

The “Optimum” Reverberation Time:

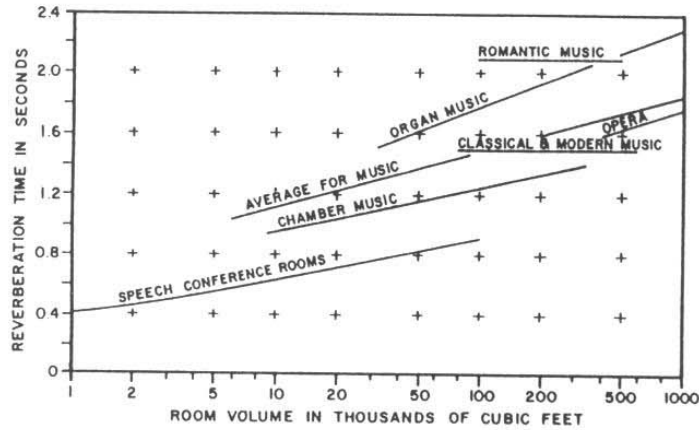


FIG. 5. Optimum reverberation time for auditoriums of various sizes and functions at a frequency of 500 hertz.

Optimum reverberation time is *subjective!*

- tempo dependent
- sound level dependent
- complexity dependent
- frequency dependent

Calculation of Reverberation Time

TABLE I
Absorption coefficients of some building materials

	FREQUENCY—HERTZ					
	125	250	500	1000	2000	4000
Marble or glazed tile	.01	.01	.01	.01	.02	.02
Concrete, unpainted	.01	.01	.01	.02	.02	.03
Asphalt tile on concrete	.02	.03	.03	.03	.03	.02
Heavy carpets on concrete	.02	.06	.14	.37	.60	.65
Heavy carpets on felt	.08	.27	.39	.34	.48	.63
Plate glass	.18	.06	.04	.03	.02	.02
Plaster on lath on studs	.30	.15	.10	.05	.04	.05
Acoustical plaster, 1"	.25	.45	.78	.92	.89	.87
Plywood on studs, 1/4"	.60	.30	.10	.09	.09	.09
Perforated cane fiber tile, cemented to concrete, 1/2" thick	.14	.20	.76	.79	.58	.37
Perforated cane fiber tile, cemented to concrete, 1" thick	.22	.47	.70	.77	.70	.48
Perforated cane fiber tile, 1" thick, in metal frame supports	.48	.67	.61	.68	.75	.50

Note frequency the dependence of absorption coefficients for various building materials!