

# Exploration of Strategies for Attracting and Retaining Female Construction Management Students

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Since 2000 the percentage of women in the workforce has increased from approximately 48% to 49.8%. In the construction industry the percentage of women has also grown, however, women in this field are in the distinct minority, currently just over 13%. This paper reports the results of a survey administered to the Associated Schools of Construction programs to investigate their strategies to attract and retain female construction management students. The purpose of this paper is to provide strategies that can assist construction management programs in increasing their female population and to open a dialogue on how to ensure that the construction management student population and ultimately industry population more closely reflect that of our population at large.

**Key words:** women in construction, female construction management students, recruitment, retention

## Introduction

A U.S. Bureau of Labor Statistics study from January 2010 found that among 22 year olds, 13% of women had earned a bachelor's degree, compared with 7% of men. The study also showed that 29% of women were attending college in October of their 22<sup>nd</sup> year, compared to 25% of men. The report states,

“The differences between women and men in college-enrollment rates stems from three factors: (1) Women were more likely to have graduated from high school; (2) among high school graduates, women were more likely to attend college; and (3) once enrolled in college, women were less likely than men to leave college between school years without graduating.” (U.S. Bureau of Labor Statistics, 2010a).

Additionally, degrees earned by women constitute more than half of all the undergraduate degrees awarded in the US every year. However, there is not a consistent representation of female students across all disciplines. Female students are over represented in some fields and underrepresented in other fields (Tsui, 2009). Construction undergraduate education programs are heavily male dominated, as is the construction industry. The average percentage of women in the construction industry in 2000 was 12.5%; in 2010 the average is 13.2% (U.S. Bureau of Labor Statistics, 2010b).

In total, this information indicates that there is a subset of the population that is prime for education but is not seeking, or being retained in, construction education. The objective of this paper is to investigate methods currently utilized for recruiting and retaining women in construction education and develop ideas for further implementation.

## Literature Review

In order to change the culture to be more accepting of women and minorities in construction, a critical mass needs to be built. In recent years there has been increased interest in attracting women and minorities to the construction workforce; however there has not been a shift in organizational culture that makes the industry more welcoming and workable to these groups (Greed, 2000). The lack of change in organizational culture in the construction industry is more evident in the construction trades. Even though some apprentice programs experience over 10% female enrollment, retention rates are very low. Women decide to leave the workforce because of a negative work environment. Due to the nature of the construction industry, women can gain some respect on a jobsite, but once the project ends they have to start over at the next jobsite (ENR, 2010). However, the financial rewards of a career in the

construction industry are much higher than traditional careers for women without a college degree. For example, the average annual salary for cashiers is \$19,000, while the average annual salary of painters is \$44,000 (ENR, 2010).

The authors conducted a literature review of strategies to attract and retain women in non-traditional careers for women including but not limited to engineering, sciences and finance. The following strategies emerged from the literature review as keys to successfully attract and recruit students: mentoring, targeting the audience and the community, and countering negative stereotypes.

### *Mentoring*

A formal mentoring program can provide mentees with resources, guidance, support and encouragement (Putshe, Storrs, Lewis & Haylett, 2008). Successful female mentoring programs are based on the feminist mentoring model that encourages a collaborative environment in which the mentee is empowered and has an active participation. This model contrasts the traditional mentoring model in which the mentor is the holder of all knowledge and the mentee is a passive participant. The feminist mentoring model benefits both the mentor and the mentee by providing cognitive and emotional development opportunities and personal satisfaction to both groups (Putshe, et al., 2008). The success of formal mentoring programs is due in large part to the commitment and dedication of the coordinator that matches the mentors with the mentees and ensures that the program meets the mentees' needs. Formal mentoring programs are more effective than informal mentoring programs in which disadvantaged populations reach out to mentors because some students in this group are not likely to reach out to mentors in a non-structured environment (Putshe, et al., 2008).

### *Targeting the Audience and Community*

Traditional marketing approaches for construction management education programs should be adapted to attract female students. Female students are generally looking for programs that support their passion for research and inquiry (Santonocito, 2010). They are drawn increasingly to socially responsible programs that contribute to the well-being of their community and society as a whole (Santonocito, 2010). Adapting the marketing approach to suit the interests of prospective students contributes to a diversified student population. Local community groups are useful partners in advocating for and reaching underrepresented groups. Since worldviews and career selection develop early in a student's life, it is important to reach out to grade school and middle school children. By the time students are in high school, they have already made their selection.

