

# FIS

FINISHES & INTERIORS SECTOR

## CPD KEY LEARNING POINTS

# BOOST YOUR CPD LEVEL WITH A GUIDE TO OFFICE ACOUSTICS

Understand the physical principles of sound, how it is measured and how it travels.

Understand how products are tested in a laboratory.

Understand the different descriptors used.

To be able to plan by zoning areas depending on activity and background noise levels.

To be able to design the finishes within an environment and the effect they will have on reverberation.

Understand how sound can be controlled through absorption, insulation and diffusion.

Understand the effect that exposed soffits have on the acoustic performance of a space.

To be able to select partitions to meet a requirement based on background noise levels.

Understand how flanking sound can greatly affect sound performance of a partition.

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### A GUIDE TO OFFICE ACOUSTICS

**Typical sound penetration paths**

Top: the partition is installed to the underside of the suspended ceiling, without a cavity barrier.  
 Lower left: the partition is installed to the underside of the suspended ceiling, with a cavity barrier in the ceiling and floor void.  
 Lower right: the partition is installed between the raised floor to the underside of the slab, with attenuators installed within the ducts.

Raised access floor and associated void  
 Concrete floor structure  
 Pipework and ducting  
 Suspended ceiling and associated void

**Factor**

| Factor                 | Within a working cluster  | Between working clusters      |
|------------------------|---|-------------------------------|
| Background noise level | NR40/46dBA (L <sub>90</sub> )   | NR40/46dBA (L <sub>90</sub> ) |
|                        | ≤0.40   | ≥0.36                         |
|                        | Ceiling α <sub>s</sub> ≥0.9 across speech frequencies                     |                               |
|                        | Absorbent screens 1.4m to 1.8m high                                       |                               |
|                        | Soft floorcoverings   |                               |
|                        | Lower ceiling height between clusters to break up skimming across ceiling |                               |

**Possible reduction in dBA using 1800mm height screens**

| Sound at source dBA | Screen height | dBA at 2m | dBA at 4m | dBA at 6m |
|---------------------|---------------|-----------|-----------|-----------|
| Shout 75            | 1800mm        | 53        | 48        | 47        |
| Speech 65           | 1800mm        | 43        | 38        | 37        |

**Table 9**  
Reduction in dBA when using screens.

Source Distance from source in metres

**“A SCHOLARLY WORK ON A COMPLEX SUBJECT.”**  
RIBA