

ERICH THALHEIMER

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SUMMARY OVERVIEW:

Erich Thalheimer is an acoustical engineer with over 35 years of experience in professional practice and education, and has earned a national reputation in the area of construction noise control.

His broad range of experience includes noise assessment and mitigation for transportation projects (highway, transit and railroad); construction noise and vibration projects; stationary source and operational noise projects; interior architectural acoustics projects; applied noise and vibration research; and product noise and vibration testing. He has provided expert witness testimony to clients in the area of noise analysis and mitigation, is widely published, and has presented numerous seminars to the engineering community on noise and vibration measurement, analysis and control.

Mr. Thalheimer is regarded as the country's leading authority in the field of construction noise assessment, management and control. This is based on his having successfully lead the Central Artery/Tunnel (Big Dig) Project's noise control program, having developed the FHWA's *Roadway Construction Noise Model* (RCNM), and having assisted New York City to develop the NYC DEP Construction Noise Regulation. In addition to multiple awards that he has won, Mr. Thalheimer earned the status of Board Certified by the Institute of Noise Control Engineering (INCE Bd. Cert.) in 2001.

Mr. Thalheimer is also a frequent participant and technical contributor at TRB and INCE noise-related conferences, having published dozens of technical papers and magazine articles. He has appeared in documentaries on the History Channel, the Discovery Channel and the Learning Channel, and has been a technical advisor for acoustics on the FOX television shows "Bones" and "CSI: Miami".

Mr. Thalheimer is well versed and a frequent instructor in using a variety of acoustical instrumentation and computer applications. He is an advanced user of the sophisticated *Cadna-A Environmental Noise Model* by DataKustik; and is a certified user of the FHWA's *Traffic Noise Model* (TNM) for highway noise and barrier assessment. He is also intimately familiar with and is referenced in the Federal Transit Administration's (FTA) rail noise and vibration impact models. For architectural acoustics, Mr. Thalheimer uses the *Cadna-R* and *INSUL* models, and the *TAP* and *AIM* models for HVAC-related noise assessments. When commercial models are not sufficient for a given job he will create his own based on analytical/empirical mathematical relationships.

PROFESSIONAL EXPERIENCE:

WSP USA (PARSONS BRINCKERHOFF), Boston, MA 11/96 to Present
National Noise and Vibration Technical Specialist (Project Manager)

Currently serving as a Principal Technical Fellow and National Noise and Vibration Technical Specialist for a staff of a dozen engineers performing noise and vibration work on a multitude of projects for both public and private sector clients. Advisor to City and Federal agencies, such as FHWA, New York City and Boston, in the development of noise control policies and regulations. Have been responsible for managing and performing all aspects of environmental, transportation and construction noise and vibration projects. Have developed new business through marketing efforts and proposal writing. As project manager, have ensured projects are completed on time and on budget, and have presented project findings at public hearings and as an expert witness in court.

Was responsible for managing the Central Artery/Tunnel (Big Dig) Project's construction noise control program as technical lead in support of the Massachusetts Turnpike Authority. Duties included serving as technical advisor directly to project directors, development of project noise and mitigation policies, developing and overseeing contractor compliance with project construction noise specifications, researching and recommending appropriate construction noise mitigation strategies, training noise staff, presenting noise-related issues before City officials and community groups, managing and scheduling the Nighttime Noise Patrol, and acting as the project's expert for noise-related legal defense.

KM CHNG ENVIRONMENTAL, Waltham, MA 5/94 to 11/96
Senior Acoustical Consultant (Project Manager)

Managed and performed all aspects of environmental and transportation related noise and vibration impact prediction and control projects involving highways, airports, railroads, and stationary noise sources performed for State agencies (e.g. MWRA, MBTA, MHD, MPA, CA/T, etc.) and private sector clients alike. Developed new business through marketing efforts and proposal writing. Attended scoping and negotiation meetings. Developed in-house analytical/empirical noise and vibration propagation models. Supervised company's noise and vibration instrumentation and field work exercises. Presented findings at public hearings.

ATLANTIC APPLIED RESEARCH CORPORATION, Burlington, MA 12/91 to 11/93
Acoustical Consulting Engineer (Project Manager)

Was responsible for performing a wide variety of acoustical and vibration related engineering measurements, assessment and control. Identified market potentials, sought and developed possible client work involving environmental noise issues. Performed work on classified US Navy projects requiring a Secret clearance. Also responsible for care, maintenance and calibration of AARC's extensive instrumentation laboratory.

