

Effect Of Green Environment on The Performance of The Employees Discovery Town Center Saihat, Saudi Arabia

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Graduation Project – 1

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INTRODUCTION:

Natural change is a problem of the climate. Changes in the environment are primarily influenced by humans and natural ecological processes. As per the World Wellbeing Association, environmental change, ozone exhaustion, changes in biological systems, changes in hydrological frameworks, and the arrangements of freshwater, land debasement, urbanization, and weights on food-delivering frameworks are the worldwide ecological risks that impact to human wellbeing. Then again, an Earth-wide temperature boost and exhaustion of regular assets can't be dismissed. The Unified Countries Climate Program started to utilize the idea of "green economy" in the year 2009. **(WHO, 2018).**

In this way, the Worldwide Green New Arrangement, and the Association for Financial Collaboration and Advancement utilized the expression "green development". Be that as it may, in the year 2012, the World Bank had made the green idea official with "green and comprehensive development". A "green business" is one more related idea and it is featured that an association utilizes inexhaustible assets and considers itself responsible for the human asset part of their exercises Today, it is fundamental for move towards feasible strategic policies than any time in recent memory, due to the adverse consequences experienced because of the ecological changes. **(Chen and Chang, 2013)** As per the on-going setting on the planet, the greater part of the associations is attempting to embrace green practices. Be that as it may, improper green practices can be recognized among associations. Then again, restricted organizations that are committed to further developing green practices can be distinguished in various nations. With the developments of the financial climate, green practices will be a significant period of the Human Asset The board (HRM). **(North, 1997)** Green Human Resource Management (GHRM) is an area of potential research in developing and emerging nations. Moreover, there could be no appropriate approach to gathering green practices related information in various nations. Subsequently, studies with respect to the green preparation are fundamental, and the discoveries of those

reviews will help to make strategies as well as to make an arrangement of their endeavour working towards the ecological strategy. (**Opatha &Nawaratne, 2016**).

As a whole, it will serve as a resource for learning about how an organization's social responsibility affects the environment. GHRM is the utilization of HRM procedures to energize manageable utilization of assets inside business associations. It supports environmentalist ideals. Green preparation and improvement rehearses on the worker disposition towards their presentation should be visible as a missing perspective from the administration of associations. This examination centres around the issue of 'what is the impression of green preparation and advancement rehearses on representative execution among labourers?'. (**Jenny & Xin, 2016**)

In view of this foundation, the overall goal of this study was to distinguish discernments about green preparation and improvement rehearses on representative execution among work. How to strike a balance between economic growth and sustainable development is the world's greatest challenge today. GHRM is an answer for this. GHRM allows better-quality representative awareness and focuses on the manageability of the climate. In view of writing surveys, it shows that an expansive cycle to approach reference for GHRM still can't seem to arise. Giving natural preparation to the authoritative individuals to foster required abilities and information is a significant capability of GHRM. Likewise by giving natural schooling that in a difference in conduct among supervisors and non-administrative workers is required inside the associations. Improvement of both green unique capacities and green ground breaking initiative is helpful primer highlights further develop green item advancement execution. A review has shown that GHRM factors including green enrolment, green preparation and improvement and green learning on firm execution essentially influence the presentation of the firm (**Bhutto &Auranzeb, 2016**).

RESEARCH PROBLEM:

This study centers around concentrating on non-private places of business to grasp the effect of the board mediations on tenants' ways of behaving and, thusly, on their exhibition. Focusing on non-private structures as a particular structure typology to decide energy utilization in green structures was first featured by a report drove by creators. The structure life cycle represents over 40% of asset use, alongside the structure's creation, activity and upkeep. The groundwork of green structure configuration depended on worries about a lot of waste and the high-energy utilization that happens during the existence pattern of tall structures. The increasing expenses for energy and garbage removal are probably going to effect on planners who, thus, are trying to embrace a more reasonable plan technique in the fabricated climate industry. Albeit numerous sorts of green structures exist, for example, schools, medical services, private and retail, this review centers around places of business. **(Bhutto &Auranzeb, 2016).**

