

## EVOLVING DESIGN FOR CHANGING VALUES AND WAYS OF LIFE

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This paper describes current New Zealand practice of Post Occupancy Evaluation which is used routinely by several leading organisations to achieve buildings which are responsive to people.

Growing diversities in ways of life and on-going changes in technology, law and management demand good communication between people using buildings and those providing them. Opinions about built environments are recorded during touring walkthrough interviews of selected focus groups. The spatial experience of the walkthrough interviews provide participants with stimulus to respond with comments about strengths and weaknesses of their building.

This paper describes the Post Occupancy Evaluation process used for banks, police stations, petrol stations, schools, offices, medical facilities and other buildings. The process is designed to record a wide variety of values and meanings including detailed, global, functional or aesthetic in nature. One common type of issue is buildings' provision of appropriate conditions for person to person interaction. An example of this is issues relating to customers' aural privacy at police station and bank counters while maintaining eye contact and close proximity to adjacent staff. Similar relationships for confidentiality and supervision are sought in examination suites of army hospitals. The process is designed to facilitate a "partnership" of design professionals with individual building users. In this way they can develop ways of appropriately relating environmental features to evolving values and ways of life. Central to this approach is the thesis that sharing information between people with interests in subject buildings enables more efficient distribution of resources and evolution of buildings towards ideal environments.

Keywords: Post Occupancy Evaluation; Practice; Negotiation; Quality.

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## CONCEPTION EVOLUTIVE POUR DES MODES DE VIE ET DES VALEURS EN MUTATION

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Ce document décrit l'évaluation d'occupation des lieux en Nouvelle Zélande couramment utilisée par d'importantes organisations afin d'obtenir des édifices qui répondent aux besoins des utilisateurs.

Une plus grande diversité dans les modes de vie et des changements dans la technologie, le droit et la gestion imposent une bonne communication entre les utilisateurs et les fournisseurs d'édifices. Des opinions concernant l'environnement mobilier sont enregistrées lors d'interviews avec des groupes sélectionnés pendant une visite de l'édifice. Ces visites et les interviews permettent aux participants de mieux juger leur espace et de faire des commentaires sur les forces et les faiblesses de leur édifice.

Ce document décrit l'évaluation d'occupation des lieux pour des banques, commissariats de police, stations-services, écoles, bureaux, installations médicales et autres édifices. Le processus est fait pour enregistrer un grand nombre de valeurs et de significations qui peuvent être détaillées, globales, fonctionnelles ou esthétiques par nature. Un type de problème commun est la nécessité de fournir des conditions appropriées aux interactions personnelles. Un exemple de ce type de problème est le besoin pour un membre du public à un guichet de banque ou au commissariat de police d'avoir une conversation confidentielle tout en restant en vue et à proximité du personnel autour. Des relations similaires quant à la confidentialité et la supervision sont recherchées dans les salles d'examens d'hôpitaux militaires. Le processus a pour but de faciliter un "partenariat" entre les professionnels de la conception et les utilisateurs des édifices. De cette manière ils peuvent apprendre à développer ce qui lie les éléments de l'environnement de travail à des modes de vie et des valeurs évolutives. L'élément central de cette approche est la thèse que le partage d'informations entre des gens concernés par l'édifice permet une distribution plus efficace des ressources et l'évolution des édifices vers un environnement idéal.

Mot-clés: Evaluation d'occupation des lieux; Pratique; Négociation; Qualité.

## Introduction

Since 1990 several leading organisations in New Zealand have adopted routine employment of Post Occupancy Evaluation to ensure that their buildings are responsive to the changing needs of people who use them. Following the initial decade of Post Occupancy Evaluation development by the (former) New Zealand Ministry of Works and Development (Joiner and Ellis 1985), major state sector reforms and market liberalisation significantly changed the economy in the late 1980s. The initial effect of the reforms have been associated with a reduction in development of building evaluation however, widespread adoption of customer service attitudes in the early 1990s included a need to be accountable for the quality of design. Post Occupancy Evaluation was refocused on the quality issues it addresses (Mulligan and Watson 1990). The author has been conducting Post Occupancy Evaluations since 1984 and this paper refers, in general, to thirty-five evaluations conducted in 1993, 1994 and 1995.

