

Absorption coefficients of common building materials and finishes

Floor materials	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
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

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Seating Materials	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
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

See our [Cinema and theatre room products and solutions](#).

Reflective wall materials	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
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
Glass (1/4" 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
Plasterboard (12mm (1/2") paneling on studs)	0.29	0.1	0.06	0.05	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(1/8") paneling over 31.7mm(1-1/4") airspace)	0.15	0.25	0.12	0.08	0.08	0.08
Plywood (3mm(1/8") paneling over 57.1mm(2-1/4") airspace)	0.28	0.2	0.1	0.1	0.08	0.08
Plywood (5mm(3/16") paneling over 50mm(2") airspace)	0.38	0.24	0.17	0.1	0.08	0.05
Plywood (5mm(3/16") panel, 25mm(1") fiberglass in 50mm(2") airspace)	0.42	0.36	0.19	0.1	0.08	0.05
Plywood (6mm(1/4") paneling, airspace, light bracing)	0.3	0.25	0.15	0.1	0.1	0.1
Plywood (10mm(3/8") paneling, airspace, light bracing)	0.28	0.22	0.17	0.09	0.1	0.11
Plywood (19mm(3/4") paneling, airspace, light bracing)	0.2	0.18	0.15	0.12	0.1	0.1

Absorptive wall materials	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Drapery (10 oz/yd2, 340 g/m2, flat against wall)	0.04	0.05	0.11	0.18	0.3	0.35
Drapery (14 oz/yd2, 476 g/m2, flat against wall)	0.05	0.07	0.13	0.22	0.32	0.35
Drapery (18 oz/yd2, 612 g/m2, flat against wall)	0.05	0.12	0.35	0.48	0.38	0.36
Drapery (14 oz/yd2, 476 g/m2, pleated 50%)	0.07	0.31	0.49	0.75	0.7	0.6
Drapery (18 oz/yd2, 612 g/m2, pleated 50%)	0.14	0.35	0.53	0.75	0.7	0.6
Fiberglass board (25mm(1") thick)	0.06	0.2	0.65	0.9	0.95	0.98
Fiberglass board (50mm(2") thick)	0.18	0.76	0.99	0.99	0.99	0.99
Fiberglass board (75mm(3") thick)	0.53	0.99	0.99	0.99	0.99	0.99
Fiberglass board (100mm(4") thick)	0.99	0.99	0.99	0.99	0.99	0.97
Open brick pattern over 75mm(3") fiberglass	0.4	0.65	0.85	0.75	0.65	0.6
Pageboard over 25mm(1") fiberglass board	0.08	0.32	0.99	0.76	0.34	0.12
Pageboard over 50mm(2") fiberglass board	0.26	0.97	0.99	0.66	0.34	0.14

Pageboard over 75mm(3'') fiberglass board	0.49	0.99	0.99	0.69	0.37	0.15
Perforated metal (13% open, over 50mm(2'') fiberglass)	0.25	0.64	0.99	0.97	0.88	0.92

See our [Wall soundproofing products and solutions](#).

Ceiling Material	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Plasterboard (12mm(1/2'') in suspended ceiling grid)	0.15	0.11	0.04	0.04	0.07	0.08
Underlay in perforated metal panels (25mm(1'') batts)	0.51	0.78	0.57	0.77	0.9	0.79
Metal deck (perforated channels,25mm(1'') batts)	0.19	0.69	0.99	0.88	0.52	0.27
Metal deck (perforated channels, 75mm(3'') 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(5/8'') on solid backing)	0.05	0.16	0.44	0.79	0.9	0.91
Sprayed cellulose fiber (25mm(1'') on solid backing)	0.08	0.29	0.75	0.98	0.93	0.76
Sprayed cellulose fiber (25mm(1'') on timber lath)	0.47	0.9	1.1	1.03	1.05	1.03
Sprayed cellulose fiber (32mm(1-1/4'') on solid backing)	0.1	0.3	0.73	0.92	0.98	0.98
Sprayed cellulose fiber (75mm(3'') 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

See our [Ceiling soundproofing products and solutions](#).

Miscellaneous surface material	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
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

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