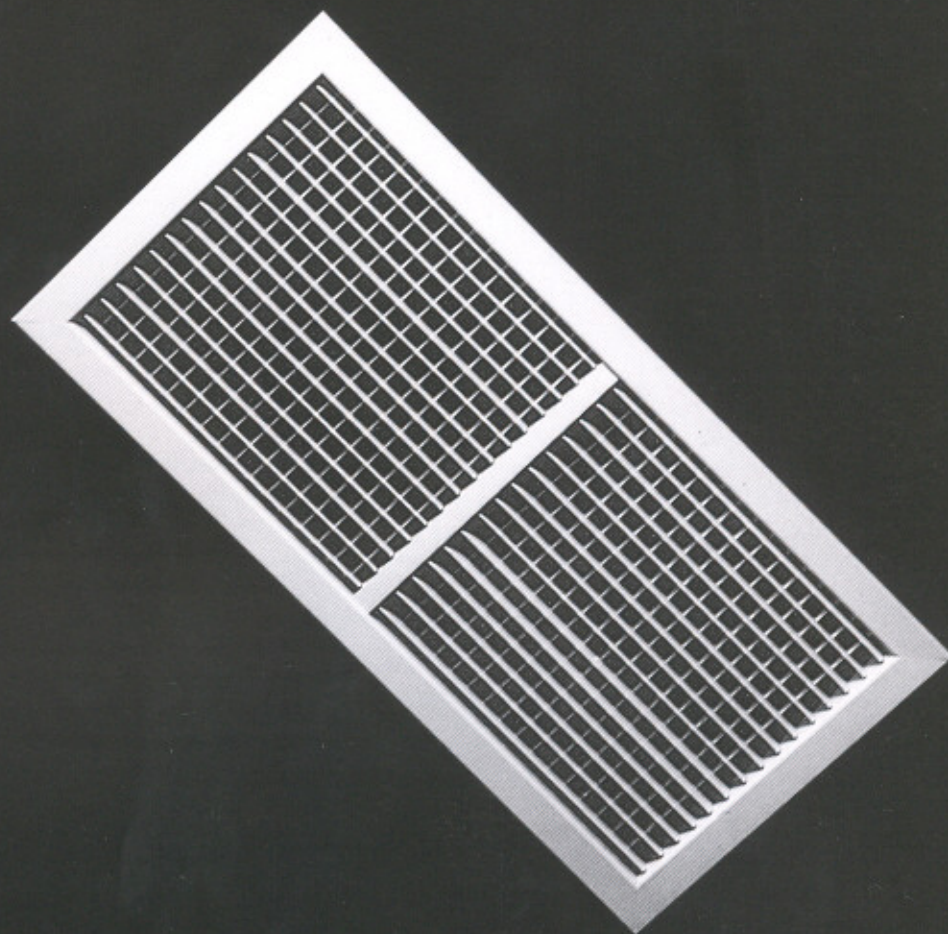


AIR GRILLES

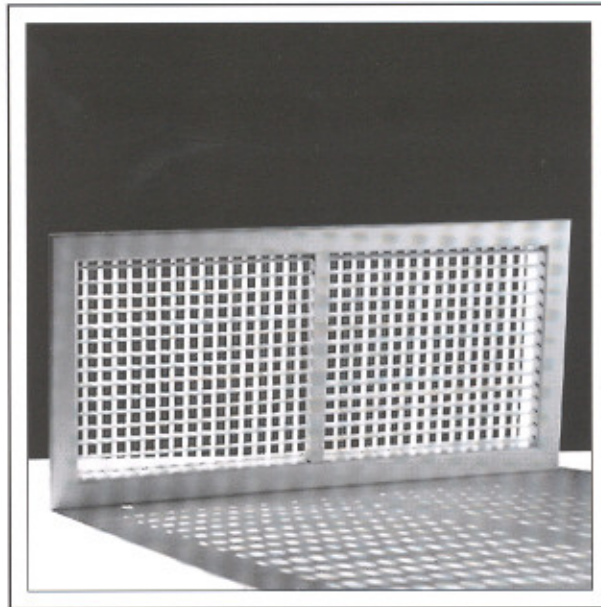
**SUPPLY
AIR REGISTER**



EXTRUDED ALUMINIUM



EXTRUDED ALUMINIUM SUPPLY AIR REGISTER



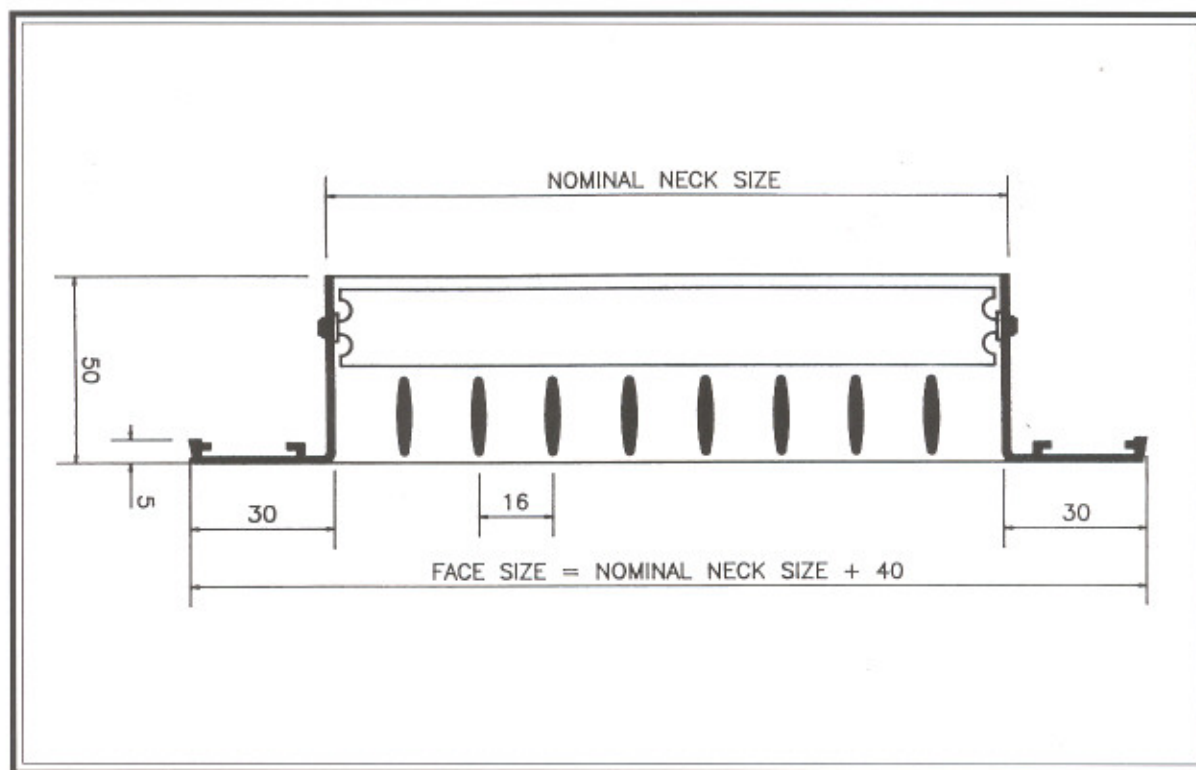
MODEL: ASR

Model ASR supply air registers are constructed from highly corrosion resistant extruded aluminium. Designed with welded butt joints and corner inserts, it will be able to withstand rough handling during installation. The register is enamel coated and oven-baked for scratch resistant.