### *Countering Negative Stereotypes*

Women in non-traditional careers face many obstacles in their careers. Negative environments have been linked to decreased satisfaction with the career path and ultimately attrition (Setles, Cortina, Stewart, & Malley, 2007). Women in non-traditional careers often work in environments that are sexist or openly hostile. Even if this is not the case, unspoken sexist or hostile environments can also have a negative effect on women's satisfaction with the workplace. (Setles et al., 2007). A change in culture is needed to retain women in the construction industry (Menches & Abraham, 2007). Per Menches and Abraham (2007), the main barriers to success for women in the construction industry are:

- Slow career progression,
- Difficulty balancing work-family pressures,
- Male dominance,
- Changing jobs to overcome slow career progression,
- Culture of conflict and aggression.

## **Methodology**

The methodology for this research involved several activities. The objective was achieved through literature review, an open-ended survey, follow up interviews, and finally a brainstorming session. A literature review was conducted to identify methods of recruiting and retaining women in education programs for non-traditional fields for women.

Information was mostly found regarding engineering and the sciences with limited information on construction education programs.

Following the literature review, an email was sent in spring of 2010 to members of the Associated Schools of Construction (ASC) e-mail list. Participants were asked to share information about the strategies they are using to attract and retain female construction management students. The email specifically stated interest in pre-college recruiting efforts, interactions with faculty outside the classroom, types of retention efforts (student-led, faculty-led, and industry-led), women-focused construction management clubs (formal or informal organizations) and funding sources of these efforts. ASC has over 100 member schools. Responses from eighteen schools were received. The majority of respondents stated that even though they did not have a program targeting female construction management students, they would like to see such program implemented at their university. Following the review of the survey responses, in-depth telephone interviews were conducted with respondents who asked to be contacted to provide clarification to their responses.

The results of the literature review, survey, and the in-depth interviews were presented at the Colorado State University 10<sup>th</sup> Annual Diversity Conference in September 2010. The session was divided into two sections: (1) a presentation of the findings to date, and (2) a working session with participants to brainstorm about strategies to attract and retain female students in our program.

### **Strategies for Increasing the Number of Female Construction Management Students**

Based on the literature review, survey responses, interviews, and the working session, the authors believe that the following strategies will increase female representation in construction management programs:

- **Mentoring:** The main factor that determines the success of a mentoring program is a good program coordinator that is able to match a mentor with mentees. In construction management programs, mentors can be female faculty. Another alternative is peer mentoring: pairing junior and senior female students with freshman and sophomore female students so that older students can act as mentors and role models to younger students.
- **Targeting the Audience and Community:** Recruitment programs have to be tailored to women. The reasons why women decide to pursue a career in the construction industry are different than those of men. Women are attracted to construction because they want to help others. Programs such as Habitat for Humanity and other programs that benefit the community must be highlighted when recruiting women.
- **Countering Negative Stereotypes:** Females in construction management are often frustrated by slow career progression, work-life balance, and a masculine culture of conflict and aggression (Menches & Abraham, 2007). Construction management programs and construction companies need to promote positive images, role models, and use outreach to directly address negative perceptions in the construction industry.
- **Hire Female Faculty:** Female construction management faculty can serve as role models to female students and influence both male and female construction management students' perception of who is a construction management professional.
- **Recruitment by Female Faculty:** Recruitment efforts are more effective if students can relate to someone like them. Female grade school, middle school, and high school students would be more likely to pursue construction management degrees if female construction management faculty went to their schools and shared their experiences with them.
- **Establish Women in Construction Clubs:** These clubs support both the professional and social needs of female construction management students by providing an environment of camaraderie in which students can invite speakers to discuss issues that interest them, enjoy a ladies' night out, participate in construction jobsite visits, etc.

- **Camps for Prospective Female Students:** Camp experiences encourage prospective students to explore the construction management field. Camps can also answer prospective students' and parents' questions and concerns. This allows them to make educated decisions about the students' career choices.
- **Promote the Program to High School Advisors:** High school advisors often share the common misconception that the construction management industry is not suited for females. In order to counter this negative stereotype, construction management programs and construction management companies must be proactive and educate advisors about the difference between construction labor and construction management. Increasing understanding among high school advisors regarding the construction management profession may lead to more high school advisors recommending construction management degrees to their advisees.

