



Standards Supported

- ISO 3382 series: Performance places, ordinary rooms, open-plan offices.
- ISO 14257: Workplaces.
- IEC 60268-16: Speech Transmission Index

The all-round software solution for room acoustics

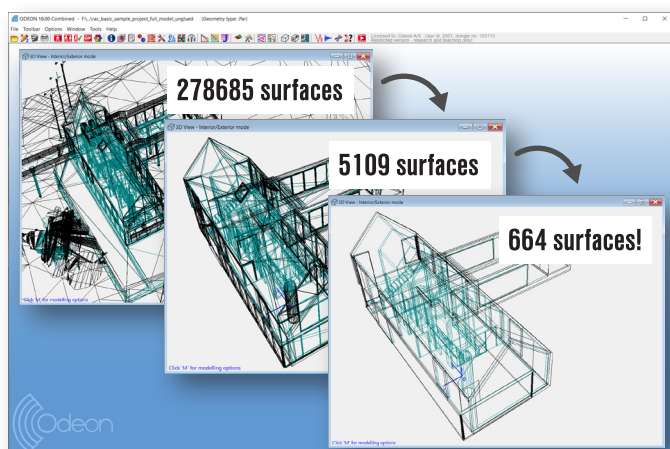
Elegant and user-friendly interface

Easy and fast room import

Various tools make geometry import easy and trouble-free:

- Create ODEON models from SketchUp **and vice versa**, using our free **SU2Odeon** plug-in.
- Import geometries from CAD systems, such as Autocad, and Rhinoceros, as .dxf, .dwg, .3ds, .stl and other file types.
- Import BIM models (IFC) directly from Revit and Archicad.

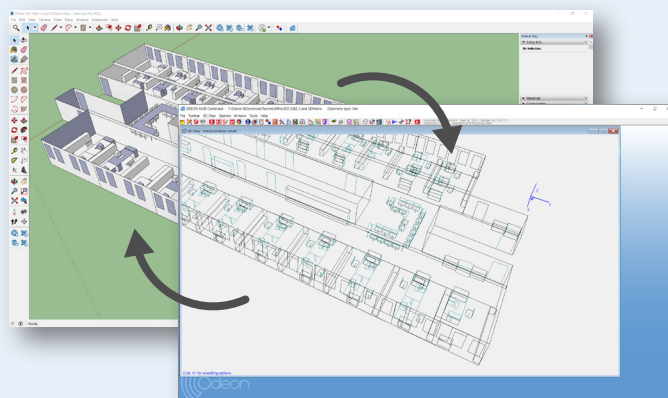
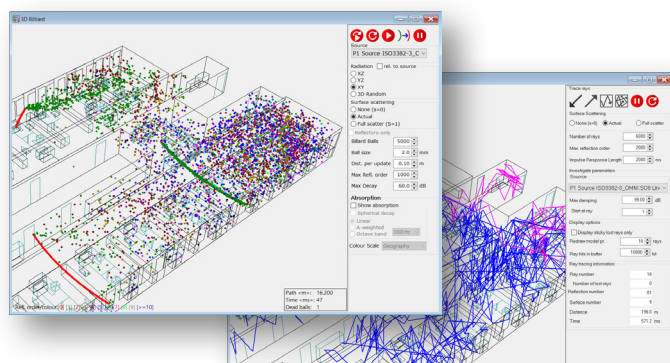
Simplification algorithms greatly reduce the number of surfaces (e.g. complex windows become simple rectangles), resulting to cleaner geometries for better and faster simulations.



Materials

Use our extensive library, import your own materials or create custom materials from scratch with the **integrated calculator**.

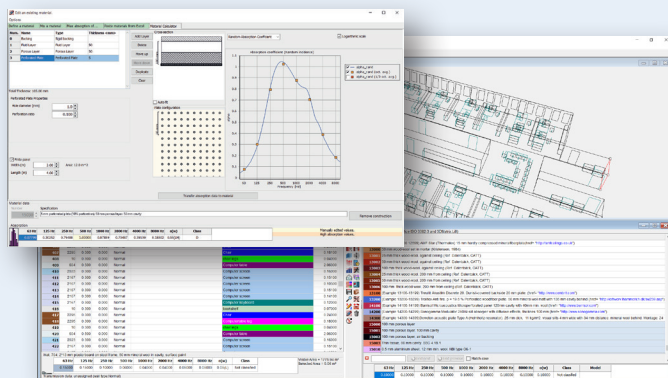
- Materials are listed as absorption coefficients from 63 to 8000 Hz and are displayed in a unique identifying colour.
- Layer mode makes it easy to assign bulk materials on multiple surfaces.
- **Scattering** can be applied to account for roughness and details that are not included in the model.
- **Transmission** can be applied for sound insulation studies.



Sound sources

Depending on your simulation you can choose among different types of sources:

- Point sources, for definition of loudspeakers or natural sound sources, with a directivity pattern, a power spectrum and a delay.
- Line sources and surface sources, for modelling industrial noise. **I C**
- Array sources, for modelling arrays of speakers. **A C**



Simulation methods

ODEON makes use of hybrid algorithms, optimized for accurate results at modest calculation time:

- **Image source method**, for prediction of early reflections.
- **Ray radiosity**, for prediction of late reflections.
- **Reflection-based Scattering** method, for proper handling of scattering & diffraction.
- One and two point diffraction paths over screens are automatically detected for the calculation of sound attenuation behind them.

