

Challenges of communicating the acoustic requirements

Communication and negotiation of noise issues

Anne Landin, Construction Management, Lund University

From the negotiating in the early stages in a project to the operation phase, the noise problems must be addressed. Failing to do that can end up with e.g. unnecessary evacuation during the production or legal disputes.

A case study on an innovative wireless DCV system

Soheila Bahrami, Construction Management, Lund University

HVAC manufacturers use inconsistent methods for presenting the acoustic information on their DCV system components. This limits the customers' access to the information they need to select products with required acoustic performance.

Environmental vibration - Prediction and mitigation

Future strategies for early design

Kent Persson, Structural Mechanics, Lund University

Vibrations from sources such as traffic and construction activities may cause annoyance for occupants of neighbouring buildings. The target is to reduce annoyance and treat vibration properly—especially in the early stages of design and city planning process. In this context, the presentation addresses how computational methods of different detail level can be used efficiently to facilitate design decision.

Efficient modelling of ground and structure borne vibration

Paulius Bucinskas, Aalborg University

Prediction of environmental vibrations by existing commercial software is time consuming and therefore not suited for design purposes. The proposed model offers a computationally efficient solution that can reduce the computational times to minutes instead of hours and days needed for existing approaches. This allows timely assessment for different project designs and vibration mitigation measures.

Low frequency noise

Acoustic comfort evaluation in dwellings

Delphine Bard-Hagberg, Lund University

The concept of acoustic comfort is hardly defined and used to refer to conditions of low noise levels or annoyance based on standardized descriptors. Airborne and impact sound measurements are used to rate acoustic comfort in dwellings but they often do not express human perception of noise or comfort.

Prediction of room acoustic properties with numerical room models

Dag Glebe, RISE Research Institutes of Sweden

External noise sources often yield disturbing indoor noise. Such noise results from a system including e.g. external source, façade insulation etc. Low frequent noise in regular rooms is often a cause for annoyance and particularly challenging to predict, but a numerical approach can be used for such calculations and demonstrations.

Sound and human experience

Creating 'quiet' areas in big cities by relating objective and subjective parameters

Hanne Wiemann Nielsen, Landscape Architecture and Planning, Copenhagen University

The notion of 'quiet' has many meanings relating to material and immaterial qualities of urban space. How do we measure these in relation to sound and spatial quality? Investigations of four urban spaces in Copenhagen and Amsterdam reveal peoples' multifaceted experiences and preferences, providing insight into interlinkages and multidimensional aspects of space of importance for sustainable city planning.

Experience transposition and evaluation of intimate sensation using film and drone

Rikke Munck Petersen, Landscape Architecture and Planning, Copenhagen University

People experience space and themselves due to multi-sensory interactions. Film and drone film modulation as affect apparatuses embeds a power to work with experience transposition and evaluation. This presentation highlights ways of working with human experience and affect in the qualification of future contemplative urban landscape. It thus addresses an ethic and ecological stand.

Computation-based room-acoustic design

Novel computation-aided acoustic design workflows

Dario Parigi, Dept. of Civil Engineering, Aalborg University

Parametric systems has emerged as a tool for building design, empowering novel processes for an improved integration of architectural and engineering disciplines. The present work focuses on the opportunities opened by the use of a newly developed accelerated geometric acoustic computation plugin within such environment, enabling interactive acoustic simulation and multi-objective optimization techniques.

Virtual Reality for user involvement in building design – current visual system and plans for acoustics integration

Kjell Svidt, Dept. of Civil Engineering, Aalborg University

Virtual Reality has a big potential to support decision making in building design as a tool to present and evaluate design proposals together with end users. Based on experiences from user involvement processes in design of hospital buildings, we have developed and tested a prototype of a multiuser Virtual Reality system, where end users can modify a solution and immediately evaluate the result in the Virtual Reality environment.

Holistic approaches to the urban acoustic environment

A framework for building design in the urban acoustic environment

Poul Henning Kirkegaard, Dept. of Eng., Aarhus University

The urban acoustic environment is complex with considerations and regulations regarding both objective and subjective parameters. A framework including such issues can lead to a better understanding of the design process and provide a holistic approach to building design in urban acoustics environments.

A design method for the urban acoustic environment

Arnthrudur Gísladóttir, Dept. of Eng., Aarhus University

A holistic design method intended to be used at the earliest design stages to inform fundamental decisions regarding the design of urban acoustic environments is presented. The framework includes various design criteria including both subjective and objective parameters