## Concerns

There are several concerns with implementing some of the identified ideas. One is the impact this will have on female faculty. Many if not all of these strategies rely on active participation and support of female faculty members. There are few female construction faculty members and even fewer who are tenured. These ideas center on service activities, many of them time-consuming. Many universities that house construction management programs weigh research heavily in the tenure and promotion decision. Funded research takes on additional importance in times of increasingly tight budgets for higher education. Due to their high visibility, women are often asked to participate in committees and recruitment efforts to increase representation of their gender (Menges & Exum, 1983). Although service is a requirement for tenure, an emphasis on service can be to the detriment of research production. If a tenure-track female faculty member establishes a strong recruitment and retention program but is unable to secure tenure, the benefits of years of effort may be lost when that faculty member must leave the program. There needs to be a strong advocate for tenure-track female faculty members in the program to make sure that their time spent on service activities is not detrimental to their teaching and research activities.

Another concern is the scale of the strategy. Should female recruitment and retention programs reside at the undergraduate program level, college level, university level, or at the national level? Are there regional issues that affect recruitment and retention? Would a program with a strong female recruitment and retention program in a particular state or region entice female students who may have otherwise considered their local construction education program? If the goal is to truly increase the number of women in the construction industry by increasing the number of women in construction programs, then there is a strong argument for a concerted effort at the national level, possibly with supporting recruitment and retention programs tailored to each undergraduate program.

On a deeper level, the industry still has an image problem with negative stereotypes about construction as a profession. In the construction management program at Colorado State University, most students who enter as Construction Management majors have chosen the major because they have one or more relatives in the construction industry. There are many high school students (and their parents) without construction industry knowledge that may look towards business or engineering programs without considering construction management as a career due to the non-professional image of the construction industry. This coupled with it being seen as a "man's profession" makes it even more challenging to attract female students. This is an issue that is best addressed at the national level to change the perception of the construction industry as a profession that applies both business and technical skills to improve society.

## Discussion

This research on strategies for recruiting and retaining female students in construction management programs was performed to improve diversity in the construction management program at Colorado State University. Figure 1 shows the significant discrepancy between females at the university and in the construction management department. Over the past 10 years, the proportion of female undergraduate students at the university has ranged from 51.0% to 52.3% with an average of 51.6%. In this same time frame, the proportion of female undergraduate construction management degrees conferred has ranged from 4.6% to 12.6% with an average of 7.9%.

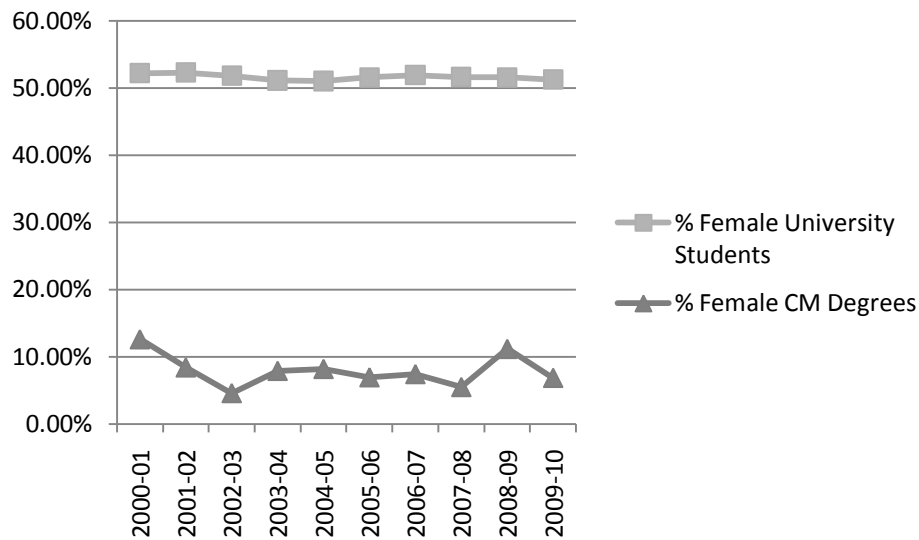


Figure 1: Percent female Colorado State University students and percent female Construction Management degrees conferred in academic years 2000-01 through 2009-10

Figure 2 shows the number of construction management degrees conferred by gender. For the past 10 years, the number of undergraduate construction management graduates annually has ranged from 119 to 293 with an average of 182. In this same time frame, male graduates annually have ranged from 104 to 273 with an average of 168 and female graduates annually have ranged from 7 to 25 with an average of 14.

