

PART VIII
Appendix K
Sound Absorption Coefficients

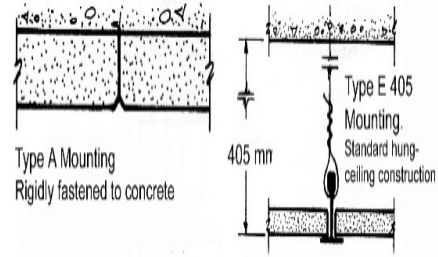
Table 8.K.1: Sound Absorption Coefficients ^a

Source: Stein, B. et al., 2006. *Mechanical and Electrical Equipment for Buildings*. John Wiley & Sons, New Jersey

	Absorption Coefficients (α)						NRC ^c
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
General Building Materials and Furnishings ^b							
Brick, unglazed	0.03	0.03	0.03	0.04	0.05	0.07	0.005
Brick, unglazed, painted	0.01	0.01	0.02	0.02	0.02	0.03	0.00
Carpet, heavy, on concrete	0.02	0.06	0.14	0.37	0.60	0.65	0.29
Carpet, heavy, on 1.36 kg/m ² hair felt or foam rubber	0.08	0.24	0.57	0.69	0.71	0.73	0.55
Concrete block, coarse	0.36	0.44	0.31	0.29	0.39	0.25	0.35
Concrete block, painted	0.10	0.05	0.06	0.07	0.09	0.08	0.05
Fabrics							
Light velour, 0.34 kg/m ² , hung straight, in contact with wall	0.03	0.04	0.015	0.17	0.24	0.35	0.15
Medium velour, 0.47 kg/m ² , draped to half area	0.07	0.31	0.49	0.75	0.70	0.60	0.55
Heavy velour, 0.61 kg/m ² , draped to half area	0.14	0.35	0.55	0.72	0.70	0.65	0.60
Floors							
Concrete or terrazzo	0.01	0.01	0.015	0.02	0.02	0.02	0.00
Linoleum, asphalt, rubber, or cork tile on concrete	0.02	0.03	0.03	0.03	0.03	0.02	0.05
Wood	0.15	0.11	0.10	0.07	0.06	0.07	0.10
Glass							
Large panes of heavy plate glass	0.18	0.06	0.04	0.03	0.02	0.02	0.05
Ordinary window glass	0.35	0.25	0.18	0.12	0.07	0.04	0.15
Gypsum board, 13 mm nailed to 50x100 mm stud 400 mm c/c	0.10	0.08	0.05	0.03	0.03	0.03	0.05
Marble or glazed tile	0.01	0.01	0.01	0.01	0.02	0.02	0.00
Openings							
Stage, depending on furnishings				0.25-0.75			
Deep balcony, upholstered seats				0.50-1.00			
Grillese ventilating				0.15-0.50			

General Building Materials and Furnishings ^b	Absorption Coefficients (α)							
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC ^c	
Plaster, gypsum or lime, smooth finish on tile or brick	0.013	0.015	0.02	0.03	0.04	0.05	0.05	
Plaster, gypsum or lime, on lath	0.14	0.10	0.06	0.05	0.04	0.03	0.05	
Plywood panelling, 9 mm thick	0.28	0.22	0.17	0.09	0.10	0.11	0.15	
Rough wood, as tongue-and-groove cedar	0.24	0.19	0.14	0.08	0.13	0.10	0.14	
Slightly vibrating surface (e.g., hollow core door)	0.02	0.02	0.03	0.03	0.04	0.05	0.03	
Readily vibrating surface (e.g., thin wood panelling on 400 mm studs)	0.10	0.07	0.05	0.04	0.04	0.05	0.05	
Water surface, as in swimming pool	0.008	0.008	0.013	0.015	0.020	0.025	0.00	
Absorption of Seats and Audience ^d	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC ^c	
Audience, in upholstered seats, per 0.093 m ² of floor area	0.60	0.74	0.88	0.96	0.93	0.85	-	
Unoccupied cloth-upholstered seats, per 0.093 m ² of floor area	0.49	0.66	0.80	0.88	0.82	0.70	-	
Wooden pews, occupied, per 0.093 m ² of floor area	0.57	0.61	0.75	0.86	0.91	0.86	-	
Students in tablet-arm chairs, per 0.093 m ² of floor area	0.30	0.42	0.50	0.85	0.85	0.84	-	
Acoustic Absorptive Materials	Mtg ^e	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC ^c
High-performance vinyl-faced fibreglass								
Ceiling panels								
25 mm thick	E405	0.73	0.88	0.71	0.98	0.96	0.77	0.90
38 mm thick	E405	0.79	0.98	0.83	1.03	0.98	0.80	0.95
Painted nubby glass cloth panels								
6 mm thick	E405	0.81	0.94	0.65	0.87	1.00	0.96	0.85
25 mm thick	E405	0.78	0.92	0.79	1.00	1.03	1.10	0.95
Random fissured 19 mm-thick panels	E405	0.52	0.58	0.60	0.80	0.92	0.80	0.70
Perforated metal panel with infill 1 in. thick	E405	0.70	0.86	0.74	0.88	0.95	0.86	0.85
Typical averages, mineral fibre tiles and panels								
19 mm fissured	E405	0.47	0.50	0.52	0.76	0.86	0.81	0.65
19 mm textured	E405	0.49	0.55	0.53	0.80	0.94	0.83	0.70
16 mm fissured	E405	0.28	0.33	0.66	0.73	0.74	0.75	0.60
16 mm textured	E405	0.29	0.35	0.66	0.63	0.44	0.34	0.50
16 mm perforated	E405	0.27	0.29	0.55	0.78	0.69	0.53	0.60
75 mm in thick x 400 mm square on 600 mm centres	A	0.40	0.61	1.92	2.54	2.62	2.60	

- a This table primarily useful for preliminary calculations. Complete tables of coefficients may be found in books on architectural acoustics.
- b Selected data courtesy of Owens-Corning Fibreglass.
- c NRC: the arithmetic average of the α values at 250, 500, 1000, and 2000 Hz.
- d If audience is randomly spaced, use an average of 0.47 m² sabins per person.
- e See figure at right for mounting methods Type A and Type E 405.



PART VIII
Appendix L

Particulars of Lifts, Escalators and Moving Walks

Format for Particulars of Lifts, Escalators and Moving Walks

LIFT

- a) Use (Tick as appropriate): Passenger/Goods/Services/Hospital
- b) Number of lifts required: _____
- c) Capacity per lift: Number of passengers _____ Kg _____
- d) Rated Speed: _____ m/s
- e) Travel height: _____ m
- f) Size and type of car doors: _____
- g) Number of car doors: _____
- h) Number of stops: _____
- i) Size and type of landing doors: _____
- j) Number of stops: _____
- k) Type of Drive system: _____
- l) Method of control(s): _____
- m) Size(s) and location(s) of lift well(s): _____
- n) Available Over Head Height: _____
- o) Pit Depth : _____
- p) Location and size of machine room: _____
- q) Position of counter weight: _____
- r) Size of car platform: _____
- s) Construction, design and finish of car bodywork: _____
- t) Construction, design and finish of car platform: _____
- u) Particulars of ventilation of the car: _____
- v) Particulars of control buttons in car: _____
- w) Particulars of position indicators in car: _____
- x) Particulars of call buttons in landing: _____