

Θα θέλαμε να δηλώσουμε την επιθυμία να παρέχουμε ΠΡΑΚΤΙΚΗ ΑΣΚΗΣΗ σε έναν φοιτητή Πολυτεχνικής σχολής του Μετσοβείου.

Απασχόληση στο μελετητικό τμήμα της εταιρείας.

Έχουμε ήδη αναρτήσει την ανακοίνωση και στο σύστημα ATLAS.

Ο σκοπός μας είναι να βρούμε έναν σωστό συνεργάτη για μακροχρόνια συνεργασία.

Για καλύτερη κατανόηση των δραστηριοτήτων μας παραθέτουμε γενική επιστολή.



#### - ΑΡΧΙΤΕΚΤΟΝΙΚΗ ΑΚΟΥΣΤΙΚΗ - ΗΧΟΜΟΝΩΣΗ - ΑΝΤΙΚΡΑΔΑΣΜΙΚΗ ΠΡΟΣΤΑΣΙΑ -

Η ΑΛΦΑ ΑΚΟΥΣΤΙΚΗ προσφέρει υπηρεσίες και προϊόντα σε θέματα μελετών-κατασκευών **Αρχιτεκτονικής Ακουστικής - Ηχομονώσεων** και **Αντικραδασμικής προστασίας**:

Α) **Μελέτες Αρχιτεκτονικής Ακουστικής** σε συνεργασία με τον Αρχιτέκτονα μηχανικό του έργου και την χρήση εξειδικευμένων προγραμμάτων ακουστικής προσομοίωσης, σχεδιάζεται η σωστή ακουστική μιας αίθουσας.

Β) **Μελέτες Ηχομόνωσης** (σε εφαρμογή του ισχύοντος κτιριοδομικού κανονισμού)

Γ) **Μέτρηση Θορύβων και κραδασμών** με σύγχρονα ηλεκτρονικά όργανα μέτρησης που ικανοποιούν τα υψηλότερα Διεθνή πρότυπα.

Δ) Προμήθεια, τοποθέτηση και τεχνική υποστήριξη των ακουστικών προϊόντων:

§ **Ηχομονωτικών** προϊόντων **ALPHAfon** (Ηχομονωτικές θύρες, Ηχοπαγίδες, Ηχοφράγματα, Ακουστικές περσίδες, Σιγαστήρες, Ηχοκαλύμματα μηχανημάτων)

§ Προϊόντα **Αρχιτεκτονικής ακουστικής** **ALPHAacoustic** (ηχοαπορροφητικά στοιχεία οροφής και τοίχου, διαχυτές ήχου κ.λ.π.)

§ **Αντικραδασμικών** προϊόντων **VIBRO** (Αντικραδασμικές βάσεις ελατηρίου, ελαστικά εφέδρανα, αναρτήσεις ψευδοροφών κ.λ.π.) [www.vibro.gr](http://www.vibro.gr)

Η **ΑΛΦΑ ΑΚΟΥΣΤΙΚΗ** είναι στελεχωμένη με έμπειρους διπλωματούχους μηχανικούς με εμπειρία από το 1980 σε θέματα μελετών και κατασκευών **Αρχιτεκτονικής Ακουστικής, Ηχομονώσεων** και **Αντικραδασμικής προστασίας**.

