

## Supplementary Material

### Questionnaire in English

#### Research on guest comfort and satisfaction with indoor environmental quality in former GBI-certified green hotels: A study case from Malaysia

##### 1. Introduction

This survey is a partial research requirement for a PhD in Architectural Engineering. The study is entitled “Research on guest comfort and satisfaction with indoor environmental quality in former GBI-certified green hotels: A study case from Malaysia” and supervised by Professor Ismar M. S. Usman, Department of Architecture and Built Environment, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia. This study aims to determine issues faced and the effectiveness of comfort in the guestrooms’ indoor environment of a former GBI-certified green hotel after green certification suppressed. The questionnaire mainly consists of five Sections as follows:

- Section A: Personal Information
- Section B: Hotel Information.
- Section C: Indoor Environmental Quality (IEQ) Performance
- Section D: Additional IEQ parameters
- Section E: Comfort and Satisfaction

##### 2. Confidentiality

Your reply will be completely kept confidential and anonymous.

##### 3. Filling in the questionnaire

This questionnaire seeks information about measuring the comfort and satisfaction in the indoor environment of green hotel rooms in Kuala Lumpur, Melaka, and Pulau Pinang. Kindly read and understand the questions before answering. Most of the questions are statements that must be answered by choosing the best answer describing your experience with the IEQ parameters in the hotel room. It is anticipated that the company or quality manager will provide answers to the questionnaire. With great recognition of the respondent’s valuable time, this questionnaire may take 20-20 minutes to complete. The highest levels of accuracy and honesty will be highly appreciated. All the information that you give will be used for academic purposes and nothing else whatsoever.

##### 4. Contact Person

After completion, please return the questionnaire by using the following WhatsApp number: 009647801105500. For any questions, please contact [haydersaadoonabdulaali@gmail.com](mailto:haydersaadoonabdulaali@gmail.com)

#### Section A: Personal Information

**Q1. Please, indicate your gender.** (Please tick only one oval [√])

- |            |                          |
|------------|--------------------------|
| (a) Male   | <input type="checkbox"/> |
| (b) Female | <input type="checkbox"/> |

**Q2. What is your nationality?** (Please tick [√])

- |              |                          |
|--------------|--------------------------|
| (a) Malaysia | <input type="checkbox"/> |
| (b) Other    | <input type="checkbox"/> |

Please specify.....

**Q3. Which age category do you belong?** (Please tick [√])

- |                    |                          |
|--------------------|--------------------------|
| (a) Under 30 years | <input type="checkbox"/> |
| (b) 30 – 39 years  | <input type="checkbox"/> |
| (c) 40 – 49 years  | <input type="checkbox"/> |
| (d) 50 – 59 Years  | <input type="checkbox"/> |
| (e) Above 60 years | <input type="checkbox"/> |

**Q4. How familiar are you with the concept of green buildings?**

- |                         |                          |
|-------------------------|--------------------------|
| (a) Not at all familiar | <input type="checkbox"/> |
| (b) Slightly familiar   | <input type="checkbox"/> |
| (c) Moderately familiar | <input type="checkbox"/> |
| (d) Very familiar       | <input type="checkbox"/> |

**Q5. Have you stayed in a green hotel before?**

- (a) Yes ☐
- (b) No ☐

#### Section B: Hotel Information

**Q6. Which Hotel are you currently staying?** (Please tick ☐)

- (a) Hotel Penaga ☐
- (b) Kings Green Hotel ☐
- (c) Ve Hotel & Residence ☐
- (d) Movenpick Hotel & Convention Centre KLIA ☐
- (e) The Ruma Hotel & Residences ☐

**Q7. How many times have you booked this hotel?** (Please tick ☐)

- (a) Only now ☐
- (b) 1-2 ☐
- (c) 3-4 ☐
- (d) More than 4 ☐

**Q8. Currently, how many people share 1 hotel room with you?** (Please tick ☐)

- (a) 1 ☐
- (b) 2 ☐
- (c) 3 ☐
- (d) 4 ☐
- (e) More than 4 ☐

**Q9. Which direction does your hostel room is currently facing?** (Please tick ☐)

- (a) East ☐
- (b) West ☐
- (c) North ☐
- (d) South ☐
- (e) North-East ☐
- (f) South-West ☐
- (g) North-East ☐
- (h) South-West ☐

