

# DOES GENDER MAKE A DIFFERENCE? AN ANALYSIS OF MOTIVATIONAL FACTORS IN SUSTAINABILITY PRACTICE

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Sustainability, or what is commonly thought of as "going green," is a popular and widespread movement that has spread throughout the current general contracting industry. Its increased significance in construction led to the development of the Leadership in Energy and Environmental Design (LEED) rating system that the US Green Building Council defines as "a nationally accepted benchmark for the design, construction, and operation of high-performance green buildings." Firms are decisively pursuing LEED certification in their construction projects and the number of accredited LEED APs (Accredited Professionals) continues to rise each year. While increased sustainability practice is viewed as a positive progression for the construction industry at large, the question has been raised as to whether or not men and women actively participating in the industry are motivated by different means to produce sustainable structures. Past studies in environmental sociology and social psychology reveal a distinct gender gap for environmental values, but an investigation of motivational factors behind male and female pursuits of sustainable building practices has not previously been tested in today's industry. Through a quantitative assessment of the strength of beliefs that various participants in the construction industry hold today, an analysis identifying common motivating factors with gender specificity will assist in evaluating a difference in why men and women practice sustainability. Further investigation must be made before definitive generalizations are determined, but the study reveals a gender gap in the level of importance sustainability should have as a career priority. Pursuit of this subject at a larger scale could have significant outcomes for motivating current and emerging individuals in the construction industry to participate in sustainable practices.

Keywords: accreditation, gender, LEED, motivational factors, sustainability

## INTRODUCTION

Sustainability has been presented in a variety of contexts. It is essentially a method of development where a site's natural land and energy resources are considered to be integral aspects of the development, with building practices and materials utilized that do not jeopardize natural resources or environmental cycles (Mahaffy 1999). This concept has grown into a phenomenon over recent years as sustainability has been promoted by an increasing amount of organizations, namely the US Green Building Council, and construction of sustainable developments and buildings have been exponential. In concurrence, more working individuals in the construction industry

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have participated and expressed increased interest in sustainable accreditation programmes such as the Leadership in Energy and Environmental Design (LEED) Professional Credentials.

This steady movement among construction industry professionals today is being pursued by individuals for various reasons. Motivations range from professional incentives that the prestige LEED certified projects can bring in career enhancement to providing personal satisfaction in salvaging the environment for future generations. Individuals are invariably compelled to pursue sustainability of their own volition, but the question has been raised as to whether or not gender plays a factor in that choice. The construction industry is male-dominated in numbers as well as cultural context, and still one of the slowest employment sectors for entering women (Watts 2009). Meanwhile, a gender gap for environmental concern, values, and perceived environmental risks has been discovered from numerous studies in environmental sociology and social psychology, indicating that women are more concerned with the environment than men (Norgaard and York 2005). With the rise of sustainable practices and its increased significance to industry participants, is sustainability becoming an outlet for women to enter the construction industry? Is there a feminine niche maintaining the momentum of the sustainability movement?

Considering the discovery of an environmental gender gap and applying it towards the present construction industry that employs men and women in all sectors, we question whether or not gender makes a difference in motivating those individuals to pursue sustainability in their careers. This study first explores the main motivational factors of sustainable practice including the importance and prestige of acquired professional credentials, the monetary and cost effective incentives, as well as the societal concept of environmental responsibility. A look at gender based differences and emerging ecofeminist principles integrates and outlines the relevance between the separate topics. Analyzing these factors among male and female participants in the construction industry divulges relative correlations that indicate where gender particularity in motivational factors exists. The intent of this study in analyzing credential, monetary, and environmental incentives in conjunction to gender is to encapsulate gender distinguishing qualities in those practising sustainability. This knowledge would benefit the motivation of new and incumbent construction industry participants to partake in sustainable practices throughout their careers.

## **MOTIVATING FACTORS IN SUSTAINABILITY**

### **Professional credentials and monetary savings**

Several incentives exist for businesses to implement high performance green buildings, such as experiencing the increase of their property value, participating in financial incentive programmes, and the constant reassurance that any excessive up-front costs will be received back by the company through operational costs over time. A significant amount of research reveals that making a new building sustainable does not have to entail exorbitant costs. In many cases, sustainability measures can be increased ten-fold simply with more up front strategic planning on the part of the project manager versus employing several expensive features and costly materials (Paumgartten 2003). Classes are even being offered on how businesses can build a corporate strategy geared towards turning sustainable building practices into competitive advantages. The sustainability initiatives among the government, public agencies, and environmental advocacy organizations have served compelling roles as

well (Cicierone and Brett 2010). This has helped to develop and promote wide scale awareness significantly.

