ENCOMPASS SUSTAINABILITY

Post Occupancy Evaluation
40 Albert Road Site Report

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October 2006

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1 Introduction

Szencorp headquarters, at 40 Albert Road was opened in November 2005. Currently around 30 people occupy the building which has the capacity to accommodate up to 60 people.

40 Albert Road is the first re-furbished 6 Star Green Office Building. The Green Star score of 83 Green Star points established 40 Albert Road as a world leader.

Some of the key ESD design features of the office fitout include:

- Water saving features such as reduced flow tap-ware and shower-heads, water-less urinals and efficient toilet suites, and rain water harvesting
- Low impact and VOC material selected such as reconstituted veneers, wood pulp panels, polyester (not vinyl) privacy and graphics film (used to provide a degree of screening), E-zero (low emission) MDF (medium density fibre-board), friendly leather (leather is specified as non-chromium treated) and recycled timber
- Efficiency Improvements to the building envelope:
  - Insulation cladding on walls and roof
  - Increased ceiling height allowing the use of the thermal mass of the building for improved energy efficiency
  - Double glazed façade

In September 2006, Encompass Sustainability conducted a Post Occupancy Evaluation review of Szencorp staff at 40 Albert Road. The objectives of the review were to measure how staff perceived their working environment including satisfaction of the current facilities, asses the level of stakeholder engagement of the new office move, compare the responses to the Pre-Occupancy conducted the previous year and to benchmark 40 Albert Road against 45 Australian buildings.

Key findings from the post occupancy evaluation:

- There was a high level of staff engagement and communication about the new office move.
- Staff housed within 40 Albert Road enthusiastically engaged in the survey with a 92% response rate.
- Results from the BUS Study rated comfort, design overall, perceived productivity and health all above average.
- The building rated in the top 6% percent of the Australian benchmark and the top 11% of the International Green dataset, for overall building performance, and meeting building users needs.
- The building rated as the best performer for air freshness (in winter), image to visitors and odourless air across the Australian dataset.
- The main sources of dissatisfaction with 40 Albert Road were the control of the ventilation system and the dryness of air in winter and summer.

The important focus of a Post Occupancy Evaluation is to capture the learnings and facilitate forward thinking; thus building a knowledge base for future projects. Extending the POE process to include objective analysis of occupants' perceptions of their workplace has enabled valuable information to emerge and provide opportunities for further improvements.

To maximise the investment in this project, it is recommended that Szencorp build upon the knowledge gained and address the various issues that have since emerged.

2 BUS Survey results

Throughout September 2006 personnel at 40 Albert Road had the opportunity to participate in a business evaluation survey – the Building Use Studies (BUS) occupant survey. These results were able to be compared with a pre occupancy survey conducted in October 2005.

The response rate for the BUS occupant survey was positive, with 92 percent of staff participating.

The results from the BUS occupant survey and focus group feedback are discussed below.

2.1 40 Albert Road: performance against national benchmark

The BUS benchmarking system allowed an assessment of individual buildings against norms and best practice. The survey allows benchmarking and comparisons across different building types.

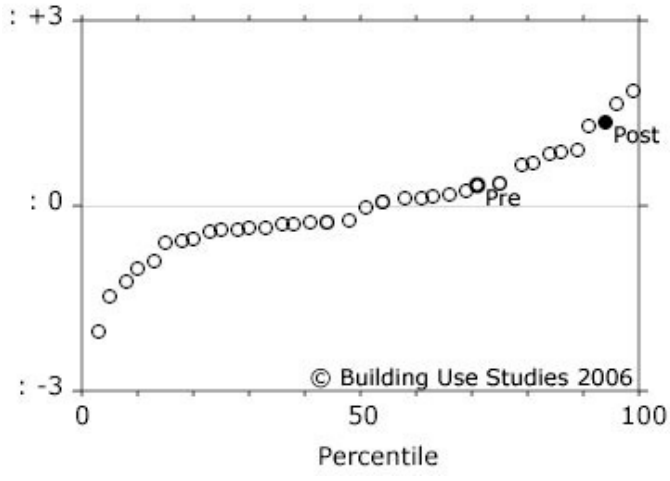
The benchmark sample for Australian buildings surveyed by Building Use Studies is 40. As indicated in Figure 2-1 below, 40 Albert Road ranked in the top 94% percentile (identified as Post on the graph) of the national benchmark for building performance. The building was ranked in the top six percent for comfort and top nine percent for satisfaction. This data set is based on 10 variables which are:

Top: 40 Albert Road, original façade.