While illustrations can be gained from other structure typologies, limiting the degree to the place of business will dispose of any extra components that could impact the outcomes. Moreover, it is trying to connect with associations situated as multi-occupants in business green structures. These difficulties remember contrasts for their interest arrangements, levels of activity and upkeep, and needs for further developing ways of behaving and connections because of the non-presence of proprietorship. The multi-occupant point of view is past the extent of this study which centers on associations' mediations to help worker ways of behaving bringing about superior execution in green structures. **(Chen and Chang, 2013)**

RESEARCH SIGNIFICANCE:

The examination into the effect of green structures on worker execution conveys huge load for both down to earth and hypothetical reasons:

Functional Importance:

Economic benefits: Businesses will see an increase in profits as a direct result of decreased absenteeism, increased employee retention, and increased productivity. Evaluating these enhancements through exploration will give substantial proof to organizations to legitimize interests in green structures. **(Chen and Chang, 2013)**

Benefits to society as a whole: a happier and healthier workforce is a direct result of improved employee well-being and reduced stress. **(Slovik, 2013)**

Benefits for the environment: By reducing energy, water, and carbon emissions, green buildings mitigate climate change and its effects and promote sustainability. **(Jenny & Xin, 2016)**

Hypothetical Importance:

Acquiring an understanding of the mechanisms:

Research can delve deeper into the specific mechanisms by which employee performance is improved in green buildings. This could incorporate concentrating on the effect of further developed air quality, regular light openness, admittance to nature, and bio-philic plan on mental capability, feelings of anxiety, and inspiration.

Generalizability:

While existing exploration proposes beneficial outcomes, further investigations are expected to evaluate the generalizability of these discoveries across various kinds of work environments, work jobs, and social settings. **(Slovik, 2013)**

Improving plan:

Exploration can illuminate the ideal plan regarding green structures that boost their positive effect on representative execution, taking into account factors like space use, innovation combination, and individual inclinations. **(North, 1997)**

Policy development:

Government policies and building regulations can be influenced by solid evidence to encourage green building practices, resulting in broader societal benefits.

Generally speaking, research in this space holds the possibility to:

- **Give a convincing business case to green structures:** By measuring the monetary advantages, exploration can convince organizations to put resources into supportable working environments.
- **Guide the plan of viable green spaces:** Understanding the components and ideal plan standards can prompt working environments that amplify representative prosperity and execution. **(Slovik, 2013)**
- **Add to a more maintainable future:** By advancing green structure rehearses, exploration can assist with relieving environmental change and establish a better climate for everybody. To realize this strategy's full potential for individual businesses and society as a whole, further research into the relationship between green buildings and employee performance is essential. **(Opatha &Nawaratne, 2016).**

The concept of green buildings has gained significant traction in recent years. Green buildings are designed and constructed with a focus on environmental sustainability, minimizing their impact on the environment throughout their lifecycle. This includes features that promote energy efficiency, water conservation, and the use of sustainable materials. While the environmental benefits of green buildings are well-documented, the impact on employee performance is an area of ongoing research. This study aims to investigate the potential link between green building features and employee performance, exploring whether these sustainable workplaces enhance employee well-being, productivity, and overall satisfaction.

Research Questions:

1. To what extent do green building features (e.g., natural light, improved air quality, access to green spaces) influence employee well-being (e.g., reduced stress levels, improved sleep quality)?
2. How does working in a green building impact employee productivity (e.g., absenteeism, task completion rates, meeting deadlines)?
3. Does employee satisfaction with their work environment differ between occupants of green and conventional buildings?

Research Objectives:

The primary objective of this research is to explore the relationship between green building features and employee performance. This will be achieved by:

- Identifying key green building features and their potential benefits for employee well-being and productivity.
- Investigating the impact of these features on employee outcomes through a combination of quantitative and qualitative data collection methods.
- Analyzing the data to determine if there is a significant correlation between green buildings and improved employee performance.

- Providing insights for companies and organizations considering the adoption of green building practices, highlighting the potential benefits for both environmental and business performance.

Research Hypothesis:

H1: Employees working in green buildings will report higher levels of well-being compared to those working in conventional buildings.

H2: Employees in green buildings will demonstrate higher levels of productivity compared to those in conventional buildings.

H3: Employees working in green buildings will express greater satisfaction with their work environment compared to those in conventional buildings.