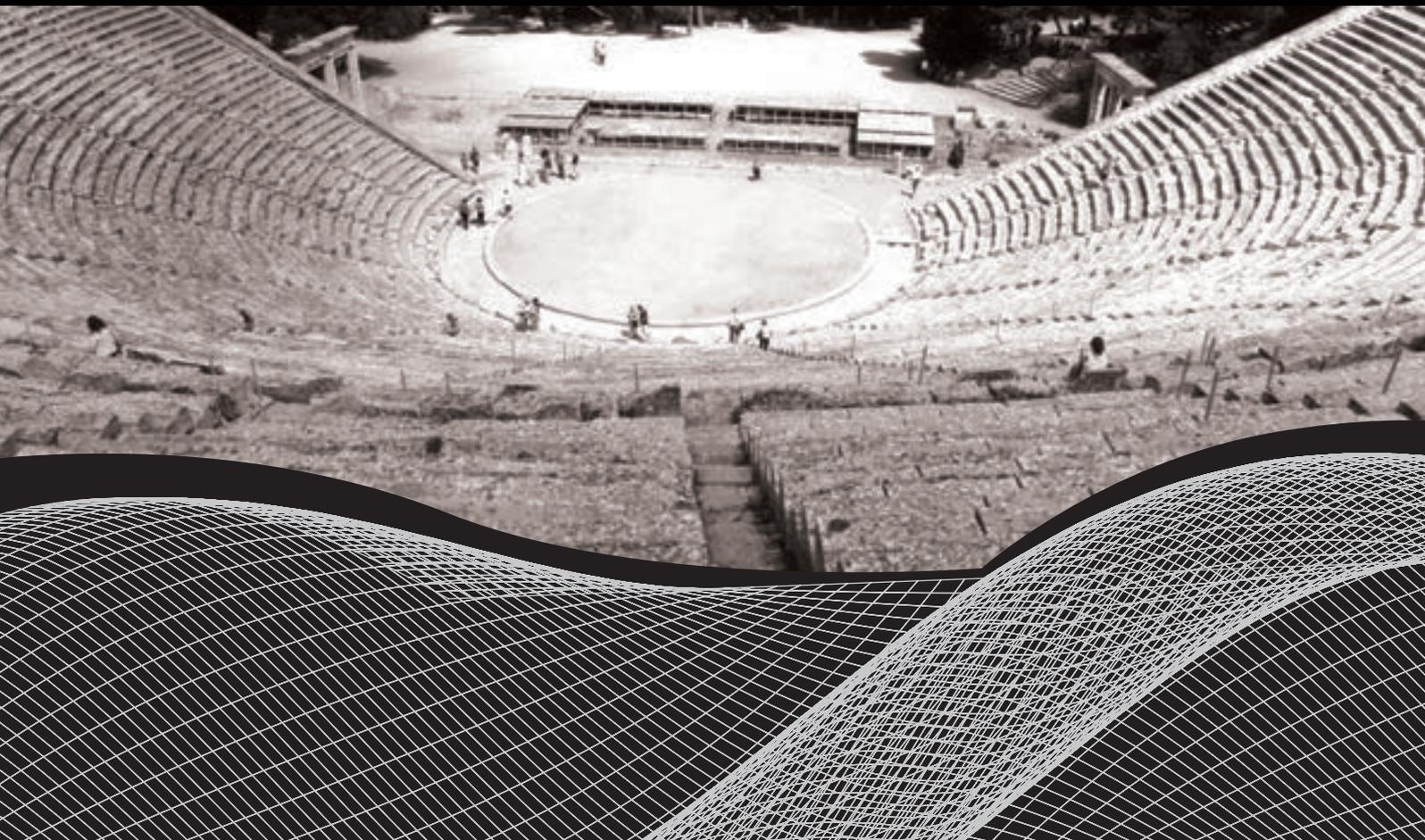
Είμαστε πρόθυμοι για κάθε συμπληρωματική πληροφορία και την διερεύνηση μορφών συνεργασίας.



