ROOFING ACOUSTICS

Complying with WA Guidelines

Queens Park Residence by Anna Vaughan Architects
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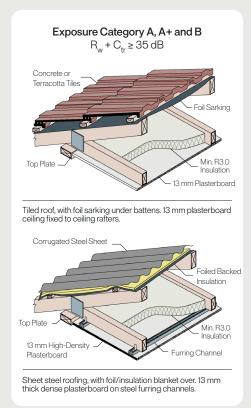
WA NOISE GUIDELINES

The WA Road and Rail Guidelines have created a table to ascertain where noise levels will be highest, corresponding to different policy requirements for house design. A summarised table is provided below with corresponding **exposure categories** listed.

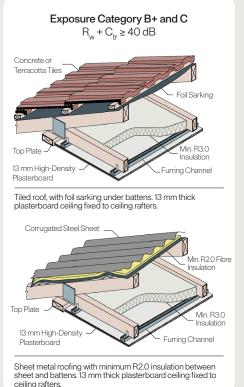
Transport Corridor Classification		Number	Forecast Noise Exposure Category Based on Lot Distance (m) from Transport Corridor																
		of Lanes	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	175	200
Major Strategic Traffic Roads (50,000+ daily vehicles)		2-4	Е	D	С	С	С	В	В	В	В	В	В	А	А	А	А		
		5-6	Е	D	D	С	С	С	С	В	В	В	В	В	В	А	А	А	А
		7-8	Е	Е	D	D	С	С	С	С	С	В	В	В	В	В	В	А	А
Urban High Traffic Roads	60-80 km/h	Up to 6	D	С	С	С	В	В	В	В	А	А	А	А	А				
	≥ 100 km/h	Up to 6	Е	D	D	С	С	С	С	В	В	В	В	В	В	В	А	А	А
Passenger Railways			D	С	С	В	В	В	А	А	А	А							
Freight Railways			Е	Е	D	C+	C+	B+	B+	A+	A+	A+	А	А	А	А	А	А	А

As shown above, homes closer to main roads and rail infrastructure will require a better acoustic design. Even if your home falls in a lower category, optimising acoustics will lead to a quieter and more comfortable home.

COMPLIANT ROOFING SOLUTIONS



Note: Whilst the WA guidelines state that a sheet metal roof with sarking and R3.0 ceiling insulation is compliant, ARTA testing proves this is not the case. To obtain an $R_w + C_{tr} \ge 35$, additional furring channels will be required, with a foiled backed insulation blanket.



Note: Metal roofs require additional R2.0 foil backed insulation between sheets and battens compared to tiled roofs to comply.

Exposure Category C+ R_w + C_{tr} ≥ 45 dB Concrete or Terracotta Tiles Top Plate I3 mm High-Density Plasterboard Tilled roof, with foil sarking under battens. 13 mm thick plasterboard ceiling fixed to ceiling rafters. THERE IS NO ACCEPTABLE SHEET METAL ROOFING OPTION FOR EXPOSURE CATEGORY C+ DUE TO ITS LIMITED ACOUSTIC PERFORMANCE.

Note: Regardless of exposure category, tiled roofs provide superior acoustic performance, keeping homes quieter due to their mass. Homes within 200 m of major transport corridors should use tiled roofs for optimal noise reduction.