Research Model:

This research will utilize a causal-comparative design. Data will be collected from two groups:

Group 1: Employees working in green buildings certified by a recognized green building standard (e.g., LEED)

Group 2: Employees working in conventional office buildings that are not green-certified

We will measure employee well-being, productivity, and satisfaction through a combination of methods:

Surveys:

Standardized questionnaires will be administered to collect data on employee well-being (e.g., perceived stress levels, sleep quality), productivity metrics (e.g., self-reported absenteeism, task completion rates), and satisfaction with the work environment (e.g., building features, air quality, comfort).

Focus Groups:

- Holding focus group discussions with a smaller sample of employees from both groups can provide deeper qualitative insights into their experiences working in their respective environments.
- By comparing data from the two groups, we can assess whether green building features are associated with positive changes in employee well-being, productivity, and satisfaction.

Suggested Industry/Organization for Empirical Study:

Target Industry: The initial study could focus on a specific industry known for knowledge work and sedentary office environments, such as:

- Technology companies
- Financial services firms
- Professional service firms (e.g., accounting, law)

Target Organization: An organization with a mix of green-certified and conventional office buildings within the chosen industry would be ideal.

Methodology:

1. Research Philosophy: Interpretivist

An explanatory philosophy is in line with this research issue since it aims to comprehend how employees see and feel working in green buildings. Because these are subjective sensations best understood through an explanatory lens, our goal is to investigate how green aspects affect people's well-being, productivity, and overall performance.

2. Research Approach: Inductive

We will Use an inductive method to gain a deeper knowledge of how green buildings affect performance, beginning with staff experiences and observations. This makes it possible for us to spot new themes and connections that might not be immediately obvious when using a preconceived notion.

3. Research Strategy: Mixed Methods

A mixed-methods approach will be used to gain a comprehensive understanding of the topic. This will involve:

- **Quantitative data:** Conducting a survey with employees from green and non-green buildings to gather data on factors like employee well-being, productivity metrics, and absenteeism.
- **Qualitative data:** Conducting semi-structured interviews with a smaller group of employees to delve deeper into their personal experiences and perspectives on working in green buildings.

4. Research Choice: Mixed Methods

As mentioned above, a mixed-methods approach is chosen. Quantitative data provides objective measurements of performance, while qualitative data allows employees to express their lived experiences and perceptions. Combining both methodologies creates a richer and more nuanced picture of the impact of green buildings.

5. Time Horizon: Cross-Sectional

This initial study is probably going to use a cross-sectional design. We will be able to compare employee experiences and performance from green and non-green facilities since data will be gathered all at once. Future studies, however, might take into account a longitudinal design to monitor the long-term effects of green buildings on worker performance.

6. Data Collection and Analysis Techniques:

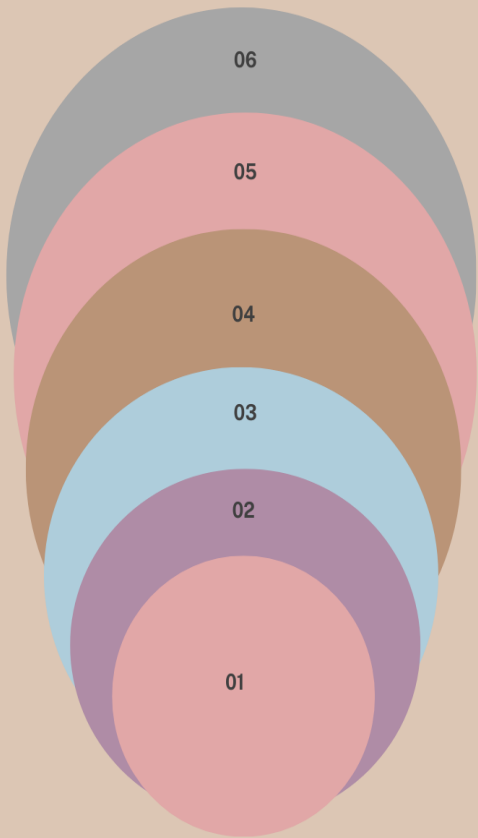
Quantitative Data:

- An electronic version of a standardized survey will be created and given to staff members.
- To compare performance measures between groups operating in green and non-green facilities, data analysis will entail statistical approaches including calculating means, standard deviations, and correlations.