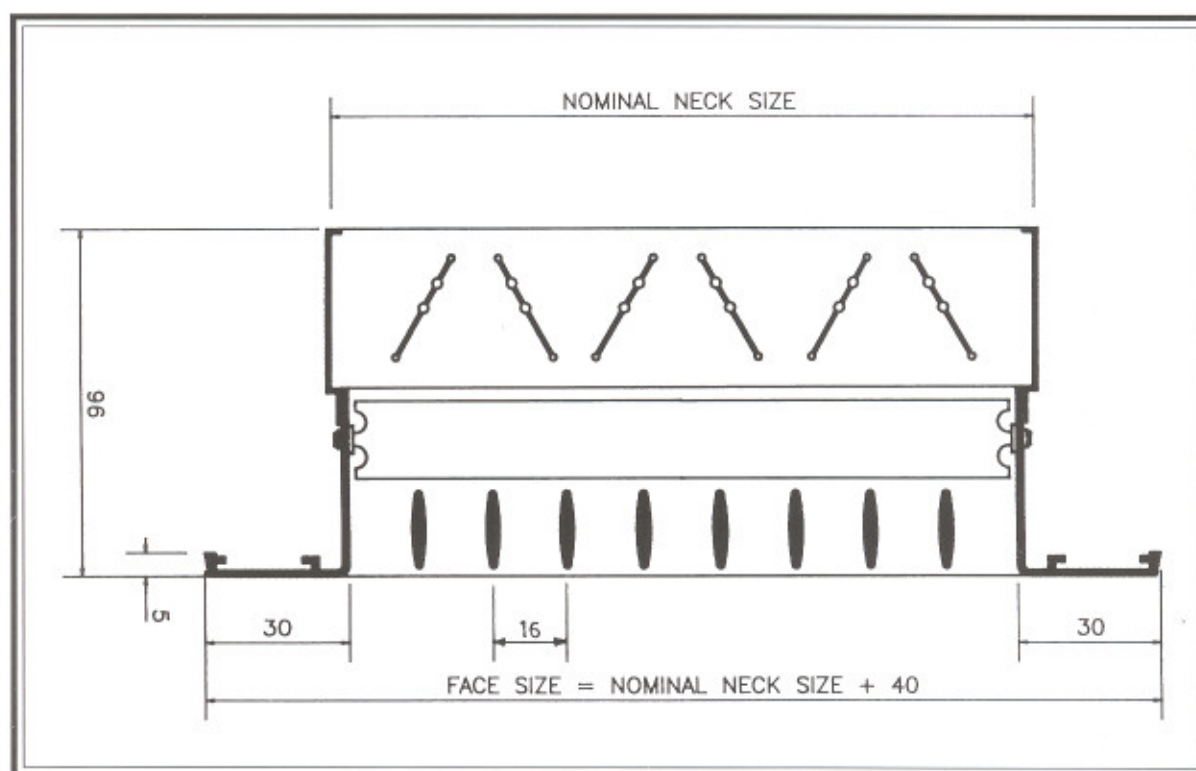
ASR register is a very popular choice for many cooling, heating and ventilating application and it is designed to handle large volumes of air with good throw patterns, acceptable pressure drop and sound levels. Constructed with horizontal and vertical blades, a wide range of air patterns can be achieved with every individual blade adjustable.

- AIR GRILLES double deflection grilles are specially designed to handle large volumes of air quietly and with good throw patterns.
- All aerofoil blades individually adjustable for any angle of deflection.
- Designed with aerofoil blades to achieve optimum air diffusion.
- Optional opposed blade volume control damper is easily adjustable from face of grille by a screwdriver.
- Free Area is approximate 80%.
- All grilles are enamel coated and oven-baked for scratch resistant.
- Corners of frame are reinforced with corner inserts and argon welded to maintain hairline mitre-joints and ensure rigid handling.
- Units of grilles have been tested at an independent N.A.T.A. accredited test laboratory in Australia.

MODEL ASR DIMENSIONS



Without Volume Control Damper



Complete With Volume Control Damper

ALL DIMENSION IN MILLIMETRES (mm)

SELECTION OF SUPPLY AIR REGISTERS

When selecting a supply Register to be used in specific location and a specific purpose, two important points have to be determined.

- i) What are the specific room-use characteristics, and
- ii) What are the performance characteristics.

The solution to these doubts can be found from the following four requirements.

1. The Air Pattern Requirements - Drop
2. The Throw Requirements
3. The Air Quantity
4. The Desired Noise Levels.

1. Air Pattern Requirements - Drop

For any given constant air quantity, the air drop increases as the area of the neck of the specific grille increases. The increased drop is due to the inverse relationship of the face velocity of the air stream and the size of the neck area.

Assuming that the spread angle of the aerofoil blades is maintained at a constant setting, the resulting length of the throw will increase as the quantity of air passing through the grille increases. Thus an increase in the air drop will follow.

To alter the performance of the Double Deflection (Register) grille, the easiest method is to adjust the spread angles of the aerofoil blades.

Three general rules apply to the relationship between the spread of the air and the throw.

- i) at a 45° setting of the aerofoil blades, the spread of the air is approximately 1.5 times the throw.
- ii) at a $22\frac{1}{2}^\circ$ setting of the aerofoil blades, the speed of the air is approximately 0.5 times the throw.
- iii) at a 0° setting of the aerofoil blades, the speed of the air is approximately 0.35 times the throw.

2. The Throw Requirement

The throw of air from the grille being used should be limited to ensure the drop of the airstream does not fall below a reasonable working level within the specific room being conditioned if around 1500mm.

The proper throw condition will be achieved if the two following extremes of conditioning do not arise:

- i) Inadequate conditioning which fails to adequately cover the total area.
- ii) Excessive quantities of air, relative to the neck area and spread angle of the grille, thus producing drafts.

