7.3 Acoustic comfort

Rating type: Base building, tenancy and whole building ratings

Attributes: Ambient sound levels

Acoustic conditions directly affect occupant satisfaction and productivity. One research study shows that over 50% of occupants in office cubicles think that noise levels interfere with their ability to get their job done. [2].

Acoustic comfort plays an important role in occupant satisfaction, wellbeing and productivity because noise can significantly distract office occupants. The main sources of noise in an office are due to low partition heights, ringing phones, noisy copy machines and office chatter.

Acoustic comfort is measured for all rating types because this is influenced by both the mechanical systems and façade insulation in the base building, as well as materials chosen and occupant behaviour in the tenancy.

Tips for reducing noise-related discomfort

- ✓ Locate fax machines, copiers and other noisy office equipment in a separate area surrounded by cubicle walls.
- ✓ Group people according to their key work tasks – e.g. front line customer service representatives who spend a lot of time on the phone should be located away from those who require quiet work spaces.
- ✓ Panel systems, carpeting and ceiling tiles that absorb sound and provide privacy can also help to control noise levels.

Base building ratings

Acoustic comfort is measured to assess how efficiently the building envelope isolates external noise and noise contributions from base building services, i.e. air conditioning. Measurements are undertaken in the space under normal working conditions excluding tenant noise – a vacant floor can be substituted for a tenanted floor to make this easier as long as the services provided by the base building, e.g. HVAC system, are operational.

As NABERS IE is a performance rating, the results are compared to the Australian base building acoustic comfort benchmark to determine the relative performance against its peers. For example, in an office building average sound levels were 38 dB, based on the Australian

[2] Jensen, K., and E. Arens. 2004. Acoustic Quality in Office Workstations, as Assessed by Occupant Surveys. Proceedings, Indoor Air 2005, Sept. 4-9, Beijing, China

base building acoustic comfort benchmark, this average level is better than 71% of offices - the score achieved is therefore 71%.

Tenancy and whole building ratings

Acoustic comfort is measured in the occupied space under normal working conditions, excluding intermittent non-standard spikes such as a loud group of people joking and laughing, someone shouting for attention, sirens or something being dropped or broken.

The following are examples of what may be considered to be a normal part of the work environment and should be included in the final readings:

- use of office equipment such as printers and photocopiers
- person-to-person or phone conversations held at normal speech levels
- typical street or external noises, such as trains or traffic, and
- doors opening and closing.

NABERS assesses acoustic comfort for whole building and tenancy ratings against the Australian Standard 2107:2000 *Acoustics* which recommends a noise range of 40-45 dB for office spaces. Noise levels in the tenancy are assessed against the 40-45 dB range and the final score is calculated based on the percentage of samples that meet these requirements compared to other office buildings. For example, the building met the ambient sound levels recommended by AS 2107:2000 in 52% of locations sampled which is better than 30% of offices when compared with the Australian benchmark – the score achieved, is therefore 30%.

The tenancy and whole building acoustic comfort criteria includes more than just sound level measurements, as acoustic satisfaction for occupants also requires speech privacy and comfortable sound levels. Acceptable speech privacy means a person cannot understand conversations overheard from other areas. If there were no ambient sound, overheard speech would be perfectly intelligible and very annoying because of its information content, unpredictability, and uncontrollability. A moderate level of ambient sound can cover speech sounds or any other intermittent noise, and thereby provide privacy to the speaker and prevent distraction to unwilling listeners. However, ambient sounds that are very loud become annoyances and should be kept within comfortable limits.

NABERS IE also uses an occupant satisfaction survey to assess acoustic satisfaction for occupants and the impact that that this has on their ability to undertake their work. Scores are calculated based on how responses compare to other buildings. For example, if survey results for acoustics are better than 50% of buildings, the score obtained will be 50%.