

Sound absorption of typical materials in Australian buildings:

Material	Sound Absorption					
	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
Floor						
Varnished wood on joists	0.15	0.11	0.10	0.07	0.06	0.07
Axminster carpet on concrete	0.11	0.14	0.20	0.33	0.52	0.82
Carpet	0.01	0.02	0.06	0.15	0.25	0.45
Concrete (unpainted, rough finish)	0.01	0.02	0.04	0.06	0.08	0.1
Concrete (sealed or painted)	0.01	0.01	0.02	0.02	0.02	0.02
Marble or glazed tile	0.01	0.01	0.01	0.01	0.02	0.02
Vinyl tile or linoleum on concrete	0.02	0.03	0.03	0.03	0.03	0.02
Wood parquet on concrete	0.04	0.04	0.07	0.06	0.06	0.07
Wood flooring on joists	0.15	0.11	0.1	0.07	0.06	0.07
Walls						
Plasterboard 12mm	0.02	0.05	0.06	0.08	0.045	0.06
Ditto, perforated with slits	0.04	0.05	0.14	0.32	0.20	0.24
Ditto, Ditto, with 25mm fibre glass	0.05	0.30	0.65	0.68	0.60	0.56
Brick (natural)	0.03	0.03	0.03	0.04	0.05	0.07
Brick (painted)	0.01	0.01	0.02	0.02	0.02	0.03

Concrete block (coarse)	0.36	0.44	0.31	0.29	0.39	0.25
Concrete block (painted)	0.1	0.05	0.06	0.07	0.09	0.08
Concrete (poured, rough finish, unpainted)	0.01	0.02	0.04	0.06	0.08	0.1
Doors (solid wood panels)	0.1	0.07	0.05	0.04	0.04	0.04
Plaster (gypsum or lime, on masonry)	0.01	0.02	0.02	0.03	0.04	0.05
Plaster (gypsum or lime, on wood lath)	0.14	0.1	0.06	0.05	0.04	0.04
Plywood (3mm panelling over 31.7mm airspace)	0.15	0.25	0.12	0.08	0.08	0.08
Plywood (3mm panelling over 57.1mm airspace)	0.28	0.2	0.1	0.1	0.08	0.08
Plywood (5mm panelling over 50mm airspace)	0.38	0.24	0.17	0.1	0.08	0.05
Plywood (5mm panel, 25mm fiberglass in 50mm airspace)	0.42	0.36	0.19	0.1	0.08	0.05
Plywood (6mm panelling, airspace, light bracing)	0.3	0.25	0.15	0.1	0.1	0.1
Plywood (10mm panelling, airspace, light bracing)	0.28	0.22	0.17	0.09	0.1	0.11
Plywood (19mm panelling, airspace, light bracing)	0.2	0.18	0.15	0.12	0.1	0.1
Plywood (15mm panelling on 37mm battens)	0.18	0.12	0.10	0.09	0.08	0.07
Ceilings						
Plasterboard (12mm in suspended ceiling grid)	0.15	0.11	0.04	0.04	0.07	0.08
Underlay in perforated metal panels (25mm batts)	0.51	0.78	0.57	0.77	0.9	0.79
Metal deck (perforated channels, 25mm batts)	0.19	0.69	0.99	0.88	0.52	0.27
Metal deck (perforated channels, 75mm batts)	0.73	0.99	0.99	0.89	0.52	0.31

