

Women in Construction—Tapping the Untapped Resource to Meet Future Demands

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Abstract: A lack of skilled workers has become a global problem that is impacting the construction industry. To address the issue, the industry—working in partnership with government agencies—has developed programs to attract new workers for high-skill positions in construction. These workers include women and minorities. However, attracting women into a career field that is dominated by conflict and aggression is problematic. Consequently, the industry is making a significant effort to change their image and culture, and these efforts are being supported by professional associations, labor unions, and universities. This paper highlights the current status of women in construction trades, management, education, and research positions. The paper also identifies many of the challenges women face in the construction industry and the many opportunities and support networks that are available to help them succeed.

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Introduction

During the past 2 decades, the construction industry has expressed growing concern over the skilled workforce shortage that is occurring at all levels of its organizational structure. In 2004, the U.S. Education and Training Administration (ETA), a division of the U.S. Department of Labor, reported that an additional 1 million workers would be needed in the construction industry during 2002–2012 (ETA 2004). This critical need for additional skilled workers is a result of numerous causes that have been escalating, without constraint, for many decades. Among the causes are an aging workforce, an unprecedented number of retirements, an education system that produces an insufficient number of new engineers, difficult immigration processes, and a departure of workers from the workforce—temporarily or permanently—because of family responsibilities, early retirement, or disabilities (Grossman 2005; Atwater and Jones 2004).

Domestically, a lack of skilled workers has dominated the list of challenges facing the United States construction market in recent years. In 2004, the Associated General Contractors (AGC) of Wisconsin queried the chief executives of their member companies and asked them to identify the top concerns facing their organizations as they entered the 21st century. Topping their list was a *significant workforce shortage* that threatens to disrupt worker stability and negatively impact company growth (AGC of Wisconsin 2004). Likewise, the Construction Industry Institute

(CII), a consortium of leading owner, engineering, and contractor firms from both the public and private sectors, recently identified workforce instability and the uncertainty of the cost of labor turnover as top concerns among both owner and contractor companies during 2007 (CII, personal communication, February 15, 2007). Furthermore, the Construction Users Roundtable (CURT), a consortium of construction and engineering executives representing major United States corporations, recently formed a critical needs assessment subcommittee to identify and address specific skill shortages and the magnitude of the severity in the construction trades. Their study concluded that nearly 50% of the major trades are currently experiencing a critical shortage of workers that, in some cases, exceeds 12,000 workers (CURT 2006). To address the shortage of skilled construction workers, top United States government agencies have developed programs that aim to train new and untapped labor sources for high-skill positions in the industry. These labor sources include women, minorities, immigrants, and workers that are transitioning to new careers.

Internationally, several countries have reported significant construction workforce shortages, including the United Kingdom, Australia, Canada, and Japan. The United Kingdom began reporting a pending skills shortage as early as 2000, and the industry identified a need for nearly 90,000 new workers each year starting in 2006 (CITB 2007). To address growing concerns over their need for additional workers, they created a legislative body called the Construction Industry Training Board (CITB), which assesses a levy against construction companies for the purpose of providing apprenticeships and education to entry-level construction workers. Likewise, Australia has established a legislative CITB to meet the demands of training additional construction workers. One of the focus areas of these two CITB agencies is diversity of the workforce. According to the CITB Chairman Sir Michael Latham:

The construction industry does not look like Britain. Britain is not all male or all white. Women represent 45% of the economically active population, and ethnic minorities 5.2%. Despite an emerging trend for women to take construction-related degrees and vocational qualifica-

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Table 1. Percentage of Women Employed in Construction Trades (Bureau of Women 2007)

Career field	Percent of women employed (%)
Paperhangers	25.0
Woodworkers	14.3
Insulation workers	9.1
Welders	7.1
Construction helpers	6.5
Painters	6.1
Structural metal fabricators	3.8
Laborers	3.4
Superintendents	2.9
Flooring installers	2.7
Electricians	2.4
Roofers	2.1
Drywallers	2.1
Glaziers	2.0
Plasterers	2.0
Carpenters	1.9
Equipment operators	1.9
Concrete finishers	1.8
Sheetmetal workers	1.7
Crane operators	1.4
Plumbers	1.4
Brickmasons	0.9
Ironworkers	0.0
Paving equipment operators	0.0
Miscellaneous construction workers	0.0

tions . . . the industry has effectively been ignoring over half the potential labor force in this country (Yuill 2005).