The emergence of green building carries weight in that it illustrates a social movement towards environmental sustainability as people consider the large amounts of energy and natural resources that buildings consume. Research reveals those amounts to equal 40% of the world's materials. The US Green Building Council introduced the LEED in 1998 to standardize "green building" in the industry and provide a set of guidelines in how to properly implement and record sustainable methods (Henn and Hoffman 2008).

With the US Green Building Council's introduction of LEED certification among sustainability practising individuals and sustainable projects, more significance than ever before is attributed at a societal level. The programme is utilized as a way of identifying trained professional in the green-building practice to represent industry objectives. The LEED Professional Credentials programme requires that all professionals complete credential-maintenance requirements to ensure they are most up to date with green building knowledge and understanding (Emery 2010). The USGBC has achieved enormous success since the program's instalment. Membership in the USGBC has more than tripled since 2000, and in 2008 there were 17,846 member organizations throughout the industry. There are LEED projects in all 50 US states and 69 countries, and the value of green building construction is estimated to increase to \$60 billion by this year (USGBC, 2008). The increased popularity for the programme has heightened the certification's prestige among prospective clients and thus serves as a strong motivational factor for industry professionals to obtain for career purposes.

### **Environmental responsibility**

Sustainable development is difficult to narrowly define. There are differing views on whether sustainable development carries a weaker or stronger spectrum based on how predominant nature is seen as a resource to which humans have a right to use (Williams and Millington 2004). In 1987 the World Commission on Environment Development defined sustainable development as a method that should "meet the needs of the present without compromising the ability of future generations to meet their own needs" (Casimir and Duluth 2003). The goals of its implementation are to simultaneously promote economic growth, environmental protection, and the wellbeing of the human population. It encompasses very clear social, economic, and environmental goals (Bond and Morrison-Saunders 2009), providing a definitive underlying focus on the environmentally beneficial outcomes.

Some studies have sought to locate the main forces counteracting sustainable development. They contributed those forces to be at an individual level with an outgoing, masculine element in juxtaposition to a caring, feminine element that was more concerned with continuity principles and future generations. For society to become wholly sustainable those elements must converge in a harmonious way among consumer and citizen behaviours (Casimer and Dutilth 2003). Support of environmental responsibility has different levels in which believer's view that individuals must compensate for the generational damage done to the earth. Strong beliefs encompass people adapting themselves completely to meet the principles of nature while more realistic, moderate views believe in an expansion of sustainable resources in order to alleviate societal demands (Williams and Millington 2004).

Studying the concept of environmental responsibility brings into question the roles that men and women have held and have perceived to hold in the earth's safeguarding.

## **MALE AND FEMALE DIFFERENCES**

### **Gender gap**

The more obvious biological differences between men and women set aside, social and psychological differences between the two genders have been speculated on for years. Distinguishing qualities of men and women in juxtaposition with how each are expected to behave socially have resulted in gender stereotypes that have made serious impacts on a societal level. Gender scholars agree that gender is not simply a role or identity taught and fostered in childhood—it embodies the concept of "an institutionalized system of social practices for constituting people as two significantly different categories, men and women" (Correll and Ridgeway 2004).

Studies revealed that socially present stereotypes defined men as more status worthy and competent at things that "count the most" while women were perceived to be "nicer" and more efficient at communal tasks (Correll and Ridgeway 2004). This perception has preserved itself for generations from traditional family roles in which men were externally employed, sole providers of the family while women were responsible for raising children and maintaining family households. Further distinguishing factors include feminist political ecology reading gender as a "meaning system" produced not only through cultural and social institutions and economic relations, but also as a result of an ecology based struggle (Goebel 2003). The cultural assumption developed between the two has resulted in a gender hierarchy that has persisted throughout most of history.

### **Ecofeminism and sustainable development**

Expanding on male and female perceptions in relation to sustainable development, there has been a great deal of friction in gender and environmental debates during the last two decades. Several links have been pinpointed between women and the environment through recent survey results, including the higher likeliness of women volunteers over male volunteers to support and give money to environmental causes. Additional research shows more women in support of increased government spending for the environment with more men in favour of spending cuts, as well as women comprising up to two thirds of voters who cast their ballots around environmental issues. The impression that women are more drawn to green design is further suggested by membership rates in the American Institute of Architects (AIA) Committee on the Environment nearly doubling overall women's membership in the AIA (Gould and Hosey 2007). This pattern of gender differences in environmental values and beliefs appears to be viewed at an international level as studies have been conducted in various countries through the world (Norgaard and York 2005).

