INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact factor: 4.295

(Volume 4, Issue 1)
Available online at www.ijariit.com

CONSUMER'S ACCEPTANCE TO GREEN BUILDING CONCEPT FOR SUSTAINABLE CONSTRUCTION IN INDIA

Ankit Kumar Jat
RLR Infra Vision Pvt. Ltd. Bhilwara, Rajasthan
ankitiec94@gmail.com

Prithviraj Dilip Mane
Brahmdevdada Mane Polytechnic, Soalpur, Maharashtra
prithvimane143@gmail.com

Abstract

The changing consumer demands for eco-friendly products and services in all industrial sectors have paved way for constant growth and development of the real estate sector especially in Delhi-NCR. The growing interest towards green products in real estate can be attributed to the fact that quality of air is decreasing day by day. According to few reports buildings consume more than 30% of energy utilizing 40% of resources while simultaneously generating 40% of wastes and 35% of harmful green-house gases. So this study is focused on consumer's acceptance and willingness to pay more for green building products in Delhi-NCR. For the purpose of the study 150 commercial property owners were contacted to identify the factors stimulating them to pay premium prices for sustainable buildings over conventional buildings. From the results, it was found that environmental attitude, green awareness, architectural factors and social influence significantly influence the customer willingness to pay higher prices for green buildings. Social Influence is the strongest factor that has positively influenced the customer inner will to pay premium prices for green buildings. The research also provides in-depth understanding of factors stimulating customers to go green in the context of construction industry specifically in Delhi-NCR region.

Keywords: *Green Building, Sustainable Development, Eco-friendly products, Real Estate.*

Table of Content

Table of Figures

Table of Tables

Chapter 1: Introduction

1. Introduction

Economic development in India is driven by rapid industrialized growth. Rapid expansion of buildings in urban areas has further increased the chances of environmental degradation. Industrial revolution in agriculture, mining, manufacturing, transportation and technology sector have intensified the harmful effect on human society. The scenario of environmental degradation is likely to worsen if the existing trend for economic development and reckless consumption pattern is not controlled (Ramlogan, 1997). Construction activity is one of those in Indian economy which has a significant impact on its surroundings. The negative influences of construction activities includes; noise, traffic congestion, dust, fumes, water pollution and waste disposal. Unplanned and indefensible construction activities in India have focused on fulfilling increasing infrastructure needs of the rising population and have ignored the emerging environmental issues. (Conte and Yepes, 2012).

According to estimates buildings consume more than 30% of energy utilizing 40% of resources while simultaneously generating 40% of wastes and 35% of harmful green-house gases. Therefore, integrating Green principles to newer buildings and converting existing conventional ones is the most viable approach to respond to environmental issues and sustainability concerns. The growing trend of sustainable construction is aligned with the increasing environmental awareness of the inhabitants. Several existing studies have indicated a positive relationship between consumer environmental concerns and its impact on their willingness to pay premium prices. But this relationship has not been studied in the context of construction industry that too specifically in Delhi/NCR region.

The concept of green building in India started with the inception of Green Building Council (IGBC) in the year 2001. Sohrabji Godrej Green Business Centre was the first green building that was inaugurated in the country. The market of green building worth 40 billion USD is anticipated to increase further. According to estimates made by Planning Commission, the investment requirement in construction industry in twelfth five year plans has mounted to an amount worth 1 trillion. The policies initiated by the government to promote the consumption of sustainable buildings have paved way for the industry players (USGBC, 2007). Since, then IGBC has initiated 13 indigenous green building rating systems to assess the performance of the buildings. *Houses are considered 'green' when they use environmentally friendly materials for construction such as recyclable timber products, recyclable roof systems, recyclable kitchen cabinets, certified energy efficient appliances, compact fluorescent lamps and light-emitting diode lighting system* (Tan, 2014).

The changing consumer demands for eco-friendly products and services in all industrial sectors have also paved way for constant growth and development of the sector. The real estate sector is growing at a phenomenal growth in Delhi, capital city of India as well. Municipal Corporation of Delhi has developed 28 storey multilevel car-parking system following the green principles. Delhi Transco Ltd is building its corporate office of 9000 sq. m. with the Energy conservation Building Code (ECBC) which is cut down power consumption by 30 percent. PWD intends to embrace the idea of green building in its 5000 bedded *GTB Hospital, Dwaraka Hospital, Thiagraja Sports Complex and Delhi Institute of Pharmaceutical Sciences and Research*. PWD is also adopting energy efficient measures for air conditioning, water heating and lightning, rainwater harvesting etc. It is also deploying climatic control measures in its buildings to save energy. PWD is experimenting with trenchless technology and pollution free Hot Mix Plant. Delhi International Airport has built the large and magnificent terminal and runway keeping in mind the principles of green building technologies and energy efficient lightening system. A part from this mandate use of fly-ash bricks or blocks or tiles by the construction players of the city is yet another means of supporting the constant growth of Green revolution in construction industry. DDA and CPWD are planning to renovate Games village into green building. The adoption of LED lights in all the traffic signals of Delhi is an initiative for saving unwanted consumption of electricity. All these projects are constantly monitored under the provision of Delhi Dept. of Environment to ensure that development efforts does not harness the environmental stability in the longer run (TERI, 2017).

