



ACOUSTICS IN HEALTHCARE FACILITIES

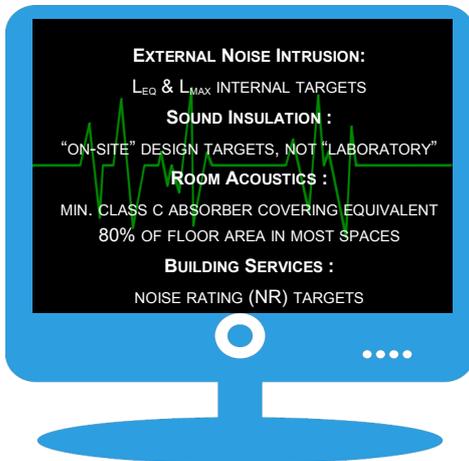
According to the Department of Health :

'Acoustic design is fundamental to the quality of healthcare buildings as sound affects us both physiologically and psychologically. Unwanted noise can increase heart rate, blood pressure, respiration rate and even blood cholesterol levels, whereas pleasant sounds help create a sense of well-being.'

Good acoustic conditions help to provide a comfortable environment for staff and patients, resulting in raised staff moral, improved patient privacy and improved sleeping patterns—elements which are keys to healing.

Unnecessary noise is the most cruel absence of care which can be inflicted either on the sick or well. Florence Nightingale

On 19 March 2013, the Department of Health published the latest Health Technical Memorandum (HTM) for the design of hospitals and clinics, including part 08-01: *Acoustics*.



What issues are covered by HTM 08-01 : Acoustics ?

This document sets out the minimum recommended criteria for acoustics in the design and management of new healthcare facilities as well as addressing issues such as the provision of temporary healthcare facilities, refurbishments and the control of noise and vibration during construction.

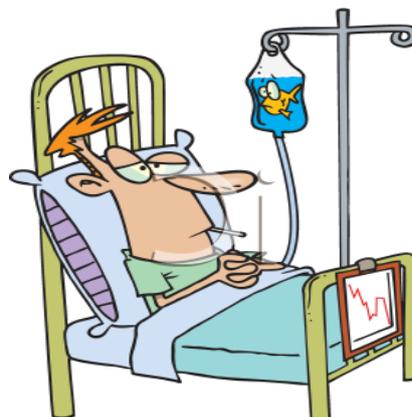
The document also covers site inspections and pre-completion acoustic commissioning, which are essential for quality assurance.

The HTM 08-01 criteria are minimum recommended targets, although it is accepted that some developments have special features for which these criteria may not be appropriate. Criteria are set for the following:

Noise Levels in Rooms

There are two separate criteria; **external noise intrusion** and **mechanical services noise**.

- The criteria for external noise intrusion are internal equivalent continuous sound pressure level (L_{Aeq}), targets over typical 1-hour daytime periods (and night-time periods for wards).



- Targets for maximum noise levels, L_{Amax} , are set for wards and operating theatres.
- Noise from sirens and helicopters can be common around hospitals. Designing the building fabric to combat this would be impractical, therefore, site planning is important.
- Targets for controlling rain noise are set, which has implications for the design of lightweight roof systems.
- Noise Rating (NR) levels are recommended for mechanical services, although these exclude noise from specialist medical equipment.

Sound Insulation

Noisy activities should not interfere with the requirements of adjacent rooms and private conversations should not be overheard outside the room.

To achieve this, airborne and impact sound insulation criteria are set which are to be achieved on-site. It is, therefore, a good idea to appoint an acoustic consultant to identify suitable partition types and advise upon appropriate flanking details.

For long term patient accommodation, Building Regulations Part E should apply.

Room Acoustics

Guidance is provided on quantity of acoustically absorbent material, as opposed to set targets for reverberation time. In most spaces, it is advised that a Class C absorber (at least) is applied to an equivalent of 80% of the floor area.



Vibration

Criteria are set in accordance with BS 6841 for plant, medical equipment, intrusion from external sources and general activities.

Other Criteria

HTM 08 01 also contains guidance for audiology facilities, audio/public announcement systems and sound masking.



Hann Tucker Associates

The leading independent UK acoustic consultancy, can provide all the necessary professional advice and assistance on the acoustic design of healthcare facilities. By using the specialist knowledge and expertise we have gained over 45 years of successful acoustic consultancy, suitable cost effective solutions can be provided to ensure satisfactory design solutions are achieved.



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