

# Concert and Opera Halls: How They Sound

By Leo L. Beranek

**Concert and Opera Halls: How They Sound Details:**

[Beethoven's Acoustics John Spitzer](#)

Leo Beranek, *Concert and Opera Halls—How They Sound* (Woodbury, N.Y.: American Institute of Physics, 1996), p.574. G mid is measured in decibels on a logarithmic scale. An increase of three decibels represents a doubling of sound intensity.

[Concert Halls and Opera Houses](#)

**Concert Halls and Opera Houses-Music, Acoustics and Architecture Leo Beranek Second edition 2004; Originally published in 1996 Table of Contents**

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absorptive, so they are seldom used in concert halls. Drapes should not be used around the platform in particular, ... designed to achieve specific sound distribution in a concert hall, sound diffusion from many hard surfaces detailed at different scales is also very

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sound waves out of many that may occur in the early time period of 80 msec.) - Image from BERANEK "Concert and Opera Halls: How they sound" Although sound levels initially decrease with increasing distance from the source,

[Sound absorption control at low frequencies in the new ...](#)

In large concert halls for symphonic music the sound absorption control at low frequencies is a compromise between acoustics and architecture.

[Conclusion - Università Degli Studi Di Parma](#)

... "Concert and Opera Halls: How They Sound", Published for the Acoustical Society of America through the American Institute of Physics, 1996, 643 pp [4] Leo L. Beranek, "Concert Halls and Opera Houses Music, Acoustics, and Architecture", Springer-Verlag, 2004

[AcousticSimulationandExperimentalStudies ...](#)

author for opera halls and auditoriums based on the horseshoe-shaped plan. It can be noted that such halls ... L. Beranek, *Concert and Opera Halls: How They Sound*, Acoustical Society of America, New York 2006. [4] A. Kulowski, *Room Acoustics*, Wydawnictwo Po-

### [The Acoustical Properties of Concert Halls](#)

**The Acoustical Properties of Concert Halls** A review by Wilhelm Keet Acoustics is a difficult subject A subject many people talk about But few people understand

### [Consistency in acoustic design when building symphonic ...](#)

**The success of symphonic concert halls is based on the psycho-acoustic response of human beings ...** *Concert Halls and Opera Houses-How They Sound*, New York: Acoustical Society of America, Appendix 4, pp. 591-617, 1996.

### [Engineering art: the science of concert hall acoustics](#)

used in large concert halls, because they remove sound have some kind of di?using ability. Di?users can also energy from the space. ... This leads in turn to coloration Opera House uses convex curved surfaces on the rear of the sound, ...

### [Baltimore, Maryland NOISE-CON 2010 - Meyer Sound](#)

4 Leo L. Beranek, *Concert and Opera Halls: How they Sound*, Acoustical Society of America, Woodbury, NY, (1996). 5 M. David Egan, *Architectural Acoustics*, McGraw-Hill, New York, (1988). 6 Leonid Makrinenko, *Acoustics of Auditoriums in Public Buildings*, Acoustical Society of ...

### [Physics 1240 Course Notes Tues, Thurs 4/11, 4/13/06 Last time](#)

See the work of Leo Beranek, *Concert and Opera Halls: How They Sound* (1996). Published by the Acoustical Society of America Acoustical Intimacy is perceived by hearing the arrival time of direct and reflected sounds not too far apart.

### [Chronological analysis of architectural and acoustical ...](#)

lected from *Concert Halls and Opera Houses: How They Sound* 1996 and *Concert Halls and Opera Houses: Music, Acoustics, and Architecture* excluded from most of the following analyses.2004 by Beranek which present acoustical data of representative performance halls in the

### [The Research of Acoustic Design of Concert Halls](#)

**They are all building in a parametric ... during the concert hall design. Figure 6. The sound reflection diagram generated by Autodesk Ecotect In the case of Figure ... Concert Halls and Opera Houses: Music, Acoustics, and Architecture.**

#### [DIMENSIONAL ANALYSIS AND CONCERT HALL ACOUSTICS –](#)

**concert halls for the mid-bands (differences less than 3,4% in RT) and reasonable for low- and high-bands (around 15%). ... - BERANEK, L. L. Concert and Opera Halls: How They Sound Woodbury, Acoustical Society of America Edition, New York, 1996.**

#### [On the spatial variations of double-sloped decay in coupled ...](#)

**Concert and opera halls: How they sound (ASA, Woodbury, NY, 1996). 4. C.F. Eyring. ... concert halls. Journal of Sound and Vibration 284 (2005), 915-931 7. M. Ermann. Coupled volumes: aperture size and double-sloped decay of concert halls.**

#### [ACOUSTICS OF THE SYDNEY OPERA HOUSE CONCERT HALL Part One ...](#)

**one of the world's 10 best concert halls. ... reverberation and improve the quality of amplified sound (Figure 8). Source: Sydney Opera House (Sydney Opera House Presents, Ornette Coleman, 2008) ... before they could be considered as part of the overall**

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**beration time—the time it takes for a sound to die out. In large concert halls, when fully occupied, the reverberation time ranges from 1.8 to 2.2 seconds in the 500-1000 Hz ... Concert and Opera Halls How They Sound (Acoustical Society of America, Melville, NY, 1996).**

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**The influence of room shape on the music acoustics of a room is one of the most important questions fac-ing the designers of concert halls, opera houses and other spaces for**

#### [THE ROLE OF ACOUSTICS IN THE PLANNING OF PERFORMANCE HALLS IN ...](#)

**Beranek, “Concert and opera halls; how they sound”. Acoustical Society of America, 1996. 3. A. C. Gade, “Akustik I danske koncertsale”. Publication No. 22, The Acoustics Laboratory, Technical University of Denmark 1984. (In Danish)**

#### [AcousticsofConcertHallatAcademyofMusicinGda?sk ...](#)

Sound di?using elements on side wall and on balustradeofbalcony. ... stages of concert halls with audiences 2–3 times larger (e.g. Boston, Symphony Hall: ... L.L. Beranek, Concert and Opera Halls. How They Sound, Acoustical Society of America — American

[Objective Assessment of Active Acoustic System Per- formance](#)

7 Leo Beranek, Concert and Opera Halls: How they Sound, Acoustical Society of America, Woodbury, NY, (1996). 8 Leonid Makrinenko, Acoustics of Auditoriums in Public Buildings, Acoustical Society of America, Woodbury, NY, (1994).

[Session 2aAAa Architectural Acoustics: Methods to Quantify ...](#)

ranek Concert and Opera Halls, How They Sound ASA, 1996 are discriminated correctly by combining binaural quality index BQI with some other acoustical measures. BQI is determined by the arithmetic av-erage of inter-aural cross correlation coef?cient in three octave bands of

[THE ACOUSTIC DESIGN OF THE KURSAAL CENTER](#)

The appearance of a shell enclosure transforms the Opera House to a Concert Hall. The hall is rectangular with longitude 41.5 m from mouth stage and width of nearly ... How They Sound Concert and Opera Halls written. The Reverberation Time predicted using the H.Arau Theory, [2], is:  $T_{mid} = 1.86 ...$

[Concert Hall Acoustics—2008\\*](#)

Concert Halls and Opera Houses: Music, Acoustics and Architecture was published (Springer, 2004). An overview of those recent contributions that appear most useful to ... the unoccupied halls. They also measured the sound levels versus the distance from the stage.

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