Above: 40 Albert Road Szencorp building today.

- Comfort overall
- Design
- Health
- Image
- Lighting Overall
- Needs
- Noise overall
- Productivity overall
- Temperature in summer overall
- Temperature in winter overall

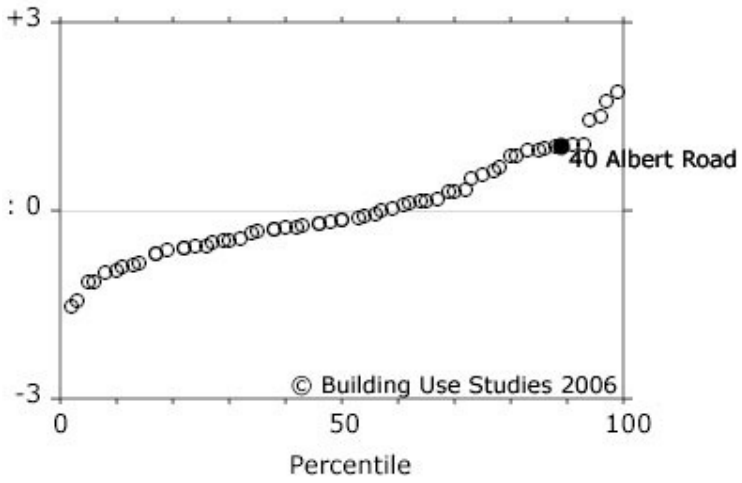
Figure 2-1 Summary Index – 40 Albert Road plotted against Australian benchmark data set



2.2 40 Albert Road performance against international green benchmark

Building Use Studies have recently established a benchmark data set based upon its database of international buildings that have undertaken a BUS occupant survey that have a 'green' design 'intent'. The total number in the data set is 61. 40 Albert Road ranked at the 89th percentile on the Summary Index, so it is in the top 11 per cent overall.

Figure 2-2 Summary Index: International green benchmark



2.3 Overall comfort

"I love the way the lighting works it feels like the building is responding to my needs."

'Overall comfort' is an umbrella variable which covers people's perceptions of heating, cooling, ventilation, lighting and noise taken together in an overall assessment.

The more comfortable people say they are (averaged for each building in the dataset) the more productive they say they are, staff rated the building as above average which is significantly higher than the benchmark.

2.4 Levels of personal control

If you sit still for too long e.g. reading, the lights go out and you have to move to switch them on again.

Building design is improved when staff have greater control over their environment.

At 40 Albert Road staff perceive that they have minimal to little control over ventilation, heating and cooling; these were rated poor or very poor with noise rating below average.

Heating and cooling rating were no different than benchmark however, ventilation was significantly lower. A high proportion of staff (73%) were dissatisfied with their level of control over heating and cooling, and 81% percent of staff dissatisfied with their level of control over ventilation.

2.5 Lighting

Lighting was rated above benchmark with staff commenting that they liked the way the lighting and lighting levels worked automatically; interacted with their presence.

2.6 Ventilation

Perceived productivity is closely associated with thermal comfort, so it is crucial that a stable, comfortable, controllable thermal environment is provided. This is the single most important factor in helping to improve occupant satisfaction.

Staff have rated the air as 'to still' and 'to dry'. Both summer and winter were rated below benchmark and 'very poor' by staff. As can be see below the still/draughty variable rated red (See Figure 2-3).

This analysis needs to be balanced with the fact that staff have rated 'air freshness' as above average; significant lower (which in this case is positive) that benchmark; Figure 2-4.