The Indian construction industry is highly disorganized with large number of stakeholders involved in designing, building, installing and renovating construction sites. The interaction between the different stakeholders is almost negligible thereby making it difficult for the sector to integrate green practices into the conventional construction activities. The disconnect between the buyers and the builders coupled with lack of awareness restricts the growth the sector. Marketers are expected to make the buyers understand that intended benefits of buying green property are more constructive than conventional building's in order to stimulate their inner willingness to pay for environmentally labeled buildings. Obligating rules and regulations solely does not guarantee the success of the industry. The green apartments have to appeal to the customers to bring about a significant change in the purchasing habit of the prospective buyers. Aligned with this objective, the current study offers implications for industry practioners to theoretic understanding of consumer perception of green practices in the construction industry. The main aim of the study is to evaluate consumer acceptance to green building concept for sustainable construction in India. The other objectives of the study are as follows:

1. To study factors influencing consumer choice towards green building's in India (Delhi-NCR)

2. To study consumer willingness to pay more for sustainable construction in India.

3. To study the relationship between factors influencing consumer choice towards sustainable building's and their willingness to pay more for sustainable construction in India.

Chapter 2: Literature Review

2. Literature Review

In order to understand whether or not consumers in India are willing to pay extra to purchase green buildings it is vital to have an in-depth knowledge of the concept and how consumer behavior theories can be applied to green buildings. For this purpose, this chapter reviews the past literature to establish a theoretical basis on the basis of which research hypothesis is formulated. The chapter begins with a brief overview on green product purchase behavior of the customers. Subsequently, this chapter gives an overview of the factors determining customer's attitude towards green buildings; green awareness, environmental concern, social influence and Architectural factors. In the end research framework adopted for fulfilling research objectives of the current study is presented. .

2.1 Green Product Purchase Decision

Theory of Reasoned Action (TRA) was proposed by Fishbein and Ajzen in 1975. According to TRA, consumer intention to behave in a particular manner is determined by attitude towards the subjective norms and performing the behavior (Han & Hsu, 2010). This theory is justifiable in explaining the purchase behavior of green products. The willingness or ability of an individual to prefer green products over conventional products is referred to as green purchase intention (Nik Abdul Rashid, 2009). The purchase decisions are described in terms of buying green products, adopting sustainable consumption practices, supporting green companies and willingness to pay more for green products (Essoussi and Linton, 2010). The intention to purchase green products is determined by the positive attitude of the customer and its perceived value. The attitude towards green products is also influenced by a range of marketing factors. The other two broad range of factors influencing purchase behavior of green consumers includes; extrinsic and intrinsic factors. Extrinsic factors relates to social image of the consumers and product characteristic features like quality, performance, price, safety etc. However, internal factors relates to internal realization of responsibility towards the environment, self-interest and willingness to act for ecological conservation (Vermeirand Verbeke, 2004). The success of sustainable construction entirely depends upon customer demand and strong purchase appeal. Miosander, et al. (2010) highlighted the significant role of the consumers in leading market forces specifically when new emergent technologies are introduced in the market. Developers are expected to have an in-depth understanding on consumer preferences for higher acceptance of the concept of sustainable construction.

2.2 Green Awareness and Social Influence

Green awareness is a term which is coined to define the ability of an individual to recognize and distinguish environmental friendly products from conventional products. Increasing awareness on environmental threats by construction activities has paved way for green construction activities to fulfill the current demands of the consumers without neglecting the future demands. Ottman (2008) reported a significant relationship between green awareness, green brand image and green trust and green brand preference.

Chen (2012) asserted that awareness about green buildings not only rebuilds the perception about eco-homes but also decreases the perceived risk of green buildings. Thus, green brand awareness is correlated with buying decision of the customers (Aman, 2012; Chahal et al., 2014). Furthermore, research evidence has put forward the fact that customer values sustainable features of green buildings and are willing to pay more for the same (Zalejska-Jonsson, 2014). Other author argues that advertising endorser's acquaintance rate can alter consumer preference and attitude towards eco-homes and stimulate purchase behavior (Laroche, et. al. 1996). An individual might have positive or negative attitude towards eco-friendly homes. But still, the intent to reside in the same might be influenced by the perception of the social referents such as the individual spouse, family, friends and opinion linked to green buildings. The point of view of the social referents determines the rate of agreement or disagreement with a particular set of behavior (Ajzen, 1991). As explained by Oliver and Bearden (1985), behavioral intentions are established on the predication of the individual's referents and also the individual's desires to act in accordance with these preferences. Thus, the intention of inhabiting eco-friendly homes may depend on the influence of social referents. According to Coulter, Price & Feick (2003); Kalafatis, et al. (1999) social network and product involvement are interrelated.