A related development in New Zealand since 1990 has been the growth of the evaluation field in public sector management, research, audit and other diverse fields. Evaluation organisations have grown with branches of the Australasian Evaluation Society established and providing an infrastructure, network for practitioners and contributing to a climate in which evaluation is the routine.

## Application of Post Occupancy Evaluation



**Figure 1** Furniture in a banking chamber is commented upon by bank staff.

The organisations using Post Occupancy Evaluation do so in support of their commitments to building production which is focused on the needs of all people with interests in the buildings. The evaluations incorporate the views of the organisations' clients, their staff occupying the buildings, visitors, design and maintenance teams and senior managers responsible for the buildings and activities within them. These people evaluate the buildings in touring walkthrough interviews and their findings become the basis of recommendations to improve building designs and use. The evaluation information is in a form that both identifies the perceived strengths and weaknesses and stimulates action to make any adjustments to the subject buildings. The reports also identify opportunities to improve the designs of other similar buildings

being planned and better ways of using buildings.

A range of building types have been evaluated. Several organisations with large building portfolios use Post Occupancy Evaluation as a routine quality management mechanism for a sample of their new buildings. Other organisations, with just a single building may use evaluations to negotiate possible improvements for a redevelopment programme. An example of the single building evaluation is an owner-occupied apartment building on which a Post Occupancy Evaluation was conducted as a forum for the owners to exchange opinions about development and maintenance proposals. Some corporations with major building programmes have used Post Occupancy Evaluation to assess and fine tune international designs which have been implemented in New Zealand. The majority of evaluations have been of newly completed buildings; others have been of existing buildings with the evaluation being a part of planning for refurbishment.

### Post Occupancy Evaluation Methods

The author's Post Occupancy Evaluation methods are based on the former New Zealand Ministry of Works and Development procedures (Daish, Gray, Kernohan 1982). They share the principle that all people with interests in buildings can and should evaluate their environments and contribute to improvements in them. In this way, their values and requirements are mutually recognised and negotiations can be facilitated to achieve optimum environments from available resources. Post Occupancy Evaluation does not change the responsibilities of property managers or designers (Ansell, Beaumont, Watson 1986); it provides them with appropriate and structured information about evolving building users' values and ways of using buildings upon which to base decisions about designs.



**Figure 2** Police officers review exterior features of their new regional headquarters.

The touring walkthrough interview method (Watson, Beazley and Joiner 1995) uses the buildings to stimulate participant responses to in ways appropriate to themselves rather than to anyone else's prompting, agendas or questioning. Participant findings can include design, operations, marketing and other issues. Participation in the small group walkthrough interviews (typically 7 people) ensures that all participants have reasonable opportunities to present their views.

Participants are selected to represent all people with interests in the subject buildings. The staff who work in the buildings and their customers form the major interest groups. For example, customers and forecourt attendants form interview groups in a petrol station evaluation. Visitors also participate in Post Occupancy Evaluations so, for example, police station evaluations involve search and rescue teams, crime reporters and social workers. Building maintenance people, cleaners, carpenters, electricians, plumbers and the design and construction teams also review the buildings. Some Post Occupancy Evaluations also incorporate particular interests such as handicapped people or special expertise such as an ergonomist who recently participated in a Post Occupancy Evaluation of a retail building.

Questionnaires are generally used as secondary "instruments" to the touring walkthrough interviews. The author's observation has been that questionnaires are more commonly used in some departments of Australian federal and state governments. Questionnaires are also used for review of building programmes with many small projects. In this type of review, questionnaires are seen by the author as being additional to comprehensive evaluations of a sample of projects.

