

Leaflet Master Class Building Acoustics Transfer of acoustical energy across junctions

Contents

The goal of this Master Class is to study building acoustics in depth. For three days, you will gain theoretical knowledge and do laboratory experiments in the presence of leading world-reknown professionals. The focus of this Master Class is on determining and interpreting the transfer of acoustical energy across the junction of structural elements in buildings.

The Master Class is complemented by workshops in calculation models and measuring sound (vibrational power transmission across a junction and radiation efficiency of structural elements). In a guest presentation the latest developments of research in vibro-acoustic aspects of lightweight structures will be presented.



What will be presented?

- Theory of sound transmission:
 - Airborne, impact and flanking sound transmission.
- Acoustical performance of building elements and junctions.
- Workshop in calculation models: Modelling of building structures and interpretation of calculation results.
- Practical experience in measuring sound:
 - The determination of the vibration power transmission across a junction between structural elements
 - The determination of the radiation efficiency of structural elements.

For whom?

The master class is primarily meant for acoustics consultants with several years of experience. The participants are expected to have considerable knowledge and experience in the field of building acoustics. Also, this Master Class can be suitable interesting for PhD students and post-doctoral research fellows. The maximum size of the group is 9 persons.

The master

The class will be given by prof. E.(Eddy) Gerretsen, who has been scientific researcher at TNO Delft and professor at the Eindhoven University of Technology on "Structure borne sound in buildings". Eddy Gerretsen also teaches the Advanced Course on Acoustics in Antwerp and a course in practical building acoustics at the SKB (Stichting Kennisoverdracht Bouwfysica). He was involved in the development of calculation models in building acoustics, resulting in an active role on the development of the well known EN 12354 standards series. One of his breakthroughs has been the introduction of the vibrational power transmission across junctions Kij. He now further develops the standards for lightweight building structures and noise of building services within the CEN working groups.

Guest speaker

A guest presentation will be given by Dr. G.S.(Susanne) Bron-van der Jagt. She is head of the section of Vibrations and Noise, senior researcher/consultant, at TNO. A summary of the content of the presentation is given further on in this leaflet.

Dates

The Master Class will take place from Wednesday 25 May through Friday 27 May 2011.

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Location

Laboratorium voor Akoestiek (Level Acoustics BV)

The laboratory is located at the campus of Eindhoven University of Technology in the Netherlands.

Costs

The cost for attending the Master Class is:

- € 3.055 (VAT excluded) including a two night's stay in a hotel;
- € 3.165 (VAT excluded) including a three night's stay in a hotel;
- € 3.275 (VAT excluded) including a four night's stay in a hotel.

Also included are:

- A reader with literature and presentation sheets;
- Breakfast, lunch and diner.

Registration

You can register for the Master Class by filling in the paper registration form thoroughly and sending it to Level Acoustics by mail or email. Registrations will be accepted in the order in which they are received, up to a maximum of 9 participants. After receiving the registration folder, we will send a confirmation and an invoice. The payment must be fulfilled within 30 days after receipt of the invoice. Your registration for the Master Class is confirmed after we receive the course fee. The final registration date is the 18th of April 2011.

Cancellation

If you cancel more than four weeks before the Master Class starts, the course fee will be refunded, less € 327,50 for administration costs. If you cancel within one to four weeks before the Master class starts, a refund of 50% of the course fee is given. If you cancelling within the last week before the Master Class starts, there will be no refund of the course fee. However, it is possible to send a substitute to follow the class, provided he or she has considerable knowledge and experience in the field of building acoustics. If there are not enough participants, Level Acoustics has the right to cancel the Master Class, up to one week before the start of the master class. In that case, the total course fee will be refunded.

Information and registration

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Download the registration form here:

<http://www.levelacoustics.nl/education/masterclasses/info/regformMCBA11.doc>

Guest presentation

Sound transmission and transmission of walking induced vibrations in lightweight buildings - Practical design solutions and development of prediction models -

Buildings consisting of lightweight floors and walls, and steel or wooden supporting structures are becoming more popular, particularly for multi-family housing. Interest in lightweight buildings is growing, due to various advantages, e.g. flexibility regarding changing inhabitants' needs in time, energy saving possibilities, saving of material use and weight, possibilities regarding re-using materials and building elements, and shorter construction periods. However, an important aspect in the development of lightweight buildings is the sound insulation and the insulation of vibrations, e.g. due to walking, service equipment or traffic. What is for sure is that design solutions for all building elements (walls, floors, junctions) aimed at sufficient insulation are very different from solutions for buildings (mainly) made from heavy, monolithic structures such as concrete, brick and calcium-silicate. There is a need for new practical design solutions. Besides, for lightweight buildings, no prediction models for sound and vibration insulation between rooms are readily available. There is a need for prediction models that may be applied in the design stage of these buildings. These models may also be useful in product development. It would be very useful to enhance existing standards and guidelines, e.g. the EN 12354-1 and EN 12354-2 standards that give prediction models for airborne and impact sound transmission between rooms, for lightweight buildings.

The guest presentation covers both practical and scientific issues of lightweight building. On the one side, design guidelines are given, illustrated with examples of design solutions for building elements/junctions and examples of building projects in which TNO has been involved as a consultant. On the other side, the presentation deals with research within TNO aimed at the development of prediction models, e.g. the development of engineering models and the application of FEM, SEA and measurements to build a database with insulation data (K_{ij} values and related parameters) for junctions between lightweight building elements. Based on the research results, proposals are done for the application and adjustment of the EN 12354-1 and EN 12354-2 standards in order to make them suitable for lightweight buildings.

Program

Wednesday 25 May

10.00-10.30	Reception with coffee
10.30-12.00	Introduction and theory of sound transmission
12.00-13.00	Lunch
13.00-14.00	Theory of sound transmission
14.00-15.00	Introduction workshop for measuring sound: measurement system and software
15.00-15.30	Break
15.30-17.30	Workshop for measuring sound: part 1
17.30-19.30	Dinner
19.30-21.00	Guest presentation

Thursday 26 May

09.00-10.30	Theory of sound transmission
10.30-12.30	Workshop for measuring sound: part 2
12.30-13.30	Lunch
13.30-15.00	Working out measurement results
15.00-15.30	Break
15.30-16.30	Working out measurement results
16.30-17.30	Introduction workshop modelling
17.30-19.30	Dinner
19.30-21.00	Discussion of measurement results

Friday 27 May

09.00-10.30	Case studies
10.30-11.00	Break
11:00-12.30	Workshop modeling
12.30-13.30	Lunch
13.30-15.00	Workshop modeling
15.00-16.30	Discussion of modelling results
16.30-17.30	Conclusion
17.30-20.00	Dinner