2.3 Environmental Attitude and Concern

Knowledge and beliefs are characteristics features that influences the decision making process of the customers (Alba &Hutchinson, 1987). Several studies have reported that environmental knowledge and eco-literacy is a significant predictor of environment friendly behavior (Chan and Lau, 2000). It has been found that consumer articulates their environmental concerns depending upon product characteristic features, precision of green product, information provided on products and its benefits (Forkink 2010). Attitude is a mental state of art that directs or leads to particular course of action. People are expected to develop a positive attitude towards the behavior that will lead to positive outcome. In the context of green buildings, environmental attitude of a person shapes his or her purchase intention. It has been further reported in the study that maximum people holds positive attitude towards eco-friendly homes because they perceive that these homes are constructed in an environment friendly fashion during the entire life cycle of the building from designing to demolition. Homes of such kind will not only reduce the impact of construction activities on human health but will also be able to ensure better quality life (Tan, 2012). Environmental conscious people are engaged in environmental conservation activities and are likely to support the practice of sustainable construction for the well-being of the planet and its inhabitants (Griskevicius et al., 2010).Tanner and Kast, (2003) further stated that price is not an obstacle for consumers with a positive attitude towards environmental protection. Consumer acknowledges the premium prices they pay for the green homes in the form of reduced monthly operating costs, higher quality and healthier indoor environment.

2.4 Architectural Factors

Green building concept has enhanced the business competitiveness of construction industry. The integrated design of the green building has reduced the unwanted pressure on energy consumption and overall operation cost. This further suffixes customer willingness to pay premium prices for green techniques, higher cost of green materials (Tseng et al., 2013). Green consumers evaluates

the performance of the green buildings over conventional buildings in terms of green construction materials like safety, ecological maintenance, recyclable, reuse, low consumption of resources, sufficient ventilation and lightening. The environmental protection facilities, energy saving system, waste disposal system are other features of sustainable buildings driving consumer interest into the concept. Eco-labels are detailed descriptors that are been used by marketers to promote the identification of green products. Nik Abdul Rashid's (2009) study showed that awareness of eco-label has a positive effect on knowledge of green product and purchase intention of the customers. Green building evaluators review the performance of the green buildings by using labels like Greenery, On-site Water Retention, Daily Energy Saving, CO2 Reduction, Construction Waste Reduction etc. to prompt purchase intention of the prospective buyer. Williams's and Dair (2007) and Zhang et al. (2011) argue that high cost of green buildings is yet another factor that impacts consumers purchase decision.

2.5 Research Framework

The theoretical framework of the study was adapted from the constructs derived from the previous studies; to include consumer willingness to pay for sustainable construction. As per the proposed framework; Customer willingness is the dependent variable of the study which is evaluated by assessing green awareness and social influence, environmental attitude and concern and significance of architectural factors of the green building for each of the respective customer.

