Room acoustic descriptors – room for more?

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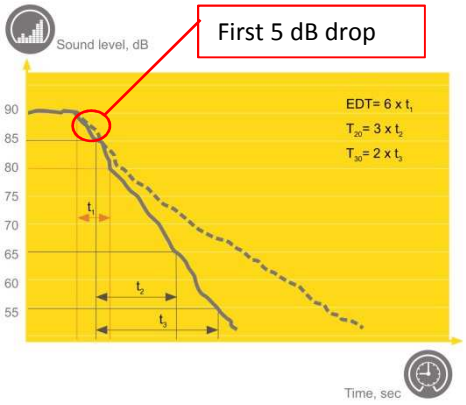
Background

- **Reverberation (RT) time is the only acoustic descriptor in our building regulation.**
- Calculation of RT with the Sabine formula is based on the diffuse field theory – not obtainable in reality.
- When measuring RT according to ISO 3382-1/2 we don't evaluate the first drop of 5 dB.

RT=0,16xV/A

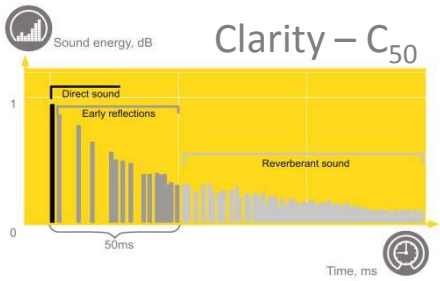
ISO 3382-1/2



Challenge

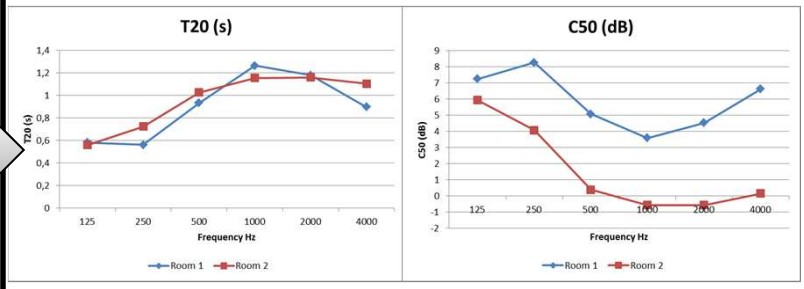
- Early reflections are crucial for speech clarity.
- The first drop of 5 dB contains **both** direct sound **and** early reflections.
- Clarity (C_{50}) should be evaluated with RT.

Clarity – C_{50}



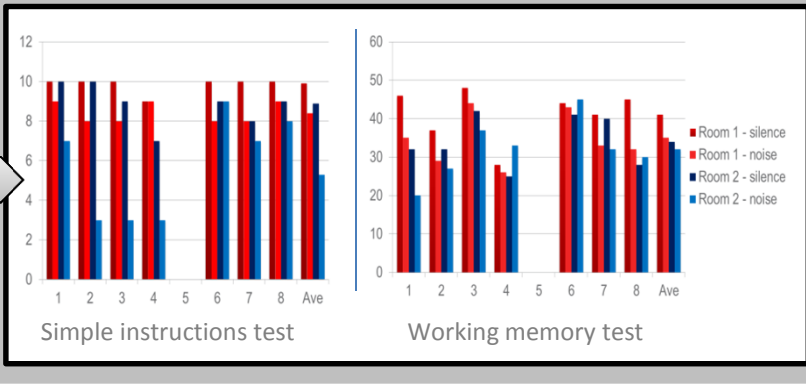
The Study

- Two identical rooms – different ceilings .
- Same RT – different C_{50}
- Subjects: 8 Danish kids – normal hearing, public school.
- Tests done in silence and with added background noise.



The results

- Same RT does not lead to same results!
- Room 1 is the preferable condition.
- Low C_{50} leads to worse performance.
- **More descriptors should be evaluated in rooms for teaching!**



Simple instructions test

Working memory test