

PART VIII
Appendix H

Noise Levels and Subjective Evaluation

Table 8.H.1: Allowable upper limit of Outdoor Noise Levels

Source: *Noise Pollution (Control) Rules 2006*, the Government of the People's Republic of Bangladesh

Sl. No.	Category of Zones	Upper Limit of Noise Level in dBA $L_{Aeq,T}$	
		Day Time (06:00 AM - 09:00 PM)	Night Time (09:00 PM - 06:00 AM)
01	Quiet Zone	50	40
02	Residential Zone	55	45
03	Mixed Use Zone	60	50
04	Commercial Zone	70	60
05	Industrial Zone	75	70

Table 8.H.2: Typical Noise Levels Generated by Aircrafts

Source: *Noise Levels for U.S. Certified and Foreign Aircraft, Advisory Circular-AC No: 36-1H*, U.S. Department of Transportation, Federal Aviation Administration, 2012

Sl. No.	Aircraft Manufacturer and Model (Arranged in an alphabetical order)	Flyover Noise Levels with Take-off Thrust (EPN dBA) ^a
01	Airbus A300	103.1
02	Airbus A380	98.1
03	Boeing 707	108.3
04	Boeing 717	92.1
05	Boeing 727	105.8
06	Boeing 737	105.3
07	Boeing 747	107.8
08	Boeing 757	100.3
09	Boeing 767	103.0
10	Boeing 777	101.3
11	Boeing 787	99.6
12	Lockheed L-1011	103.3
13	McDonnell Douglas DC-08	102.7
14	McDonnell Douglas DC-10	106.6

^a Noise is measured at 1.2 m above the ground for aircrafts flying overhead at a height of 450 m from the ground with takeoff thrust. The highest noise level among different variations in the same model is listed.

Table 8.H.3: Subjective Evaluation and Pressure Levels of Familiar Sounds

Description of Sound	Subjective Evaluation	Pressure Level (dBA)
Near jet engine	Deafening	140
Threshold of pain		130
Threshold of feeling hard rock band		120
Accelerating motorcycle at a few metre away (Note: 15 m from motorcycle equals noise at about 600 m from a 4-engine aircraft)	Very loud	110
Full orchestra, loud passage		95
Noisy urban street, noisy factory	Loud	90
School cafeteria		80
Loud speech, 1 m distant; stenographic room	Moderate	70
Near freeway auto traffic		60
Conversational speech, 1 m distant; average office	Faint	50
Attentive theatre audience, total sound. Soft radio music in apartment.		40
Faint whisper, 1 m distant; average residence without stereo playing	Very faint	30
Average whisper		20
Rustle of one program, 8 m distant		15
Rustle of leaves in wind; human breathing		10
Threshold of audibility		0

PART VIII Appendix I PSA and Liveliness

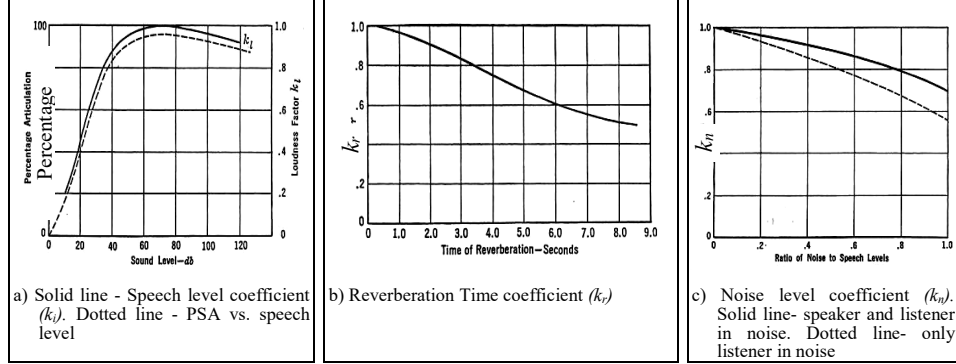


Figure 8.1.1 Coefficients for Percentage Syllable Articulation (PSA)
(Source: Knudsen, V. O. 1932. *Architectural Acoustics*, John Wiley & Sons Inc., New York)

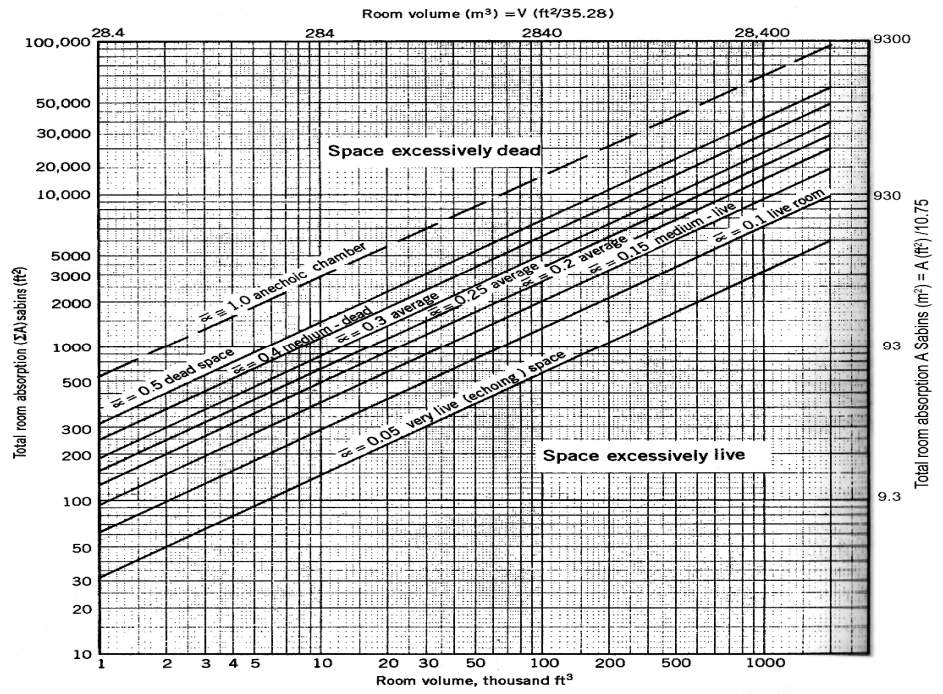


Figure 8.1.2 Liveliness of a Room as a Function of its Volume and Total Absorption

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

Note: The room proportions chosen as Length : Width : Height = $2H : 1.5H : H$; average of the three extreme points of the recommended room proportion triangle in Fig. 1.2. For these proportions, $S = 6.25 V^{2/3}$ and thus $A = S \alpha = 6.25 V^{2/3}$.