

Occupant Engagement

Points Available: 1

Previously known as 'Market Intelligence and Research'.

Aim

To increase the availability of information on the benefits and outcomes of sustainable design practices and sustainable operation practices across the industry.

Rating Tool Eligibility



Green Star
Design & As Built



Green Star
Interiors



Green Star
Performance*



Legacy Green Star
Rating Tools

*Note: The 'Occupant Survey' pathway cannot be targeted for projects registered under *Green Star – Performance*.

Why is this Innovation Challenge Important?

The actual sustainability performance of assets is poorly understood by the industry and the occupants of those assets. While energy and water are closely monitored during building operation, indicators such as improvements to productivity, reduced sick leave and the costs of running complex systems are not.

This Innovation Challenge aims to encourage owners, developers and operators to perform regular occupancy studies on the operating asset. In the interest of increasing transparency, it also encourages the public disclosure of the data and benefits of achieving the benchmarks through a Green Star rating.

Compliance Requirements

Project teams shall **select one** of two available pathways in order to target this Innovation Challenge. The two available pathways are:

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| A. Occupant Survey | 1 point is awarded where the Applicant carries out a pre and post occupancy survey. |
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- | | |
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| B. Connection to Nature | 1 point is awarded where the project commits to providing ongoing feedback to 'Biophilic' research undertaken by Dr. Peter Fisher at RMIT University. |
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Proposals for other research focus are welcomed. Such suggestions must correspond to a specific academic research currently undertaken and related to specific benefits of sustainability features of the built environment. These suggestions should be submitted to the GBCA for review as a CIR demonstrating their equivalency to the above two pathways.

A. Occupant Survey

Note for *Green Star – Performance* projects: this Pathway can not be targeted for projects registered under *Green Star – Performance*. This is on the basis that the 'Occupant Satisfaction' credit within this rating tool already addresses this sustainability issue. Please consider the 'Connection to Nature' pathway for your project.

To claim this Innovation Challenge your project team must:

- Demonstrate that a **pre-occupancy survey** on staff or occupants (where known) has been performed. Where the building is speculative, the pre-occupancy survey does not need to be performed until a tenant has been signed up, provided such tenant is occupying another space; and
- Complete a **post-occupancy survey** on a significant proportion of occupants (including tenanted spaces) no earlier than 6 months and no later than 12 months after from practical completion. The Applicant must also commit to providing the results upon completion with the GBCA, for information purposes only. This can be provided at a date later than the project's Green Star submission.

For Design rating projects or As Built rating projects, a commitment from the owner is required. If the asset is intended for sale, the new owner must commit to the survey, or the Innovation Challenge is forfeited and the one point will be removed from the project's final score.

B. Connection to Nature

To claim this Innovation Challenge your project must incorporate connections from your built environment project to the natural environment. These connections can include internal or external views to nature, water or landscaping, green walls, atriums, indoor plants and water features, roof gardens and other natural features (including e-media such as images of wildlife and landscapes). These connections provide an opportunity for projects to further their environmental credentials via elements of the natural world, potentially making their occupants more aware of life forms other than their own, their dependency on them for free ecological services, and their place in the richness of our own lives and that of the planet. There is significant evidence that exposure to elements of Nature is therapeutic¹.

The project team is required to provide ongoing feedback to research led by Dr. Peter Fisher at RMIT. Dr. Fisher can be contacted on +61 3 9925 9927 / 0418 500 396 or peter.fisher2@rmit.edu.au.

This feedback may include reporting of measurable improvements in building occupant productivity and 'wellness' such as: less absenteeism, increased staff retention and decreased need for retraining, improved patient recovery or student achievements and more. Various categories of spaces are acceptable ranging from conventional offices to other places of congregation such as commercial and public venues.

The aim of the research is to establish a connection to nature tool to inform future design and occupant health. The tool will aim to incentivise the incorporation of features emulative of nature to produce improved health and wellbeing outcomes for building occupants. It is anticipated that the research will provide a more exacting valuation of benefits.

Guidance

The *Green Star – Performance* rating tool includes an 'Occupant Satisfaction' credit. The *Green Star – Performance* credit is an example of how this initiative is applied in building operations. The challenge is how your project can apply this initiative to other rating tools.

For your information and reference this credit is attached to this Handbook as an Appendix.

¹ National Wildlife Federation, (1 September 2012) 'Wilderness Therapy Uses Nature to Help People Heal', accessed on 27 September 2015, <http://blog.nwf.org/2012/01/wilderness-therapy-uses-nature-to-help-people-heal/>.