Fast and reliable calculations

Reliable results

Define **up to 1000 jobs** for various calculations and results:

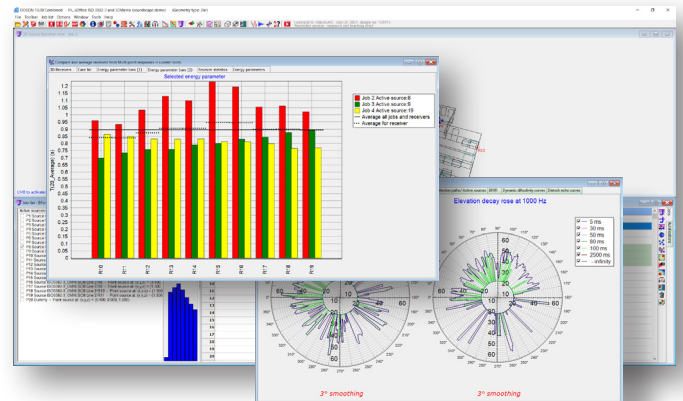
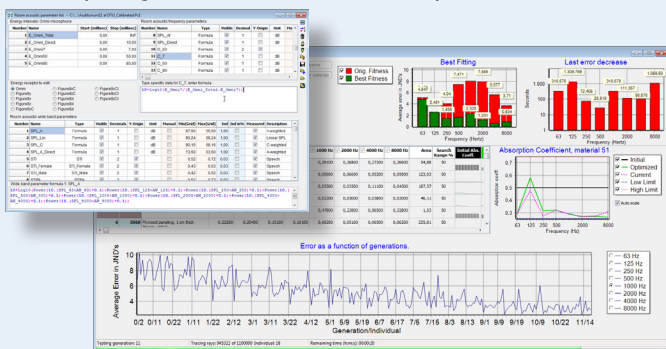
- Multi-point responses with statistics. **I A C**
- Comparing results from multiple jobs and different rooms. **I A C**
- Grid colour maps. **I A C**
- Single-point responses. **A C**
- Reflectograms and Reflection path analysis. **A C**
- Decay curves, Decay roses and Hedgehog graphs. **A C**
- Reflector coverage. **A C**
- ISO 3382 room acoustic parameters (parts 1, 2 and 3).



Fully equipped measuring system

Use ODEON both for simulating as well as measuring room impulse responses! All ODEON editions include a powerful measuring system that offers:

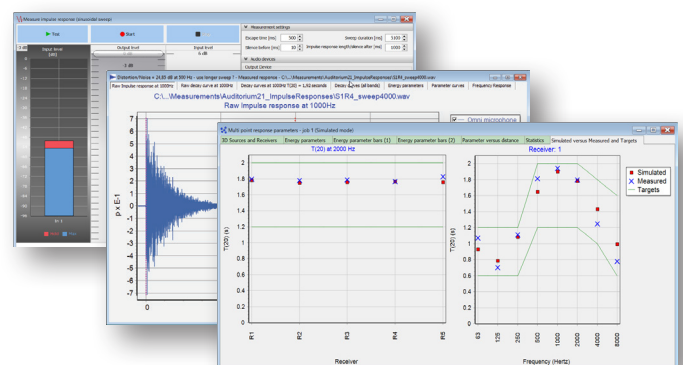
- Recording impulse responses in rooms, using sweeps and a set of advanced settings like ambient conditions, inverse filters, signal optimization and more.
- Deriving the ISO 3382 acoustic parameters.
- Comparing measurements with multi-point simulations.



Auralisation

Listen to your rooms with real audio files and demonstrate acoustics to customers not familiar with technical terms.

- Extensive database of .wav files for speech, music and sound effects. You can also add your own files.
- Listen through headphones or loudspeaker systems in 3D or surround mode, using 1st to 3rd order ambisonics.
- Use the **360 auralisation tool** to turn your head and listen to any direction in real-time.
- Built complex soundscape scenarios with the **mixing facilities**, that can combine up to 300 convolutions.
- Export auralisations in the standalone **Soundscape App** for sharing outside ODEON, offline or online, on a browser.



Extra tools associated with measurements include:

- Optimizing materials in a room, using **genetic algorithms**, to match simulations with measurements. **A C**
- Calculating user-defined room acoustic parameters. **A C**
- Performing auralisation of audio files with recorded impulse responses. **A C**
- Estimating the sound power of multiple sources, given the sound pressure levels at multiple receivers. **I C**

Note: Unless specifically mentioned, all features are available in all ODEON editions: **B** Basics, **I** Industrial, **A** Auditorium and **C** Combined.

Available in four editions

for commercial and educational use

B Basics

This edition includes essential tools for basic room acoustic studies as well as a fully functional measuring system.

I Industrial

Equipped with different types of sources, grid colour maps, noise control facilities and a source power estimation tool, this edition is suitable for industrial acoustic scenarios and basic room acoustics.

A Auditorium

The most comprehensive edition for acoustic simulations of performance places. Includes a full and customisable set of ISO 3382 room acoustic parameters, detailed point responses, auralisation, a genetic material optimizer, as well as a custom material calculator.

C Combined

The most complete edition of ODEON includes all available features, combining tools from the Industrial and the Auditorium editions. ODEON Combined is your no-compromising tool for any complex project, from room acoustics to noise control and PA systems.

The software for:
Shopping malls
Concert halls
Auditoriums
Classrooms
Theatres
Meeting rooms
Restaurants
Industrial plants (in/out)
Railway stations
Worship places
Open-plan offices
Urban spaces
and many more...



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www.odeon.dk

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