3. The Air Quantity

The total volume of air to be delivered to each area, is determined by the overall system design. Thus the number of outlets per room, for example, determines the volume of air to be transmitted through each grille.

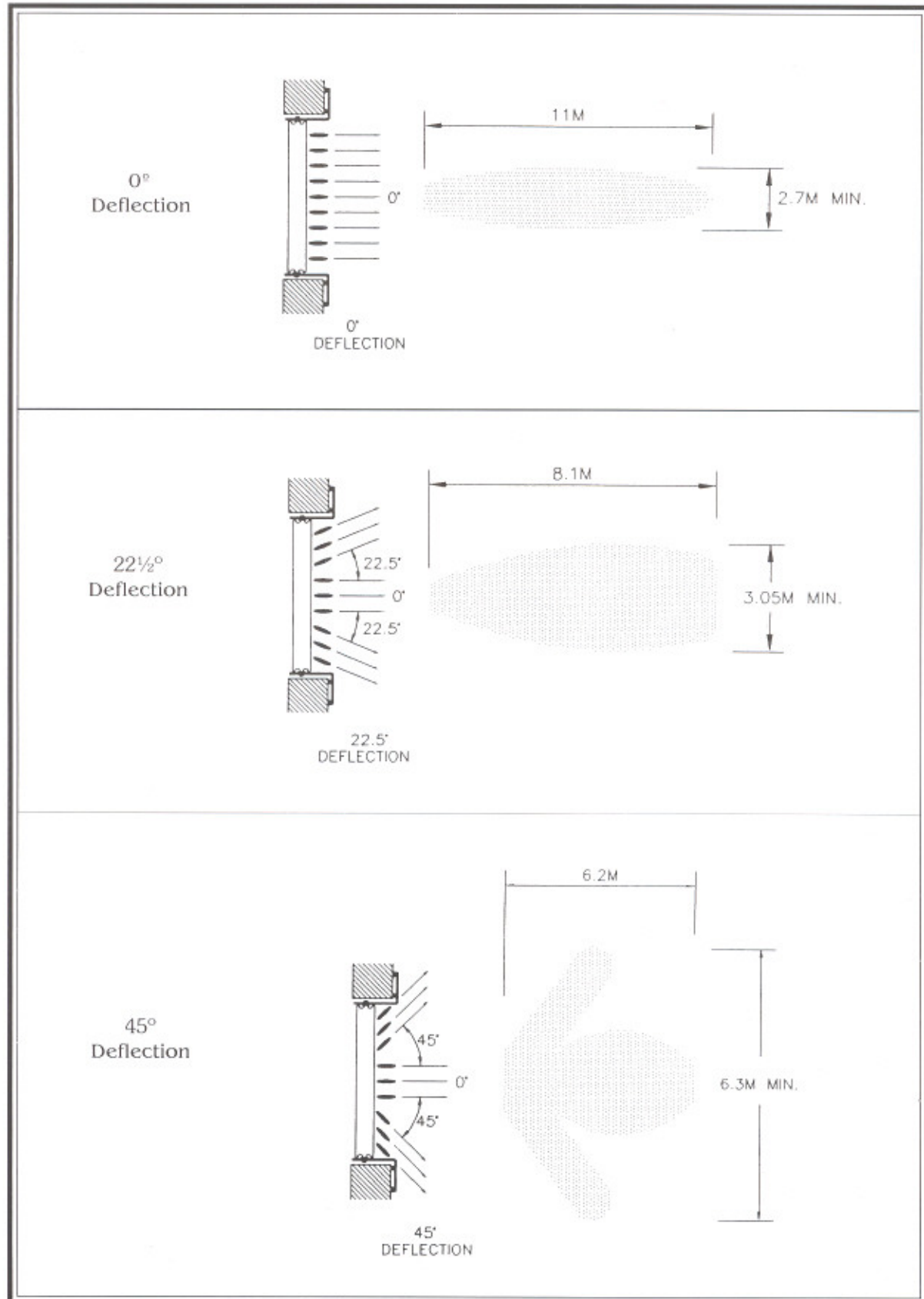
4. The Noise Level Requirements

The noise level produced by a grille relates directly to the quantity of air being transmitted through the grille, as well as the neck size and louvre blade spread angle of the register.

For a given constant air quantity, the noise level (N.R.) will increase as the core area of the register decreases. Similarly again for a constant quantity of air, the noise level (N.R.) increases as the angle of the aerofoil blades closes from 0° through 90° .