A concept of ecofeminism arose in the 1970s attempting to express the unique relationship between men, women, and the environment—it sought to eliminate gender inequalities by also benefitting the environment, and outlined a parallel between women's and environmental exploitation by men (Buckingham 2004). Firm believers in ecofeminism believe women have a distinct relationship with nature by virtue of their biology as well as a heightened initiative in the field of sustainable development, displaying an uncommon amount of gender sensitivity overall (Williams and Millington 2004). This theory ties gender discrimination and environmental degradation "to a common hierarchical social structure that devalues both women and nature" (Norgaard and York 2005). The two subjects were further bound when years

later at the 1995 4th UN Conference on Women, the resultant Platform for Action identified "women and the environment" as a critical area of concern (Buckingham 2004). There are several people in opposition to this concept because of the further degradation it applies to women in further burdening their sex with the responsibility of protecting and healing the earth. Allison Goebel in particular opposes this notion, stating, "I have learned that assuming a 'special link' between women and the environment, either on the spiritual level or in terms of seeing women as 'caretakers' of the environment distorts the lived realities of women" (Goebel 2003). Goebel explains that by embracing the idea of women as inherently closer to nature than men, one is thereby embracing the oppressive culture and economy that feminism has critiqued and attempted to transform for years (Goebel 2003). Many disagree with essentially giving women the burden of mending environmental damages based on their sex.

Looking at previous studies on gender development theories as well as the progression and importance of sustainable developments today, we find vast amounts of speculation. We proceed to investigate any correlations between men and women in the construction industry to determine if a gender gap does exist between the two groups in relation to sustainable development

## **METHOD**

### **Research instrument**

In order to explore the different motivational factors that individuals working in the construction industry experience in pursuing sustainability, a survey was created and distributed among Atlanta area construction industry professionals to participate in. The survey begins with an introduction defining sustainability, the US Green Building Council, and the LEED rating and credentialing system before collecting data in two categories. The first category asks for demographic information of respondents including gender, length of time spent working in the construction industry, and level of professional accreditation. The second category seeks respondent's personal levels of agreement in regards to a series of statements based on common motivational factors for pursuing sustainability. The individual responses were assessed using a five-point Likert scale from strongly disagree (1) to strongly agree (5) in order to analyze gender specificity for each response. Though respondents were not asked to comment on the survey, a few participants provided relative responses of the assessment.

### **Sample and collection**

The survey instrument was available via website as well as a PDF version that was relayed to a variety of construction industry professionals over electronic mail accompanied with a detailed consent form. In addition to utilizing the provided website link in order to take the survey online, participants had the option of following traditional submission procedures such as e-mail, fax, and posted mail. The survey was distributed to construction industry practitioners in the Atlanta metropolitan area who were contacted through professional organizations in the community as well as contacts from the Georgia Tech Building Construction department; a total of 89 different companies received the survey. Recipients were asked to pass the survey along to additional professionals in their companies; 11 individuals verified that they did such. The survey remained open for a month in which a follow up email was sent and invited individuals to participate, as well as motivate participation. A total of 48 individuals replied to the survey, representing a response rate of 53.9% considering

the amount of people initially contacted, and an estimated 32% response rate considering the size of the companies that the survey was verified to have been conveyed to. The instrument went through IRB approval with all resulting data kept confidential.

