

AHMAD BAYAT, P.E.



Ahmad Bayat is the founding principal of Vibro-Acoustic Consultants, with more than 25 years of extensive design and management experience. Mr. Bayat has worked on the design of low-vibration facilities for many microelectronics clients, R&D facilities, universities, and specialty structural dynamics projects. His design expertise includes finite element modeling and analysis (time history, frequency response function, modal analysis) of structures, dynamic soil-structure interaction analyses, design and specification of vibration isolation systems, and noise specification and design. As the principal structural dynamicist, he has been responsible for developing new concepts affording robust design and major cost savings. He has published many peer-reviewed articles.

Work Experience: 2000-Present *Principal*, Vibro-Acoustic Consultants
1993-2000 *Consultant*, Colin Gordon & Associates
1986-1993 *Engineer*, ABB Impell Corp (Lincolnshire, IL)
1985-1986 *Engineer*, Sargent & Lundy (Chicago, IL)

Education: **M.S., Civil Engineering**, University of Houston
M.S. Thesis: "Dynamic Two-Parameter Soil Model for Soil-Structure Interaction"
B.S., Civil Engineering, University of Houston

Honors/Societies: Registered Professional Engineer in California
Member, Structural Engineering Association of Northern California (SEAONC)
Member, American Society of Civil Engineers

Recent Notable Projects: **Microelectronics**
Motorola ULSI/MOS13, COM1, MOS 17, Flat Panel - Vibration and noise design
AMD Fab 25, SDC - Vibration and noise design
IBM Mask house - Vibration and noise design
Micron Technology Lehi, Mask Shop, and NanoFab - Vibration and noise design
Samsung Austin, A2 Expansion - Vibration and noise design
TSMC Fab 3, WaferTech, Fab 6, Fab 7 - Vibration and noise design
Atmel Fab 10 - Vibration and noise design (concept)
Texas Instruments Kilby Center, DMOS4, DMOS5 Retrofit
Winbond Fab 6 - Vibration and noise design
Fujitsu Fab 2 (Gresham, Oregon) - Vibration and noise design
Macronix Fab 7 - Vibration and noise design
Inotera Fabs 1,2,3A - Vibration and noise design

Special Projects

Pacific Northwest National Laboratory, Richland, WA

Vibration design of 200,000 sq-ft 5-building nuclear materials research complex. 3-D FEM structural models allowed sensitive SEM/TEM imaging to operate in close proximity to mechanical equipment.

US Army MRICD Replacement Facility, Aberdeen Proving Ground, MD

Vibration design of new chemical/biological defense laboratory and animal holding facility. SEM/TEM and NMR labs required attention to fill material and slab isolation. Upper floors required dynamic design to accommodate mechanical systems and adjacent labs.

University of Washington / Sound Transit LRT Impact, Seattle, WA

Represent university in assessing vibration impact of \$1.6B regional light rail project crossing campus. Conduct large-scale vibration surveys and assess impact on high-precision vibration-sensitive laboratories.

Inotera Fab 1, Taoyuan, Taiwan

Vibration design for new 100,000 sq-ft semiconductor manufacturing cleanroom facility. Created global 3D FEM models for structural design. Mitigate vibration from adjacent 300MW cogeneration plant.

LANL CINT Gateway Facility, Los Alamos, NM

Vibration design for new 35,000 sq-ft nanoscale research gateway facility. Accommodate vibration-sensitive labs on first and second floors, and multiple structural concepts for the upper floors. Assess traffic-induced vibration impact.

UCSF Community Center, San Francisco, CA

Structural dynamic evaluation and design of a gym floor directly above an Auditorium.

Seattle Ferry Terminal

Structural dynamic testing and evaluation of a terminal due to hydraulic lift system vibration and passenger traffic.

Intel Corporation, Phoenix, AZ

Vibration sensitivity of ACCUFAB tool testing.

Publications and Presentations:

"Vibration Impact of a 150-MW Cogeneration Plant on a Semiconductor Fab", (with B. Davis), presented at ASA/INCE Baltimore, April 2010.

"Conversion of Old Fabs/Labs - The Vibration Design Perspective", (with B. Davis), presented at IEST ESTECH 2004 Conference, April 2004.

"Vibration Control in Nanotechnology Research Environments", (with B. Davis), Cleanrooms Magazine (November 2003).

"Dynamic Characteristics of Structures Extracted from In-situ Testing", (with H. Amick and M. Gendreau), Presented at International Society for Optical Engineering (SPIE) Conference on Current Developments in Vibration Control for Optomechanical Systems, Denver, CO (July 1999).