The cumulative impact of a lack of available skilled workers at all levels of the hierarchy is manifest in: (1) the increased cost of construction; (2) the rising wages spurred on by intense competition for the best workers; (3) the practice of “stealing” workers from other companies by offering better wages and benefits; (4) the hiring of workers whose skill sets may be deficient; and (5) a willingness to maneuver the complex visa application process in order to hire more immigrant workers. These are among the numerous challenges that impact the ability of companies to perform efficiently.

Practitioners and researchers have suggested numerous ways to address the shortage of skilled workers. Among the most promising solutions are higher wages, increased training, improvements in productivity, implementation of technology tools, innovative recruitment techniques, and an increased commitment to diversity. Consequently, the industry has identified a need to increase the number of women choosing construction as a career. This paper highlights the current status of women in construction trades, management, education, and research positions. The paper also identifies many of the challenges women face in the construction industry and the many opportunities and support networks that are available to help them succeed.

Women in Trades and Construction Management

The Women’s Bureau, a division of the United States Bureau of Labor Statistics, monitors and reports the number of women in

Table 2. Percentage of Women Employed in Para-Professional and Professional Construction Occupations (Bureau of Women 2007)

Career field	Percent of women employed (%)
Architects	20.4
Drafters	18.8
Engineering technicians	18.4
Cost estimators	14.7
Design engineers	9.5
Construction inspectors	9.4
Construction managers	6.3
Engineering managers	4.9

nontraditional occupations in the United States. They define “non-traditional occupations” as those in which women comprise 25% or less of total employed personnel. The Bureau has identified 153 occupations as “nontraditional” (Bureau of Women 2007). Of those, 33 (over 20%) are construction-related occupations. These occupations are divided between the trades and paraprofessional/professional positions, with the trades outnumbering the professionals by more than three to one (25 trades to eight professional positions).

Table 1 identifies the trades that are reported as nontraditional and the percentage of women employed in each career field. These trades include many of the traditional field labor positions that are present on a jobsite, including carpenters, plumbers, electricians, and equipment operators. The majority of the trades (over 75%) employ fewer than 5% women, and nearly 10% reportedly employ no women. Only two of the trades (paperhangers and woodworkers) employ greater than 10% women. The average percentage of women employed within the trades is 4.1%.

Table 2 identifies the paraprofessional and professional occupations that are reported as nontraditional and the percentage of women in each field. These professional occupations include many of the traditional management positions that typically support field operations, including drafters, cost estimators, inspectors, and construction managers. Overall, 50% of the professional occupations employ between 10 and 25% women and 50% employ fewer than 10% women. One field—engineering managers—employs fewer than 5% women. The average percentage of women in professional and paraprofessional positions is 12.8%.

Challenges and Barriers

A review of the relevant literature on women in construction resulted in the identification of over 20 scholarly articles that have been published since 1970. These articles addressed topics that generally fell into one of three categories: (1) physiological and psychological phenomena; (2) sociological phenomena; and (3) specific work activities and actions. Specifically, researchers have investigated stress, discrimination, equality, attitudes, career progression, barriers, work–family balance, work environment, and differences between men and women in the construction industry. The top five most frequently cited problems encountered by women in construction—or barriers to their success—included:

1. Slow career progression that contributes to disillusionment with the industry and its culture;
2. Difficult work–family balancing act, including primary child-care pressures;

3. Attitude barriers caused by male dominance;
4. "Job hopping" to overcome career barriers caused by slow advancement and an inflexible work structure; and
5. Overtly masculine culture that consists of conflict and aggression.

However, the single largest contributor to women leaving the construction industry—and women failing to choose construction as a viable career—was the culture. According to one researcher,

The predominant image of construction is that of a male-dominated industry requiring brute strength and a good tolerance for outdoor conditions, inclement weather, and bad language...reconciling this image with women's participation in the construction industry is problematic (Agapiou 2002).

Most articles identified barriers and challenges to success, but relatively few identified or proposed solutions. The few that did offer potential solutions *all* came to the same conclusion: a significant change in the image and culture will be necessary to attract and retain more women into the construction industry at all levels.