Observation studies of building users' behaviour compliment opinion based evaluations. Customer queuing positions (both on foot and at drive-in facilities) have been plotted as a part of some Post Occupancy Evaluations. Such observation studies have been for space planning and for evidence in a public planning hearing.

Design process, project management and contractual processes are reviewed in structured off-site project review meetings involving property managers, project managers, architects, builders, engineers and other members of the design and construction team.



**Figure 3** Refinements of design features for thermal comfort in a hot climate are an issue of this Post Occupancy Evaluation for the Queensland Education Department.

In association with Post Occupancy Evaluation, design proposals have also been evaluated. Some of the author's design projects involved building users in participatory briefing (programming) and subsequently in review of sketch plans and working drawings (Watson 1985). The author has also reviewed other architects' proposals at sketch plan stage. These have been reviewed with reference to many Post Occupancy Evaluations of similar buildings. The author has also conducted evaluations of his own design projects. As

noted above, some evaluations are conducted of existing buildings as a part of the planning for that building's refurbishment. These evaluations have been used particularly to target expenditure on projects with limited budgets (Joiner and Watson 1995).

### Meta Post Occupancy Evaluation

An evaluation process is not complete without being subject to quality review itself. The author's Post Occupancy Evaluation methods have incorporated meta evaluation type mechanisms since 1992 and now quality is monitored and improved through four mechanisms. The first two mechanisms are both questionnaires that are circulated to organisations commissioning evaluations and to the building users participating in them. Quality reviews of the evaluation practise have been carried out by independent reviewers including consultants using the New Zealand Quality Awards criteria (based on the Baldrige criteria). Opportunities for peer review are sought at international conferences in the fields of environment-behaviour and evaluation.

### A Common Issue for Building Users

In this section of the paper a common building issue which has occurred in similar ways in many building types is discussed. The issue important to many people is balancing privacy conditions with spatial openness. Examples detailed below relate to degrees of visual and aural privacy and open-ness for bankers meeting customers, teachers teaching students, army medics treating patients, and victims of crime speaking



with police.

**Figure 4** Medical examination in an army hospital needs to provide for patient confidentiality as well as allowing for doctors to supervise medics in training.

The first example of privacy conditions for meetings has been raised in many Post Occupancy Evaluations of banks. Both retail bankers and customers have described the importance of customers' ability to read the bankers' computer screens and documents without the information being legible to other nearby customers. Similarly, customers are concerned that conversations cannot be overheard. While these privacy

requirements are important to achieve, staff must also be in eye contact with, and earshot of, their colleagues for their security and to allow them to converse. Review of the privacy issue in Post Occupancy Evaluations has generated recommendations for refinements in desk ergonomics and layout and for staff protocols to improve retail banking environments.

The second example where the importance of particular privacy conditions has often been raised by building users is schools. Visual and aural isolation of classrooms affects noise and visual distraction from adjacent spaces. In some Post Occupancy Evaluations of schools, teachers have reported serious disruption to teaching as a result of external noise entering classrooms. Comments have recorded both the environmental changes sought by teachers and the value placed on the particular issue relative to other issues. Evaluation reports also record teachers' descriptions of the (mis)behavioural response of children subject to visual and aural interruptions resulting from the classroom design.



**Figure 5** The historic number one courtroom of the redeveloped Auckland High Court during its Post Occupancy Evaluation.

The third example is the particular privacy conditions required within army medical examination rooms. Clearly, medical ethics determine privacy requirements for examinations however another design consideration is the need for army doctors to supervise medics in training. This examination room privacy issue is one of several privacy issues raised in a Post Occupancy Evaluation conducted in preparation for design of another new medical treatment facility.