References

Building Occupants Survey System Australia – BOSSA - <http://www.bossasystem.com/>

Additional information on the 'Connection to Nature' pathway is provided below:

Biohabitats, 'Thoughts on Giving Children the Gift of Nature' (2012), <http://www.biohabitats.com/newsletters/giving-children-the-gift-of-nature>

Centre for Urban Greenery and Ecology, 'Naturizing outside-in: Reconnecting buildings with the natural world through a design innovation metric' (2013), <https://www.cuge.com.sg/research/citygreen/cg6-naturising-outside-in.html>.

Los Angeles Natural History Museum, 'Nature Lab', <https://vimeo.com/71040258>

Planet Ark, 'Nature: A Valuable Investment for Homeowners and Businesses' (2014), <http://treeday.planetark.org/documents/doc-1183--planet-ark-release---nature-a-valuable-investment-2014-06-25.pdf>

Scientific American, 'How hospital gardens help patients heal' (2012), <http://www.scientificamerican.com/article/nature-that-nurtures/>

Special Broadcasting Service, 'Is there room for Nature in our cities?' (2013), <http://www.sbs.com.au/news/article/2013/03/04/there-room-nature-our-cities>

Documentation Requirements

A. Occupant Survey

Design Review / Design Submission

Provide the following required documentation:

- **Submission Template** outlining how the project has achieved the Innovation Challenge requirements. The Submission Template also enables project teams to provide feedback on the Innovation Challenge to inform future developments.

Provide documentation to support the claims made within the Submission Template. This may include:

- **Letter of confirmation from the building owner** regarding conducting the surveys and the estimated time-frame. The letter will also clearly confirm the benchmarks that are being targeted (e.g. 10% response rate from the building occupants).

As Built Submission

Provide the following required documentation:

- **Submission Template** outlining how the project has achieved the Innovation Challenge requirements. The Submission Template also enables project teams to provide feedback on the Innovation Challenge to inform future developments.

Provide documentation to support the claims made within the Submission Template. This may include:

- **Sample Post-occupancy Comfort Survey** developed specifically for your project. The survey will be required to address occupant satisfaction, including the assessment of occupant well-being and interaction within their indoor environment; and
- **Copy of Post-occupancy Comfort Survey results** where available. Where Post-occupancy Comfort Survey results are not yet available at the time of submission, the project team must commit to make the results available to the GBCA as soon as they become available.

B. Connection to Nature

Design Review / Design and As Built Submission

Provide the following required documentation:

- **Submission Template** outlining how the project has achieved the Innovation Challenge requirements. The Submission Template also enables project teams to provide feedback on the Innovation Challenge to inform future developments.

Provide documentation to support the claims made within the Submission Template. This may include:

- **Extracts of data collected** from the project and provided to Dr. Peter Fisher for research purposes. This may include first round parameters of research interest, including:
 - Type of space/structure.
 - Floor plans and photos of internal layout and outside site plan.
 - Vegetation/themes.
 - E-media.
 - Demographic for regular project occupants and visitors.
 - Qualitative research including anecdotal responses.
 - Statistics on wellness.
 - Branding responses.
- **Extracts of formal communication** between the project team and Dr. Peter Fisher demonstrating the ongoing commitment to provide research evidence.

OCCUPANT SATISFACTION

Credit number 14

Points available: 4

AIM OF CREDIT

To encourage the assessment of thermal comfort, acoustics, indoor air quality, lighting and any other comfort issues for building occupants and promote high occupant satisfaction levels.

CREDIT CRITERIA

14.1	Action	Occupant Satisfaction Survey	1 point is available when at least one occupant satisfaction survey is carried out during the <i>performance period</i> .
14.2	Data	Occupant Satisfaction Levels	Up to 3 points are available where survey respondents indicate the level of satisfaction during the <i>performance period</i> .

COMPLIANCE REQUIREMENTS

For purposes of credit criteria 14.1 and 14.2, the Occupant Satisfaction Survey must be delivered to the regular occupants of all *primary spaces* in the building. A space may be excluded from the survey if its use requires specific non-comfort based internal conditions.

14.1 OCCUPANT SATISFACTION SURVEY

One (1) point is awarded when at least one occupant satisfaction survey is carried out in accordance with the following requirements. Two separate compliance pathways are provided for this criterion.

- A. Conduct an occupant satisfaction survey in line with 14.1A; or
- B. Complete a NABERS Indoor Environment rating 14.1B.

14.1A CONDUCT OCCUPANT SATISFACTION SURVEY

14.1A.1 Survey delivery

The Occupant Satisfaction Survey ('the survey') must be delivered to regular occupants during the *performance period*. Applicants must:

- a. Deploy a recognised survey in accordance with 14.1.2;
- b. Achieve at least the response rate for a $\pm 10\%$ precision level, as detailed in 14.1.3; and
- c. Share the responses with the Green Building Council of Australia (GBCA).