Recruitment, Retention, and Training

In 2003, President George W. Bush announced an initiative to increase training in career fields that were experiencing high growth coupled with a shortage of qualified workers. The initiative—called The President's High Growth Job Training Initiative—is aimed at preparing workers to take advantage of new and increasing job opportunities in high growth, high demand, and economically vital sectors of the American economy (U.S. Department of Labor 2007). The construction industry was among the 14 sectors targeted for inclusion in this strategic initiative, and one of the desired outcomes was to access untapped labor pools, including women. As a result of the initiative, several trade associations received substantial grants to develop training programs and outreach campaigns to attract more women into the trades. For example, the Chicago Women in the Trades Association received a \$2 million grant to develop a program that included education, marketing, and outreach to over 9,000 women in the Chicago area. More recently, the U.S. Department of Labor passed the Women in Apprenticeships and Nontraditional Occupations (WANTO) act which aims to assist employers and labor unions with the recruitment, selection, training, employment, and retention of women in apprenticeships in the construction industry. Furthermore, many vocational colleges are creating programs specifically for women who are interested in pursuing construction careers. For example, Madison Area Technical College (MATC) in Madison, Wis., has a program called Women in Trades and Technology that is designed to improve women's preparation for, access to, and retention in high-skill construction careers (MATC 2007).

Support Programs

Attracting women into the construction industry is a critical first step toward creating a more diverse and socially representative workforce. However, retention is equally important given the large numbers of women who depart the industry each year. A study by Dainty et al. (2000) reported that women were more likely than men to leave the industry within the first 10 years due to slow career progression and disillusionment with the culture. Consequently, a strong support network is one technique that can

be used to increase retention of women. Support programs have primarily evolved through the uniting of women who are actively working in construction careers—both within and among companies. One of the most successful organizations that support women in construction is the National Association of Women in Construction (NAWIC). NAWIC is an international association whose primary purpose is to enhance the success of women in the construction industry through networking, education, and certification (NAWIC 2007). NAWIC has chapters in virtually every major United States city, most states, and internationally in the United Kingdom, Australia, Canada, and South Africa. The association has partnering agreements with numerous unions, professional and trade associations, government agencies, and the U.S. Department of Labor. Another noteworthy support organization is Tradeswomen Now and Tomorrow (TNT), a national coalition of labor unions, government agencies, and vocational institutions who are committed to achieving economic equity for tradeswomen by increasing the number of women in trade and technical fields, and by fostering equality in the workplace. TNT also promotes national policies that increase women's access to high-skill construction careers.

Likewise, a key support organization for women engineers who are working in the construction industry is the Society of Women Engineers (SWE 2006). SWE promotes engineering as a highly desirable career choice for women, and seeks to advance the contributions and achievements of women as engineers and leaders. Professional Women in Construction (PWC 2007) is another support organization that represents a broad spectrum of the construction industry including: (1) general construction and specialty contractors; (2) architectural and engineering (A&E) firms; (3) environmental services and suppliers; and (4) representatives from the services sector, including law, accounting, insurance/surety, banking, and financial services. PWC provides information on construction trends, facilitates business interaction through networking events, and advances the aims and goals of women and minority-owned businesses.

Women in Construction Education and Research

The National Science Foundation (NSF) routinely surveys women in academic research and development positions to determine their percentage relative to all persons working in academic-career fields (NSF 2005). In 1991, NSF reported that women constituted about 20% of all academic science and engineering faculty members, and of those 38% were in psychology, 26% were in the life sciences, 21% were in the social sciences, and only 4% were in engineering. More recently, the Women in Engineering Programs and Advocates Network (WEPAN) reported that women now comprise 10% of the total tenured/tenure-track engineering faculty members (Oberst and Crawford 2007). In 2000, NSF reported that 19.5% of the faculty members in science and engineering at 4-year colleges and universities were women, and of those, 10.4% were full professors, 21.9% were associate professors, and 32.9% were assistant professors (Rosser 2007).

Challenges and Barriers

A recent study published by the National Academy of Sciences (NAS) reported the many challenges faced by women in science and engineering academic careers. The study, entitled "Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering" (Committee on Maximizing 2006), was

conducted by a committee of successful university presidents, chancellors, provosts, and professors to identify ways to increase the participation of women in science and engineering academic careers. As part of their charter, the committee identified numerous barriers that women encountered at academic institutions nationwide and created a call for action. The committee's findings include (Committee on Maximizing 2006) the following:

1. The number of women faculty members in science and engineering programs at research universities is less than 10%, and women often receive fewer resources and less support than men;
2. Women from minority racial and ethnic backgrounds are virtually absent from the nation's leading science and engineering departments;
3. Women who are interested in science and engineering careers are lost at every educational transition;
4. Women faculty are paid less, are promoted more slowly, receive fewer honors, and hold fewer leadership positions than men. These discrepancies do not appear to be based on productivity, the significance of their work, or any other measure of performance; and
5. To capture and capitalize on the talent of women will require revising policies adopted when the workplace is more homogeneous and creating new organizational structures that manage a diverse workforce effectively.