Figure 2-3 Air in summer still/draughty

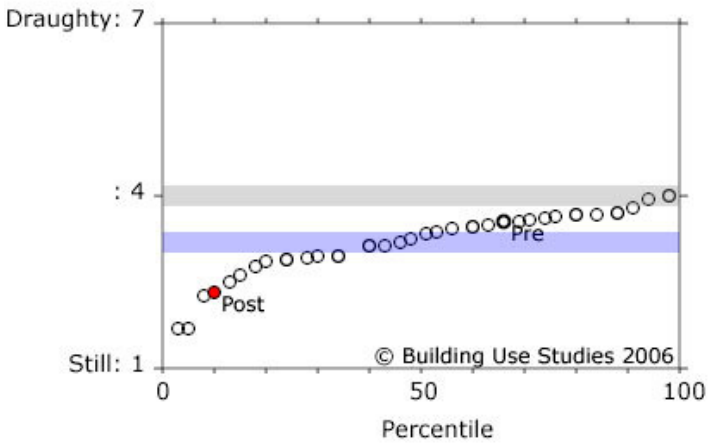
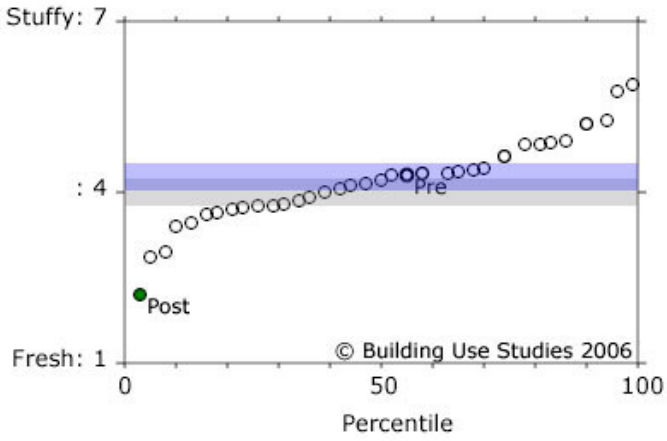


Figure 2-4 Air in Winter Fresh/Stuffy



Although occupants perceive the air to be "to still and to dry" they do not appear to link the stillness with stuffiness. Only one participant rated the air in summer as stuffy with 76% rating it as fresh. The building rated as the best performer for air freshness across the Australian dataset.

2.7 Perceived productivity

Self-assessed productivity is significantly associated with perceptions of control in buildings. Perception of control is measured by the average of five variables for perceived control over heating, cooling, lighting, ventilation and noise.

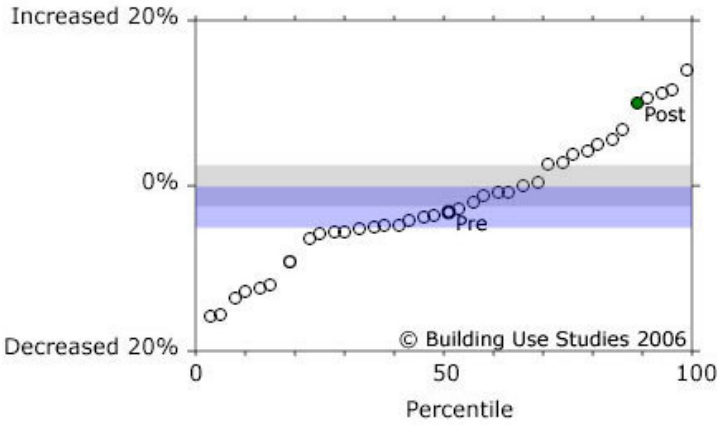
A pre occupancy BUS study was completed in 2005 therefore a comparative analysis of perceived productivity pre and post occupancy was able to be undertaken.

Staff rated their perceived productivity level at 40 Albert Road at +10% with the previous tenancy, 390 St Kilda Road, as -3.12%. This is a perceived productivity improvement of 13.1%.

"[Productivity] only decreases when I am uncomfortable - i.e. when air conditioning is not working properly." Bus Study participant

Over 50% of staff said their productivity had improved, 38% indicated that there was no change and 8% perceived a decrease. Productively levels varied across each floor level. i.e. higher/lower productivity was not attributed to a particular floor. Szencorp's 40 Albert Road, falls at the 89th percentile on the top axis (i.e. in the top 11 per cent of the Australian dataset); see figure 2-5.

