

Preferences on Office Quality Attributes

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Abstract

Investigations were carried out to determine property specific qualities such as age, services provision, configuration, appearance etc. on their effects on the perception of quality in office buildings. Four groups of respondents in Sydney CBD were surveyed namely owners, designers, property managers and office users in general. Their differences in perception of the importance of various quality attributes were analyzed using the Analytic Hierarchy Process (AHP). A priority list of the various attributes in contributing to overall quality of office building in Sydney CBD is presented.

Keywords

office building quality, Analytic Hierarchy Process (AHP), user requirements

Introduction

As part of a project in assessing quality of office buildings (Ho, 1997), it is necessary to obtain preferences on attributes in office buildings such as age, services provision, configuration, appearance etc. and determine their relative effects on the perception of quality in office buildings. Interviews were carried out to solicit views of Sydney CBD office users on the relative importance of items on a list of building attributes (Table 1) in contributing to overall quality in office buildings. In this paper, quality in building is defined as how good the building in meeting the objectives and requirements of the respective group.

Background

Building evaluation is 'the systematic assessment of building performance relative to defined objectives and requirements.'(Baird *et al*, 1996). There are numerous dimensions of design quality in the process of building design. Hough and Kratz (1983) used the historic landmark status and the Chicago American Institute of Architects jury award (CAIA) as proxies for architectural quality. They relied on notions of an award or status which was assessed by means of judgments of a panel. This may not necessarily reflect views of some groups, such as the users and property managers. Vandell and Lane (1989) on the other hand obtained the grading between different buildings by collecting judgment on eight aspects of building design from a survey return of twenty-eight architects. Both papers attempted to investigate the quality of architecture (or basically aesthetics) as one of the factors which affect rental and vacancy level of office buildings.

Baum (1994) defined quality in buildings as resistance to depreciation and suggested the following as determinants of building quality :

1. Configuration (plan layout, floor to ceiling height);
2. Internal Specification (services and finishes);
3. External Appearance (exterior and common parts) and
4. Durability of Materials (resistance to external and internal deterioration).

A panel of three valuers was asked to produce consensus views of the quality of the sample buildings based on the above factors, using a scale of 1 to 5. Staveley (1995) proposed a simple to use methodology to evaluate quality of buildings. The evaluation was based on assessment of the following categories with sub-headings (96 in total) under each category:

1. Location/Aspect
2. Function/Features
3. Control/Management
4. Environment/Heritage
5. Services/Flexibility

The relative importance of each item to users was found out from a preference survey to CBD office tenants in Sydney and transformed to a weighting of '1', '2' or '3' indicating the relative importance.

The Building Quality Assessment (BQA) methodology (Issacs *et al*, 1994) is one of the most comprehensive tool for scoring the performance of a building. It lists out important attributes of an office building in a hierarchical form with a total of 9 categories and 130 factors. Weighting to reflect the relative importance was calculated from the result of a survey to 63 real estate practitioners across Australia and New Zealand. The BQA is comprehensive in listing out the various essential design parameters and developed a detailed comparable grading system for each factor. However, the weights assigned to different aspects of a building (which indicate their relative importance) and its restricted use by trained assessors need further considerations.

The BOMA Leading Edge Research (1995) on tenant demand surveyed office users and industry experts across Australia on a wide range of issues such as importance of factors in choice of office accommodation, satisfaction with current building, workspace ratio, office layouts, decentralization etc. The result indicated that air conditioning and lifts were the sources of most dissatisfaction amongst office tenants in Australia. Gym and showers were the additional amenities which were found to be useful by the tenants.

Methodology

Scope of survey is restricted to respondents with offices within the Sydney CBD. Companies are short-listed from the directory of members of the Property Council of Australia (PCA, formerly the Building Owners and Managers Association or BOMA). Members of the PCA in general showed awareness of the property market and views

on property attributes are therefore more relevant. Only companies with addresses in Sydney CBD were contacted because of their link and familiarity with the CBD. The respondents were grouped under four categories : property owners and institutional investors, designers of buildings, property managers and office users in general

A face-to-face interview is used to minimize the chance of misinterpretation of terms and checking for consistency. The sample consisted of a cross section of different sizes of companies (Figure 1). All interviewees are at executive level responsible for accommodation issues in their companies so the sample represents a fairly typical view on the topic. The survey was carried out between January and June 1998.