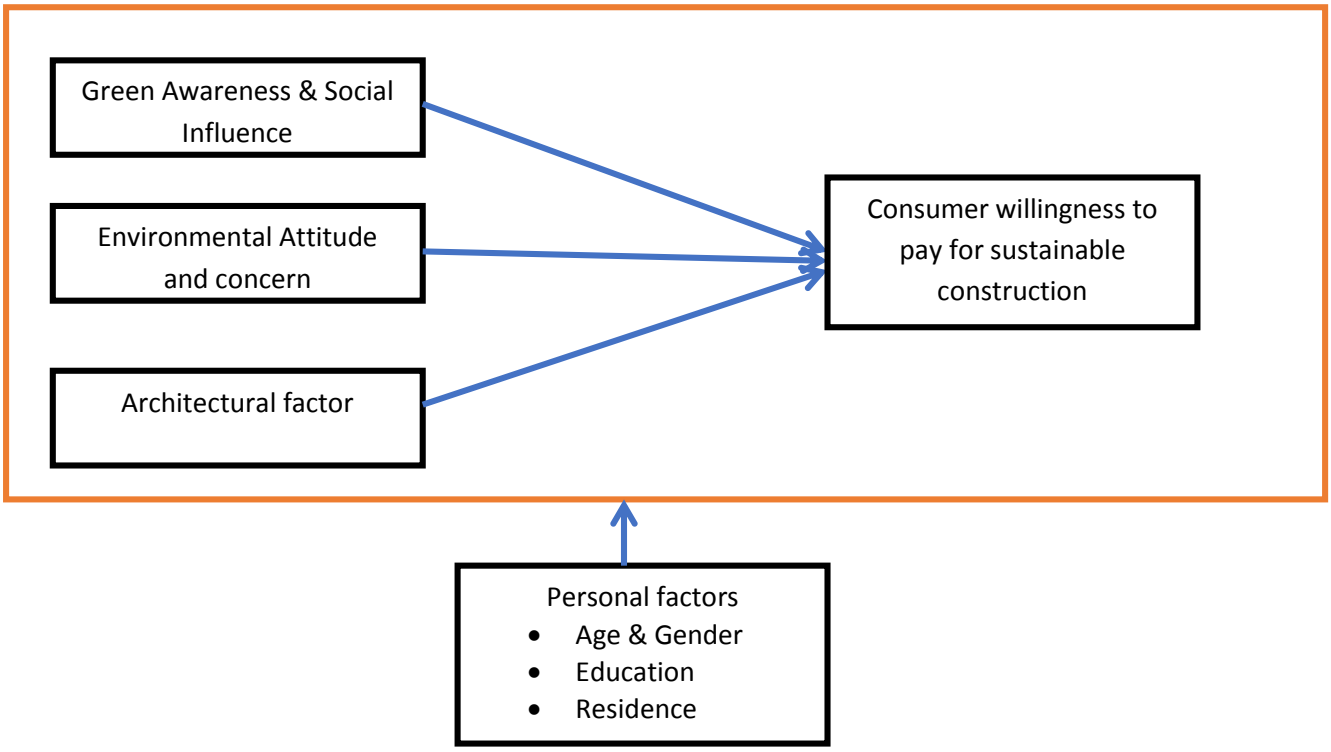

Figure 2.1 Research Frameworks of the Study

Chapter 3: Research Methodology

3. Research Methodology

To assess the consumer acceptance to Green Building Concept for Sustainable Construction in India, a descriptive research was carried out in Delhi-NCR region. For the purpose of the study 150 commercial property owners were contacted to identify the factors stimulating them to pay premium prices for sustainable buildings over conventional buildings. This study is a descriptive research employing a quantitative research method to accomplish the stated objectives. Creswell, (2008) argues that these studies are best suited to examine the significance of the correlations between investigated constructs. The population of the study comprises of occupants and tenants who are already residing in Green buildings in the NCR region. Though it is difficult to estimate the exact number of occupants that will be making their contribution, but still care is taken that enough number of occupants are included so as to generalize the results on the entire population. Convenience sampling method is employed in the current study and the subjects are selected as per their convenience accessibility and proximity. A detailed survey questionnaire is designed to collect primary data from the customers; to explain the relationship between the proposed variables. First part of the survey gathered information on demographics of the respondents. Second part of the survey gathered information on occupant's intention to pay heavy prices for purchasing green buildings and factors that stimulated their intention to purchase green buildings over conventional ones. In this study, second part of the survey were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).Thus, this research is quantitative in nature. Cronbach's alpha was calculated to measure the reliability of the scale. The data gathered was analyzed quantitatively. SPSS was used for analysis of quantitative data. Finally, appropriate recommendations were generalized on the basis of results derived.

Chapter-4: Data Analysis

4. Data Analysis

4.1 Reliability Analysis

Cronbach's coefficient alpha is measured to check the internal consistency of the constructs. According to Hair et al., (2010) all constructs had no problems in their reliabilities if their Cronbach's Alpha value exceeds 0.700. As per the results displayed in Table 4.1 the Cronbach's Alpha value was found to be 0.776 which indicates that the scale is robust enough to measure all constructs reliably and free from random error.

Table 4.1 Reliability Statistics for responses from customers

Cronbach's Alpha	Number of Items
.776	21

4.2 Respondent's Profile

Table 4.2 represents the descriptive exploration on demographic profile of the green building owners who were being contacted. Majority of the respondents (42.7%) belong to age interval of 41 to 50 years. Results revealed that majority of the customers who participated in the survey belonged to male category (82%). Only (18%) of females made an insignificant contribution to the survey. The largest number of participants have completed their graduation (50.7%) followed by (42.7%) of respondents who have completed their post-graduation. It appeared that respondents were mostly in the urban areas (93.3%). This clearly suggests that the phenomenon of sustainable construction is much more relevant in the context of urban areas than rural areas. That is, people belonging to urban areas are more concerned about their surrounding environment. With regard to occupation, majority of the occupants (46.7%) were found holding private jobs.