Qualitative Data:

1. Semi-structured interviews will be carried out with a reduced number of workers from both kinds of structures.
2. To find reoccurring themes and patterns in employee experiences and impressions of their workplace, thematic analysis will be employed.
3. These methods of data gathering and analysis when combined allow us to fully comprehend the effects of green buildings on worker performance.

RESEARCH ONION



01 RESEARCH PHILOSOPHY

INTERPRITIVISM

02

RESEARCH APPROACH

INDUCTIVE

03 RESEARCH STRATEGY

MIXED METHODS
Surveys and Case studies

04 RESEARCH CHOICE

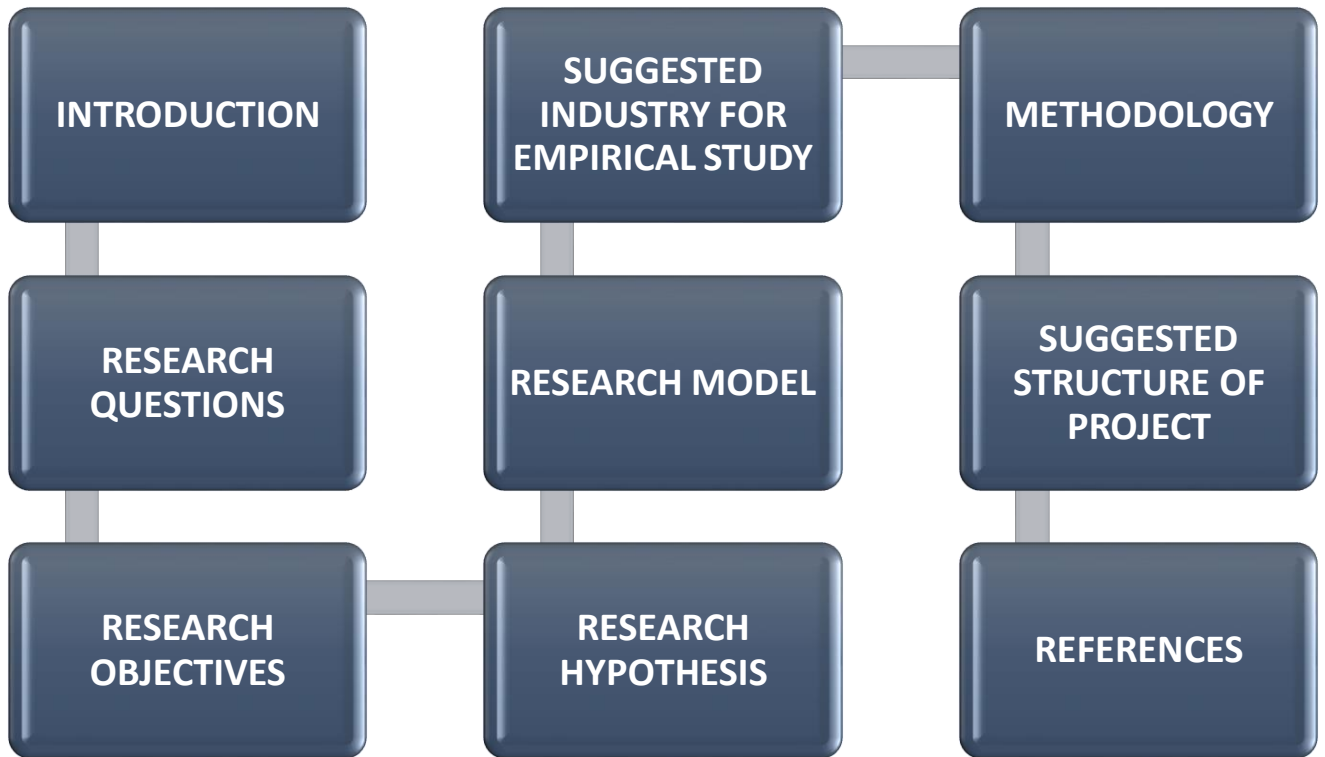
MIXED METHODS

05 TIME HORIZON

CROSS-SECTIONAL

06 DATA COLLECTION & ANALYSIS TECHNIQUES

SURVEYS AND CASE STUDIES



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APPENDICES:

Overview Inquiries for Green Workplaces and Representative Execution:

General Discernment:

- How fulfilled would you say you are with the general green components in your office climate (e.g., normal light, plants, admittance to nature)?
- How much do you accept green components in your office add to your prosperity and generally speaking solace?
- Do you feel that green elements in your work area decidedly affect your capacity to concentration and concentrate?

