Post-occupancy evaluation (POE) and feedback – getting started

1. INTRODUCTION

Clients are increasingly interested in specifying buildings by output performance. Unfortunately, however, building performance assessment has not been a routine – or even a familiar - activity for most clients, designers and builders, so everybody is on a steep learning curve. This applies to a great extent all around the world, and not just in the UK. There are also cultural problems: while one might expect designers, builders and project managers to be experts on the performance in use of the buildings they make, this is not what they have been trained to do, nor have they been commissioned and paid to do it. They have been appointed to create or to change buildings, not to follow things through into operation, so they go away when their work is physically complete. If clients have their own building professionals, they often do the same thing, their job description being to procure the facility, not to breathe life into it. Even where things might appear to be more integrated – as in PFI – under the surface one can often find the same old processes and divisions of labour, sometimes even in an exaggerated form, e.g. with the role of the designer being more constrained. In spite of the rapid growth in facilities management, creative involvement of building operators in briefing and design decisions has also proved quite difficult to achieve.

2. THE NEED FOR PROJECT FEEDBACK

Of course, a lot is known about aspects of how buildings perform: research, publicised failures and personal and organisational interest and involvement create all sorts of feedback loops. However, most of these are not closely connected to the delivery of an individual project. Nor do they tend to detect minor problems, which can be advance warnings, or just low-level but nevertheless real impediments to the building and its occupiers achieving their potential; and can often be repeated in project after project. Meanwhile, the insights of organisations with large stocks of buildings have often become less precise as their design, maintenance and technical services departments have been outsourced, so breaking some of the feedback loops they used to take for granted.

3. POST-OCCUPANCY EVALUATION

In order to get better information on building performance, interest has been growing in post-occupancy evaluation (POE). In the past, POE has been largely research-based, and often covered a limited range of issues (in particular thermal comfort, energy performance, and environmental psychology), albeit often in considerable detail. For various reasons, integration of POE with everyday practice has proved difficult, from the pioneering Building Performance Research Unit at Strathclyde University onwards. Reasons for this disconnection seem to include:

- *Different priorities of building projects and researchers* – so a real-world approach is required.
- *Timescales of building projects* - so techniques need to be applied and analysed rapidly.
- *Uncertainty about the utility of results* - so proven techniques and benchmarks are important.
- *Uncertainty about costs and cost-effectiveness* - so robust, low cost methods are helpful.
- *Fears by designers of uncovering problems* – so start with a no-blame approach.
- *Fear by designers of affecting their PI insurance* – so insurers may need to be consulted.
- *Worries about being wise after the event, when all decisions have been made, the budget spent, and nothing much more can be done* – however, feedback information can often be applied at little cost to the benefit to the individuals and buildings concerned.
- *Uncertainty about whether the learning would be used* – certainly knowledge management systems in the industry can be creaky, but the people directly involved definitely benefit.
- *Reluctance of clients to pay for something they felt they should take for granted* – but clients do now seem more prepared to invest; and the costs will be recouped by better performance.

4. MAKING FEEDBACK AND POE ROUTINE

In recent years, owing to greater use, better analysis software, and the internet, POE techniques have become faster, cheaper and more robust, which helps to overcome many of the barriers. Clients are also more interested in understanding and improving building performance, occupant satisfaction and productivity, while leading design and building teams are beginning to realise its importance to their future credibility. However, there is a long way to go, progress is slow, and the dangers of being wise after the event remain. So POE should be seen as part of a continuous improvement process for all the parties involved; incorporated in a broad framework of developing insights, setting and managing expectations; providing follow-through and feedback throughout the life cycle of a building and of a project, and informing and learning from related projects.

5. WHAT RANGE OF TECHNIQUES CAN BE USED?
While a universal, standard technique has its attractions, several recent studies confirm that one size will not fit all. A balanced approach to suit the specific needs of the project and the client makes more sense. To be of interest to senior management, it may also be important to link what is examined to business drivers, e.g. *how is the building affecting our staff, what is its effect on their perceived productivity and can it be improved further, what is its environmental impact, and how could we get better value for money next time?* However, from the perspective of the design and building team, it is also necessary to focus on the things over which they have a direct influence.

6. WHAT SHOULD WE BE THINKING ABOUT?
Often people ask *"did the building meet our requirements?",* a question which is often difficult to answer because both the requirements and the actualities have changed since the project was initiated. Often a more useful set of questions is *"how well is the building working, how well does it compare with its peers, where can it be improved, and what lessons can be learned?".* Another important set of questions for any organisation is *"is it delivering its business benefits?".* However, this can be a complex mixture between the culture and management of the organisation; its effect on the psychology of the users; the design, operation and use of the building; and other aspects such as information technology support. When looking at building performance, it is often helpful to concentrate on the issues that are within the remit of the design, building and management team.

7. START AT THE BEGINNING IF YOU CAN
Ideally, when a project is initiated. This will help to get the brief straight by using POE techniques to understand the actual performance of the facilities you want to replace, and/or of other buildings you feel you could learn from. It is then possible to establish and calibrate some of the briefing requirements against achieved realities; to express them in a form that can be kept under review as the project develops; and to assess outcomes on the same basis when the building is in use.

8. CHANGING THE PROCESS
Starting at the beginning also allows the client to require the design and building team not just to commit to POE of the outcome, but to operate a management system that is performance-driven, constantly reviewing likely outcomes against client and design aspirations, managing expectations and making the maximum use of feedback throughout the procurement process. Soft Landings, a process developed in research led by Cambridge University, outlines how this can be done; and in particular easing the transition from construction project into operation including organisation, communication, fine tuning, support during initial occupation, and checks of energy performance and occupant satisfaction using POE techniques. It is usually impossible to retrofit something like Soft Landings after people have been appointed, owing to the difficulty and expense of changing habits and management systems in the middle of a job. However, there are many opportunities for using feedback and POE techniques at almost any stage in the life cycle of a building.

9. A POSSIBLE STARTER PACK
Some people get interested in POE, want to examine everything, and then grind to a halt owing to the complication, expense, and information overload. Experience suggests it is better to do a few things, gain confidence in them, and move on to more. Our suggested starter pack would be:
   - *An occupant survey* – so one can tell what people think and feel about the building. A number of surveys are available with different emphases, e.g. on the building and the internal environment, the workstation and the working environment, or on perceived productivity.
   - *An energy survey.* This throws light on much more than one might think: not just energy performance and greenhouse gas emissions, but specification, build quality, commissioning, control, management, maintenance, record-keeping and occupant satisfaction.
   - *A walk-through survey,* where the building is examined by experts in discussion with users.

   These three techniques formed the backbone of the successful Probe series of published POEs (plus a pressure test for air infiltration, which is now required under the building regulations).

   These can be augmented by facilitated discussions, including:
   - *Post-project reviews,* on how the project went, for the client, design and building team.
   - *Post-implementation reviews,* on the benefits the building is delivering for the organisation,
   - *Technical discussions,* between managers and design team on how the building is performing.
   - *Focus groups,* with occupiers and other stakeholders, on their perceptions and concerns.

   The method developed by the Higher Education Design Quality Forum covers the four aspects in four separate sessions, held on a single day unless the building is very large and complex. It is potentially applicable to almost any building type. More detailed analysis is of course possible.