**Q10. What is the purpose of your current stay in this hotel?** (Please tick ☐)

- (a) Tourism ☐
- (b) Leisure ☐
- (c) Business ☐

#### Section C: Indoor Environmental Quality (IEQ)

Indoor environmental quality (IEQ) refers to the quality of a hotel's environment in relation to the health and wellbeing of those who occupy space within it (NIOSH, 2019).

##### Sub-Section C1: IEQ 1 Indoor Air Quality (IAQ)

Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. Understanding and controlling common pollutants indoors can help reduce your risk of indoor health concerns (EPA, 2019). The following question relates to your perception of the Indoor Air Quality (IAQ). Please respond to each question which best reflects your own experience.

**Q11. Do you have the following symptoms (issues) related to IAQ while staying in your hotel room?** (Please tick only one per row ☐)

Answer every question even if you have not had any symptoms and note that (1) = often, (2) = sometimes and, (3) = Never.

Issue	Rank		
	1	2	3
Headache			
Feeling heavy-headed			
Fatigue/lethargy			
Drowsiness			
Nausea/vomiting			
Cough			
Irritated, stuffy nose			
Hoarse, dry throat			
Skin rash/itchiness			

Irritation of the eyes			
Scaling/itchy scalp or ears			

**Q12. Based on your answer above, kindly give response which best reflects your own experience.**

Mark only one oval per row. Note that (1) = Yes, while (2) = No.

If YES, (you had the following above symptoms), do you believe that is due to your hotel environment?	1	2
If NO, (you don't have the following above symptoms), do you believe that you can fall sick from your hotel environment?	1	2

**Q13. Based on Question 12, when do you experience relief from these symptoms?** (Please tick [☐]).

- (a) After leaving the hotel  
(b) After leaving the room  
(c) No noticeable trend

[☐]  
[☐]  
[☐]

**Q14. How would you describe the overall indoor air quality in your hotel room?** (Please tick [☐]).

Tick only one oval. Note that (1) = Very Unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q15. In reference to Indoor Air, do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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#### ***Sub-Section C2: IEQ2 Thermal Comfort***

Thermal comfort is defined as the condition of mind that expresses satisfaction with the thermal environment (Goodfellow, H. D., 2001). The following question relates to your perception of the thermal comfort. Please respond to each question which best reflects your own experience.

**Q16. Temperature** (Please tick [☐]).

Tick only one oval. Note that (1) = Very uncomfortable, (2) = Uncomfortable, (3) = Neutral, (4) = Comfortable, and (5) = Very comfortable.

Very uncomfortable	1	2	3	4	5	Very comfortable

**Q17. Airflow** (Please tick [☐]).

Tick only one oval. Note that (1) = Very insufficient, (2) = Insufficient, (3) = Neutral, (4) = Sufficient, and (5) = Very sufficient.

Very insufficient	1	2	3	4	5	Very sufficient

**Q18. How would you describe the overall thermal comfort in your hotel room?** (Please tick [☐]).

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) = Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q19. In reference to thermal comfort, do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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#### ***Sub-Section C3: IEQ 3 LIGHTING***

Well-designed indoor lighting increases occupant mood, satisfaction, and productivity (Green Building Alliance, 2019). Good quality lighting can improve a person's vision comfort, enhances focus, emotion, and attitude (Musa et.al, 2012). The following question relates to your perception of the lighting. Please respond to each question which best reflects your own experience.

**Q20. Natural light** (Please tick [☐]).

Tick only one oval. Note that (1) = Too little, (2) = Little, (3) = Neutral, (4) = Much, and (5) = Too much.