Figure 2-5 Perceived Productivity at 40 Albert Road

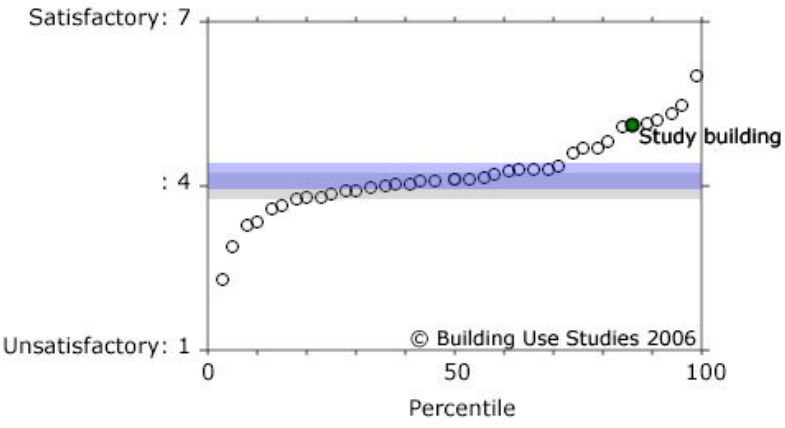


"Our office is opposite the kitchen - noise comes from there". Lvl 4

2.8 Noise

According to the BUS rating score, overall noise scored above average, which was significantly higher than benchmark. Sixty percent of staff were highly satisfied with the overall noise levels and unwanted interruptions, noise from colleagues rated poor; figure 2-6

"Sounds travel through out the floor." Lvl 3



"Sometimes the office is a little too quiet hence the radio playing softly in the background". Lvl 3

Staff rated 'other noise" in the building as too quiet which is below benchmark. Although this may sound peculiar, some environments which are too quiet can be as problematical as ones which are too noisy as some people also like outside noise so that they can 'connect' with the world.

It would appear there is considerable noise on Level 1 from the car park door opening and closing.

Above: 40 Albert Road before refurbishment. NB. partitioning & high usage of artificial light.

Below: new fitout with increased use of natural light.

2.8.1 Open plan and change management

The results regarding noise do need to take into consideration that the building is only accommodating 50% of its capacity.

There was a perception by some staff that there could be a significant increase in the noise levels when more people occupy the building.

The number of meeting rooms that exist are adequate for the needs of current staff levels. What could become a concern is when staffing levels increase and small "informal" desk meetings evolve. These meetings can often occur in the kitchen areas close to where other staff are working.

To minimise the potential rise in noise levels as the occupancy levels increase, it is suggested that managers discuss noise and open plan issues with staff on an ongoing basis. It is important to talk about this subject as it is often uncomfortable for staff to discuss directly with their colleagues.

Recommendations:

- Managers are encouraged to discuss office etiquette on a frequent basis at team meetings.
- As the levels of staffing increases Szencorp and its subsidiaries may need to review staff satisfaction around the noise levels.

2.9 Storage and knowledge management

Over 60% of staff are highly satisfied with the new storage areas and 30% of staff dissatisfied; a large improvement of the 90% staff dissatisfaction of the previous offices.

Lower satisfaction ratings generally came from Level 3. The main issues that often arise with filing/storage system are the needs of flexibility and adaptability for different users.

