

A Background to Privacy

What is privacy?

The isolation of normal or raised speech produced in one room from possible listeners in another room.

What main factors determine privacy?

1. The voice level of the person speaking within the source room.
2. The background noise level within the receiving room.
3. The noise reduction of the building structure between the rooms.

Selecting an appropriate privacy criterion or rating

The table below shows privacy criteria in terms of speech intelligibility, with a corresponding privacy rating. The index values shown are calculated by adding the required Noise Rating (NR) level within the receiving room to the average dB noise reduction of the building structure between the two rooms.

Privacy Criteria	Privacy Rating	Index
Intelligible	Low	Below 75dB
Between intelligible and unintelligible	Medium	75 to 80dB
Unintelligible	High	80 to 90dB
Inaudible	Very High	Above 90dB

For example to achieve a high privacy rating when the receiving room background noise level is NR40, the building structure must provide an average noise reduction of between 40 and 50dB.

Speech levels

The index values shown in the table assume normal speech noise levels. Add 6dB if the criteria are to be achieved based on raised speech.

Selecting a suitable building structure

The table below shows a range of average room-to-room noise reductions for different types of building structure.

Building Structure Between Rooms	Average Noise Reduction
Budget demountable partitioning and suspended ceiling	Below 35dB
Quality demountable partitioning and suspended ceiling	35 to 40dB
Full height standard studded plasterboard partitioning	40 to 50dB
Full height jumbo studded plasterboard partitioning	50 to 55dB
Full height single leaf dense block wall	50 to 55dB

Eliminating noise flanking paths

Noise reduction performance of structures will be undermined, unless flanking paths, such as those listed below, are eliminated.

- Doors and door seals
- Glazed sections within demountable partitioning
- Demountable partition joint to the suspended ceiling
- Apertures in the suspended ceiling, such as grilles, etc

Medium privacy in cellular offices

Medium privacy is normally acceptable for cellular offices, and two methods for achieving this are shown, based on the following:

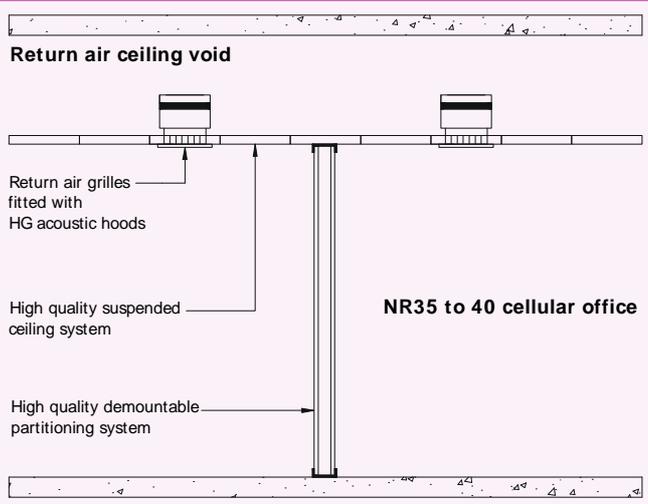
- Demountable partitioning system
- Suspended ceiling system
- Void mounted fan coil units (omitted from drawings for clarity)
- Return air ceiling void
- Background noise level of NR35 to 40

Before selecting one of these methods the following factors should be considered:

- Will the office layout change or is it fixed?
- Is it a new or existing building?
- How many cellular offices are there?
- Which method would be easier to install?
- Which would be most cost effective?

Method 1 - Cellular offices with maximum flexibility and medium privacy

- **Ideal for new build if office layouts may change**
- **Partitions can be moved without affecting privacy**
- **HG acoustic hoods protect all ceiling apertures**
- **Return air ceiling void remains clear**
- **Simple installation makes privacy easy to achieve**



This method utilises HG acoustic hoods, which are detailed in data sheet HG1. In addition high quality demountable partitioning and suspended ceiling systems are incorporated throughout the office.

Hoods should be fitted to the rear of all ceiling penetrations, such as return air grilles, diffusers or luminaires, to ensure that the acoustic integrity of the ceiling system is maintained.

The major benefit of this method is that the demountable partitions can be moved to modify the size and position of the cellular offices, without affecting privacy.