As part of their call to action, the committee recommended that university leaders, including trustees, presidents, provosts, deans, and department chairs, provide firm direction for changing the culture and composition of their institutions in order to recruit, retain, and promote women into faculty and leadership positions (Committee on Maximum 2006).

Recruitment and Retention

Universities and colleges are making greater efforts to recruit and retain more women into engineering faculty positions. In fact, top universities, such as Cornell, Massachusetts Institute of Technology (MIT), and University of California–Berkeley, have developed programs to remove institutional barriers to women's advancement in academics (Rosser 2007). Cornell, for example, recently created an Associate Dean for Diversity position, and other universities are following in their footsteps (Oberst and Crawford 2007). Other initiatives include targeted hires, in which funds are made available for the express purpose of hiring a woman, and “bridge funds” that are directed at hiring women in anticipation of retirements (Oberst and Crawford 2007).

Support Programs

Many universities have developed support networks and organizations for women engineering faculty members. For example, The University of Texas created the Engineering Faculty Women's Organization (EFWO) in 2002, with the goals of: (1) attracting and retaining more women faculty; (2) increasing the number of women in leadership positions; and (3) providing mentoring for faculty at all levels. Likewise, Purdue University recently recognized the role of university leadership in creating and sustaining a welcoming community in academe by creating the Women Faculty in Engineering Committee (WFEC). The WFEC provides feedback to search committees who are involved with the recruitment and selection of department heads and deans in the College of Engineering, with the aim of highlighting the talent of qualified women faculty members. Other noteworthy

programs at universities include: (1) University of Washington, which sponsors monthly mentoring lunches for women in science fields; (2) Cornell University, which recently celebrated women's research interests by issuing a *Guide to Women Faculty* (WPE 2004); and (3) MIT, which conducted a survey to identify and address the largest concerns of women on their faculty. Numerous other programs exist at universities nationwide to promote advancement of women faculty members in engineering.

External support networks also exist, including professional associations such as WEPAN. WEPAN originated as a collaboration of leaders at several major universities who believed that “transformation of the environments in institutions of higher education could lead to greater success of diverse student bodies.” Currently, WEPAN comprises over 600 members from nearly 200 engineering schools, small businesses, Fortune 500 corporations, and nonprofit organizations (WEPAN 2005). WEPAN administers a Faculty for the Future (FFF) program including an online career center hosted by the College of Engineering at Pennsylvania State University. FFF is funded by a 10-year, \$20 million initiative of the GE Foundation and was designed to increase the number of women and underrepresented minorities in engineering, science, and business faculty positions (FFF 2007).

Improving Awareness of Opportunities in Construction

The predominant image of construction as a male dominated industry has tended to make it unattractive to women. Special initiatives are necessary to encourage young women to gain appropriate education and training and to seek careers within construction. For instance, Fielden et al. (2000) have proposed a multitrack, multiagent approach beginning early in the educational system. Their proposal aims at “sowing the seeds for change” within the construction industry, and includes steps such as: (1) visits and discussions at grade schools and at career events about opportunities in construction; (2) organizing site visits to school age children; (3) company sponsorships for college students considering careers in construction; and (4) “take your son or daughter to work” days. Examples of some of these approaches are described below.

Role of Educational Institutions

Many universities have increased their recruitment efforts to attract women students into engineering fields, including construction engineering. The College of Engineering at Purdue University has programs geared toward the recruiting and retention of women students, and the Division of Construction Engineering and Management plays a strong role in these efforts. One example of such a program is the Women in Engineering Discovery Days which provides opportunities for high school students to explore different careers in engineering and to engage students to consider possible educational and career opportunities in the field. Likewise, the University of Texas at Austin has a strong program for women engineering students, called the Women in Engineering Program (WEP), which hosts events every week in an effort to attract and retain women students in the College of Engineering. Significant events include: (1) Options Conference, in which industry professionals meet with engineering juniors and seniors to discuss various career options, such as design engineering, construction management, or research; and (2) First Year Initiative (FYI), which pairs first-year female engineering students

with seniors who provide mentoring during the year. Moore (2006) emphasizes the importance of educating and partnering with counselors in local school districts and community college advisors about the range of career paths in construction management including business development, estimating, and project management.

