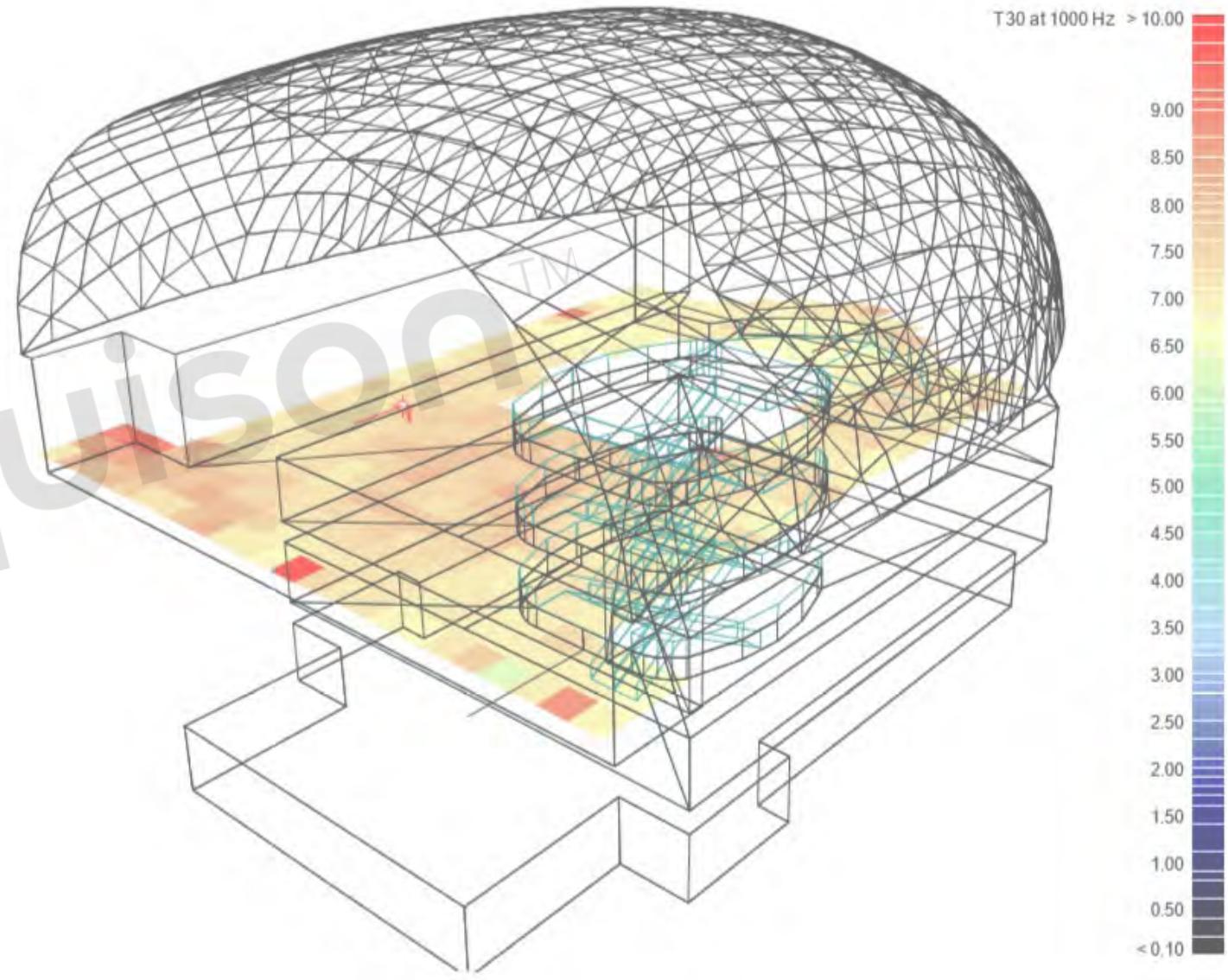
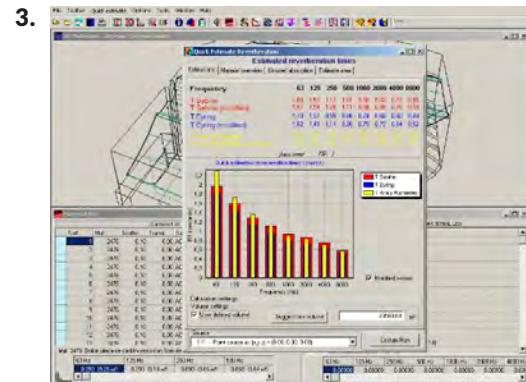
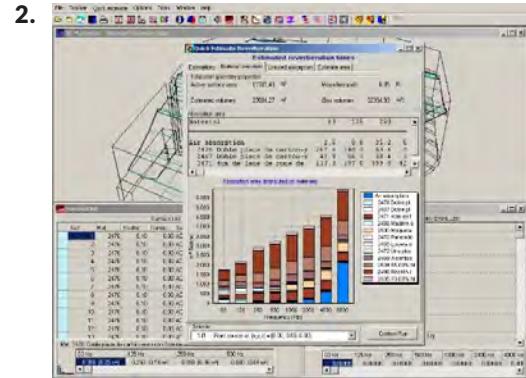
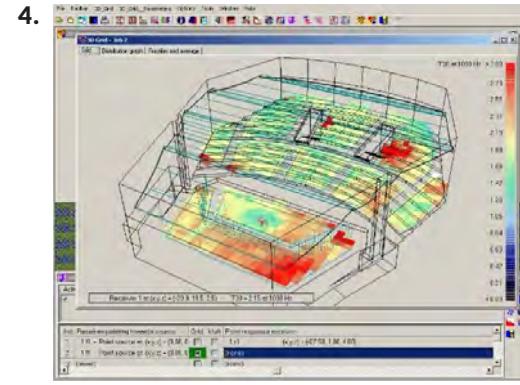
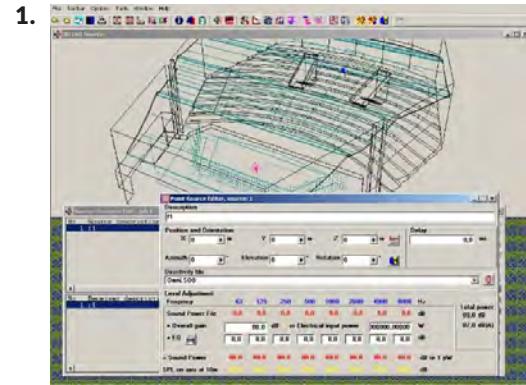