## RESULTS

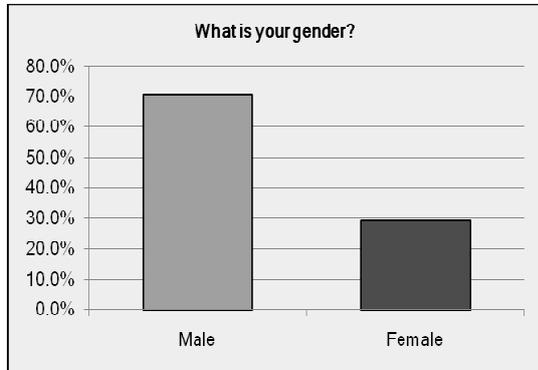


Figure 1: Gender

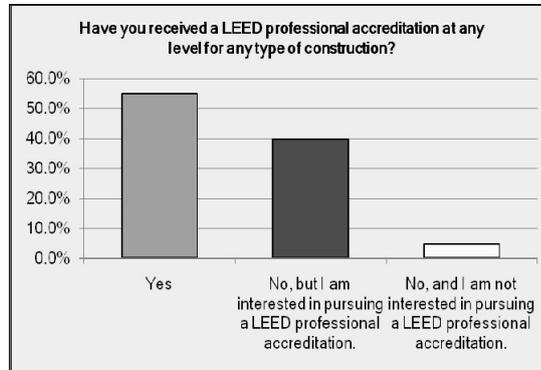


Figure 2: Professional Accreditation

The Demographic Analysis portion of the survey, including Figures 1 and 2 above, divulged the relevant background information of the survey participants; all participants were contacted within the state of Georgia and asked to provide their gender, length of time spent working in the construction industry, area of the industry that described the work they performed, and receipt of professional accreditations as well as interests in obtaining one. Of the respondents, 70.7% were male and 29.3% were female. A 95% majority of respondents had received LEED professional accreditation or were interested in obtaining credentials, indicating the high level of interest accreditations hold to employees in the construction industry. 57.5% of respondents had worked in the construction industry for over 10 years with only 5% having worked in the industry for 2 years or less. 97.5% surveyed were involved in some type of commercial projects with many also performing works in government and institutional sectors. The strongest area of the construction industry that participants identified themselves working in was Project Management.

Table 1 is broken down into three categories of motivational factors: Environmental Responsibility factors, Gender factors, and Monetary and Accreditation factors. In composing the survey, some questions were added in order to encourage respondent consistency. Males and females as a whole believed it was valuable to be a LEED AP or similarly credited within the industry. Men were strong supporters that sustainability in the construction industry should be a priority for builders today, but women very strongly supported that statement by a significant amount. Female respondents were also stronger in agreeing that they viewed the current green trend in the construction industry to be a positive aspect. They also strongly felt that a significant portion of their careers were devoted to pursuing sustainability in their work environment, in comparison to men not as intently agreeing. These results suggest that while both parties agree that sustainability is important, women feel more adamantly towards the environmental aspects of the construction industry than men.

In gender based factors, men and women disagreed similarly that sustainability is a more female oriented aspect of the construction industry. Men were somewhat undecided in determining if women were more involved in sustainability. 56% of the men who answered agreed they did not believe that statement to be true, implying that

44% do see women more involved in sustainability. Women were even more unresolved with a smaller percentage disagreeing that they were the dominant gender concerned with sustainability. Monetary factors revealed slight gender disparities in that men agreed that they were most interested in sustainable options because of the money saved in the long run, while women did not as strongly support the statement. Both groups admitted to viewing the green trend as beneficial to increasing clientele and also recognized LEED certification used in sustainable methods as valuable to attracting clients as well.

Table 1: Perspective Analysis \*RA indicates Rating Average on a scale of 1 to 5, with 1 indicating the lowest level of agreement and 5 representing the highest.

Motivational Factors	Questions:	Male RA	Female RA	Combined RA
Environmental Responsibility	My level of education in construction industry practices was largely based in sustainability.	2.82	2.86	2.84
	Sustainability in the construction industry should be a priority for builders today.	3.94	4.6	4.27
	A significant portion of my career is devoted to pursuing sustainability in my work environment.	3.07	4.5	3.79
	Sustainability is not very important to me in my career.	1.71	1.3	1.51
	I do not feel that sustainability in the construction industry should be a priority for builders today.	2.5	1.3	1.90
	I see the current green trend in the construction industry as a positive aspect.	4.24	4.83	4.54
Gender	I believe that sustainability and going green is a more female-oriented aspect of the construction industry.	2.06	2.14	2.10
	I do not think women are more involved in sustainability than men.	3.25	2.6	2.93
Monetary and Accreditation	I think it is valuable to be a LEED AP (Accredited Professional) or similarly credited.	3.94	3.5	3.72
	I am most interested in sustainable options because of the money that is saved in the long run.	3.25	2.57	2.91
	The environmental benefits of sustainable construction projects means less to me than how much money I am making for the job.	2.89	2.5	2.70
	LEED certification in construction projects is viewed as prestigious and more valuable to clients; therefore, I practice sustainable methods.	3.32	3.43	3.38
	I see the current green trend in the construction industry as beneficial to increasing my client base.	4.04	4.29	4.17

Some participants left comments on the survey to further explain the deciding factors that played a part in how they answered. One respondent wrote, "Most people (designers, architects) are more interested in LEED points than actually building energy efficient buildings. In my humble opinion LEED is turning into a gimmick." Another respondent explained that though sustainable options are more popular to clients now, it ultimately depends on the budget of the client to determine if sustainable practices will be implemented because they are the ones paying for the project. These comments convey that the current approach to sustainability may have to be altered. Driving sustainability through construction professionals is a necessary strategy for achieving sustainable development, but insufficient in regards to the overwhelming need for clientele.