Partnering with Construction Industry

In order to increase awareness and interest in engineering and construction careers among grade-school and high-school female students, a significant effort has been made by industry professionals to promote career opportunities in the construction industry. The ACE Mentor program, a not-for-profit organization that began in New York City in 1995, brings together practitioners from the construction industry, including architects, contractors, and engineers (ACE), to encourage high schools students interested in entering careers in construction and design-related fields. This program has now expanded to more than 20 sites across the United States. In the ACE Mentor model, architecture, engineering, and construction firms organize themselves similarly to the typical design and construction team, and then “adopt” local high school students. The ACE mentors introduce the students to various design professions and identify the role that each profession performs in planning, designing, and constructing a project. Students also tour their mentors’ offices and visit construction sites (ACE Mentor 2007). In the 2002–2003 school year (the most recent year for which statistics could be found), almost 600 mentors and 1,800 students participated in the ACE Mentor program. This mentoring relationship has resulted in 92% of ACE graduates pursuing higher education with over 80% of those graduates going into ACE-related majors.

Role of Internships in Construction

Internship opportunities for high school students on construction projects provide unique opportunities to become familiar with the construction industry and the range of work opportunities and rewards available in the industry. The possibilities of travel opportunities, working in teams to “build something significant,” and the opportunity to rise to positions of leadership have often been listed by students in construction engineering programs as key reasons for selecting construction as a career. Internships often provide the first exposure to construction careers for many women students and provide an opportunity for women to explore construction as a possible career choice. Well-defined internships that are closely integrated with construction curricula also play a role in ensuring retention of students in ACE-related programs in the university setting, and eventually their entry into the ACE professions.

Role Models and Mentoring in Improving Image of Industry

In order to attract people to the construction industry, there is a need to improve the image of the construction industry. Projecting a more appealing image could involve actions such as: (1) ensuring that the images in, and content of, recruiting materials are diverse (for instance, inclusive of women and minorities, and use of gender-neutral occupational terminology); (2) using role models to demonstrate the career opportunities for women; and (3) using outreach to take the information directly to women students (Dainty et al. 2004). Professionals in the construction industry

should be encouraged to pass on their knowledge and experience to younger generations, and women in particular, so that female students have role models in the profession. This will likely dispel the idea that construction is masculine “without diluting the exciting and challenging aspects of careers” (WISE 2005). Construction companies can engage their personnel as “construction ambassadors” to convey the opportunities in the industry to students in middle/high schools and in universities.

Mentoring significantly increases retention of women at all levels of construction. One program that has been especially successful is MentorNet, the E-Mentoring Network for Diversity in Engineering and Science, which is sponsored by WEPAN. MentorNet pairs college students, postdoctoral scholars, and untenured faculty from all 50 U.S. states and 55 countries on six continents with experienced professionals in their fields for email-based mentoring relationships (MentorNet 2007). Mentoring is an essential component of many university-based programs that seek to enhance the participation of underrepresented groups—such as women, minorities, and people with disabilities—in science, mathematics, and engineering education. The NSF’s Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) honors individuals and institutions who have served as outstanding mentors by promoting the recruitment, retention, and success of individuals from underrepresented groups in engineering and science. Professor Jeffrey Russell of the University of Wisconsin, Madison, and a key promoter of Construction Engineering Education was one of the recipients of the 2005 PAESMEM award for his mentoring of female engineering students and his encouragement of their participation in construction engineering and management.

Creating Flexibility and Changing Culture

The career paths of women tend to be strongly influenced by life and family issues. Bennett et al. (1999) and Shanmugam et al. (2006) indicate that the limited opportunities for women to work in part-time positions in construction tended to hinder their selection of construction as a long-term career. Introducing or improving flexible working practices and career-change strategies can improve women’s entry and retention in construction. Women who consider construction as a career option also show preferences for:

1. Commitment to, and action to ensure, equal opportunities for promotion and training; and
2. Integrating women into the building professions by offering support of women entering the industry and raising the profile of successful women (Bennett et al. 1999).