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THIS REPORT IS INTENDED TO SERVE AS AN INTRODUCTION ON OUR WORK ABOUT ACOUSTIC MODELLING ROOM WITH ODEON SOFTWARE.

We import CAD models in the .dxf or .3ds format. Previously, with CAD software we can get the first data with the help of own programs of Arquison, for example room volume, surface measuring for initial calculations and area orientation.

1. DEFINE THE SOURCE-RECEIVER LIST

Before any calculation can be carried out in Odeon, one or more sources will have to be defined. Of course a receiver will also have to be defined in order to calculate a point response.

2. ASSIGN MATERIAL PROPERTIES

During our professional career, we have been generating an own database as of the work in site experience and the real final results 'in situ'.

Sabine's principles from over a century ago are still a commonly used today and although the computers have given great boost to make the architectural acoustics a modern science, this will stay for time a science of the experience, with a bit of magic and luck equal measure, only the scale from wonderful to awful.

3. QUICK ESTIMATE, FAST ESTIMATION OF RT

Quick estimate is the fast method, it is based on the Sabine, Eyring and Arau-Puchades formulas and as such assumes diffuse field conditions. Diffuse field cannot be assumed if:

- Room absorption is unevenly distributed.
- Room contains de-coupling effects, e.g. connected corridors or niches.

Thus the results given by Quick Estimate should not be considered to be a final result. Even so the method is useful in the initial work on assigning reasonable materials to the surfaces in the room.

4. ROOM SETUP, CALCULATION PARAMETERS

At this point we must have an idea of the order of size of the reverberation time. We must define the impulse response length.

5. GLOBAL ESTIMATE, A RELIABLE METHOD

Global estimate is a more precise method, which doesn't make any assumptions about diffuse field conditions and as such, it is a more reliable method for estimation of global reverberation time.