Explicit Green Components:

- How much light comes from the sun in your workspace?
- Does it influence your mind-set or efficiency?
- Are there plants integrated into your office climate?
- Do they have an effect as far as you can tell?
- Do you approach open air spaces or perspectives on nature from your work area?
- How frequently do you utilize them?
- Does your office have highlights like great ventilation, air quality control, or agreeable temperature settings?
- How would they influence your work insight?

Well-Being and Performance:

- On a size of 1-5, how useful do you feel at work?
- Do you suppose this is connected with the greenness of your office?
- How frequently do you encounter pressure or weakness at work?

- Do you suppose the workplace climate assumes a part in this?
- How satisfied are you with your engagement and overall job satisfaction?
- Do you believe that green elements are a factor in this?
- How frequently do you take debilitated leave or feel unwell at work?
- How about the workplace climate be adding to this?

Extra Inquiries:

- Would you be willing to pay a slight premium to work in a greener office climate?
- What explicit green highlights do you suppose could be generally advantageous to add to your office?
- Do you have any ideas for working on the greenness of your on-going work area?

Frequent Asked Questions about the Green Buildings:

- [What is "green building"?](#)
- [What makes a building "green"?](#)
- [What are the benefits of green building?](#)
- [How is green building related to smart growth and sustainable development?](#)
- [How do buildings affect natural resources?](#)
- [How do buildings affect climate change?](#)
- [What is the history of green building in the U.S.?](#)
- [What building types can be green?](#)
- [Where can I see an example of a green building in my area?](#)
- [How can I incorporate green building concepts into my home?](#)
- [Is there federal or state legislation related to green buildings?](#)
- [What is Life-cycle Assessment?](#)
- [What are the economic benefits of green or sustainable building and development?](#)
- [Are green buildings more expensive to construct and operate?](#)
- [Where can I find sources of funding for my green building project?](#)
- [Can I get a tax break for building green?](#)

- [Where can I find more information about the components of green building, like energy efficiency or reduced waste?"](#)
- [What standards exist for green building?](#)
- [How are buildings certified as green in the U.S.?](#)

Table 2 Summary of studies investigating the perception and satisfaction of thermal comfort (TC) and IAQ in green buildings compared to non-green buildings, benchmark or to the scale midpoint

Study	Country or region	Buildings covered		Occupants surveyed		Outcome [†]		POE methods [‡]	Statistical metrics [§]	
		Green	Non-green	Green	Non-green	TC	IAQ		<i>p</i>	<i>d</i>
Brown et al. (2010)	Canada	1	1	104	145		A	I		
Thatcher and Milner (2016)	South Africa	3	2	211	69		A	I	•	•
Thatcher and Milner (2012)	South Africa	1	1	161	79		A	I	•	
Thomas (2010)	Australia	1	—	238	—		A	I, II	•	•
Tham et al. (2015)	Singapore	1	1	32	33	A	A	I, III	•	•
Liang et al. (2014)	Taiwan of China	3	2	134	99	A	A	I, III	•	
Sediso and Lee (2016)	R.O. Korea	2	2	222 [*]		A		I	•	
Pei et al. (2015)	Mainland of China	10	42	500	500	A		I, III	•	
Gou and Lau. (2013)	Mainland of China	1	—	182	—	A		I, III		
Gou et al. (2014)	Mainland of China	9	5	774	477	B		I	•	•
Ravindu et al. (2015)	Sri Lanka	1	1	70 [*]	—	B	B	I, III	•	
Paul and Taylor (2008)	Australia	1	2	40	53	B		I	•	
Collinge et al. (2014)	USA	1	—	48	—	B		I, II	•	
Altomonte and Schiavon (2013)	Global ^a	65	79	10,129	11,348	B	C	I	•	•
Menadue et al. (2014)	South Africa	4	4	600 [*]	—	C		I, III	•	•
Leaman and Bordass (2007)	UK ^b	177	—	—	—	C	C	I	•	•

Notes:

[†] Study outcome: A = higher satisfaction in green buildings, B = lower satisfaction, and C = no difference found.