Horizontal Deflection (Spread)

The diagrams shown below are based on the actual test results. They illustrate the spread and throw for a typical selection of a high sidewall supply outlet. The angle of spread also affects the angle of drop of the airstream.



ACOUSTIC AND AIRFLOW PERFORMANCE DATA of DOUBLE DEFLECTION GRILLE

Model ASR

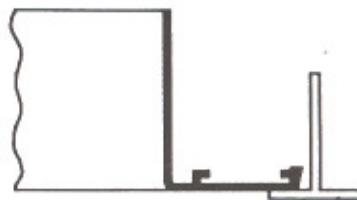
SIZE in (mm)	Area (m ²)	Qs (ℓ/s)	20	25	30	40	50	60	70	80	90	100	150	200	250	300	400	500	600	700	800	900	1000	1500
150 x 150	0.0225	SP	5	6	7	8	10	11	12	13	14	17	19	21	27	30								
		NR	-	-	-	-	-	-	8	9	12	20	24	27	30	35								
		T(m)	2.2	2.8	3.3	4.4	5.5	6.5	7.6	8.7	9.8	10.9	16	>16	>16	>16								
200 x 200	0.04	SP				4	5	6	7	8	9	14	16	18	20	22	33	44						
		NR				-	-	6	7	8	9	14	20	24	26	31	39	45						
		T(m)				3.4	4.3	5.2	6	6.9	7.8	8.7	13	>16	>16	>16	>16	>16						
250 x 250	0.0625	SP					4	5	6	7	8	9	12	14	17	20	31	42	50	56	64			
		NR					-	-	-	7	10	11	13	20	24	29	36	43	50	56	62			
		T(m)					3.6	4.3	5	5.7	6.4	7.1	10.7	14.3	>16	>16	>16	>16	>16	>16	>16			
300 x 300	0.09	SP							3.5	4	4.5	5	8	11	13	18	30	40	47	54	62	70		
		NR							-	-	-	8	12	16	20	26	33	41	46	53	60	68		
		T(m)							4.2	4.8	5.4	6	9	12	15	15.2	>16	>16	>16	>16	>16	>16		
400 x 250	0.1	SP									3.5	4.5	7	10	13	17	27	34	41	48	55	62	70	
		NR									-	-	11	15	19	26	33	41	46	52	59	67	74	
		T(m)									3.8	4.2	6.3	8.4	10.5	12.6	>16	>16	>16	>16	>16	>16	>16	
400 x 400	0.16	SP								2.7	3	3.5	5.5	7	13	16	22	31	36	40	48	55	62	
		NR								-	-	-	9	12	18	25	32	40	45	51	58	66	73	
		T(m)								2.6	2.9	3.2	4.8	6.4	8	9.6	12.8	16	>16	>16	>16	>16	>16	
600 x 300	0.18	SP										4.5	7	10	13	15	18	24	30	37	41	46	56	61
		NR										-	9	13	17	24	31	39	44	50	57	65	72	108
		T(m)										3	4.8	6.4	8	9	13	15	>16	>16	>16	>16	>16	
600 x 600	0.36	SP											6	8	10	12	16	20	24	28	32	36	40	60
		NR											11	14	17	20	26	32	38	44	50	56	62	93
		T(m)											2.9	3.9	4.9	5.9	7.9	9.9	11.9	13.8	15.8	>16	>16	
1200 x 450	0.54	SP															6	8	13	18	24	27	30	49
		NR															19	25	31	35	39	44	49	81
		T(m)															4	5.2	6.4	7.6	8.2	9.4	11	>16
750 x 750	0.5625	SP															4	5.5	7.5	10	12	14	16	30
		NR															15	18	24	30	34	37	40	71
		T(m)															3.2	3.8	5	6.3	7.6	8	9.1	>16
1200 x 600	0.72	SP															4	5	6	7.5	9	11	12	21
		NR															13	17	21	25	29	33	37	61
		T(m)															3	4	5	6.1	7.1	8	9.2	15.5

- * SP - Static Pressure (Pa)
- * NR - Noise rating number based upon room absorption of 10dB
- * T - Throw in meters to a Terminal Velocity of 0.25 m/sec (as per ADC 1062 - R3)
- * - Insufficient margin above background noise to allow any determination
- * Qs - Primary Air Flow Rate (ℓ/s)