A hierarchy of building attributes is compiled by referring to previous research and publications such as those discussed in the previous section and Duffy, F., Laing, A. and Crisp, V. (1993), Hartkopt, Volker and others (1993), Raymond, S. & Cunliffe, R. (1997) etc. The main hierarchical structure resembled that of the BQA but there are only six categories and number of factors under each category is limited to five. In order to avoid the confusion of judging a large number of attributes at the same time and rating arbitrarily to show the importance, respondents are asked to compare each and every category and factor *in pairs*. In this way the *relative* importance of each factor in determining quality will be obtained which is more reliable and consistent. The Analytic Hierarchy Process (AHP) (Saaty, 1996) will be used to analyze the pairwise comparisons to obtain the set of weightings.

During the interviews, the hierarchy of building attributes (Table 1) is presented to the respondents. The respondents are required to compare each and every categories and factors in pairs. They have to indicate which one of the pair of attributes is more important than the other, as far as quality to typical office buildings in Sydney's CBD is concerned, and then indicate the degree of importance of one over the other. Equal importance for any pair of attributes is permitted. The AHP is then used to analyze each response which produce a set of weighting for each category and factor for each respondent. The medians of the weightings obtained within the same group are then taken to represent the relative importance and preference of the respective group on those attributes. The analysis is carried out by the software 'Expert Choice' which simulate the AHP and the weighting are exported to a spreadsheet for analysis and production of subsequent graphs and comparisons using Excel.

Results

A total of 115 respondents were surveyed and the breakdown on different groups is in Figure 2.

a. Categories

Figure 3 shows how the six categories of building attributes as preferred by different groups in contributing to the overall quality. It was not the designers who put 'presentation' as the highest amongst the groups. In fact it was the owners who showed preference on the presentation of a building as a means to improve its overall quality. The customer (the users) was the group which put presentation lowest compared with other groups.

It was not surprising that property managers put ‘management’ ahead compared with other groups. Users concerned about management standard is understandable, as building management is the day-to-day contact with regards to running of the building and its services. Both owners and designers indicated ‘management’ as of lesser importance as they can be replaced relatively easily and so not of much significance.

‘Functionality’ was the most important category indicated by all the respondent groups, except the users. The emphasis on services by users played down the relative importance of functionality in contributing to the overall quality of a building. Designers rated ‘functionality’ as their most important category mainly because they usually start the design process by working around constraints such as plan (site) shape, allowable floor plate sizes, floor-to-floor heights, loading requirements.

There was a marked deviation of the perception of ‘services’ by users with the rest of the respondents. In fact the users rated ‘services’ the most important amongst other categories. This indicated the owners, designers and property managers should put more emphasis on delivering a more efficient, flexible and reliable services system in their product (the building) in order to satisfy the demands of the users.

The perception of ‘access and circulation’ is quite consistent amongst the groups being at a ranking of 3-4. ‘Amenity’ received the lowest ranking by all the groups because it is sometime viewed not as an essential part but as a ‘bonus’ to the accommodation. The overall ranking of categories is:

1. Functionality
2. Services
3. Access and Circulation
4. Presentation
5. Management
6. Amenities

b. Factors

Figure 4 shows the preference amongst the factors by all groups combined. Weighting for all factors are normalized to sum up to an overall weighting on one. Of all the factors, ‘column layout and subdivisibility’ received the highest ranking overall, followed by ‘space efficiency’. Both of them are grouped under ‘Functionality’ which is the most important category viewed by almost all respondents. It was noticed that the first six most important factors added up to 50% of all the weightings. In fact half of the factors alone accounted for more than 80% of all the weightings.

Conclusions

The result strongly indicated preference on the efficiency of the work space and comfort level of occupants. In order to improve the perceived quality of an office building, more emphasis and resources are needed in raising the standards and performance of functionality and services aspects of the building.

It must be stressed that the survey refers to Sydney CBD only. Differences are expected if similar survey is carried out in other cities or even in other capital cities within Australia. Nevertheless the survey revealed differences and concurrence in perception of quality in buildings in certain areas. Owners and designers should try to understand more about what their customers (ie. the office users) want and try to fulfill them without compromise to objectives of their own. The data on preference is useful in future research on building quality assessment, office design, post-occupancy evaluation and in building management.