14.1A.2 Recognised surveys

Recognised surveys that are suitable for use with this credit include:

- Building Occupant Satisfaction Survey Australia (BOSSA), (**GBCA recommended survey**);
- Occupant Indoor Environment Quality (IEQ) Survey; and
- Building User Survey (BUS).

Note: See Guidance section for further information on recognised surveys and links to their websites.

14.1A.3 Sample size and response rates

Responses must be collected from a representative sample of regular building occupants. The total number of responses must be calculated as a factor of the number of full-time equivalent (FTE) people who work at the premises (this excludes visitors). The minimum required response levels for a given 'population' of full-time-equivalent people in the building, must at least equal the sample specified in Table 1, for a precision level of +/-10% (given a confidence level of 95%).

Table 1: Sample size by population

(For ±5%, ±7% and ±10% Precision Levels where Confidence Level is 95% and P=0.5)

Size of Population	Sample Size (n) for Precision (e) of:		
	±5%	±7%	±10%
100	81	67	51
125	96	78	56
150	110	86	61
175	122	94	64
200	134	101	67
225	144	107	70
250	154	112	72
275	163	117	74
300	172	121	76
325	180	125	77
350	187	129	78
375	194	132	80
400	201	135	81
425	207	138	82
450	212	140	82
500	222	145	83
600	240	152	86
700	255	158	88
800	267	163	89
900	277	166	90
1,000	286	169	91
2,000	333	185	95
3,000	353	191	97
4,000	364	194	98
5,000	370	196	98
6,000	375	197	98
7,000	378	198	99
8,000	381	199	99
9,000	383	200	99
10,000	385	200	99
15,000	390	201	99
20,000	392	204	100
25,000	394	204	100
50,000	397	204	100
100,000	398	204	100
>100,000	400	204	100

Source: Determining Sample Size, <http://edis.ifas.ufl.edu/pd006>

14.1B NABERS INDOOR ENVIRONMENT RATING

For this pathway, one (1) point is awarded where the building has achieved a NABERS Indoor Environment rating after January of 2015 that was conducted during the Performance Period or is valid for at least three months of the performance period.

14.2 OCCUPANT SATISFACTION LEVELS

Up to three (3) points are awarded based on the outcomes of the occupant satisfaction survey. Two separate compliance pathways are provided for this criterion.

- A. Conduct an occupant satisfaction survey in line with 14.1A; or
- B. Complete a NABERS Indoor Environment rating 14.1B.

14.2A OCCUPANT SATISFACTION MARKET POSITION

For this pathway up to three (3) points are awarded based on the average score across the following five occupant survey areas:

- Indoor air quality — outdoor air, stuffiness;
- Thermal comfort — indoor temperature, air speed or drafts, access to controls;
- Acoustic comfort — internal noise, noise levels from HVAC, noise from outside;
- Daylight and artificial lighting — brightness, access to controls; and
- Building cleanliness — cleanliness, odours, maintenance.

Points are awarded in accordance with Table 2 'Occupant satisfaction market position'. A higher the market position percentile value correlates to a higher occupant satisfaction level when compare with other buildings in the market.

Table 2 Occupant satisfaction market position

Market position (Percentile)	Points Awarded
0 th to 50 th percentile	0
50 th to 65 th percentile	1
65 th to 80 th percentile	2
80 th to 100 th percentile	3

14.2B OCCUPANT SATISFACTION LEVELS - NABERS

For this pathway, up to three (3) points are awarded based on the Market Position (score) in the NABERS Indoor Environment report for each of the five survey areas as specified in 14.2A. The market position score is a percentile value and points are awarded based on Table 2. The NABERS Indoor Environment report must be in accordance with 14.1B.

DEFINITIONS

Performance Period – Relates to the continuous time period against which a credit is measured or data is collected. It is the most recent 12-month period of operations preceding the submission for certification. However, there is a 90-day grace period between the end of the *performance period* and the submission date, to allow applicants to gather the required documentation.

Primary space –Is an area where a person is expected to work, or remain for an extended period of time. These spaces include (but are not limited to):

- Offices, either open plan or private;
- Classrooms, staff offices, computer labs;
- Commercial kitchens and preparation areas where food is sold;
- Retail / sales floor, exhibition halls, multi-purpose rooms (as a general setting); and
- Industrial spaces, warehouse areas, shop floors, work stations.

These examples are indicative, and the predominant use of the space determines the space type classification. Where the functional requirements of the space demand specific conditions, (e.g. laboratories, auditoriums, cinemas, or archives), exclusions may be justified in a Credit Interpretation Request (CIR).