2.9.1 Desk/work areas

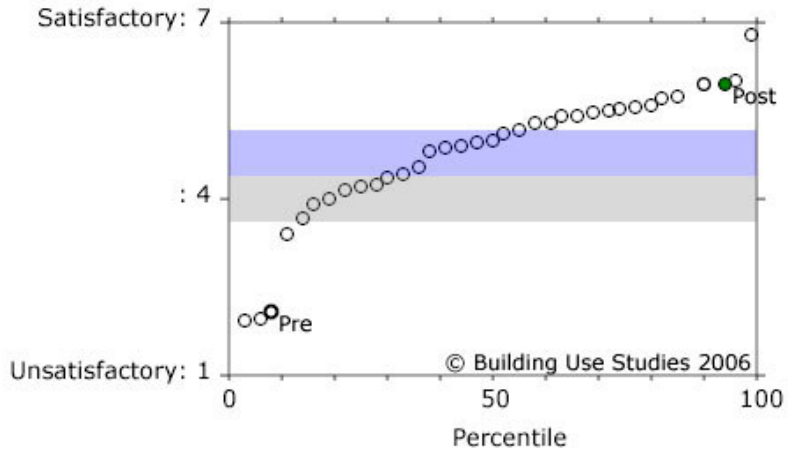
The space at desk variable was rated 'below average', only a slight improvement from 390 St Kilda Road's 'poor' rating. Szencorp rated in the 60th percentile for space at desk.

The majority of staff rated their desk area as satisfactory; 25% of staff are unsatisfied. This level of dissatisfaction could increase with increased occupant numbers.

2.10 Meeting rooms

The lack of meeting rooms at the previous offices 390 St Kilda Road was identified as a factor that hindered peoples work performance. Staff perceive a large improvement in meeting rooms at 40 Albert Road which was rated as above average. This rating needs to be in placed context of the current staffing levels. A 20-30% increase in staff highly is likely in the near future which could place pressure on the availability of meeting rooms.

Figure 2-6 Meeting rooms access and appropriateness



2.11 Tolerance/Forgiveness

'Forgiveness' helps quantify the tolerance occupants have for chronic faults. Values normally are in the range 0.5 to 1.5, with values greater than one indicating relatively more forgiveness.

The forgiveness factor for 390 St Kilda Road was rated in the bottom 30% of the dataset. 40 Albert Road's forgiveness/tolerance factor was rated by building users in the top 11 percent of the Australian dataset.

Research has shown that people can be more forgiving of uncomfortable variables of a building when they have more control over the environment or when users understand better what ought to happen. It would appear the latter is occurring at 40 Albert Road.

"[Users can be] more tolerant if actual performance does not quite live up to expectations. In studies of buildings which have occupants who are themselves designers, we find that the occupants also tend to be even more tolerant, while one might have expected them – knowing how the design might have been better – to have been more critical of under-performance[1]*".*

Staff noted in the focus group that "we are more critical of this building because it is our own".

2.11.1 Request for changes

The request for changes has increased from 25% to 50%. It was suggested by staff that this was due to the perception that 40 Albert Road was "our building" rather than 390 St Kilda Road where staff may have felt less comfortable about requesting changes.

Of note just over 50% of staff are dissatisfied with the effectiveness of request for changes made.

Recommendation:

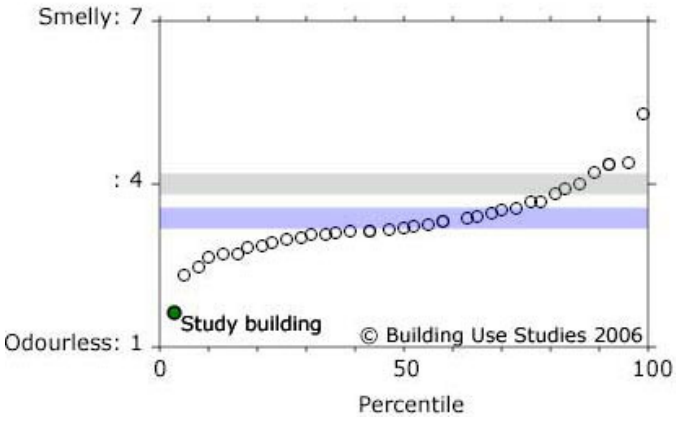
Provide clear and frequent communication about the functioning of the building and that the optimization of the heating and cooling system will take time to understand.

[1] Leaman A & Bordass B 2005, Productivity in Buildings: the Killer Variables, downloaded 12 June 2006, http://www.usablebuildings.co.uk/Pages/Protected/KillerUpdate2005.pdf

2.12 Odour and indoor air quality

It is important to highlight the positive response towards the quality of the air. As seen in figure 5-6, 40 Albert Road ranked the highest in the 2006 BUS Study benchmark. Nearly 90% of staff were highly satisfied with the air quality in winter. Similar results were given for air quality in summer.