**ALPHA** ACOUSTIKI

# Acoustic Consultancy

Acoustic Studies  
Noise Control studies  
Vibration control  
Acoustic Measurements

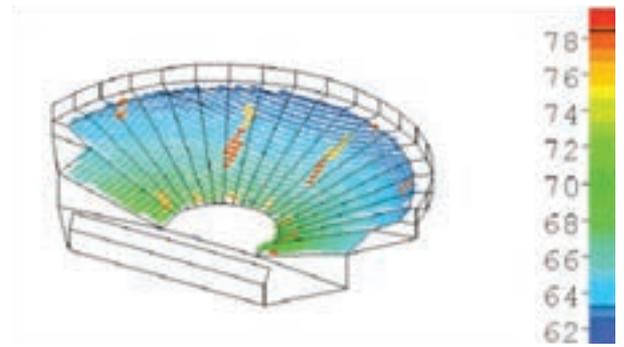


# Who we are

ALPHA ACOUSTIKI Ltd, located in Athens, Greece is one of the leading firms in Architectural Acoustics, Noise & Vibration consultancy. It is utilising the most advanced equipment combined with its staff experience in the field since 1980, to carry out a vast range of acoustic studies.

Such applications have been carried out in HVAC applications, concert halls, theaters, cinemas, multiple purpose halls, industrial plants, commercial building, places of worship, recording studios etc.

Our engineering team provides acoustical consulting services to architects, engineers, factory managers, public sector administrators and building owners.



*Acoustic simulation in ancient Greek theater*

## Our Approach

Every project is unique, examining all aspects and technical facts utilising our experience and technical background. Our consultancy team combines scientific knowledge based on academic and practical skills. We review architectural plans, conduct site evaluations and use sophisticated predictive modeling software to deliver the desired acoustical results and the most appropriate, cost-effective acoustical solutions. As acoustical consultants, we diagnose potential acoustical design problems and solve them before they are built into structures. However, if a facility is already built, we can also consult on acoustic modifications to achieve the desired results.

## Our Team

Our team includes acoustic consultants, acoustic engineers, noise and vibration consultants, aiming at providing a full range of competencies tuned to your specific needs. Our highly specialised acoustic consultants with more than 30 years of experience in the field can deal with any noise and vibration control problem.



# Architectural Acoustics

At **Alpha Acoustiki** our consultants specialize in the design, modeling and engineering of interior room acoustics. Our acoustic team analyze architectural plans and engineering calculations, to predict acoustic performance and to propose the necessary interventions for optimal design of architectural acoustics.

We design architectural acoustic solutions for all kinds of facilities where enhanced aural clarity, quality and speech intelligibility, are critical.

The appropriate determination of the room's use, shape, volume, geometry and the finishing materials selected can be optimized, in order to achieve the required acoustic comfort.

Such acoustic applications have been employed internationally in concert halls, educational buildings, theatres, cinemas, multiple purpose halls, places of worship, recording studios and many more spaces which are sensitive in terms of acoustics.

Amongst other room acoustic parameters considered are Reverberation Time (R.T.), Clarity (C-50), Definition (D-80), Articulation Loss of consonants (Alcons), Early Decay Time (E.D.T.), Rapid Speech Transmission Index (RASTI) Direct, Total SPL, critical distance and more.

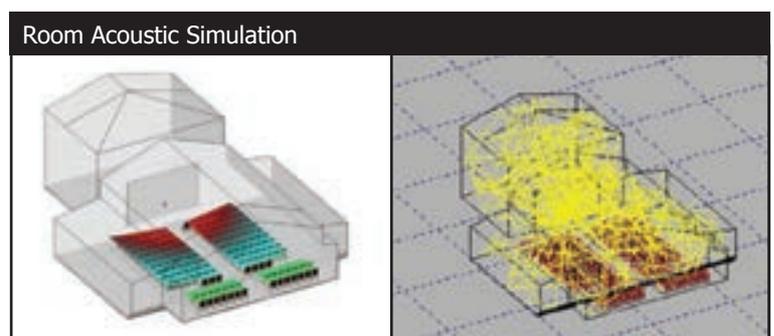


*Architectural Acoustics projects*

## Auralization

Similar to visualization, auralisation can generate the acoustic animation of a space, before it is built. It is based on room acoustic computer simulations. If needed, additional acoustic treatments can be applied to ensure a homogeneous distribution of sound in each audience position.