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Table 1 : Categories and Factors to be Considered in Assessing Quality of Buildings

CATEGORY	FACTORS
1. Presentation	1.1 External facade/identity 1.2 Finishes specification for internal common areas 1.3 Design of entrance and foyer 1.4 Number of storeys 1.5 Age of building
2. Management	2.1 Security and access control 2.2 Maintenance policy 2.3 Cleaning services 2.4 Energy conservation and recycling policies 2.5 Computerised Building Management System (BMS)
3. Functionality	3.1 Floor size 3.2 Floor-ceiling height 3.3 Space efficiency 3.4 Column layout and subdivisibility 3.5 Floor loading
4. Services	4.1 Toilet facilities 4.2 Electrical and I.T. services 4.3 Work environment 4.4 HVAC control and capacity 4.5 Ease of services upgrading and maintenance
5. Access and circulation	5.1 Passenger lifts performance and control 5.2 Goods lifts and loading bay design 5.3 Number of carpark in building 5.4 Carpark ingress/egress, to/from building 5.5 Building wayfinding
6. Amenities	6.1 Landscaped garden or courtyard 6.2 Banks, postal and other retail services 6.3 Health club or gym 6.4 Food outlet or restaurant 6.5 Kitchen or pantry for tenants

Figure 1
Distribution of Sizes of Firms Surveyed

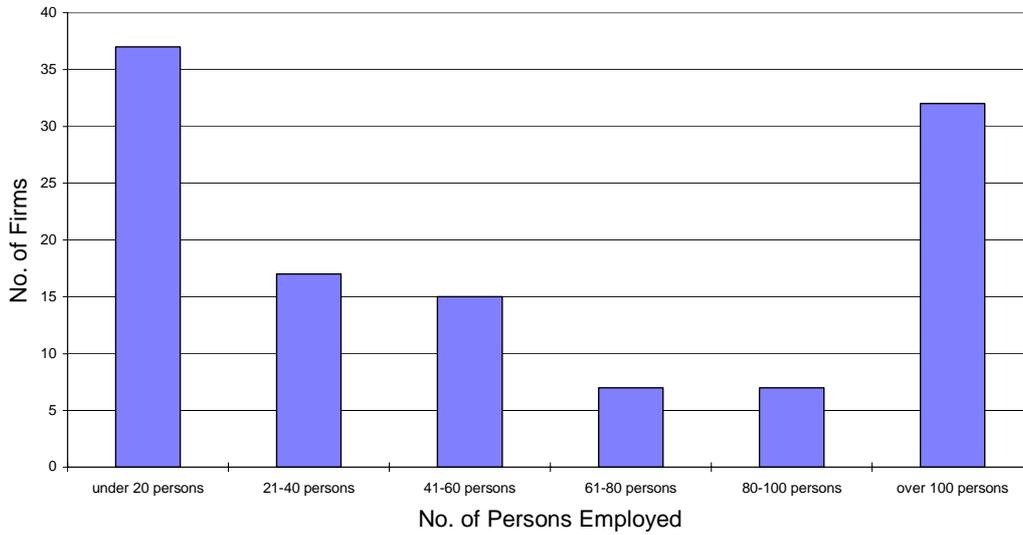


Figure 2
Distribution of Types of Firms Surveyed

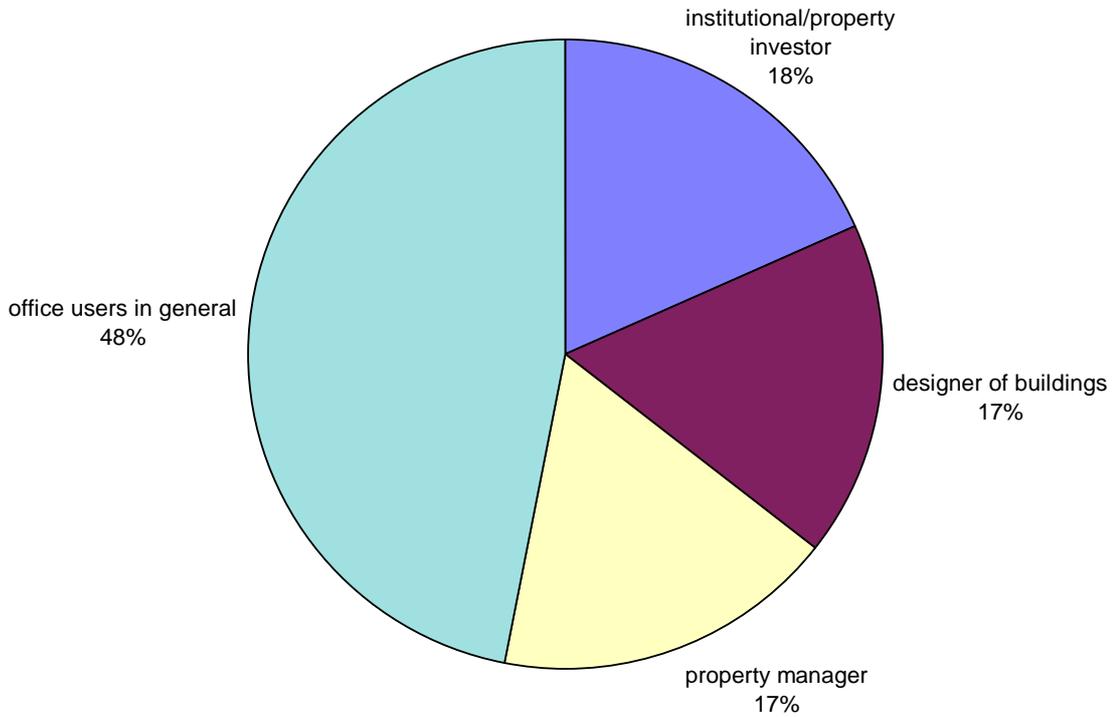


Figure 3
Overall Categories Weightings

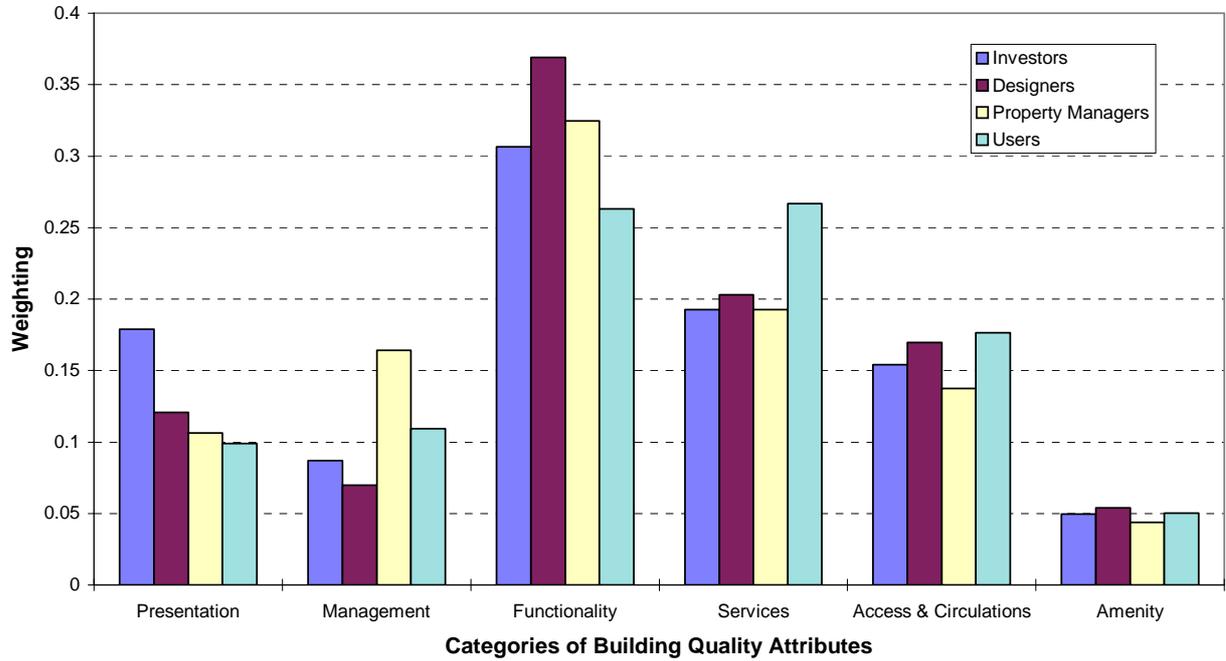


Figure 4
Weighting for All Factors