- For workrooms where all absorption is often situated in the ceiling region and sources are situated in the floor region the RT predicted by Global Estimate will typically be longer than the values predicted by Quick Estimate, a factor two is not unlikely if walls are basically smooth.
- In auditoriums the opposite is the case, because the dominant absorption area (the audience) is close to the source.

In any case the RT's predicted by Global Estimate is not the final calculation.

6. CALCULATING POINT RESPONSES

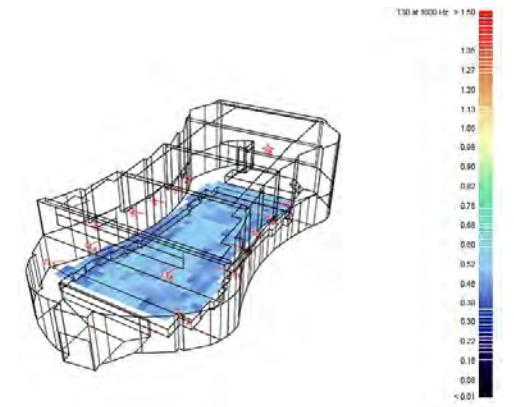
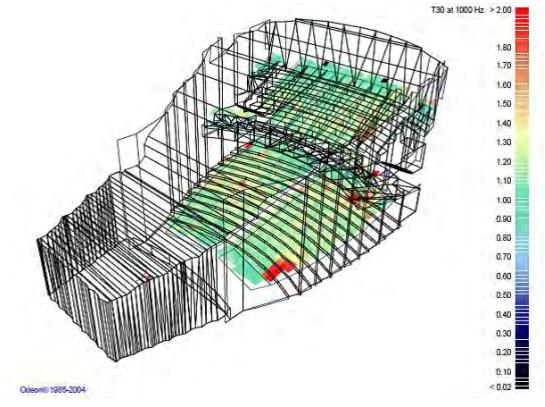
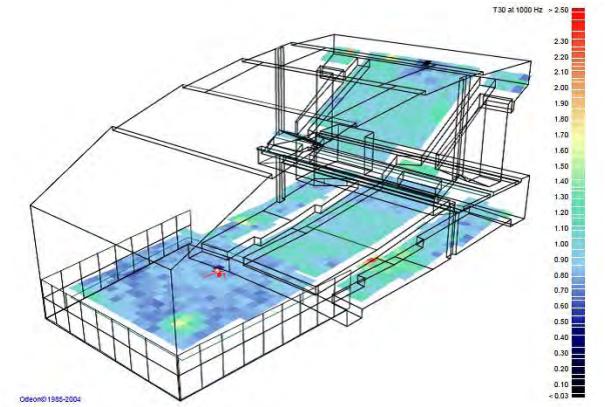
At this point we are ready to calculate point responses. Three different point response calculations are available: single point response, multi point response and grid response.