## CONCLUSION

Analyzing the survey results, it is difficult to distinguish a blatant contrast in motivational factors that impels men and women to pursue sustainability based on specific areas. The gender gap revealed is not significant enough to make a strong conviction in one direction or another because of how small the sample size studied was and how few female responses were contributed. The background studies proving women to be stronger advocates of environmental values, in addition to the survey revealing them to be heavier supporters of the importance of sustainability in their careers, indicates that women in the construction industry do feel more strongly towards the environment than men.

It would be advantageous to further pursue the question of what compels men and women to pursue sustainability by posing the question on a larger scale in order to investigate at a broader scope. Far more men responded to the survey than women, so having more female responses would provide a clearer and more accurate analysis of women's stance on pursuing sustainability. Studying more members of the construction industry would allow a stronger correlation to potentially develop in differentiating motivational factors among men and women, particularly if different results are dominant in specific locations--revealing substantial regional differences.

Further analysis would reveal if the sustainability sector of the construction industry employs a similar gender assumption that society is still presently experiencing. It could also potentially dispel that notion if men and women are found to lack significant differences in their motivational factors. This could allow sustainability the promotional luxury of being an externally and internally gender equal industry. A wide variety of revelations could be made in this controversial topic with additional introspective studies.

## REFERENCES

- Bond, A J and Morrison-Saunders, A (2009) Sustainability appraisal: Jack of all trades, master of none? *Impact Assessment and Project Appraisal*, **27**(4), 321-329.
- Buckingham, S (2004) Ecofeminism in the twenty-first century. *The Geographical Journal*, **170**(2), 146-154.
- Casimir, G and Dutilh, C (2003) Sustainability: a gender studies perspective. *International Journal of Consumer Studies*, **27**(4), 316-325.
- Cicierone, B (2010) *Business strategies for environmental sustainability*, Stanford Graduate School of Business, Stanford University.
- Clark, J G (1995) Economic development vs. sustainable societies: reflections on the players in a crucial contest. *Annual Review of Ecology and Systematics*, **26**, 225-248.
- Correll, S J and Ridgeway, C L (2004) Unpacking the gender system: a theoretical perspective on gender beliefs and social relations. *Gender and Society*, **18**(4), 510-531.
- Emery, E (2010) What's new with LEED professional credentials. *HPAC Engineering*, 12-14.
- Goebel, A (2003) Women and sustainability: what kind of theory do we need? *Canadian Women Studies*, **23**(1), 77-84.
- Gould, K and Hosey, L (2007) *Women in Green: Voices of Sustainable Design*. Bainbridge Island, WA: EcoTone.

- Henn, R and Hoffman, A (2008) Overcoming the social and psychological barriers to green building. *Organization and Environment*, **21**(4), 390-419.
- Kates, R W and Parris, T M (2003) Long term trends and sustainability transition. *Proceedings of the National Academy of Sciences of the United States of America*, **100**(14), 8062-8067.
- Langdon, D (2007) The cost of green revisited: re-examining the feasibility and cost impact of sustainable design in the light of increased market adoption. Retrieved April 11, 2010, from [http://www.hgac.com/community/livable/greenschools/documents/gss\\_11-01-08\\_resources\\_the\\_cost\\_of\\_green\\_revisited.pdf](http://www.hgac.com/community/livable/greenschools/documents/gss_11-01-08_resources_the_cost_of_green_revisited.pdf).
- Mahaffy, M (1999) *Defining Sustainability*. Washington State University. Retrieved February 4, 2010 from <http://www.arch.wsu.edu/09%20publications/sustain/defnsust.htm>.
- Millington, A C And Williams, C C (2004) The diverse and contested meanings of sustainable development. *The Geographical Journal*, **170**(2), 99-104.
- Milne, W (2003) Women, energy, and sustainability: making links, taking action. *Canadian Woman Studies*, **23**(1), 55-60.
- Moisander, J (2007) Motivational complexity of green consumerism. *International Journal of Consumer Studies*, 1-6.
- Norgaard, K and York, R (2005) Gender equality and state environmentalism. *Gender and Society*, **19**(4), 506-522.
- Paumgarten, P (2003) the business case for high performance green buildings: sustainability and its financial impact. *Journal of Facilities Management*, **2**(1), 26-34.
- Stall, S and Stoecker, R (1998) Community organizing or organizing community? gender and the crafts of empowerment. *Gender and Society*, **12**(6) 729-756.
- USGBC (2008) Green Building Facts *United States Green Building Council* Retrieved April 6, 2010, from [www.usgbc.org](http://www.usgbc.org).
- Watts, J H (2009) allowed into a man's world: meanings of work-life balance: perspectives of women civil engineers as 'minority' workers in construction. *Gender, Work and Organization*, **16**(1), 37-57.