Too Little	1	2	3	4	5	Too Much

**Q21. Glare from sun and sky** (Please tick [☐]).

Tick only one oval. Note that (1) = Too little, (2) = Little, (3) = Neutral, (4) = Much, and (5) = Too much.

Too Little	1	2	3	4	5	Too Much

**Q22. Artificial light** (Please tick [√]).

Tick only one oval. Note that (1) = Too little, (2) = Little, (3) = Neutral, (4) = Much, and (5) = Too much.

Too Little	1	2	3	4	5	Too Much

**Q23. Glare from Artificial light** (Please tick [√]).

Tick only one oval. Note that (1) = Too little, (2) = Little, (3) = Neutral, (4) = Much, and (5) = Too much.

Too Little	1	2	3	4	5	Too Much

**Q24. How would you describe the overall quality of lighting in your hotel room?** (Please tick [√]).

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) = Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q25. In reference to Lighting, do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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#### ***Sub-Section C4: IEQ 4 Visual/View***

Human visual system provides a large part of the contact people have with the external world, since it is used to translate light, color, shapes to the brain. Visual comfort can be described in large parts by the concepts of glare and contrast, both of which are affected by the field of vision of the viewer (Said, Dodo, Kandar, & Ahmad, 2014). The following question relates to your perception of the visual offerings and experience. Please respond to each question which best reflects your own experience.

**Q26. Are there windows in your hotel room?** (Please tick [√])

- (a) Yes [ ]
- (b) No [ ]

**Q27. If Yes (there is a window), is it a fixed window or operable window?** (Please tick [√])

- (a) Operable window; Can be open [ ]
- (b) Fixed window; Always close [ ]

**Q28. If Yes (there is a window), what are the visual obstruction present?** (Please tick [√])

- (a) Outdoor objects (Trees, Lamp post, etc) [ ]
- (b) Shading device (Blinds, curtains, sun screen, etc) [ ]
- (c) Indoor furniture [ ]
- (d) Other [ ]

Please specify.....

**Q29. Based on your answers above, please explain why your overall visual experience is not motivating?** (Please tick [√])

- (a) No window/ No outdoor view [ ]
- (b) Indoor view is unpleasant [ ]
- (c) Other [ ]

Please specify.....

**Q30. Based on your experience, what is a pleasant visual experience that is able to motivate you?** (Please tick [√])

- (a) Outdoor nature view [ ]
- (b) Room layout & size [ ]
- (c) Room interior design (Wall color, furniture choice, etc.) [ ]
- (d) Sufficient lighting to enhance visual [ ]
- (e) Other [ ]

Please specify.....

**Q31. Based on your experience, what is an unpleasant visual experience?** (Please tick [√])

- (a) No view towards outdoor [ ]
- (b) Unsystematic, unorganized room layout [ ]
- (c) Insufficient lighting to enhance visual [ ]
- (d) Too many/ oversize furniture in the room [ ]
- (e) Facilities/ Amenities breakdown (Air-conditioning, electronic products, etc.) [ ]
- (f) Other [ ]

Please specify.....

**Q32. How would you rate the overall visual experience in your hotel room?** (Please tick [√])

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q33. In reference to Visual, do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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**Sub-Section C5: IEQ 5 Acoustic/ Noise**

**Q34. Please estimate how often you are affected by unwanted interruptions?** (Please tick [√])

Tick only one oval. Note that (1) = Not at all, (2) = Rarely, (3) = Sometimes, (4) = Frequently, and (5) Very frequently.

Not at all	1	2	3	4	5	Very frequently

**Q35. How would you rate the overall noise in your hotel room?** (Please tick [√])

Tick only one oval.

Too Little	1	2	3	4	5	Too Much

**Q36. In reference to Acoustic (Noise/ Sound), do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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**Section D: Additional Indoor Environmental Quality (IEQ)**

**Sub-Section D1: IEQ 6 Building characteristics**

**Q37. Location** (Please tick [√])

Tick only one oval. Note that (1) = Very unsuitable, (2) = Unsuitable, (3) Neutral, (4) Suitable, (5) Very suitable.