THALHEIMER ASSOCIATES, Natick, MA Founded 5/91
Freelance Acoustical Consultant (Self Employed)

Performed freelance acoustical engineering and consulting primarily for environmental noise projects with companies such as: Orvis Corporation, Johnson & Johnson, Rizzo Associates, Browning & Ferris, L.L. Bean, Wyle Laboratories, Stone & Webster, Chicago Hancock Tower, MathWorks, and dozens of firearms ranges across the country.

LOUIS BERGER & ASSOCIATES, Waltham, MA 6/90 to 5/91
Senior Environmental Scientist (Staff Level)

Was responsible for preparing environmental and traffic noise reports assessing community noise impacts. Formulated noise monitoring programs; collected noise monitoring data in the field; reduced data and modeled noise conditions accordingly with STAMINA 2.0; assessed and predicted future noise impacts; suggested mitigation actions and designed justifiable noise barriers. Prepared proposal sections and presented project results before State agencies. Performed acoustical reviews of potential noise impacts associated with the Strategic Defense Initiative (Star Wars) requiring a Secret clearance.

BOLT BERANEK & NEWMAN (BBN), ACENTECH, Cambridge, MA
Acoustical Consulting Engineer (Staff Level)

8/89 to 6/90

Concentrated in the study, measurement, and assessment of various environmental noise projects. Collected noise data in the field, reduced data accordingly, and compared results with computer models (e.g. STAMINA 2.0). Performed traffic noise studies that typically resulted in highway noise barrier designs. Performed Environmental Impact Studies (EIS) pertaining to noise issues, and performed research for the USDOT involving the degrading effects of parallel highway noise barriers.

BRUEL & KJAER INSTRUMENTS (B&K), Marlboro, MA
National Applications Engineer

3/85 to 5/89

Specialized in the sale and technical support of B&K's entire line of Environmental Measurement Instrumentation which included sound level meters, human vibration (whole-body and hand-arm) monitors, visible light meters and thermal comfort meters. Formulated national marketing plans; provided technical support to customers and sales staff; promoted measurement techniques and applications through national seminars; and analyzed and reported on competitive marketplace.

CAVANAUGH TOCCI ASSOCIATES, Sudbury, MA
Acoustical Consulting Technician

6/82 to 3/85

Was responsible for collection of environmental, industrial, and residential noise and vibration data. Developed acoustical software written in BASIC language to calculate room reverberation time, composite wall (windows, doors, facades) transmission loss, compute noise barrier reduction performance, and to convert between sound pressure and sound power levels.

EDUCATION:

UNIVERSITY OF MASSACHUSETTS, Amherst, MA
Bachelor of Science Degree in Mechanical Engineering

Class of 1984

Particular emphasis in noise and vibration related classes; Teaching Assistant for senior-level vibrations class.

Professional technical seminars including: Digital Signal Processing (B&K), Acoustic Noise Control (B&K), Airport Noise & Land Use Planning (Georgia Tech), Architectural Lighting & Acoustics (RISOD), Light and Lighting (IES), Cadna-A Noise Model (DataKustik), FHWA Traffic Noise Model (Bowlby Associates).

MISCELLANEOUS HONORS:

- Principal Technical Fellow, WSP/Parsons Brinckerhoff.
- INCE Board Certified - Institute of Noise Control Engineering, Certification 20104, effective 6/8/01.
- Expert witness testimony provided in legal cases in MA, NY, ME, MO, NC, NH.
- Winner of *2010 NHCA Safe-In-Sound Award* from the National Hearing Conservation Association.
- Winner of *2009 ACEC Silver Award* from the American Council of Engineering Companies.
- Winner of a *2003 ARTBA Globe Award* from the American Road & Transportation Builders Association.
- Winner of the *2001 ABC Excellence in Building Award* from the Artery Business Committee.
- Appointed expert by the Acoustical Society of America for the S3 Accredited Standards Committees.
- Invited engineering lecturer at universities including UMass, UConn, WPI, RPI, Tufts and Wentworth.

SECURITY CLEARANCE:

- National Security Clearance to perform SECRET level classified work (1990 – 1993).

PAPERS & PUBLICATIONS:

- ***Cryptocurrency mining noise: The cost of progress?***, presented and published (Paper No. 666) at Noise-Con 2022, Lexington, Kentucky, June 2022.
- ***Community Acceptance of Drone Noise - The Drone of Drones***, presented and published (Paper No. 1694) at Inter-Noise 2021, Virtual Conference, August 2021.
- ***Protecting Aquarium Sea Mammals and Fish from Pile Driving Noise and Vibration***, presented and published (Paper No. 424) at Noise-Con 2020, Virtual Conference, November 2020.
- ***Gunshot Suppressors and Sound Level Meters dBZ Peak Performance Tests***, presented and published (Paper No. 422) at Noise-Con 2020, Virtual Conference, November 2020.
- ***Quieting the Impact of Transportation with Sound Acoustical Planning***, presented and published at the Association for Environmental Health and Sciences (AEHS) 2016 Conference, Amherst, Massachusetts, October 2016.
- ***Fan Manufacturer Sound Power Data – Trust But Verify***, presented and published (Paper No. 017) at Noise-Con 2016, Providence, Rhode Island, June 2016; and in Sound & Vibration Magazine, February 2017.
- ***Development and Implementation of an Underwater Construction Noise Program***, presented and published (Paper No. 120) at Noise-Con 2014, Ft. Lauderdale, Florida, September 2014.
- ***A Simpler and Effective Method to Perform Building Vibration Analyses Consistent with FTA's Detailed Method***, presented and published (Paper No. 4) at Noise-Con 2013, Denver, Colorado, August 2013; and in Sound and Vibration Magazine, August 2014 Publication.
- ***Clinton Combined Sewer Overflow Construction Noise Program***, presented and published (Paper No. 88) at Noise-Con 2013, Denver, Colorado, August 2013.
- ***Understanding and Complying with the New York City Construction Noise Regulations***, Plenary Presentation, Opening Ceremony, Inter-Noise 2012, New York City, New York, August 2012.
- ***The Five Myths of Construction Noise***, presented and published (Paper No. 1095) at Inter-Noise 2012, New York City, New York, August 2012; and in Sound and Vibration Magazine, December 2012 Publication.
- ***Protecting MIT's Interests During Expansion of the Grand Junction Rail Line Through Campus***, presented and published (Paper No. 93) at Inter-Noise 2012, New York City, New York, August 2012.
- ***NYC DEP's Construction Noise Control Products and Vendor Guidance Sheet***, presented at the NIOSH Buy Quiet Conference, Cincinnati, Ohio, November 2011.
- ***Community Noise Agreements, Monitoring, and Control for Concerts on Boston's Rose Kennedy Greenway***, presented and published at Noise-Con 2011, Portland, Oregon, July 2011.
- ***Construction Vibration Impacts on an FAA Radar Station***, presented at the Transportation Research Board Annual Meeting 2011, Washington, DC, January, 2011.
- ***New York City Western Rail Yard Construction Noise Study***, presented and published at Noise-Con 2010, Baltimore, Maryland, April 2010.
- ***Using the FHWA's RCNM Model for the Jerome Park Reservoir Construction Project***, presented and published at Noise-Con 2010, Baltimore, Maryland, April 2010.
- ***Sophisticated Noise Modeling at a Power Plant Provides a Win-Win Solution For All***, published by Parsons Brinckerhoff (WSP) in Network Issue 70, November 2009.
- ***Recreational Gun Range Noise - The Price of Freedom***, presented and published (Paper No. 524) at Inter-Noise 2009, Ottawa, Ontario, Canada, August 2009.

- ***New York City's New Construction Noise Regulation***, presented at the CPWR/NIOSH Working Group Conference, Orlando, Florida, March 2009.
- ***Sustainable Precedents for Construction Mitigation***, presented at the Transportation Research Board Annual Meeting 2009, Washington DC, January 2009.
- ***New York City's New Construction Noise Regulation***, presented at the Transportation Research Board Annual Meeting 2008, Washington DC, January 2008.
- ***New York City's New and Improved Construction Noise Regulation***, presented and published at Noise-Con 2007, Reno, Nevada, October 2007.
- ***Reduction in City Background Noise Due to Relocation of Artery Traffic into Underground Tunnels***, presented and published at Noise-Con 2004, Baltimore, Maryland, July 2004.
- ***Design for Construction Mitigation on the Central Artery/Tunnel Project***, presented and published (Paper No. GE-015) at the CSCE Canadian Society for Civil Engineering Conference, Montreal, June 2002.
- ***Proactive Construction Noise Control Policies Developed for the Central Artery/Tunnel Project's C17A6 Contract***, presented and published (Paper No. 19) at Noise-Con 2001, Portland, Maine, October 2001.
- ***Proactive and Reactive Construction Noise Control Strategy at the Central Artery/Tunnel Project***, paper published at the ASCE Civil Engineering Conference, Houston, Texas, October 2001.
- ***Modeling of Highway Tunnel Ventilation System Noise for Compliance with Municipal Regulations***, presented and published (Paper No. 161) at the Air and Waste Management Conference, Orlando, Florida, June 2001.
- ***CA/T Project's Construction Noise Program***, presented to the Transportation Research Board A1F04 Conference, New York City, New York, June 2000.
- ***The Importance of Community Involvement in a Successful Construction Noise Control Program***, invited presentation given at the Acoustical Society of America Meeting, Atlanta, Georgia, May 2000.
- ***Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project***, presented and published (Paper No. 184) at Inter-Noise 99, Ft. Lauderdale, Florida, Dec. 1999, and later published as a singly-authored article in Noise Control Engineering Journal (NCEJ), 48 (5), Sep-Oct 2000).
- ***Window Sound Proofing for Construction Noise at the Central Artery/Tunnel Project***, presented and published (Paper No. 97) at Inter-Noise 99 Congress and Exposition, Ft. Lauderdale, Florida, December 1999.
- ***Construction Noise Control in an Urban Setting***, presented and published at Tunnel Construction and Piling 99 Symposium, London, September 1999.
- ***Pistol Noise Spectra Database***, published in the USPSA's Front Sight Magazine, March/April 1999.
- ***Practical Approach to the Measurement and Evaluation of Exposure to Whole-Body Vibration in the Workplace***, presented at the University of Florida, College of Medicine, Gainesville, FL, and published in Seminars in Perinatology Journal, April 1996.
- ***Canton Viaduct Rail Rehabilitation Noise and Vibration Study***, presented at Transportation Research Board Conference, Boston, Massachusetts, July 1995.