Table 4.2 The demographic profile of respondents

		Number	**Percentage**
Age	**1. Under 21 years**	0	0.00%
	2. 21-30 years	19	12.7%
	3. 31 to 40 years	34	22.7%
	4. 41 to 50 years	64	42.7%
	5. 51 to 60 years	33	22.0%
	6. 61 to 65 years	0	0.00%

	7. Over 65 years	0	0.00%
Gender	**Male**	123	82.0%
	Female	27	18.0%
Qualification	**Matriculation**	4	2.7%
	Intermediate	6	4.0%
	Graduation	76	50.7%
	Master	64	42.7%
	M.Phil./PhD	0	0.00%
Residence	**8. Urban**	140	93.3%
	9. Rural	10	6.7%
Occupation	**1. Homemaker**	11	7.3%
	2. Business	24	16.0%
	3. Private Job	70	46.7%
	4. Public Job	45	30.0%

4.3 Correlation Analysis

The interrelationship between the variables was examined using Pearson correlation analysis. The average score for all the multi-items for a construct is computed. As per the estimates stated by Lind et al., (2010) correlation is strong when the value of r is between 0.50 to 1.0 or from –0.50 to –1.0. As per the results displayed in Table 4.3, all the variables except architectural factor are positively correlated with each other at the 0.01 level and value range ranges from 0.338 to 0.841. There exists a significant relationship between Environmental attitude and green awareness *(r= .726**, p<0.01),* social influence *(r= .841**, p<0.01)* and Willingness to pay *(r= .795**, p<0.01).* Green awareness shares a positive and significant relationship with Environmental attitude *(r= .726**, p<0.01),* social influence *(r= .338**, p<0.01),* architectural factor *(r= .323**, p<0.01)* and willingness to pay *(r= .597**, p<0.01).* Furthermore, Social influence is positively correlated with Environmental attitude *(r= .841**, p<0.01),* green awareness *(r= .338**, p<0.01)*

architectural factors *(r= .795**, p<0.01)* and willingness to pay *(r= .778**, p<0.01).* Architectural factor shares a positive and significant relationship with Environmental attitude *(r= .824**, p<0.01),* green awareness *(r= .323**, p<0.01),* social influence *(r= .795**, p<0.01)* and willingness to pay *(r= .750**, p<0.01).* Finally there exists a significant relationship between willingness to pay and environmental attitude *(r= .795**, p<0.01),* green awareness *(r= .597**, p<0.01),* social influence *(r= .762**, p<0.01)* and architectural factors *(r= .750**, p<0.01).*

Table 4.3: Correlation analysis

	Environmental_Attitude	**Green_Awareness**	**Social_Influence**	**Architectural_Factor**	**Willingness_to_Pay**
Environmental_Attitude	1	.726**	.841**	.824	.795**
Green_Awareness	.726**	1	.338**	.323**	.597**
Social_Influence	.841**	.338**	1	.795**	.762**
Architectural_Factor	.824	.323**	.795**	1	.750**
Willingness_to_Pay	.795**	.597**	.762**	.750**	1

***. Correlation is significant at the 0.01 level (2-tailed).*

4.4 Regression Analysis

Regression analysis was carried out to find out the relationship between customer willingness to pay for sustainable buildings and factors influencing their decision.

Table 4.4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935a	.874	.870	.15545

Table 4.5 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.264	4	6.066	251.032	.000b
	Residual	3.504	145	.024		
	Total	27.768	149			

Table 4.6Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.093	.154		-.605	.546
	Environmental_Attitude	-2.689	.227	-2.105	-11.828	.000
	Green_Awareness	1.229	.081	1.366	15.096	.000
	Social_Influence	1.245	.089	1.213	14.003	.000
	Architectural_Factor	1.237	.091	1.079	13.598	.000
a. Dependent Variable: Willingness to Pay						

Table 4.4 provides the R and R^2 values. The R value represents the simple correlation and is .935, which indicates a high degree of correlation. The R^2 value indicates how much of the total variation in the dependent variable (Willingness to Pay), can be explained by the predictors. In this case, 87.4% can be explained which is very large. Table 4.5 is the ANOVA table which reports how well the regression equation fits the data (i.e., predicts the dependent variable). Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts Willingness to Pay(i.e., it is a good fit for the data).Table 4.6 depicts a significant impact of environmental attitude*(β= -2.689, p=0.000)*, general awareness*(β= 1.229, p=0.000)*, social influence*(β= 1.245, p=0.000)*and architectural factors*(β= 1.237, p=0.000)*on customer willingness to pay premium prices for sustainable building.