Figure 2-7 Air in winter odourless /smelly



3 Other Key Themes and Issues

The BUS Survey, focus group and building walk-through undertaken by Encompass Sustainability have highlighted a number of key issues and themes.

"A little bit sterile and does not have a cosy feel to it otherwise contemporary."

3.1 Stakeholder engagement

The focus group discussed various ways staff had been consulted and communicated to regarding the new office spaces.

It would appear that the majority of staff had been effectively engaged and were pleased to be involved. There were a number of comments regarding the capacity of the architects. Some in the focus group felt that the architect did not fully grasp the concept of ESD design. The architects responses to concerns raised highlighted the gap in knowledge regarding integrated ESD and reduction of energy usage.

"Our showering facilities are not encouraging people to use their bikes to travel to work"

3.2 Tearooms and kitchens - a place of interaction

The importance of a well placed tearoom is a key asset in bringing groups together.

The concern to staff is when they are in close proximity to working areas. Occupants located near these areas, can feel uncomfortable about asking people in the kitchen and seating areas to be quiet. This situation is not a pressing issue at the moment but as occupant numbers increase so can the noise levels and occupant satisfaction.

"Glare from windows even when blinds are closed." Lvl 4

3.3 Bikes, lockers and storage facilities.

Bike lockers and shower facilities are available for occupants. Placed in a carpark with little thermal mass, the area is extremely cold in winter. The lack of sinks and mirrors make it difficult to shave and use the area affectively.

There are no storage areas or hangers for damp towels and it is unsuitable to place them in lockers with other clean clothes. Occupants mentioned that much time is wasted travelling to and from the shower, upstairs bathrooms and office floors to get ready for work.

Despite the growing popularity in bike travel and exercising at lunch time, showering facilities appear often to be a poorly designed area.

3.4 Glare and heat load

A number of staff commented on the glare and heat coming through the west facing windows. It is understood that Szencorp wanted to test the impact of not having shading. There is currently a project being investigated for solar shading on Level 4's west facing side.

3.5 Personalizing and building aesthetics

A number of focus group participants raised some apprehension that the building/work areas were quite sterile. It was discussed within the group that the design and layout was to show case that "green offices" could be "slick" and contemporary. Occupants suggested more plants and artwork be added to softened and personalised the space.

3.5.1 Plants

It would appear from research conducted by the University of Technology Sydney that there is positive effects on building occupant's health, well-being and productivity that result from the presence of indoor plants in the workplace.[2]

Szencorp may wish to consider whether to increase the number of plants across all floors.

3.6 Journey to work

Transport is an area that people tend to overlook when considering the effect of their workplace on the environment. Workplaces can be heavy users of transport, both in commuting and business travel. Company cars, free fuel and parking are commonly linked to remuneration. 'All the best 'green' ESD strategies can be lost by car-borne journeys to work.'

The location of 40 Albert Road makes it easily accessible by public transport. Of concern with the journey to work results of 40 Albert Road, a centrally based organisation, was the high proportion of staff using cars and of equal concern they are travelling solo and relatively short distances.

Figure 3-1 below highlights the high percentage of staff, 77% in a car by themselves. Nearly 42% of staff travel under 30 minutes to work: see figure 6-2.

