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BUREAU OF STANDARDS
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SOUND ABSORPTION COEFFICIENTS OF THE MORE COMMON MATERIALS

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SOUND ABSORPTION COEFFICIENTS OF THE MORE COMMON MATERIALS

The following figures have recently been obtained at the National Bureau of Standards for the sound absorption coefficients of a number of materials now on the market as acoustic correctives. Figures are also given for the absorption of an audience seated in chairs of different kinds. The results have all been obtained by the reverberation method.

It is not necessarily the case that the materials of highest coefficient are the most advantageous. When there is room enough to apply the requisite quantity, a material of low coefficient will give the same result.

Material	Absorption coefficients for frequencies—				
	128	256	512	1,024	2,048
Acoustex, 1 inch thick, spray painted	0.12	0.24	0.35	0.56	0.77
Acoustex, 2 inches thick	.22	.41	.64	.86	.84
Acoustolith tile, type D, 1 inch thick	.08	.13	.25	.54	.67
Acoustolith tile, type D, 2 inches thick	.15	.26	.59	.74	.52
Balsam wool, 1 inch thick, scrim facing	.18	.36	.55	.65	.67
Celotex, type B	.16	.26	.40	.62	.64
Celotex, type BB	.19	.42	.61	.72	.76
Celotex, type BB, painted	.19	.34	.62	.75	.77
Flaxlinum, 1 inch thick	.09	.31	.62	.77	.69
Hachmeister-Lind acoustic plaster, stippled with pins ½ inch deep	.16	.19	.25	.36	.44
Nashkote A, ½ inch thick	.05	.13	.25	.26	.20
Nashkote A, ¾ inch thick	.09	.16	.27	.30	.23
Nashkote A, 1 inch thick	.12	.20	.33	.33	.28
Nashkote B–332, ½ inch thick	.09	.15	.31	.52	.74
Nashkote B–332, ¾ inch thick	.12	.21	.40	.63	.81
Nashkote B–332, 1 inch thick	.19	.26	.50	.73	.89
Macoustic plaster, stippled, ½ inch thick	.09	.14	.22	.27	.41
Macoustic plaster, ½ inch thick, stippled with large pins, perforations ½ inch deep	.12	.20	.31	.39	.58
Sabinite, ½ inch thick	.15	.17	.22	.29	.38
Sanacoustic tile, rock wool filler, 1¼ inches thick	.17	.41	.82	.94	.85
Soundex, 1 3/16 inches thick, spray painted	.10	.22	.36	.53	.72
Soundex, 1 7/16 inches thick, spray painted	.21	.26	.48	.68	.75
U. S. Gypsum tile, ½ inch thick	.07	.17	.44	.62	.60
U. S. Gypsum tile, ¾ inch thick	.16	.28	.52	.66	.58
U. S. Gypsum tile, 1 inch thick	.18	.37	.59	.64	.61
Westfelt, ¼ inch thick	.05	.08	.14	.25	.34

Audience seated in chairs of various types

A=Cane-seat chairs, open back.
B=Theater chair, box-spring seat, heavily padded back.
C=Same as B, but single layer of padding on back.
D=Church pews, seating 5.

[Absorption per person]

	Frequencies—				
	128	256	512	1,024	2,048
Women without coats, A	0.7	1.3	2.3	3.6	4.6
Women with coats, A	1.3	2.4	4.0	5.8	6.7
Men without overcoats, A	1.3	2.1	4.1	5.5	7.4
Men with overcoats, A	2.3	3.2	4.8	6.2	7.6
Mixed audience, B			3.9	4.7	
Empty seat, B		3.4	3.0	3.3	3.6
Mixed audience, C		3.5	4.1	4.9	4.2
Empty seats, C		3.0	2.5	2.9	3.1
Mixed audience, D		2.7	3.3	3.8	3.6

WASHINGTON, May 16, 1930.

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