By using the most up-to-date computer software, it is possible to hear the effects of different spatial arrangements and therefore, achieve a fine prediction of the room's acoustic prior to its construction.





# Industrial Noise

ALPHA ACOUSTIKI offers a complete range of noise control and vibration isolation services for industrial applications. In the event that an industrial facility is in the design phase our consultants use industrial acoustical modeling software to evaluate the expected distribution of noise in the environment.

Three-dimensional industrial acoustical modeling helps analyze the environmental impact of topography, structures, and man-made and natural elements that may act as acoustic barriers and can affect the noise transmission in the environment.

Some indicative applications include:

- Design of specific noise control interventions i.e. Sound Insulating Enclosures, Sound Attenuators, Acoustic Louvers, Noise barriers etc, whilst taking into consideration noise reduction requirements (for example Outdoor Chiller, air – conditioning, noise propagation).
- Establish the technical specifications for the reduction of air born and structural born noise in compliance with the acoustic standards.
- Noise measurement surveys for the documentation of legal procedures.

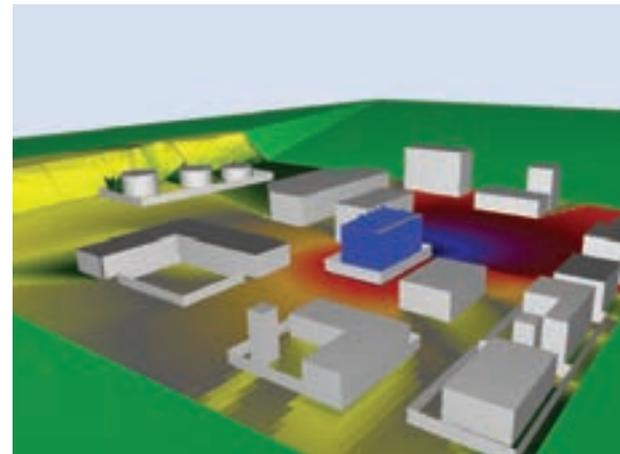
## Prediction | Simulation | Evaluation

Advanced acoustic simulation software is used in order to predict and illustrate the industrial noise propagation in the environment, in all kinds of industrial noise sources.

Based on that adequate, noise reduction measures can be easily taken into account, determining the resulting noise impact in the vicinity.



*Noise control study for a power plant in Chios island*



*Simulation of noise emission at industrial plants*





# Heating, Ventilation, Air Conditioning

Commercial air-conditioning or HVAC systems (Heating, Ventilation and Air Conditioning) often generate and transfer noise and vibration, which frequently become a source of disturbance in sensitive residential or commercial areas.

ALPHA ACOUSTIKI'S team has great experience in measurements, simulations, prediction and design engineering solutions in HVAC applications. We offer soundproof solutions for HVAC equipment such as outdoor chillers, water pumps, blowers, fans, AHUs and many other noisy indoor and outdoor HVAC units.

Our team of acoustic engineers can also calculate the noise inside the ductwork of Air Handling Units (A.H.U). Therefore, advanced acoustic studies are carried out, in order to predict the noise in the air ducts and design the required Sound Attenuators, to satisfy ASHRAE or other standards which are set from the client. Additionally, regenerated noise from the air velocity inside the duct and other crucial parameters, can also be calculated. The advanced acoustic software utilizes advanced mathematic algorithms and combines the noise specifications in illustrative outcome results.



Noise control in H. V.A. C. projects



*Air Duct Acoustic software*

At ALPHA ACOUSTIKI, HVAC Noise Control Consultants employ sophisticated technology to identify, quantify, and characterize sources of HVAC noise and its impact. We design engineering solutions and recommend modifications when it is necessary to mitigate excessive noise and vibration levels.

In the event that a facility is not yet built, we use acoustical modeling software to evaluate the expected HVAC noise and vibration levels, assess the impact of alternative designs, and recommend the most appropriate noise control solutions.