The last example of review of privacy conditions has arisen in police station Post Occupancy Evaluations. Feelings of intimidation from the presence of offenders in police station foyers have often been noted. Victims of crime reporting at public inquiry counters have particular requirements of foyer design. One evaluation records police officers' concern for a rape victim who reported the crime at the counter while standing next to a motorcycle gang member reporting on bail. Design strategies are under consideration to minimise such conflicts while supporting numerous other operational and security design requirements of police station foyers. In addition to design strategies, building users can improve environmental ideals by changing the way they use their buildings. One police station in Timaru, a country town in the south of New Zealand, has achieved separation of offenders from the public in its foyer by adopting a management change rather than any design change. They simply require people to report on bail in the early evening after most

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public business at the police station is complete.

## Communicating Building Requirements to Designers

In accordance with the general requirements for accountability in organisations, Post Occupancy Evaluation report recommendations have been presented with "transparent" logic. Participant comments are recorded verbatim or paraphrased and are treated as "evidence" from which recommendations are developed. The report format provides for review of the full basis of recommendations and further inquiries with the participants if necessary. Any opinions about the building offered by the evaluator are made explicit and recorded with participants' findings.

Recommendations developed from Post Occupancy Evaluations are generally of four types: firstly, for fine tuning minor items of the subject buildings; secondly for deferred changes; thirdly, for recommendations to improve designs of future buildings; and lastly, for focused study of complex design and/or management issues.

## Benefits of Post Occupancy Evaluation



**Figure 6** This petrol station with its retail store and car wash were evaluated by staff and customers giving rise to recommendations about both marketing and design issues.

Building programmes have benefited from Post Occupancy Evaluation in the following ways.

- By facilitating open exchange of opinion about buildings and recording all participant comments, accountability is provided for the subjective matter of building quality. Post Occupancy Evaluation is now routine in several organisations because it provides this accountability needed to demonstrate that building programmes are being managed with responsibility to buildings' interest groups.
- Buildings which have been the subject of Post Occupancy Evaluation have, in general, been designed by experienced and specialist teams in New Zealand, Australia, United States and Singapore. The Post Occupancy Evaluation programmes have served to confirm general user satisfaction with the buildings. Such confirmation is necessary for organisations with accountability and auditing programmes for building quality to ensure that buildings support, not frustrate operations.
- Design improvements have arisen from Post Occupancy Evaluations. The banking industry's transition to

electronic customer interaction has influenced the evolution of banking chamber designs. One of a series of Post Occupancy Evaluations has been used to document customer and staff opinions about a new banking centre. The new banking centre incorporates automatic and personal service at drive-through lanes. Opinions of customers and staff have been the basis of recommendations for fine tuning new banking centre facilities. Another example where Post Occupancy Evaluation has been used to identify opportunities for design improvements is standard school design currently being constructed in Queensland, Australia. Their design was fine-tuned as a result of Post Occupancy Evaluation work by the author.

- Participants of Post Occupancy Evaluations have regularly documented their appreciation for the opportunity to contribute their opinion about the design of their environment.
- Documentation of opinions about how buildings support or frustrate activities includes references to the effects of design on the organisation. Numerous complex design issues are recorded in most Post Occupancy Evaluations. By documenting the relationship of building use to organisations' operations, marketing and human resources Post Occupancy Evaluation highlights the importance of design to the organisations.
- Some evaluations were conducted with the primary objective of saving capital expenditure on building construction. By conducting structured discussion workshops participants have recognised budget limitations and negotiated resource allocation precisely to meet their needs.

## Conclusion

Post Occupancy Evaluation methods have evolved with organisations' need to account for building quality. The methods incorporate quality review mechanisms for further evolution and development. Reporting of design recommendations also has become "transparent" to provide for direct review of issues and for further investigation in planning for design and use of buildings.

In a business environment with constant change and routine evaluation in most areas of activity, Post Occupancy Evaluation highlights the importance of design to organisations' marketing, operations and other interests. Evolving law, market trends and information technology changes the activities of people and therefore the requirements of designs. Evolution of environmental ideals for changing ways of life and values is dependent on design practices clearly identifying these changes. Post Occupancy Evaluation provides the dialogue with building users about their ways of life, their values and their environmental ideals.

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