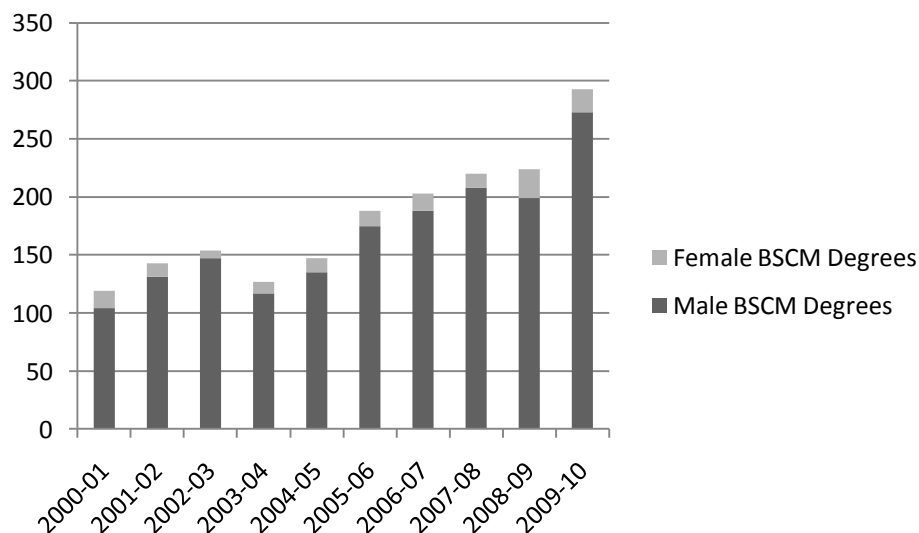
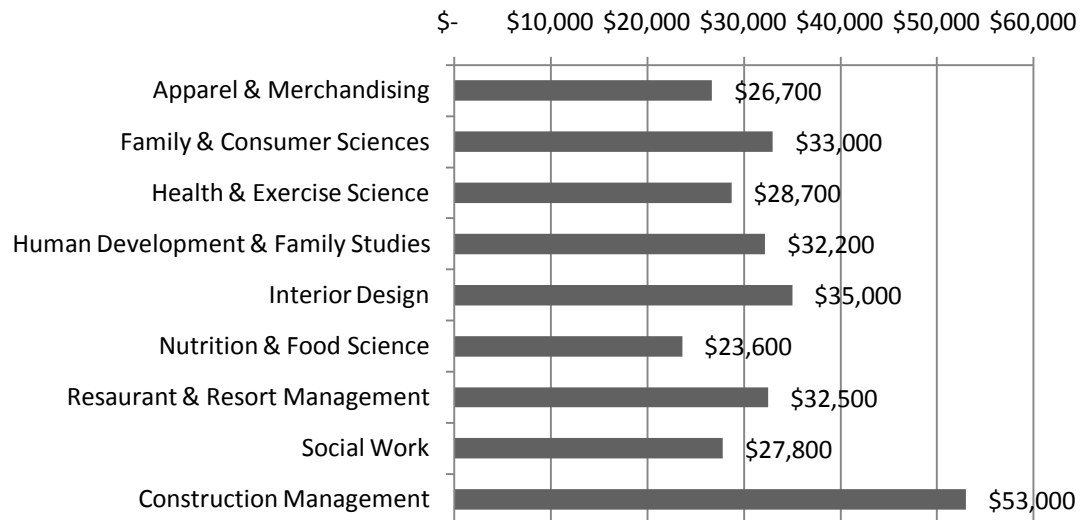


Figure 2: Number of male and female Bachelor Degrees in Construction Management conferred in academic years 2000-01 through 2009-10 at Colorado State University