[‡] POE methods covered: I = subjective assessment, II = energy performance, III = IEQ measurement.

[§] Whether studies use inferential statistics in determining outcomes: *p* indicates use of *p*-value for significance testing and *d* a generic measure of effect size, most commonly Cohen's *d*.

^{*} These studies do not explicitly provide per group sample sizes.

- Elnaklah, R. , Daniel Fosas, D. , Natarajan, S. 2020, by Indoor environment quality and work performance in “green” office buildings in the Middle East retrieved from <https://d-nb.info/1220279315/34>

**GREEN BUILDING QUESTIONNAIRE
(COMMERCIAL BUILDING and MULTI-FAMILY HOUSING)**

Applicant: _____
 Project Address: _____
 Multi-Family: _____ Sq. Ft. Area _____ Units
 Commercial: _____ Sq. Ft. Area _____ Units

Instructions for Use: The following questionnaire is a non-binding document used to both educate the applicant about Green Building measures (and how these can save money over time) and to inform the Borough's Department of Building, Housing and Codes Enforcement and the BLUER Committee about the Project's specific green initiatives. Applicants will find detailed information on each question by clicking on the highlighted link embedded within each question (or referencing associated footnote on the last page). Each applicant is asked to complete and sign the questionnaire to indicate they reviewed the questions and submit to the Borough's Department of Building, Housing and Code Enforcement with their Land Development Application for record. Additional information is available through www.westchester.org and www.westchester.com.

GENERAL			
☐ YES	☐ NO	☐ N/A	Is the Project pursuing LEED Certification ¹ from the US Green Building Council?
☐ YES	☐ NO	☐ N/A	Is the Project designed to achieve the ENERGY STAR ² ?
☐ YES	☐ NO	☐ N/A	Is the Applicant aware of Rebates ³ available through local utilities and tax incentives for Projects that incorporate energy efficient measures?

ENERGY EFFICIENCY			
☐ YES	☐ NO	☐ N/A	If the Project is a Renovation, does the scope include Heating, Ventilation and/or Air Conditioning Equipment efficiency upgrades ⁴ ?
☐ YES	☐ NO	☐ N/A	If the Project is a Renovation, does the scope include electrical and lighting equipment efficiency upgrades ⁵ ?
☐ YES	☐ NO	☐ N/A	Does the Project include Fundamental Commissioning ⁶ of the building energy systems?
☐ YES	☐ NO	☐ N/A	Is the project designed to meet minimum levels of energy efficiency ⁷ as Established by ASHRAE 90.1-2007?
☐ YES	☐ NO	☐ N/A	Does the Project utilize a whole building Energy Model ⁸ ? If yes, please submit copy for record with Building Permit Application.

☐ YES	☐ NO	☐ N/A	Does the Project utilize or make allowances for renewable energy technologies ⁹ ? If yes, what percentage of the total energy usage: _____
☐ YES	☐ NO	☐ N/A	Does the project utilize Energy Star rated appliances and equipment ¹⁰ ?
☐ YES	☐ NO	☐ N/A	Does the Project utilize high efficiency light fixtures and/or energy efficient lighting controls ¹¹ such as occupancy sensors as well as daylight sensors?
☐ YES	☐ NO	☐ N/A	Does the Project utilize individual electrical metering ¹² in multifamily units to reduce electricity consumption?