4.5 ANOVA Analysis

Anova analysis was performed to evaluate difference in environmental attitude, green awareness, social influence, significance of architectural factors and willingness to pay on the basis of the demographic profile of the respondents. On the basis of age, statistical difference was found in level of green awareness *(f=3.273, p=.023<0.05)* and willingness to pay *(f=2.873, p=.0.38<0.05)* for sustainable buildings. On the basis of gender groups; statistical difference was found in the environmental attitude *(f=4.491, p=.036<0.05),* social influence *(f=4,250, p=.041<0.05),* architectural factors *(f=5.206, p=.024<0.05)* and willingness to pay *(f=5.565, p=.020<0.05)* of

the occupants who were being approached. Furthermore, statistical difference was found in green awareness *(f=2.793, p=.043<0.05)* level of the respondents on the basis of qualification. There was no statistical difference reported on any of the construct amongst the groups on the basis of their residence and occupation.

Table 4.7: ANOVA analysis for various demographic variables

	ANOVA: Age		**ANOVA: Gender**		**ANOVA: Qualification**		**ANOVA: Residence**		**ANOVA: Occupation**	
	F	**Sig**	**F**	**Sig**	**F**	**Sig**	**F**	**Sig**	**F**	**Sig**
Environmental Attitude	2.026	.113	4.491	.036	2.572	.056	1.792	.183	.495	.687
Green Awareness	3.273	.023	1.612	.206	2.793	.043	1.439	.232	1.404	.244
Social Influence	.435	.728	4.250	.041	1.540	.207	.754	.386	.521	.669
Architectural Factors	1.754	.159	5.206	.024	1.302	.276	.681	.411	.128	.944
Willingness To Pay	2.873	.038	5.565	.020	1.577	.198	.554	.458	1.195	.314

Chapter 5: Results and Discussion

5.1 Guidelines on the Use of Interviews and Questionnaires

Questionnaires and interviews are valuable sources of information in a project but they must be conducted professionally and ethically. It is therefore critically important that the following guidelines are followed and failure to do so will be considered grounds for failing a student project as it demonstrates unprofessional behaviour.

a. Any questionnaire (and/or list of questions for interviews) must be approved by the project supervisor and module coordinator **before** it is sent out. The correct wording and content of questions is vital if they are to give useful information and therefore it often takes a significant amount of work to develop a good questionnaire. This may require an initial questionnaire to be pilot tested and then revised before final release. Students often underestimate the time and effort involved in this work and it is therefore important to identify and start this early in the project. Approval will only be given where a clear set of objectives has been set for the questionnaire; criteria for successful survey/interviews have been defined and a clear procedure for ethical data management has been written. These need to be provided in documents accompanying the questionnaire for approval and approval will only be given when these are considered satisfactory.

b. A list of the people to be interviewed and/or sent questionnaires must be approved by the project supervisor **before** they are contacted. When contacting people about your research it is vital that a suitable number and range of people be included. Supervisors do not have lists of industry contacts that are suitable for such surveys and therefore significant work needs to be done in identifying suitable contacts. It is also vital that these people are contacted in a professional and courteous manner as it reflects on the reputation of the university. It is also vital to your research that you get a suitable number of responses otherwise the results will be unrepresentative. Students often overestimate the number of replies that they will get and therefore it is important to consider contingency plans in every project.

c. The method of sending out and receiving back questionnaires (e.g. paper copies, emails) and the secure storage of the data must be agreed with the module co-ordinator **before** they are sent. All questionnaire responses, including those sent overseas and in translation, will need to be traceable and verified in order to be considered appropriate for use in a research project.

d. The text of any interview **must** be provided, in full, as an appendix in the student's final report. If the interview is undertaken in a language other than English then a full translation must also be provided. A good recording of the interview may be accepted in lieu of a transcript if agreed in advance with the supervisor and module coordinator.

e. The questionnaire sent out, and the completed, returned questionnaires (suitably anonymised if appropriate) **must** be provided as an appendix in the student's final report.

The analysis of the findings from the questionnaire / interviews **must** include consideration of the coverage, response rate and representation achieved by the data collection.

Questionnaire

5.2 PART A: Please choose the appropriate option.

Age	1. Under 21 years 2. 21-30 years 3. 31 to 40 years 4. 41 to 50 years 5. 51 to 60 years 6. 61 to 65 years 7. Over 65 years	
Gender	1. Male 2. Female	
Qualification	1. Matriculation 2. Intermediate 3. Graduation 4. Master 5. M.Phil./PhD	
Residence	1. Urban 2. Rural	
Occupation	1. Homemaker 2. Business 3. Private Job 4. Public Job	