# Environmental Noise

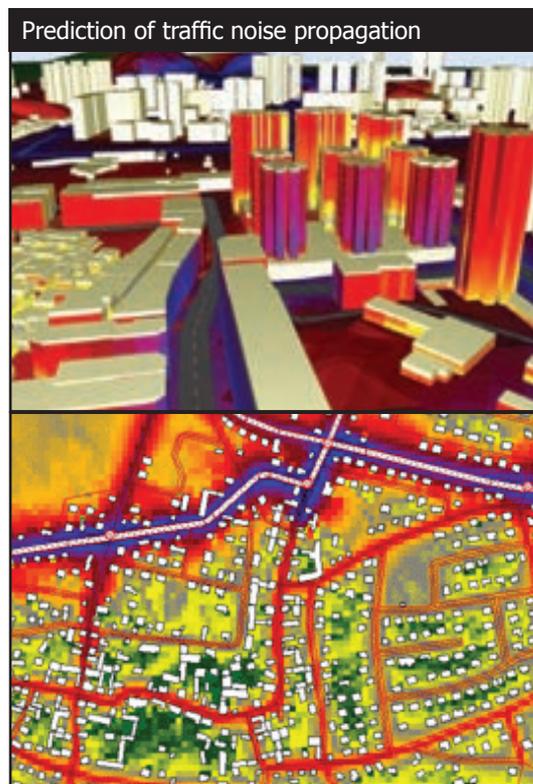
Environmental noise control and measurements are generally concerned with the assessment and mitigation of environmental noise related to highways, railroads, airports, industrial, entertainment and recreational facilities. ALPHA ACOUSTIKI offers a comprehensive range of environmental noise control study and noise measurement services.

For environmental noise studies, we employ on site noise measurement systems for continuous acoustical observations. When actual site conditions cannot be measured, we use noise modelling software to predict and evaluate the expected environmental noise levels.

We are able to study the noise emission of an industrial plant, a new/existing road or railway scheme, airport or even of an entire town and urbanized area.

Furthermore, using noise simulation software we can optimise the effectiveness in terms of cost/efficiency of Noise control interventions, for example the height, the position and technical specifications of Noise Barriers.

Environmental Noise mapping includes calculations, assessment, prediction and proposals for noise reduction (Strategic Noise Mapping).



*Noise reduction project in highway*





# Noise at Work - Occupational Noise



Controlling and mitigating the impact of noise in work environments is often a main concern of engineers in many industrial facilities. Not only does occupational noise have an impact on those working in these facilities and their health, but it is proved that it drastically reduces staff productivity.

Regarding noise at work, the following services are offered:

- Noise level measurements in workplaces
- Noise dose measurements for every worker
- Evaluation of noise dose according with national and international legislation
- Noise Frequency analysis.
- Acoustic study in order to determine all the necessary interventions for noise reduction in the workplace (at the source, path or the receiver).

*Occupational Noise exposure determination*

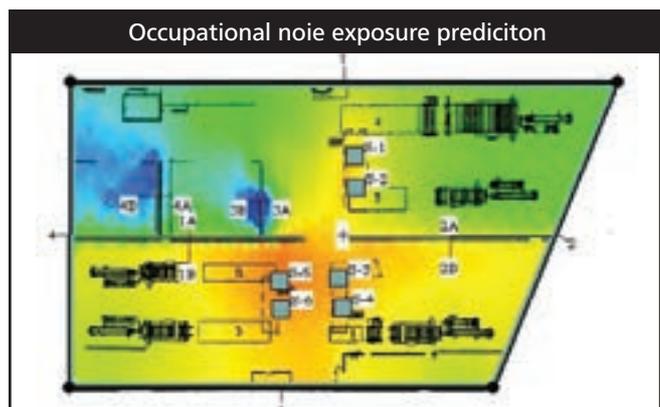


Advanced Room Acoustics Prediction and Occupational Noise Exposure software is used for analyzing and managing sound in industrial fields.

