

PART VIII
Appendix D

NC, NCB and Recommended Criteria for Sound Insulation

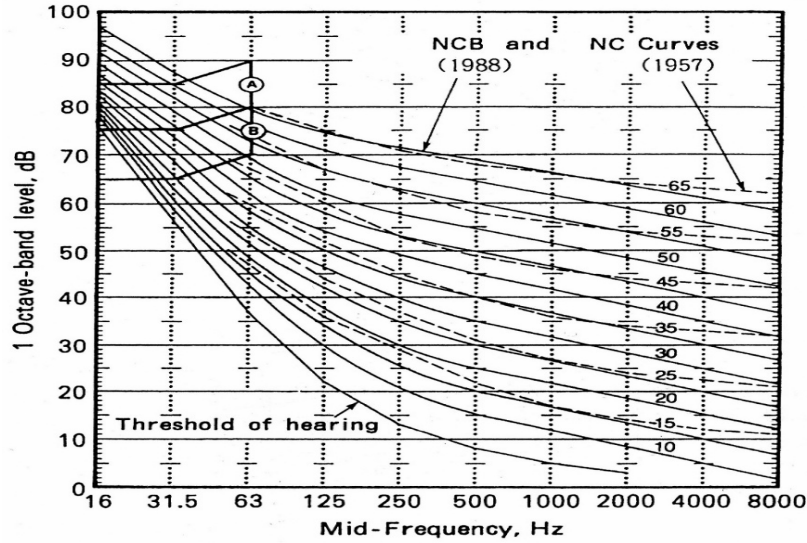


Figure 8.D.1 Noise Criteria (NC) and Balanced Noise Criteria (NCB) Curve
(Source: L. L. Beranek, 1957, 1988)

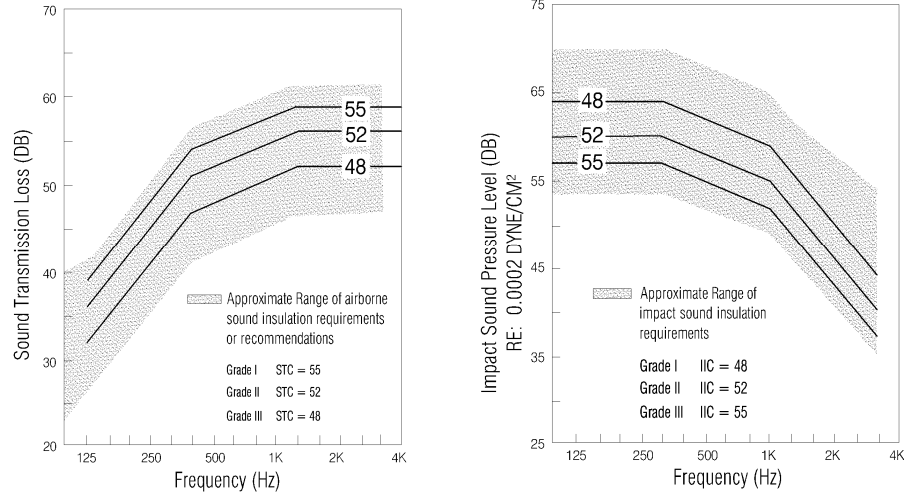


Figure 8.D.2 Recommended Criteria for Sound Insulation between Dwelling Units

(Source: Cavanaugh, W. J., Wilkes, J. A. 1999. *Architectural Acoustics Principles and Practice*, John Wiley & Sons, Inc, New York)

PART VIII**Appendix E****STC, Aural Field and Proportion of Space****Table 8.E.1: Typical STC Ratings for Building Elements**

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

Improvements in STC Ratings of Stud ^a Partitions ^b		STC Ratings of Masonry Walls	
Description	STC	Description	STC
Basic partition: single wood studs,	35	100 mm light weight hollow block	36
400 mm on centres, 13 mm gypsum board on both sides, air cavity		100 mm dense hollow block	38
Add to basic partition		150 mm lightweight hollow block	41
Double gypsum board, one side	+2	150 mm dense hollow block	43
Double gypsum board, both sides	+4	200 mm lightweight hollow block	46
Single thickness absorbent material in air cavity	+3	200 mm dense hollow block	48
Double-thickness insulation	+6	300 mm lightweight hollow block	51
Resilient channel supports for gypsum board	+5	300 mm dense hollow block	53
Staggered studs	+9	100 mm brick	41
Double studs	+13	150 mm brick	45
		200 mm brick	49
^a For application to metal stud partition, use adders as in note b, but begin with STC=40 for a 90mm basic partition.		300 mm brick	54
^b When using two improvements, add an additional +2; for three improvements, add +3.		150 solid concrete	47
^c The STC figures are conservative. Other sources list the same constructions with 1 to 5 points higher STC.		200 solid concrete	50
		250 solid concrete	53
		300 solid concrete	56
Typical STC Value for Doors		^a The STC figures are conservative. Other sources list the same constructions with 1 to 5 points higher STC.	
Door Construction	STC	^b All ratings of lightweight block assume sealing with paint. Note that this reduces absorption.	
Louvered door	15	Modifications	
Any door, 50 mm undercut	17	Add sand to core of hollow blocks	+3
38 mm hollow core door, no gasket	22	Add plaster to one side	+2
38 mm hollow core door, gaskets and drop closure	25	Add plaster to both side	+4
44 mm solid wood door, no gasket	30	Add furring strip, lath and plaster:	
44 mm solid wood door, gaskets and drop closure	35	One side	+6
Two hollow core doors, gasket all around, with sound lock	45	Two sides	+10
Two solid core doors, gasket all around, with sound lock	55	Add plaster via resilient mounting:	
Special commercial construction, with lead lining and full sealing	45-65	One side	+10
		Two sides	+15