5.2 PART-B Please tick the appropriate option

Code	Item	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
	Environmental Attitude and concern					
EA1	Eco-friendly homes are valuable because these homes are developed and constructed using an environmentally friendly process					
EA2	Eco-friendly homes are sensible because these homes may not have a negative impact on the environment					
EA3	Eco-friendly homes that meet Green Building Index (GBI) standards are favorable					
EA4	Eco-friendly homes are beneficial because these homes may enhance our quality of life without sacrificing the internal comfort of the occupants					
EA5	Engaging in environmental activities is an important part of who I am					
EA6	Supporting environmental protection makes me feel as an environmentally responsible person					
	Green Awareness and Social Influence					
SI--1	I will be perceived by others as "out-dated" if I do not support environmental protection					
SI-2	Most members of my family would expect me to own ecofriendly home					
SI-3	I intend to follow the advice of my friends that I should own eco-friendly home					
SI-4	Supporting environmental issues makes me more socially attractive					
GA1	I am more likely to buy green buildings over conventional					

	ones for their reduced environmental impacts					
GA2	I am intended to buy green residential buildings because of higher cost savings, safe and healthy living space.					
GA3	Green buildings provides enlarged access to energy services, enhanced indoor and outdoor air quality, and increased amenity and minimize the negative effect on the natural habitat					
Architectural factor						
A1	Appearance design of green building with low consumption and high efficiency determines my intent to purchase eco-homes					
A2	I am highly concerned about the green building price					
A3	Green Building Label is valuable for me because it helps me to understand the implication of Green Building					
A4	I assess the performance of the green buildings on the basis of the environment protection facilities like site sustainability, water efficiency, energy savings etc.					
	Willingness to pay premium prices for Green buildings					
W1	I prefer buying green homes over conventional homes for their varied benefits					
W2	I am willing to take up responsibility to protect the environment					
W3	I am willing to pay premium prices for eco-friendly homes					
W4	Even if conventional houses has similar characteristic features as modern green houses, I prefer to buy the one with environmental commitment.					

5.3 Ethical review

Please complete the form below:

Ethical review:	Answer the following questions YES or NO as appropriate Will the project involve humans as subjects of the research? [questionnaires and interviews = YES] YES Will the project include any work involving animals? NO Will the project involve personal information that allows you to identify individuals, or corporate or company confidential information? NO Are the results of the research project likely to expose any person to physical or psychological harm? NO Does the research project present a significant risk to the environment or society? NO Are there any other ethical issues raised by the project? NO If you answered YES to ANY of the questions above you must conduct a full ethical review of the project – contact the co-ordinator to discuss this. The full review needs to be conducted immediately. If you are planning to conduct interviews or use questionnaires in your research, you **must** state in the review how you will gain the informed written consent of subjects and deal with issues of confidentiality and anonymity. See the guidelines below.
Signatures:	Student
	Supervisor

Signatures need to be real on a printed copy of the completed form

Chapter 6: Conclusion & Recommendations

6. Conclusion and Recommendations

The current study investigates factors influencing consumer choice towards green buildings in India and their impact on customer willingness to pay higher prices for purchasing sustainable buildings. From the results, it was found that environmental attitude, green awareness, architectural factors and social influence significantly influence the customer willingness to pay higher prices for green buildings. Social Influence is the strongest factor that has positively influenced the customer inner will to pay premium prices for green buildings. This is consistent with the results of the study conducted by Ajzen, (1991); Oliver and Bearden (1985); Coulter, Price &Feick (2003); Kalafatis, et al. (1999) who also argues that individual desire to act in accordance with certain preferences and purchase one thing over others is highly affected by their social community and immediate peer group. As per the results, architectural factor is the second most significant factor influencing customer willingness. Nik Abdul Rashid's (2009) also argues that eco-labels used by green buildings to market their products help customers in estimating the actual worth of the price they pay for. Thus, customers were found to be highly concerned about the performance of the buildings. Furthermore, the results confirmed that customer who had little concern for their environment would have a stronger preference in paying premium prices for green buildings. This is in congruence with the result of the study undertaken by Chen 2012; Aman, 2012; Chahal et al., 2014 who asserted that green brand awareness is correlated with buying decision of the customers. Thus, to positively increase the demand for green buildings in India markers are expected to provide clear information about green buildings and eco-labels to promote consumer acquaintance. Customers should easily be able to evaluate the worth of the price they are paying for. Both government and non-government agencies play a critical role in stimulating purchase intention of the customers. Occupation and Residence does not exhibit any strong influence on occupants will to purchase green buildings as compared to age, gender and qualification. Indian government should take initiatives to enlarge consumer knowledge about green buildings by implementing green marketing campaigns such as energy conservation. On the other hand marketers should ensure that their products are aligned with the quality expected by the customers and are competitively priced. The buildings should be integrated in a fashion to fulfill individual needs and capitalize customer satisfaction. The research also provides in-depth understanding of factors stimulating customers to go green in the context of construction industry specifically in Delhi-NCR region. Future research is expected to improve the generalizability of the sample population by undertaking research study at different geographical locations other than Delhi-NCR.