The program determines quickly and precisely sound levels at every point in a room, as well as the contribution of each sound source to these points, and the noise dose perceived by workers.

The program evaluates the efficiency of a treatment or of a treatment combination in real time before it is implemented.

*Occupational noise exposure prediction*





# Building Sound Insulation

Our team of engineers can study and resolve problems in building noise insulation, in order to meet legal or other requirements, or to provide a specified degree of acoustic comfort, in all types of buildings (Commercial & Residential projects, libraries, hospitals etc.).

In more complex applications, sound and vibration isolation must be considered not just from sources within the building (MEP, footsteps, impact noise etc) but also from noise sources outside the building.

In order to ensure a better acoustical comfort in dwellings, related computational tools with respect to international or local building codes, are applied.

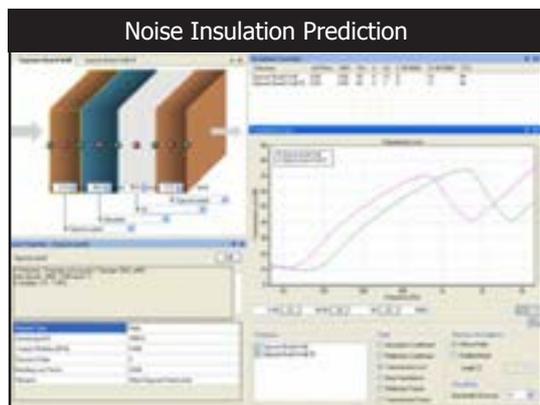
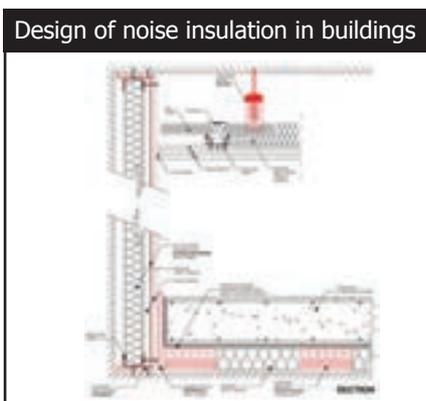
We use specialized software tools for sound transmission predictions between, outside and inside of the building, according to the European Standard ISO EN 12354.

We analyze the potential impact of building mechanical equipment, traffic, other noise / vibration sources and design appropriate noise control interventions. Finally, we also help to ensure compliance with local and regional environmental noise standards and legislation.

With a new simulation software we can predict the sound absorption and the noise insulation by multi-layer structures, but also the sound reflection coefficient of different acoustic diffusors materials.



Building noise insulation evaluation





# Vibration Control

At Alpha Acoustiki, our engineers conduct vibration measurement and assessment studies and use those findings to recommend vibration isolation solutions to control and mitigate vibration generated by mechanical systems.

Specifically, some principal parameters of the vibration control studies are:

