Most people are familiar with the idea of green building or ecologically sustainable design (ESD). However, the idea of looking at what a building is like from the user’s perspective often seems to strike people as a novel idea.

But user perspective is important. Our modern lifestyles dictate that most of us spend our time indoors. The construction industry needs to be confident that the indoor environments were providing are pleasant.

This is increasingly important with the recent increase in green building. It’s easy to design a building that uses little energy, but it would be either too cold or too hot and probably dark and miserable. We need to find the best of both worlds. Any well designed building should be able to do the job it was designed to do, with minimal adverse effect on the environment.

Closing the loop between design and performance

Post-occupancy evaluation (POE) is the assessment of how an existing building measures up to its design intent. It’s an essential step in closing the loop between the design and actual performance.

Unfortunately, it is often ignored in practice – the ribbon is cut, the glasses are clinked and everyone moves on to the next project. They often repeat the same mistakes or, worse, change the things that did work. Carrying out a post-occupancy evaluation study on a building allows the design (and construction) team to identify what worked and what didn’t, or what the users like and dislike. The design process then evolves, as lessons from the previous job can be applied to the next one.

POE becoming integral to design process

Traditionally, post-occupancy evaluation has been underused, presumably because clients (who normally only tend to build one building) see little direct value from it. The Royal Institute of British Architects once included post-occupancy evaluation (or a design review) in their standard plan of work. This was later dropped, ostensibly because few people were prepared to pay for it.

However, with the increased interest in better buildings and recognition of the importance of commissioning and fine-tuning, post-occupancy evaluation is starting to be seen as an integral part of the design process. Some consultants are including it as an option within their scope of works, while Arup in the UK have begun to carry out design reviews on all their major projects at their own cost, in an effort to educate their designers.

User perceptions

Investigating the performance of an existing building consists of easily quantifiable things (energy, water and waste audits) and the more qualitative studies of how the users feel about it, which is much more subjective. Once the building is up and running, the quantifiable things can be measured and compared against known benchmarks. Ideally a building should be in operation for at least 2 years to allow a reasonable amount of data to be available.

User perceptions are much harder to quantify. Two methods are typically used – face-to-face interviews and focus groups of a selection of the occupants or a written (or, lately, web-based) survey of as many occupants as possible. Each has advantages and disadvantages. A focus group lets a selection of users discuss anything and everything, although this is hard to quantify and is open to bias from the interviewer. A survey allows responses to be quantified and benchmarked, although the validity depends on the response rate.

In either instance, the building should be in operation for at least a year before carrying out the survey. The occupants should have experienced all four seasons in the building to allow them to discuss conditions during summer and winter. This also gives some time for the novelty of moving into a new building to wear off and time for the facilities management team to iron out any teething troubles.

Using an established methodology

One of the leading exponents of post-occupancy evaluation is the Usable Buildings Trust in the UK. In the mid 1990s, they carried out the PROBE (Post-...
The methodology established is still followed today. It involves energy audits, an occupant survey and a review of the building’s design and construction. More recently, they have developed ‘soft landings’, which attempt to involve design teams in the delivery and performance of the buildings they’re drawing.

In recent years, George Baird of Victoria University has reviewed 30 sustainable buildings around New Zealand and the world and e3BW has reviewed several buildings in New Zealand. Because all these studies have used the same standardised occupant survey from the Usable Building Trust, it is now possible to benchmark the user satisfaction of New Zealand buildings.

‘Before and after’ surveys highlight staff satisfaction
The New Zealand sample is not made up entirely of sustainable buildings. It includes reviews of premises used by tenants before their new building is designed. This is an excellent use of post-occupancy evaluation as it allows the design team to use the users’ complaints about their existing premises to inform the design of the new building. Thus the client should see a direct benefit in the improved satisfaction with their new building.

In one case, before and after post-occupancy evaluations showed a remarkable increase in all aspects of staff satisfaction (including a self-assessed productivity increase of 15%) when moving from their old premises to their new, much improved building.

POE:s an essential link
There is nothing sustainable about designing an environmentally friendly building that is not fit for purpose or is unpleasant to use. Designers, developers and contractors all have a responsibility to ensure that the buildings they provide have a reduced impact on the environment and provide future users with a satisfactory environment to work, study or play in. Post-occupancy evaluation is an essential link in this process.