PRESENTATIONS:

- ***Understanding and Applying OSHA's Noise Control Policy***, OSHA New England Roundtable Online Series, March 2022.
- ***Human Exposure to Vibration***, OSHA New England Roundtable Online Series, March 2021.

- **Tech Jams**, WSP AVAQ Acoustics Group, Virtual Presentations – Organized and presented a series of technical training webinars on various topics of noise, vibration, measurements, modeling, and controls to share knowledge within the company.
- **Highway Noise and TNM Model Training**, WSP AVAQ Acoustics Group Meeting, Orlando, FL – Presented fundamentals of highway noise assessment, measurement, modeling and control to the junior acoustical staff.
- **GOAL Gun Range Community Noise Seminar**, Gun Owners Action League (GOAL), Maynard, MA (MMXVIII) – Performed a seminar on 9/16/18 as part of GOAL’s Outdoor Range Seminar Series describing community noise concerns and assessment methods. Attendees included representatives from more than 40 public and law enforcement shooting ranges in Massachusetts.
- **Curious Challenges Controlling Construction Noise** as invited lecturer as part of Wentworth Institute of Technology’s Annex Lecture Series, Boston, Massachusetts.
- **Acoustical Fundamentals and Noise Measurements** training seminar for Boston Environmental Department inspectors responsible for enforcing the City of Boston Noise Code.
- **InterNoise 2012 Opening Plenary Speech** at the InterNoise 2012 Conference in New York City describing the history, development, requirements and implementation of the 2007 New York City Construction Noise Regulation.
- **New York City Construction Noise Regulation**, New York City, New York: performed a telecast webinar sponsored by the ACEC NYC Chapter, followed by a live presentation at WSP’s headquarters summarizing the development, contents, noise limits, implications, and means and measures for compliance for the NYC DEP Construction Noise Regulations. Presented in conjunction with NYC DEP staff. Attendees earned 1.0 PDH professional development credits.
- **Noise for Civil Engineers**, Tufts University, Somerville, Massachusetts: invited lecturer at Tufts University to present a class to civil engineering students regarding the importance of noise control and interdisciplinary coordination in construction management.
- **History of Sonic Arts**, School of the Museum of Fine Arts, Boston, Massachusetts: performed a class at the Boston Museum of Fine Arts as an invited lecturer for students pursuing their degrees in art and music. The class material focused on the definitions, metrics and descriptions of noise, the various noise criteria promulgated by federal, state and local agencies, instrumentation used to measure noise, and how human beings perceive and respond to noise.
- **FHWA Technology Transfer Presentations**, Central Artery/Tunnel Project, Boston, Massachusetts: Presentations were made to FHWA and other state department of transportation representatives detailing the lessons learned and best mitigation practices of the CA/T construction noise control program. FHWA staff then disseminated the information to other Federally-funded transportation projects with the recommendation that they adopt similarly effective noise mitigation programs.
- **Admiral Lewis B. Combs Design Retreat**, Rensselaer Polytechnic Institute, Boston, Massachusetts: presented an overview of the CA/T Project’s construction noise control program to a group of advanced RPI engineering students who were visiting the project for a summer design retreat. Noise-related questions were developed and students were allowed to present their answers in a group format.
- **Construction Noise Control**, Central Artery/Tunnel Project, Boston, Massachusetts: performed a training course for field staff and inspectors as part of role as technical lead for noise control on the Central Artery/Tunnel project. Attendees are instructed how to recognize, measure, evaluate, and control CA/T construction noise. The CA/T project’s comprehensive Construction Noise Control Specification 721.560 is reviewed in detail.