

INSTRUCTORS



Robert Lindahl, registered professional engineer and acoustical consultant with over 40 years of practical experience in acoustics. Mr. Lindahl has conducted seven acoustical training schools in the United States under the auspices of the National Acoustical Contractors Association and a number of schools in Europe. He is Secretary of the National Council of Acoustical Consultants; Member of the Acoustical Society of America; The American Society of Mechanical Engineers; National Society of Professional Engineers and American Society for Testing Materials.



Michael J. Kodaras, acoustical consultant and owner of the Kodaras Acoustical Laboratories, has been in the acoustical field for the past 20 years. He has lectured on acoustics to various manufacturer's associations, engineering societies and manufacturers. He is consultant to the committee for preparation of the New York City Building Code. His consulting firm has served as acoustical consultant on over 3,000 projects, approximately one-half of them in the field of mechanical acoustics.

Mr. Kodaras is Vice President of the National Council of Acoustical Consultants; Member of the Acoustical Society of America, American Institute of Physics and American Society for Testing and Materials.

REFERENCE MATERIALS

A manual consisting of standard references plus material from the files of the Instructors (much of this material is unavailable from presently published sources) will be given to those attending the course. Publications of the National Bureau of Standards, Underwriters Laboratories, American Society for Testing and Materials, etc., will also be furnished for each student to keep. In addition, a list of books and publications references will be provided for additional review and further study.

ENROLLMENT CARD

Mail To: Mr. Len A. Nally
Clark & Company
Box 5177
Tucson, Arizona 85703
Tel: Area 602:294-3497

I wish to make a reservation for the School in Architectural & Mechanical Sound Control to be held at the Tucson Inn Convention Center in Tucson, Arizona on October 23, 24 & 25, 1969. My check is attached in the amount of \$ _____ payable to Tucson Chapter ASHRAE which covers the course cost for ____ persons.

NAME _____
POSITION _____
COMPANY _____
ADDRESS _____
TEL. NO. _____

**SCHOOL IN ARCHITECTURAL AND MECHANICAL
SOUND CONTROL FOR MODERN BUILDINGS**

Sponsored by the Tucson Chapter

American Society of Heating Refrigerating and Air-conditioning Engineers

At The Tucson Inn Convention Center — Tucson, Arizona

October 23, 24 & 25, 1969

A Practical Course by KODARAS AND LINDAHL

A COURSE FOR:

- ARCHITECTS
ENGINEERS
CONTRACTORS
CONSTRUCTION SUPERINTENDENTS to provide a basic knowledge of acoustical theory and practice as applied to architectural & mechanical acoustics.

- SALESMEN &
MANUFACTURER'S
REPRESENTATIVES to become familiar with vocabulary and basic acoustic theory so that you may aid your architectural and engineering customers.

- MANUFACTURERS to determine how to comply with the Walsh Healey Act and other industrial noise control legislation.

- R. & D. PERSONNEL to learn design principles and current market requirements.

Architects, Engineers, Manufacturers & Contractors involved in the sale or use of acoustically rated products are faced with the need for training their employees in the fundamentals of acoustics.

To fill this need the Tucson Chapter of ASHRAE has engaged Robert Lindahl, acoustical consultant, Detroit, Michigan and Michael J. Kodaras, acoustical consultant and owner of Kodaras Acoustical Laboratories, New York City to conduct this course. They are recognized authorities in their field and have conducted a number of acoustical schools in the east and midwest.

In addition to class room instruction actual demonstration of noise sources, measuring equipment and methods of measuring will be given.

Classes will be limited to 40 people in order to encourage discussion and participation by those in attendance.

ARCHITECTURAL AND MECHANICAL
SOUND CONTROL FOR MODERN BUILDINGS

COURSE OUTLINE

BASIC TERMINOLOGY — Sound Transmission Loss. One number ratings such as STC, 9 frequency average, Speech Privacy Rating, Noise Reduction, Impact Noise Rating, Coincidence Dips, Mass Law, NC Rating System, Airborne and Surface Radiated Sound, etc.