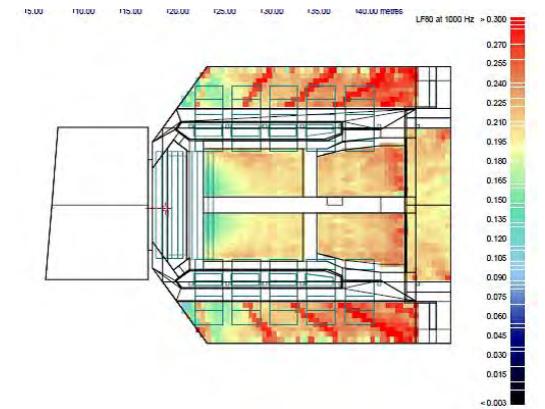
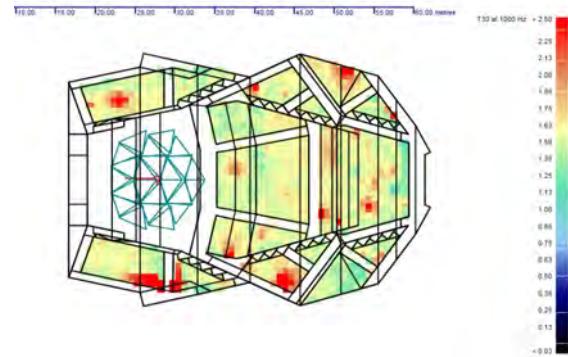
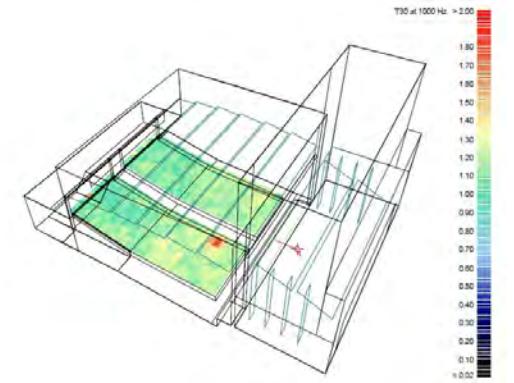
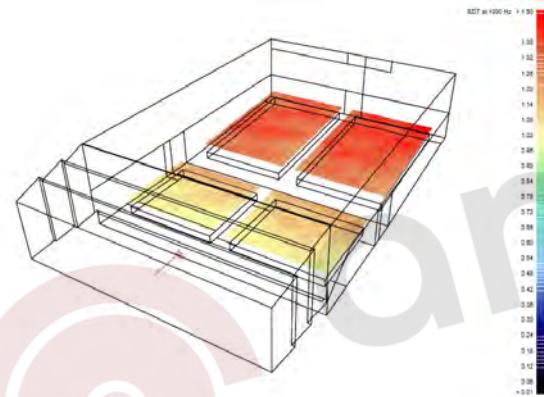
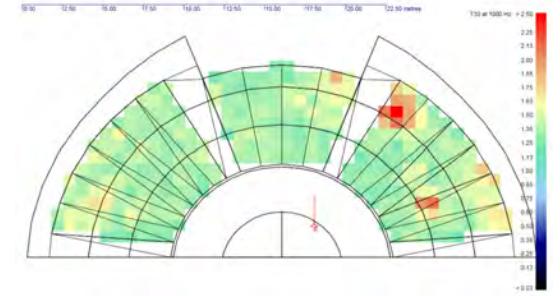
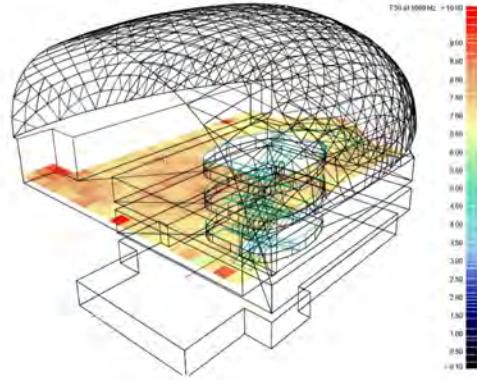
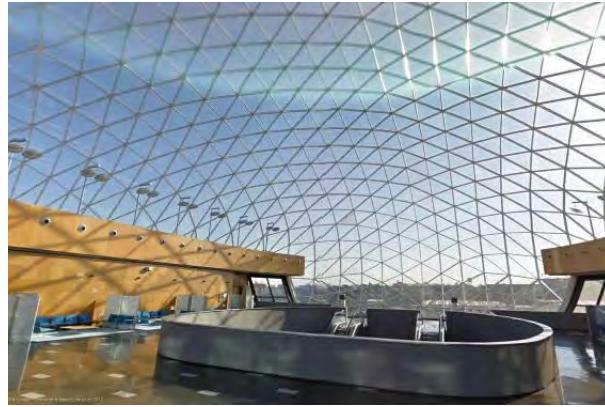
The Point response calculations estimate not only RT, but also room acoustic parameters like Clarity, SPL, SPLA, STI and LF80. The calculated results can be thought of as a simulated measurement. Calculated results relates to:

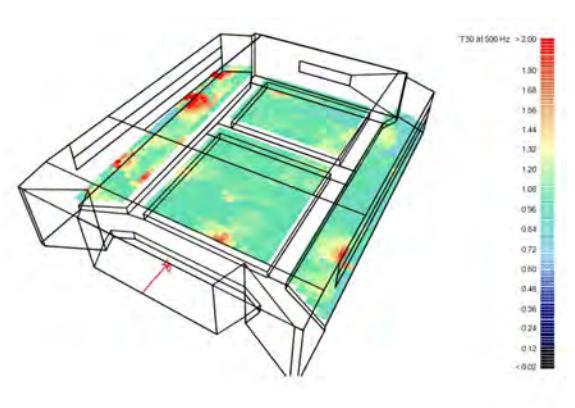
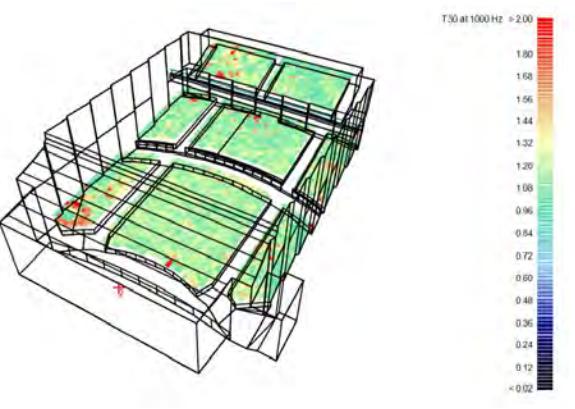
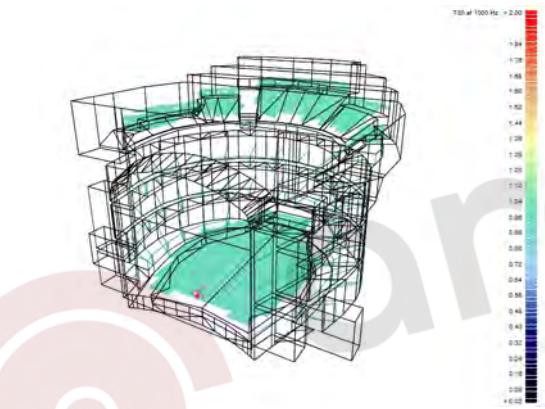
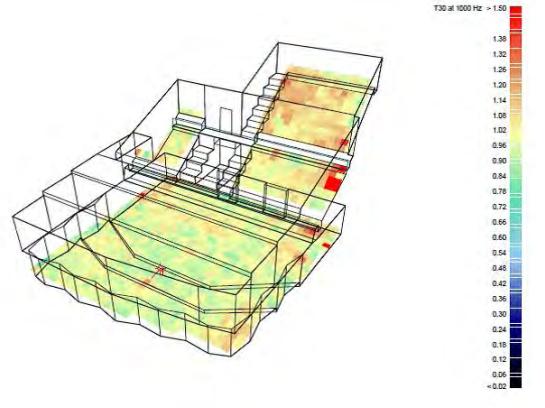
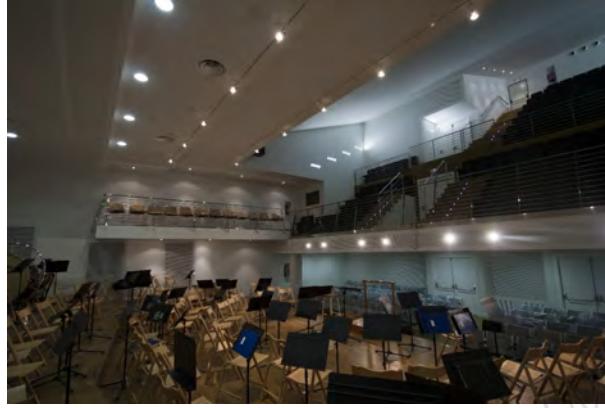
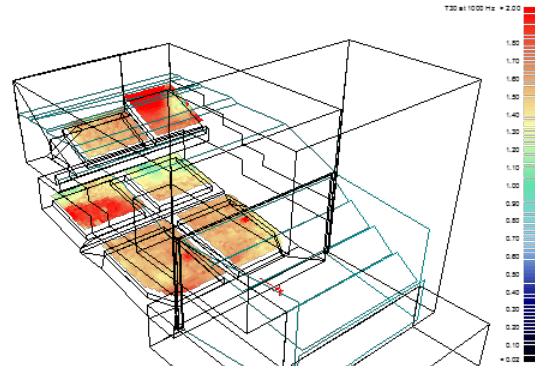
- a number of active sources
- one receiver position
- orientation of the receiver (for LF80, LG80* and auralisation)

Grid Response calculates room acoustical parameters for a mapped receiver area are the end result of the acoustic simulation.

BOOK







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