At Colorado State University, the Construction Management Department is not housed in an Architecture, Engineering, or Business College. Instead, it is housed in the College of Applied Human Sciences, which promotes itself as a college that is “human centered with a focus on educating students for people oriented professions” and whose programs are “aimed at improving the quality of life for all people.” Programs within the college that offer undergraduate degrees include: apparel and merchandising, family and consumer sciences, health and exercise science, human development and family studies, interior design, nutrition and food science, restaurant and resort management, social work, and construction management. Except for construction management, each of these programs has a majority female enrollment. Unlike most of these majors, a degree in construction management will

enable a student to get paid well for improving the lives of others. Figure 3 shows the average starting salary for bachelor degree graduates from in the College of Applied Human Sciences at Colorado State University. The construction management average starting salary is the highest in the College of Applied Human Sciences and fourth highest at Colorado State University. As is can be seen, the financial rewards of construction management, a non-traditional career for women, are significantly higher.



*Figure 3: Projected starting salaries for College of Applied Human Sciences graduates at Colorado State University in 2009.*

The results of this research in combination with the strategic plan for our program have helped to formulate the plan for female recruitment and retention.

## Conclusions

Attracting and retaining female construction management students is an effort that requires commitment and patience. However, if we want to have a construction workforce that mirrors our society we need to make this effort a priority. Below are some specific strategies that the construction management program at Colorado State University has undertaken.

The construction management program at Colorado State University has total of 568 undergraduate Construction Management majors, out of which 46 (8%) are female. The department has ten student clubs that help students engage in their professional interests. In 2004, the Women in Construction (WIC) club was established to provide professional and social opportunities for those interested in supporting women in the construction industry. Membership is not limited to women, but since its inception, the group has only had female members. There are currently 31 WIC members. In other words, 67% of all female undergraduate construction management students are members of WIC. Each year, the WIC group is a small but active group of women who have a balance of professional and social activities. Most of the construction management student groups have monthly meetings that often center on an industry speaker. WIC hosts an industry speaker monthly. In addition, they meet a second time during each month for a purely social activity. To help increase membership this past fall, the club leadership sent handwritten notes to all the female construction management and pre-construction management majors. Attendance at the first meeting was tremendous.

This year, the Colorado State University construction management department initiated the CM Cares program which strengthens the department's tie to the community through construction-based service learning projects. In collaboration with industry sponsors, students in various construction management courses will apply their newly learned skills on community-improvement projects. Planning, estimating, scheduling, and procurement are just some of the skills needed for the projects. It is intended that students will participate in these service learning

projects throughout their undergraduate program and document their efforts through a service-learning portfolio. When they are ready to graduate, they will be able to share both their résumé and service-learning portfolio with prospective employers. Efforts such as these will help existing and prospective students realize that construction management is a service-oriented profession whose members help make the world a better place with their day-to-day actions.

## **Future Research**

Future research will focus on two areas: (1) obtaining demographic information on women in construction management academic programs and industry, and (2) tracking the short-term and long-term progress made with recruiting and retention of female construction management students at Colorado State University. Although the literature review found data regarding women in the construction industry in general (labor and professional), there was limited specific data on women in construction management positions or in academic programs. In terms of construction management academic programs, more information on both female students as well as female faculty would be beneficial.

In terms of research specific to the female construction management students at Colorado State University, incoming female construction management students will be interviewed to determine what drove their decision to choose the Colorado State University construction management program, the construction management major, as well as reasons for not choosing other construction management programs or other majors. In terms of retention, existing female construction management students will be surveyed annually to track their perceptions of the construction management program, the various efforts to retain them, as well as the opportunities available to them upon graduation. These perceptions will be matched against service effort and costs to provide these services. This will help ensure that our department's use of time and money are being applied with maximum results to achieve "the most bang for the buck." Female students will also be asked to identify their personal, work, and educational commitments and the amount of time spent on each. For example, if they have limited time available for student club activities, which clubs are they choosing and why? Also, are they able to participate in the CM Cares program to improve the lives of people in our community to the extent they desire? Parallels will also be drawn with efforts to recruit and retain minority students to the construction management program. Like women, minority students are currently underrepresented in the construction management program at Colorado State University. In addition, an open dialogue will continue with other ASC schools with shared interests. Combining data from multiple construction management programs of various sizes in various regions may reveal additional strategies appropriate for recruiting and retaining female construction management students.

## **Acknowledgements**

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