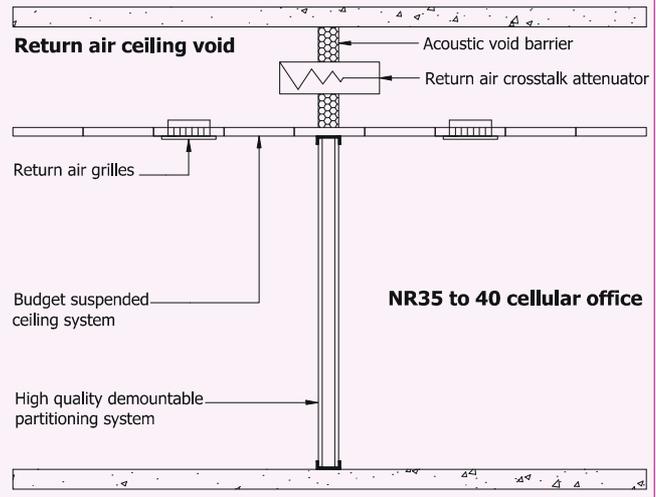
To achieve medium privacy a 40dB (R'w) partition system and a 40dB (Dncw) ceiling system should be used as a minimum.

Method 2 - Cellular offices with medium privacy but limited flexibility

- **Ideal for existing offices where layout is fixed**
- **Acoustic void barriers required above partitions**
- **Existing partitions and ceiling may be retained**
- **Crosstalk attenuators protect return air path**
- **Void barrier enables budget ceiling to be used**

This method utilises acoustic void barriers, penetrated by return air crosstalk attenuators. Although high quality partitioning is still required, a budget ceiling system can be used, as noise between adjacent rooms has to pass through the ceiling and the void barrier.

This method is ideal where the office layout is fixed, or where only a few cellular offices are located within a large office area. However it may not be suitable for new buildings with many cellular offices, where the layouts are subject to change.



This is because the void barriers must be moved in conjunction with the partitions.

To achieve medium privacy a 40dB (R'w) partition system, a 32dB (Dncw) ceiling system, and a 35dB (R'w) void barrier should be used.

Typically the return air crosstalk attenuator should be 900mm long, with an average insertion loss of 30dB between 500 and 4000Hz.

High privacy in cellular offices

High privacy would only normally be required for cellular offices if they were being used for sensitive or confidential discussions.

For example a conference room, a board room, an interview room, etc, may all need a higher degree of privacy, but it is difficult to achieve this with demountable partitioning systems.

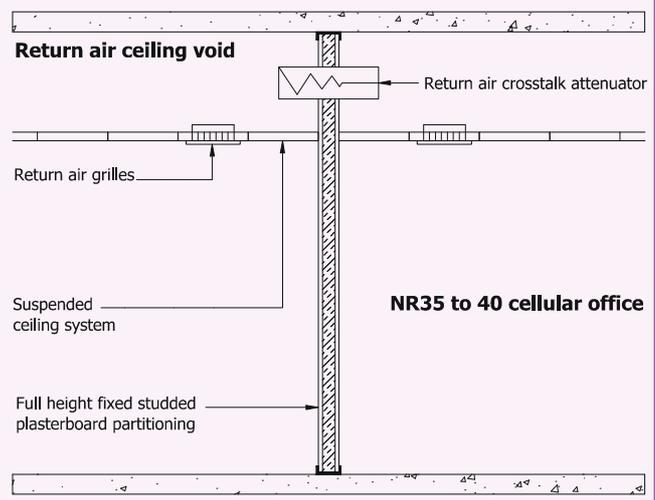
This method is therefore based on cellular offices with full height studded plasterboard partitioning, which should achieve 50dB (R'w).

However because the partitioning is fixed, there is limited flexibility to subsequently change the office layouts.

Cellular offices with high privacy but limited flexibility

- **Layout of cellular offices is fixed**
- **Plasterboard partition must be full height**
- **Crosstalk attenuators protect return air path**
- **Partition enables budget ceiling to be used**

Ceiling acoustic performance is not critical, as the noise reduction between rooms is provided by the full height partition. Typically the return air crosstalk attenuator should be 1200mm long, with an average insertion loss of 40dB between 500 and 4000Hz.



Details on rectangular and circular attenuators suitable for crosstalk applications can be found in the LG, SG and CG data sheet ranges.

Although this document provides a guide and some general advice in relation to privacy, this topic is particularly complex.

Our sister business can provide acoustic consultancy advice on this subject and their contact details are shown opposite.

Lee Cunningham Partnership Ltd

Tel: 0118-987-9300 Web: www.lcpacoustics.co.uk
 Fax: 0118-987-9320 Email: enquiries@lcpacoustics.co.uk