Very unsuitable	1	2	3	4	5	Very suitable

**Q38. Climate** (Please tick [√])

Tick only one oval. Note that (1) = Very unsuitable, (2) = Unsuitable, (3) Neutral, (4) Suitable, (5) Very suitable.

Very unsuitable	1	2	3	4	5	Very suitable

**Q39. Design and construction** (Please tick [√])

Tick only one oval. Note that (1) = Very bad, (2) = bad, (3) Neutral, (4) good, (5) Very good.

Very bad	1	2	3	4	5	Very good

**Q40. Optimal temperature zone** (Please tick [√])

Tick only one oval. Note that (1) = Very bad, (2) = bad, (3) Neutral, (4) good, (5) Very good.

Very bad	1	2	3	4	5	Very good

**Q41. Thermal Insulation** (Please tick [√])

Tick only one oval. Note that (1) = Very insufficient, (2) = insufficient, (3) Neutral, (4) sufficient, (5) Very sufficient.

Very insufficient	1	2	3	4	5	Very sufficient

**Q42. How would you describe the overall building characteristics in your hotel?** (Please tick [√]).

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) = Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q43. In reference to building characteristics do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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**Sub-Section D2: IEQ 7 Decoration and indoor greenery****Q44. Amount of interior decoration** (Please tick [√])

Tick only one oval.

Too little	1	2	3	4	5	Too much

**Q45. Usage of environmentally friendly building materials** (Please tick [√])

Tick only one oval.

Too little	1	2	3	4	5	Too much

**Q46. How would you describe the overall decoration in your hotel room?** (Please tick [√]).

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) = Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q47. Indoor Greenery** (Please tick [√])

Tick only one oval.

Too little	1	2	3	4	5	Too much

**Q48. How would you describe the overall decoration and indoor greenery in your hotel?** (Please tick [√]).

Tick only one oval. Note that (1) = Very unsatisfactory, (2) = Unsatisfactory, (3) = Neutral, (4) = Satisfactory, and (5) = Very satisfactory.

Very unsatisfactory	1	2	3	4	5	Very satisfactory

**Q49. In reference to Decoration and indoor greenery, do you have any other complaints? If YES, kindly state/ explain below. If NO, skip this question.**

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**Section E: Comfort and Satisfaction**

The following question relates to your comfort and satisfaction while inhabiting the Indoor Environmental Quality (IEQ) of the hotel guest room. Please respond to each question which best reflects your own experience.

**Q50. Pertaining to Indoor Environmental Quality (IEQ) parameters, do you feel comfortable when you are in your hotel room?**

Note that (1) = Uncomfortable, (2) = Slightly Comfortable, (3) = moderate, (4) = Comfortable and (5) = Very Comfortable.

IEQ parameters	Rank				
	1	2	3	4	5
Indoor Air Quality (IAQ)					
Thermal comfort					
Lighting					
Visual/View					
Acoustic/ Noise					
Building characteristics					
Decoration and indoor greenery					
Overall IEQ					

**Q51. Pertaining to Indoor Environmental Quality (IEQ) parameters, do you feel satisfied with your hotel room?**

Note that (1) = Dissatisfied, (2) = Slightly Satisfied, (3) = moderate, (4) = Satisfied and (5) = Very Satisfied.

IEQ parameters	Rank				
	1	2	3	4	5
Indoor Air Quality (IAQ)					
Thermal comfort					
Lighting					
Visual/View					

Acoustic/ Noise					
Building characteristics					
Decoration and indoor greenery					
Overall IEQ					

**Q52. If you have any comments or suggestions about the Indoor Environment of GBI-Certified Green Hotel Room, improving the IEQ, or performance measurement, please write them in the following space.**

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.....

**Q53. Are you interested to get a copy of the outcomes of this research?**

(a) Yes [ ]

(b) No [ ]

If yes, please provide us your contact.

Email:

Mobile No.

Thank you for your kind cooperation.

Date:    d/m/Y