REFERENCES

1. Alba, J.W. and Hutchinson, J.W., 1987. Dimensions of consumer expertise. *Journal of consumer research*, *13*(4), pp.411-454.
2. Alwitt, L.F. and Pitts, R.E., 1996. Predicting purchase intentions for an environmentally sensitive product. *Journal of Consumer Psychology*, *5*(1), pp.49-64.
3. Aman, A.L., Harun, A. and Hussein, Z., 2012. The influence of environmental knowledge and concern on green purchase intention the role of attitude as a mediating variable. *British Journal of Arts and Social Sciences*, *7*(2), pp.145-167.
4. Chahal, H., Dangwal, R. and Raina, S., 2014. Antecedents and consequences of strategic green marketing orientation. *Journal of Global Responsibility*, *5*(2), pp.338-362.
5. Chan, R.Y. and Lau, L.B., 2000. Antecedents of green purchases: a survey in China. *Journal of consumer marketing*, *17*(4), pp.338-357.
6. Chen, C., He, B. and Tang, X., 2012, December. Green-aware workload scheduling in geographically distributed data centers. In *Cloud Computing Technology and Science (CloudCom), 2012 IEEE 4th International Conference on* (pp. 82-89). IEEE.
7. Coulter, R.A., Price, L.L. and Feick, L., 2003. Rethinking the origins of involvement and brand commitment: Insights from postsocialist central Europe. *Journal of consumer research*, *30*(2), pp.151-169.
8. Fishbein, M. and Ajzen, I., 1975. Belief. *Attitude, Intention and Behavior: An Introduction to Theory and Research Reading, MA: Addison-Wesley*, *6*.
9. Forkink, A., 2010. Perception, Awareness, and Acceptance of Green Kitchen Cleaners: Go Green Market Research. *Retrieved February*, *6*, p.2011.
10. Griskevicius, V., Tybur, J.M. and Van den Bergh, B., 2010. Going green to be seen: status, reputation, and conspicuous conservation. *Journal of personality and social psychology*, *98*(3), p.392.
11. HamzaouiEssoussi, L. and Linton, J.D., 2010. New or recycled products: how much are consumers willing to pay?. *Journal of Consumer Marketing*, *27*(5), pp.458-468.
12. Han, H., Hsu, L.T.J. and Sheu, C., 2010. Application of the theory of planned behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism management*, *31*(3), pp.325-334.
13. Kalafatis, S.P., Pollard, M., East, R. and Tsogas, M.H., 1999. Green marketing and Ajzen's theory of planned behaviour: a cross-market examination. *Journal of consumer marketing*, *16*(5), pp.441-460.
14. Laroche, M., Bergeron, J. and Barbaro-Forleo, G., 2001. Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of consumer marketing*, *18*(6), pp.503-520.
15. Ottman, J.A., 2008. The five simple rules of green marketing. *Design management review*, *19*(4), pp.65-69.
16. Owensby-Conte, D. and Yepes, V., 2012. Green buildings: analysis of state of knowledge. *International Journal of Construction Engineering and Management*, *1*(3), pp.27-32.
17. Rashid, N.R.N.A., 2009. Awareness of eco-label in Malaysia's green marketing initiative. *International Journal of Business and Management*, *4*(8), p.132.

18. Tan, T.H., 2012. Predicting homebuyers' intentions of inhabiting eco-friendly homes: The case of a developing country.
19. Tan, T.H., 2014. Satisfaction and motivation of homeowners towards green homes. *Social indicators research*, *116*(3), pp.869-885.
20. Tanner, C. and Wölfing Kast, S., 2003. Promoting sustainable consumption: Determinants of green purchases by Swiss consumers. *Psychology & Marketing*, *20*(10), pp.883-902.
21. TERI (2017). GREEN BUILDINGS: TERI SEMINAR. Available from<http://www.environment.delhigovt.nic.in/ppt/greenbuilding.pdf>. [Accessed on 29th July 2017].
22. Tseng, M.L., Tan, R.R. and Siriban-Manalang, A.B., 2013. Sustainable consumption and production for Asia: sustainability through green design and practice. *Journal of Cleaner Production*, *40*, pp.1-5.
23. Vermeir, I. and Verbeke, W., 2004. Sustainable food consumption: Exploring the consumer attitude-behaviour gap. *Ghent University, WP*, *4*, p.268.
24. Williams, K. and Dair, C., 2007. What is stopping sustainable building in England? Barriers experienced by stakeholders in delivering sustainable developments. *Sustainable development*, *15*(3), pp.135-147.
25. Zalejska-Jonsson, A., 2014. Stated WTP and rational WTP: Willingness to pay for green apartments in Sweden. *Sustainable Cities and Society*, *13*, pp.46-56.
26. Zhang, X., Platten, A. and Shen, L., 2011. Green property development practice in China: costs and barriers. *Building and Environment*, *46*(11), pp.2153-2160.