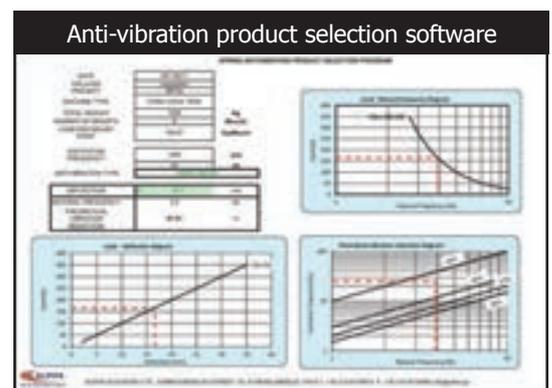
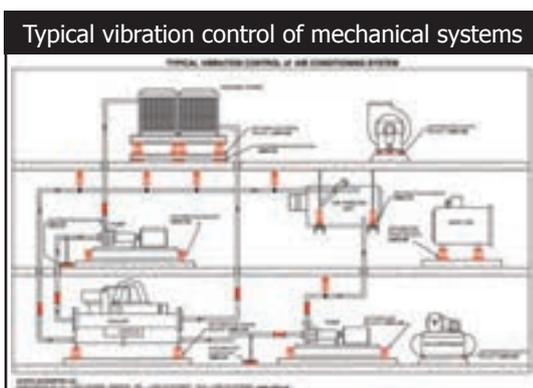
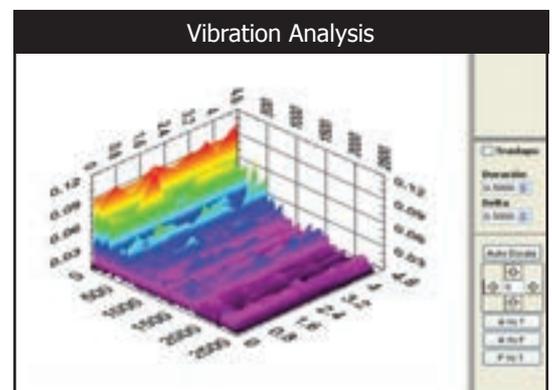
- Evaluation of vibration in buildings
- Vibration measurements (with 3axial accelerometers):  
RMS weighted acceleration, PPV (*Peak Particle Velocity*), VDV (*Vibration Dose Value*), according to BS 6472, FFT analysis, etc.
- Calculation of machinery excitation frequency
- Calculation of deflection and natural frequency of the antivibration system
- Selection of appropriate vibration control system, for each specific application
- Protection of equipment from earthquakes or wind pressure

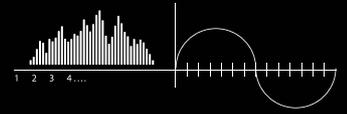
We design Vibration Control solutions for the following indicative categories:

- Industrial vibration control applications (i.e. Chilling Units, air-conditioning units, Gen Sets, boilers, HVAC etc).
- Building applications to avoid structure borne vibration transmission (i.e. floating floors, floating walls etc).
- Studio applications to construct floating surfaces using the "room in room" construction method. That includes floating ceilings, floating floors and floating walls.
- Human response to vibration at work like Hand arms & Whole body vibration evaluation, according to European Union Directive 2002/44/EC or International Standards.



Vibration Measurement





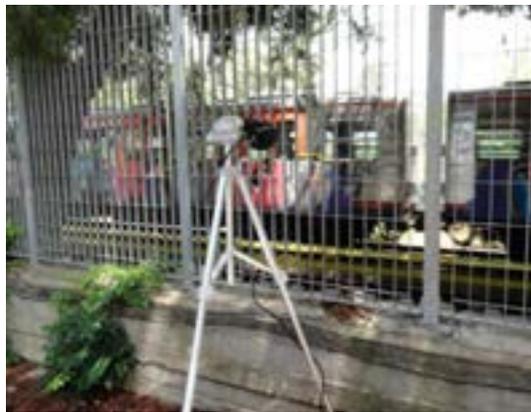
# Acoustics Measurements

Alpha Acoustiki uses advanced measurement instruments in order to provide a wide range of noise - vibration and room acoustics measurements which include among others:

- Industrial noise
- Environmental noise / Noise mapping
- Occupational noise & vibration measurements and dosimetry
- Mechanical systems noise
- Vibration Measurements (in building and HVAC)
- Room acoustics parameters estimation



*Room acoustics parameters estimation*



*Outdoor noise measurement*



*Noise Measurement at aluminium factory*

Architectural and Building Acoustic measurements also include the following fields:

## Reverberation Time

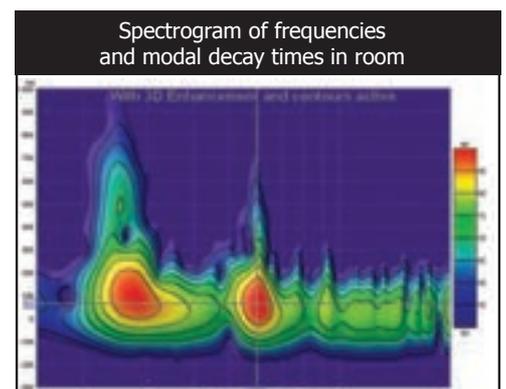
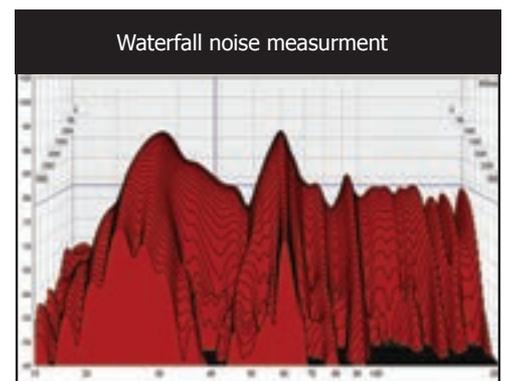
The reverberation time is the most important parameter for room acoustics and can be evaluated according to ISO 3382.

## Room acoustics / Sound Distribution

A simple measurement of the reverberation time is not sufficient to determine if the acoustic conditions are adequate for the intended use of the room. Room acoustics parameters that can be measured in order to evaluate the acoustic quality are Impulse Response, Energy Time Curves, Waterfall plots, frequencies and decay times of modal resonances and others.

## Sound Insulation

Sound insulation measurements can be carried out in buildings according to ISO 140.4&5 and evaluation according to ISO 717.1.





# R&D Activities

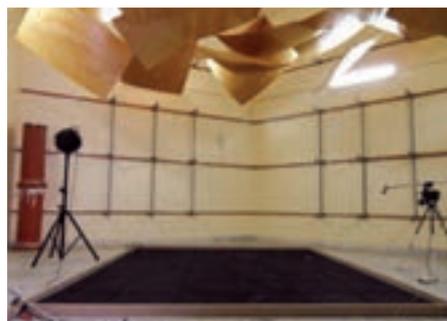
## Research

**Acoustics is our passion.**

Our acoustic engineering team continuously carries out applied academic research on acoustics, noise and vibration control, working closely with specialized research Institutes and Acoustic Laboratories. This contributes in designing innovative, advanced and effective acoustic, noise and vibration control solutions.

Additionally, we carry out acoustic measurements of noise insulation ( $R_w$ ), sound absorption index ( $\alpha_s$ ) and structural borne noise Insulation ( $L_{nw}$ ) in Acoustic laboratory, in order to determine the characteristics of new, eco-friendly acoustic materials.

In order to constantly guarantee high quality, we offer solutions that are tested and certified by independent acoustic laboratories.



*Laboratory acoustic measurements for Research in new products*

## Lectures

Working closely with institutes and specialized organizations in acoustics, noise and vibration control, our acoustic engineers has been participating in conferences and seminars related to acoustics since 1981, presenting their research results and the analysis of their scientific studies.

We are in close collaboration with International scientific organizations and specialized acoustic engineers around the world, exchanging ideas in regards with noise legislation and ideas about creating new innovative acoustics products.



*The front page illustrates the **Ancient Theater of Epidaurus**,  
which is located in the western Peloponnese, Greece.  
It was built 2.500 years ago by Architect Polyclitus the younger.  
The theater is arranged in 55 semicircular rows  
and its exceptional acoustics, permit almost perfect intelligibility  
of unamplified spoken word to all 15.000 spectators  
regardless of their seating.*

For us in **ALPHA ACOUSTIKI**,  
the Epidaurus Theater remains a source of inspiration  
for its perfection in acoustics. We strive to evolve and  
constantly develop new methods, whilst using the most  
advanced systems, to make our world a quieter place  
with higher standards of acoustic comfort.



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