SITE DESIGN			
☐ YES	☐ NO	☐ N/A	Does the Project incorporate tree preservation or enhancement ¹³ in order to provide urban habitat for wildlife, provide cooling effect for pavement and rooftops, reduce stormwater runoff and provide for cleaner air?
☐ YES	☐ NO	☐ N/A	Are native plantings ¹⁴ with minimal water requirements incorporated into the non-stormwater related landscaping features?
☐ YES	☐ NO	☐ N/A	Are low impact design (LID) techniques ¹⁵ incorporated into the site design, (i.e. vegetated conveyance techniques, rain gardens, permeable pavements, vegetated ("green") roof, stormwater planters, or vegetated curb extensions, etc.) to provide for stormwater infiltration and evapo-transpiration?
☐ YES	☐ NO	☐ N/A	Does the Project utilize methods to minimize the heat island effect ¹⁶ generated from rooftops, parking areas, streets and driveways?
☐ YES	☐ NO	☐ N/A	Does the Project provide preferred parking for Low-Emitting/Fuel-Efficient Vehicles ¹⁷ and/or car pooling?
☐ YES	☐ NO	☐ N/A	Does the Project allow for reduced parking requirements, credit for shared parking or street parking, or under-structure parking ¹⁸ ?
☐ YES	☐ NO	☐ N/A	Does the Project provide smart transportation options ¹⁹ , including access to public transit, along with bicycle racks, signage and storage facilities?

MATERIAL RESOURCE			
☐ YES	☐ NO	☐ N/A	Does the Project provide easily-accessible dedicated area or areas for the <u>collection and storage of materials for recycling</u> ²⁶ for the entire building? Materials include: paper, corrugated cardboard, glass, plastics and metals.
☐ YES	☐ NO	☐ N/A	If trash is removed by a private hauler, does the building owner or tenant have a contract in place for <u>recycling collection</u> ²⁷ ?
☐ YES	☐ NO	☐ N/A	If the project includes a restaurant, does the building owner or tenant have a waste food collection program in place for <u>compost</u> ²⁸ ?
☐ YES	☐ NO	☐ N/A	Is there a requirement specifying a <u>diversion (from landfilling)</u> ²⁹ for Construction, Demolition or Renovation materials?
☐ YES	☐ NO	☐ N/A	Does the Project make allowances for green renovations or technologies that retain the historic character of <u>registered historic properties or resources</u> ³⁰ ?
☐ YES	☐ NO	☐ N/A	Does the Project promote the use of <u>environmentally responsible materials</u> ³¹ ?

WATER EFFICIENCY			
☐ YES	☐ NO	☐ N/A	Is the use of <u>high efficiency</u> ³² and innovative plumbing fixtures and fittings, such as WaterSense labeled, utilized to reduce water consumption?
☐ YES	☐ NO	☐ N/A	Does the Project utilize <u>individual metering</u> ³³ in multifamily units to reduce water consumption?
☐ YES	☐ NO	☐ N/A	Is the use of <u>rainwater harvesting systems</u> ³⁴ utilized for outdoor irrigation to reduce unnecessary use of potable water?
☐ YES	☐ NO	☐ N/A	In lieu of the above, is there a requirement for using <u>native plants</u> ³⁵ that will reduce the use of water for landscape maintenance?
☐ YES	☐ NO	☐ N/A	Are <u>innovative waste water technologies</u> ³⁶ utilized to reduce generation of waste water and potable water demand?

☐ YES	☐ NO	☐ N/A	If yes to the above, please explain:
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INDOOR AIR QUALITY			
☐ YES	☐ NO	☐ N/A	For multi-tenant residential buildings, does the project <u>prohibit smoking</u> ³⁷ in common areas and design building envelope and systems to minimize ETS transfer among dwelling units?
☐ YES	☐ NO	☐ N/A	Does the Project make provisions for bettering the <u>indoor air quality</u> ³⁸ (i.e., meeting the standards of ASHRAE 62.1-2007 (sections 4-7), among others)? This may also include separate ventilation for Janitor's Closets, copy rooms and maintenance shops, entry way systems or high efficiency air filters.
☐ YES	☐ NO	☐ N/A	Does the Project utilize <u>low-emitting materials (low or zero VOC)</u> ³⁹ ?
☐ YES	☐ NO	☐ N/A	Does the Project reduce the potential presence of <u>mold</u> ⁴⁰ through preventive design and construction measures AND training of maintenance personnel?

By signing below, you indicate that you have read and completed the above questionnaire.

(signature of applicant) (date)

(printed name of applicant) (date)

GREEN BUILDING QUESTIONNAIRE (COMMERCIAL BUILDING and MULTI-FAMILY HOUSING) retrieved from <https://west-chester.com/DocumentCenter/View/287/BLUER-questionnaire---November-17-2011-PDF>