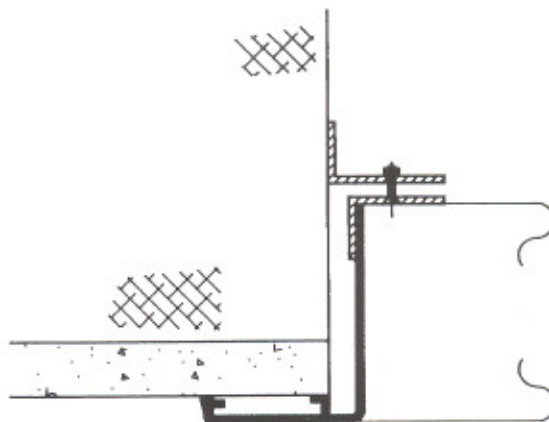
RESULT OF PERFORMANCE IS TESTED UNDER NATA (AUSTRALIA)

MOUNTING DETAILS

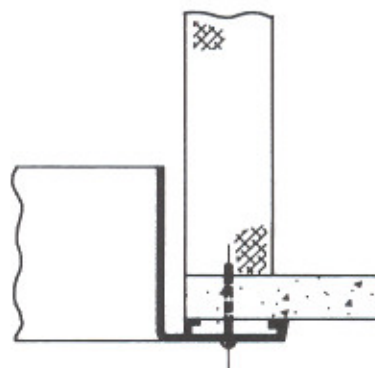
- Lay-in frame for exposed T-Bar ceilings



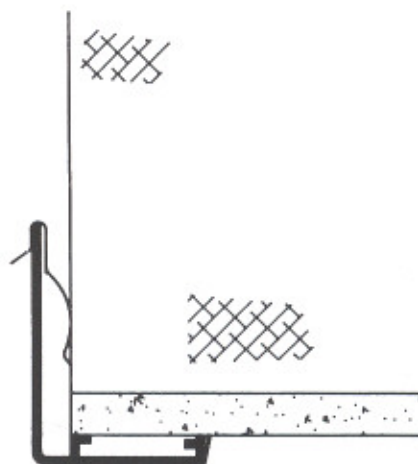
- Concealed bracket fastening



- Countersunk screw fastening



- Concealed spring clip fastening



RECOMMENDED SOUND LEVELS

LOCATION	SPACE	NC CRITERIA	SUGGESTED FACE VELOCITY (m/s)
Auditoriums	Concert Halls, Studios, Movie Theatres, Lecture Halls, TV Audience Studios.	20 - 25	2.5
		25 - 30	2.5 - 3.75
Churches and Schools	Sanctuaries Libraries, Classrooms	20 - 30	2.5 - 3.75
		30 - 40	2.5 - 5.0
Offices	Boardrooms Conference Rooms Executive Rooms General Open Offices	20 - 30	2.5 - 3.75
		25 - 35	2.5 - 3.75
		30 - 40	2.5 - 5.0
		35 - 50	2.5 - 6.5
Hospital	Intensive Care Wards Private Room Operating Room Wards		
		25 - 35	2.5 - 3.75
		30 - 40	2.5 - 5.0
		30 - 40	2.5 - 5.0
Hotel	Individual Rooms, Suites, Halls, Corridors, Lobbies, Ballrooms	30 - 40	2.5 - 5.0
		35 - 40	2.5 - 5.0

WARRANTY

AIR GRILLES MANUFACTURING PTE LTD (the "company") warrants that all goods in this catalogue that have been manufactured by the company will be defects free in quality or material under normal use and service for a period of one year after goods are sold. The company have the right to make improved changes to the products at any time. The company is obligated under this warranty, only to replace any product which is defective in quality or material under normal use and service within such period. Component parts or accessories which are covered by the warranty of the manufacturer will not be covered under this warranty. Any improper use of the product, after defective or worn parts have been discovered, or any modification or repair by others which the company claims that it will materially and adversely affects the products, neglect, substitution of parts not approved by the company will void this warranty.

No person is authorised to assume any liability with respect to any goods sold, for the company. No representatives or employee is authorised to change this warranty or give any other warranty, unless it is authorised by an officer of the company at its home office in writing. In any event of payment of incidental or consequential damages, including without limitation, delay cost or damages for property or injury to persons, the company shall have no liabilities whatsoever.

Claims under this warranty, if not submitted, in writing and received by the company within thirty (30) days of the dated to which each claim relates, is discovered or should have discovered, will be deemed waived.



AIR GRILLES MANUFACTURING PTE LTD

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