Occupants’ perspectives of a five star certified Green Building

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Benefits & Returns of a Green Building

- Reduced operating costs through use of natural light;
- Good ventilation;
- Lower maintenance and energy costs; and
- Less water usage

- Higher rents and selling prices compared to conventional buildings;
- Reduced tenant turnover;
- Higher occupancy rates; and
- An improved corporate image

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4 Star 45 - 59 points Best Practice

5 Star 60 - 74 points New Zealand Excellence

6 Star 75 - 100 points World Leadership

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This research project looks at the occupant satisfaction of a 5 star green building certified primary school in Auckland. It looks at what the staff like and dislike most about their building and compares it with their green star assessment. Their perspectives were also compared with the research of George Baird in occupant perspectives in international green buildings.
Research Questions

- What is green building certification?
- What are the most and least satisfying aspects of the occupants’ indoor environment quality?
- How do the NZ occupant perspectives compare to those internationally?
- How do they differ from the rating assessment tool?
- What were the most significant details of the green building assessment scoring?
- Should post-occupancy evaluations be included in the Green Star assessment criteria or benchmarking methodology?

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Literature Review

Method

- Case study Primary School – 5 Star Green Certified Building
- Staff surveyed via an on-line survey
- Target sample size: 50% of adult occupants
- 9 surveys completed – 1 invalid
- Response rate of 82%
- Potential for bias

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Results:

- One quarter of respondents were male;
- 75% of respondents were over the age of 30;
- Worked on average 4 - 5 ½ hours per day and 5 ¼ days per week;
- Average time spent at computer 2 - 3 ½ hours per day;
- Half of the respondents worked in a classroom; and
- 75% of all respondents’ desks were situated at a window.

Demographic Information

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Results:

- Operational
- Environmental
- Personal control
- Satisfaction
Results:
Operational Factors

- Facilities meet requirements
- Meeting rooms available
- Cleaning
- Furniture is good
- Adequate space at desk
- Adequate space in building
- Presents good image to visitors

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Results: Air Temperature

<table>
<thead>
<tr>
<th>Season</th>
<th>Baird Mean %</th>
<th>HPPS Mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter</td>
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</tr>
</tbody>
</table>

Overall satisfaction with temperature
- Temperature is stable (does not vary over the day).
- Temperature is comfortable (not too hot or too cold).
Results:
Air Quality

Overall satisfaction with air quality

Air is fresh (not smelly, musty or stale)

Air is not too dry or too humid

Air is not draughty

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Comparison:
Green Star Rating Assessment

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation Rates</td>
<td>3 / 3</td>
<td>DISSATISFIED</td>
</tr>
<tr>
<td>Thermal Comfort</td>
<td>2 / 3</td>
<td>DISSATISFIED</td>
</tr>
<tr>
<td>HVAC Zoning</td>
<td>1 / 1</td>
<td>DISSATISFIED</td>
</tr>
</tbody>
</table>

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Results: Lighting

- Overall satisfaction with lighting
- Little glare from the artificial lighting
- Artificial lighting is comfortable
- Little glare from the sunlight
- Enough natural light (sunlight)

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Comparison:
Green Star Rating Assessment

Daylight
2 / 3
NEUTRAL

Daylight Glare Control
1 / 1
DISSATISFIED

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Results:

Noise

Overall satisfaction with noise levels

Noise outside doesn't interfere with my work

Noise around me doesn't interfere with my work

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Comparison: Green Star Rating Assessment

Internal Noise Levels: Building Services
1 / 1 SATISFIED

Internal Noise Levels: Overall Building
0 / 1 SATISFIED

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Results: Personal Control

- Noise
- Lighting
- Ventilation
- Cooling
- Heating

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Results: Satisfaction

Overall comfort levels

Building provides for needs

Building design

Baird Mean %  HPPS Mean %

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## Results: Satisfaction

<table>
<thead>
<tr>
<th>Compared to other workplace buildings:</th>
<th>HPPS Mean %</th>
<th>Baird Mean %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity has improved</td>
<td>60.00</td>
<td>+4.07%</td>
</tr>
<tr>
<td>Health has improved</td>
<td>32.60</td>
<td>60.71</td>
</tr>
<tr>
<td>Your overall comfort levels</td>
<td>52.60</td>
<td>70.14</td>
</tr>
</tbody>
</table>

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Conclusion

- Is there a place for a Green Star assessment programme?

- Is there a need for post-occupancy evaluations?

- Thanks to: Claire Flemmer, staff of the case study primary school, Gemma Collins and Clare Gallagher.