cafes to skyscrapers, bomb shelters to sewage plants, showrooms to outdoor atriums & Integrated Resorts.

Our Products have been put to test and have humbly met **form, function & reliability**.