ELEMENTARY PRINCIPLES OF ACOUSTICS — Every attempt will be made to keep the subject matter non-technical and non-mathematical through the use of demonstrations.

ARCHITECTURAL ACOUSTICS — The session on Architectural Acoustics will be devoted to effect of shape and volume of auditoriums; how to make an acoustical analysis of reverberation time; principles of noise control; calculations of loudness reduction; noise control of offices, industrial plants and other areas.

NOISE CONTROL OF AIR CONDITIONING & MECHANICAL SYSTEMS INSTALLED IN BUILDINGS — Control of air conditioning and ventilating systems will cover test methods ASHRAE 36-B and ADC-63; practical solutions to mechanical noise problems including noise generated by fans, diffusers, compressors, pumps, piping distribution systems noise; and self-noise of duct systems. Lined duct silencers, duct fittings and vibration isolation will be discussed.

ACOUSTICAL FIELD MEASUREMENTS — Methods that are available for use in the field. Variation between laboratory and field test methods. Description and use of available portable test equipment.

SALES PROMOTION AND FIELD SELLING — No attempt will be made in this area to provide instruction in sales techniques, but rather to cover the intelligent use of the various field and laboratory ratings in sales work. Lecture material will include — accuracy of laboratory ratings, the subjective response that may be expected from a given rating, ambient or masking noise effects, variations that should be expected between laboratory rating and field installations, ethical and non-ethical use of laboratory ratings, etc.

FIELD CHECK OF THE INSTALLED PRODUCT — Detecting Acoustic Leaks due to poor workmanship, factory faults, flanking sound paths. Obvious sound paths to look for. Evaluation of sound leaks. Correction of field sound leaks.

NEW SAFETY STANDARDS — Discussion of provisions under Walsh Healey Public Contracts Act relating to safety standards for industrial noise.

ARCHITECTURAL AND MECHANICAL
SOUND CONTROL FOR MODERN BUILDINGS

COURSE DATES & TIMES

THURSDAY, OCTOBER 23 — 1-5 p.m.
THURSDAY, OCTOBER 23 — 6:30-9:30 p.m.
FRIDAY, OCTOBER 24 — 1-5 p.m.
FRIDAY, OCTOBER 24 — 6:30-9:30 p.m.
SATURDAY, OCTOBER 25 — 9 a.m.-1 p.m.

DATE — This Tucson, Arizona School will be held Thursday, Friday and Saturday, October 23, 24 & 25, 1969. To cover the subject matter satisfactorily, it will be necessary to convene two afternoons and evenings and one morning.

PLACE — Tucson Inn Convention Center, Tucson, Arizona.

REQUIREMENTS FOR REGISTRATION — No special qualifications are required for registration other than interest in the subject. The use of mathematics and complicated formulae will be avoided. The course viewpoint will be that of dealing with every day problems and the lectures will be given to obtain a practical viewpoint of the field for sales, design, advertising, research, etc., presented in every day English. Discussion and questions will be encouraged.

Enrollment is limited (on a first-come, first served basis). Only by registering well in advance can you assure yourself a place at the program. There is no single day or single session registration.

We reserve the right to postpone or cancel the school if anticipated enrollment is not reached. All those preregistered will be notified should a change become necessary.

COST — \$100.00 per person, payable in USA funds upon registration for the three-day course in acoustics. In the event the registrant wishes to cancel, a refund of \$75.00 will be made if notice of cancellation is received one week before the first day of school. This tuition does not include food, lodging, transportation, etc.

REFERENCE MATERIALS — A manual consisting of standard references plus material from the files of the Instructors (much of this material is unavailable from presently published sources) will be given to those attending the course. Publications of the National Bureau of Standards, Underwriters Laboratories, American Society for Testing and Materials, etc., will also be furnished for each student to keep. In addition, a list of books and publication references will be provided for additional review and further study.