Percentile – is a statistical measure that indicates the percentage of occurrences that fall below a given occurrence. For example the 75th percentile indicates that 75% of all occurrences fall below that value. Or conversely a value in the 75th percentile is in the top 25% of all occurrences. The percentile index is used to rank response levels for occupant satisfaction surveys giving the applicant an understanding of where their building performs relative to the rest of the market.

GUIDANCE

RECOGNISED SURVEYS (14.1)

Occupant satisfaction surveys are used to evaluate the degree to which buildings enable their users to fulfil their intended goals. A comprehensive building occupant satisfaction survey method includes assessments of occupant wellbeing, and interactions with their indoor environment. These surveys complete the feedback loop, essential for the successful management and improvement of operational practices in high-performing buildings.

Surveys recognised in this credit include:

- Building Occupants Survey System Australia (BOSSA), University of Sydney, Australia
- Occupant Indoor Environment Quality (IEQ) Survey, Centre for Built Environment, University of California Berkeley, United States
- Building User Survey (BUS), United Kingdom

Building Occupants Survey System Australia (BOSSA)

The Green Building Council of Australia (GBCA) has joined the Management Committee for Building Occupants Survey System Australia (BOSSA), developed by the University of Sydney and other partners. The BOSSA survey is recommended for use with this credit.

BOSSA is a post occupancy evaluation (POE) system for Australia's office buildings. As the BOSSA database grows with each additional building surveyed, it will underpin an ongoing program of architectural science research aimed at improving occupant health, comfort and productivity outcomes from sustainable office buildings. The BOSSA POE questionnaire is comparable to existing international benchmarking systems such as Building User Survey (UK) and Centre of Built Environment Berkeley (USA).

USE OF NON-RECOGNISED SURVEYS (14.1.2)

Where a recognised survey is not used, an alternate third-party peer-reviewed survey may be used subject to GBCA approval. To be recognised in Green Star – Performance any survey must at least cover; indoor air quality, thermal comfort, acoustics comfort, daylight and artificial lighting, and building cleanliness.

The survey must be based on a 7 point scale for responses, with the mid-point response indicating a 'neutral' reaction.

Where applicants wish to use a survey other than a recognised survey listed in the credit they should contact the GBCA for approval through a credit interpretation request (CIR).

SAMPLE SIZE AND RESPONSE RATES (14.1.3)

Survey sample sizes and related response rates can be determined using Table 1 for any population size bigger than 100. A precision rate of at least 10% must be achieved. For population sizes smaller than 100 response rates must be at least 75%.

For all population calculations, the number of regular occupants should be taken as the maximum number of occupants regularly working at the premises during the *performance period*. Where there is no access to more precise figures, population sizes can be estimated by using typical occupancy on a persons per square meter basis.

The sample sizes of Table 1 reflect the number of obtained responses and not necessarily the number of surveys distributed or interviews carried out.

ALTERNATIVE COMPLIANCE METHODS

A Credit Interpretation Request (CIR) may be submitted to the Green Building Council of Australia (GBCA) when an applicant wishes to advocate for an alternative yet equivalent method of meeting Compliance Requirements. It is a formal process, reviewed either by the GBCA, or by independent external assessors, depending on the complexity of the issue.

A Credit Interpretation Request and other queries may be submitted by accessing the Green Star Project Manager page on the GBCA website.

STANDARDS AND GUIDELINES

Referenced documents

The following documents are referenced in this credit:

Building Occupants Survey System Australia (BOSSA), University of Sydney, Australia

<http://www.bossasystem.com/occupant-survey>

Occupant Indoor Environment Quality (IEQ) Survey, Centre for Built Environment, University of California Berkeley, United States

<http://www.cbe.berkeley.edu/research/survey.htm>

Building User Survey (BUS), United Kingdom

<http://www.busmethodology.org.uk/>

DOCUMENTATION REQUIREMENTS

INITIAL CERTIFICATION

Submission Template

Complete the Submission Template 14 *Occupant Satisfaction*.

Supporting documents

Provide supporting documentation as required to demonstrate compliance. This may include:

14.1 Occupant satisfaction survey and 14.2 Occupant satisfaction levels

- A copy of the Occupant Comfort Survey Results. Or
- A valid NABERS IE report for the building

RECERTIFICATION

Submission Template

Complete Submission Template 14 *Occupant Satisfaction*.

Supporting documents

Provide supporting documentation as required to demonstrate compliance. This may include:

14.1 Occupant satisfaction survey and 14.2 Occupant satisfaction levels

- A copy of the Occupant Comfort Survey Results. Or
- A valid NABERS IE report for the building

REVISIONS AND AMENDMENTS

Revision number	Authored by	Reviewed by	Approved by	Date released	Description
R0	JM	RM	JC	03-03-2015	Version 1 initial release.