Partnering with National and Local Agencies

The construction industry benefits from balanced teams of men and women who can harness the full range of skills, training, experience, and understanding from different perspectives, and hence be more productive and effective. The work style of women tends to be cooperative, collaborative, and often seeks win/win situations for all stakeholders. These features can also produce creative solutions to problems and can enhance long-term business relationships for construction companies. Consequently, partnerships between educational institutions, research organizations, the construction industry, and governmental agencies can forge relationships that ensure women have access to

highly skilled positions in the construction industry. Furthermore, these agencies can expect to directly benefit from women fully participating in the industry.

Women into Science, Engineering and Construction (WISE), a partnership between the European Union Social Fund, the Royal Academy of Engineering in the United Kingdom, the United Kingdom Resource Centre for Women, Ford and Rolls Royce, and the different Institutions of Engineers in the United Kingdom, has recognized these benefits and has initiated numerous programs throughout Europe to encourage more young women and men to study science and engineering and take up careers in these disciplines. The goal of this partnership is to “begin early” because many young people develop their “worldview” between the ages of nine and twelve (WISE 2005).

The U.S. Department of Labor has recognized that the small percentage of women working in the construction trades and the serious problems in construction create barriers to women entering and remaining in construction. In turn, the small numbers of women workers on construction worksites foster an environment in which these problems arise or continue (OSHA 1999). Problems with poorly fitting women’s personal protective equipment (PPE) need to be addressed so that they do not compromise safety, nor affect the function for which they were designed. Studies by the National Institute for Occupational Safety and Health (NIOSH) have found that most tools, equipment, and clothing are not designed for the women’s physique. Hence projects have been undertaken by OSHA’s Health and Safety of Women in Construction (HASWIC) workgroup to provide sustainable solutions for these challenges.

Change within the construction industry can be generated and transmitted within professional subcultural groups, argues Greed (2000). Bottom-up change agents (or grassroots change agents) consist of women and other minorities in construction who form parts of networks and offer alternative management structures that are more flexible for, and inclusive to, women. Top-down change agents include governmental initiatives, regulations, and legislation, and funding bodies that exert influence over the construction industry. The challenge is to reconcile the sometimes differing strategies of these types of agents. The United States construction industry, for example, relies heavily on internal networks with minimum intervention by legislative bodies. However, in the United Kingdom and Australia, the government has instituted special initiatives to encourage the construction industry to embrace more women, and these efforts are combined with those of professional and internal networks to maximize the potential for change in the construction industry.

In October 2006, a team of researchers at Loughborough University in the United Kingdom, in partnership with the six institutions from four other countries across Europe (Spain, Czech Republic, Germany, and Denmark), began a new project—WOMEN-CORE—aimed at strengthening women’s participation in construction research. The project, with an overall budget of 2 million euros, is funded by the European Commission’s Research Directorate General under the Sixth European Union (EU) Framework Programme for Research and Technological Development (FP6). The study recognizes that the construction sector is crucial in producing investment goods, with 58% of the EU’s production depending, directly or indirectly, on the construction industry. However, it is also one of the most male dominated sectors, with women only representing 10% of the United Kingdom construction workforce and 8.2% of the EU. The overall objective of WOMEN-CORE is to strengthen women scientists’ participation in European construction research. The study

aims to identify and assess the gender specific needs of research and development in construction and hence influence the resources deployment, employment, and competitiveness of the European construction industry (WOMEN-CORE 2007).

Conclusion and Path Forward

The industry has recognized the need to increase the number of women choosing construction as a career, particularly when the industry faces an aging workforce, an unprecedented number of retirements, and trends in postsecondary education that may not supply skilled personnel from traditional streams. Initiatives to encourage young women to gain appropriate education and training and to seek careers within construction are underway in many developed countries and have gained support from the government and public–private partnerships that have included educational institutions, major employers, and professional and trade organizations.

Lessons that are learned from these initiatives can shape the roadmap that the United States construction industry develops to encourage women to enter skilled and professional careers in the industry. The WOMEN-CORE project undertaken by the multi-university, multinational consortium and funded by EU sets an exciting example for United States agencies to follow for allocating appropriate resources to address critical workforce issues. Practitioners and researchers need to work together to identify root causes of these issues in their respective settings, and work together to develop, implement, and evaluate strategies that are cost effective and sustainable. The United States has much to learn from other countries but is making strides to implement programs that encourage the entry of women into construction careers. The cooperative efforts among industry professionals, government agencies, and educational institutions is a step in the right direction—and the allocation of appropriate resources together with the right opportunities for women will do much to increase the entry of, and retention of, women into construction careers.

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