Plaster (gypsum or lime, on masonry)	0.01	0.02	0.02	0.03	0.04	0.05
Plaster (gypsum or lime, rough finish or timber lath)	0.14	0.1	0.06	0.05	0.04	0.04
Sprayed cellulose fiber (16mm on solid backing)	0.05	0.16	0.44	0.79	0.9	0.91
Sprayed cellulose fiber (25mm on solid backing)	0.08	0.29	0.75	0.98	0.93	0.76
Sprayed cellulose fiber (25mm on timber lath)	0.47	0.9	1.1	1.03	1.05	1.03
Sprayed cellulose fiber (32mm on solid backing)	0.1	0.3	0.73	0.92	0.98	0.98
Sprayed cellulose fiber (75mm on solid backing)	0.7	0.95	1	0.85	0.85	0.9
Wood tongue-and-groove roof decking	0.24	0.19	0.14	0.08	0.13	0.1
Absorptive wall materials						
Drapery (10 oz/yd ² , 340 g/m ² , flat against wall)	0.04	0.05	0.11	0.18	0.3	0.35
Drapery (14 oz/yd ² , 476 g/m ² , flat against wall)	0.05	0.07	0.13	0.22	0.32	0.35
Drapery (18 oz/yd ² , 612 g/m ² , flat against wall)	0.05	0.12	0.35	0.48	0.38	0.36
Drapery (14 oz/yd ² , 476 g/m ² , pleated 50%)	0.07	0.31	0.49	0.75	0.7	0.6
Drapery (18 oz/yd ² , 612 g/m ² , pleated 50%)	0.14	0.35	0.53	0.75	0.7	0.6
Fiberglass board (25mm thick)	0.06	0.2	0.65	0.9	0.95	0.98
Fiberglass board (50mm thick)	0.18	0.76	0.99	0.99	0.99	0.99
Fiberglass board (75mm thick)	0.53	0.99	0.99	0.99	0.99	0.99
Fiberglass board (100mm thick)	0.99	0.99	0.99	0.99	0.99	0.97
Open brick pattern over 75mm fiberglass	0.4	0.65	0.85	0.75	0.65	0.6

Pageboard over 25mm fiberglass board	0.08	0.32	0.99	0.76	0.34	0.12
Pageboard over 50mm fiberglass board	0.26	0.97	0.99	0.66	0.34	0.14
Pageboard over 75mm fiberglass board	0.49	0.99	0.99	0.69	0.37	0.15
Perforated metal (13% open, over 50mm fiberglass)	0.25	0.64	0.99	0.97	0.88	0.92
Windows						
Glass (6mm plate, large pane)	0.18	0.06	0.04	0.03	0.02	0.02
Glass (small pane)	0.04	0.04	0.03	0.03	0.02	0.02
Curtains						
Heavy, draped 100mm from wall face	0.06	0.10	0.38	0.63	0.70	0.73
Seating Materials						
Benches (wooden, empty)	0.1	0.09	0.08	0.08	0.08	0.08
Benches (wooden, 2/3 occupied)	0.37	0.4	0.47	0.53	0.56	0.53
Benches (wooden, fully occupied)	0.5	0.56	0.66	0.76	0.8	0.76
Benches (cushioned seats and backs, empty)	0.32	0.4	0.42	0.44	0.43	0.48
Benches (cushioned seats and backs, 2/3 occupied)	0.44	0.56	0.65	0.72	0.72	0.67
Benches (cushioned seats and backs, fully occupied)	0.5	0.64	0.76	0.86	0.86	0.76
Theater seats (wood, empty)	0.03	0.04	0.05	0.07	0.08	0.08
Theater seats (wood, 2/3 occupied)	0.34	0.21	0.28	0.53	0.56	0.53
Theater seats (wood, fully occupied)	0.5	0.3	0.4	0.76	0.8	0.76

Seats (fabric-upholsterd, empty)	0.49	0.66	0.8	0.88	0.82	0.7
Seats (fabric-upholsterd, fully occupied)	0.6	0.74	0.88	0.96	0.93	0.85
Miscellaneous surface material						
People-adults (per 1/10 person)	0.25	0.35	0.42	0.46	0.5	0.5
People-high school students (per 1/10 person)	0.22	0.3	0.38	0.42	0.45	0.45
People-elementary students (per 1/10 person)	0.18	0.23	0.28	0.32	0.35	0.35
Ventilating grilles	0.3	0.4	0.5	0.5	0.5	0.4
Water or ice surface	0.008	0.008	0.013	0.015	0.02	0.025

Notes:

- If you cannot find the material used in your building, please chose the closest one from the above the table.
- The skirting boards inside spaces could be ignored while doing sound measurements.
- The window frames could be ignored while doing sound measurements.

References

Absorption Coefficients of Common Building Materials and Finishes. (2024). JCW Acoustic Supplies. <https://www.acoustic-supplies.com/absorption-coefficient-chart/>