Figure 3-1 Travel to work BUS survey results

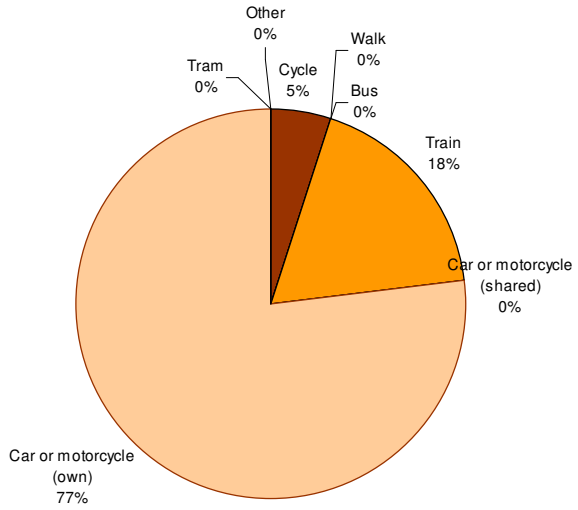
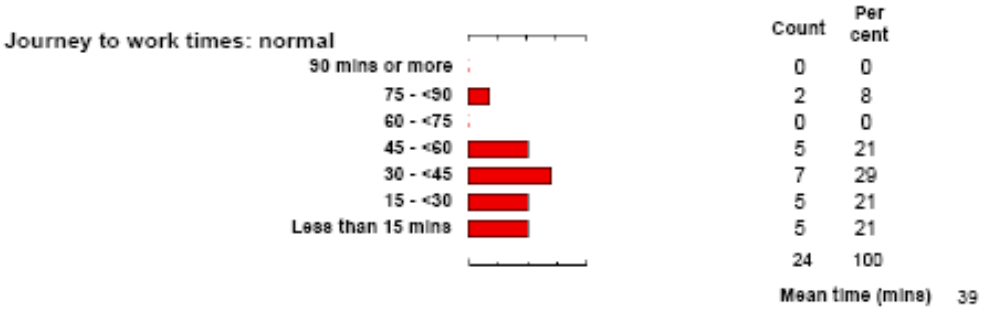


Figure 3-2 Travel to work journey times



[2] Wood, EA 2003, *Improving the indoor environment for health, well-being and productivity*, http://www.aila.org.au/nsw/greeningcities/papers/proc_wood.pdf, viewed June 2006.

Cars contribute 8% of Australia's greenhouse gas emissions. The fuel used by cars increased by 16.8% from 1990 to 2000, and emissions increased by 22.2% in the same period.

It is recommended that a TravelSmart carpooling program be implemented at 40 Albert Road with client visits utilising pool car/s.

TravelSmart Australia brings together the many community and government based programs asking Australians to use alternatives to travelling by private car.

The Victorian government has a TravelSmart program which asks people to make voluntary changes in their travel choices, encouraging them to use other ways of getting about rather than driving alone in a car, e.g. using buses, trains, carpooling, cycling, walking or tele-working.

According to the Victorian government[3], carpooling is often regarded by staff who regularly drive alone as the easiest and most convenient way for them to shift to a more sustainable way to get to work. People may be reluctant to give up the flexibility afforded by driving and so are more willing to either drive others or travel as a passenger occasionally, rather than make a leap to a completely different transport mode.

[3] TravelSmart better ways to go, http://www.travelsmart.vic.gov.au/Web4/tsmart.nsf/headingpagesdisplay/Workplaces?OpenDocument&Expand=4&, down loaded June2006..

4 Other Opportunities for Consideration

The site walk-through and staff conversations highlighted a number of opportunities.

- Many groups/individuals walk through the building each week, providing an opportunity to hand out a one page flyer of the key features of the building from a water, waste, energy and material selection perspective. This information can be cross linked with the Szencorp businesses, as per the web site.
- There was minimal amount of information throughout the building (green info placards) that discussed water conversation and what 40 Albert Road consumed and how this was different. Although "green" information was in the shower area it was not immediately visible in the toilet and kitchen areas.
- A number of water saving initiatives have been implemented into the building design yet it was difficult to find this information on the web site.
- Other areas of 'walking-the-walk' and 'talk' that Szencorp could communicate is how it is incorporating green office practices internally (printing, recycling, green house gas off setting for flights and green cleaning).

5 Conclusion

Undertaking a Post Occupancy Evaluation process has enabled Szencorp to learn from the past and apply foresight to future projects. Extending the POE process to include objective analysis of occupants' perceptions of their workplace has enabled valuable information to emerge and provide opportunities to manage the operations of 40 Albert Road facilities in the way it is intended.

In evaluating the information and feedback obtained during the POE review process, it is clearly apparent that valuable knowledge has been gained from the process. Staff have provided qualitative data that can be used for informing management of what is important for staff.

Encompass Sustainability believes it is essential that these learnings be recognised and integrated into future thinking in order to continue the process of understanding and acceptance of green building principles and guidelines.