

Solving the Construction Industry Work Force Crisis

IDEAS FOR ACTION



Executive Summary

Today's construction industry is facing an alarming shortage of workers - in craft, technical and management positions. This situation requires immediate action on the part of all industry employers.

Construction has a tremendous impact on the U.S. economy, contributing 8% to the Gross Domestic Product (GDP), second only to the healthcare industry. However, current gaps in today's work force pool as well as an expected dearth of trained and skilled employees filling the pipeline threaten the industry's growth and economic viability.

Engineering News-Record magazine and McGraw-Hill Construction, its parent organization, recently brought together leaders from across all industry sectors to propose specific actions that could be taken by both public and private sector entities to come up with solutions to this crisis. The group reached a consensus about key areas deemed most in need of attention, both immediately and longer term.

Key areas that emerged as most important for short-term action:

- Invest in education and training
- Reform immigration policies
- Ensure better pay and improved working conditions
- Improve productivity
- Improve construction's image through full industry engagement

Key areas that need to be addressed to find long-term solutions:

- Expand government programs and support
- Better outreach to schools and educational programs
- Use offshoring effectively
- Create employee retention strategies

In moving forward, focusing activities within the above areas will maximize resources and generate the most effective changes for the industry. This paper outlines the problem in more detail and offer specific recommendations within each key area.

The Problem: A Work Force Crisis Like Never Before

The construction industry faces a talent crunch that is anticipated to become even more severe, based on demographic and educational trends. Left untouched, this problem could affect industry growth, profitability and success in coming decades and escalate into a significant threat to our nation's economy.

Trends Prompting Action

Trends such as high levels of employee turnover, low numbers of graduating engineers, decreasing number of skilled craft workers and lack of public support to channel students into the construction-related career paths have made it clear that industry leaders must understand the need for immediate action to forestall an impending crisis. Finding solutions and turning them into reality is a challenge that will require broad levels of industry collaboration, advocacy and financial support.

Laying a Foundation for Moving Forward

In recognition of the need for immediate action, more than 200 industry leaders came together on September 26, 2006 in Washington, D.C. at the ENR Top Firm Leaders Forum for a panel discussion and brainstorming sessions aimed at laying the foundation to move forward on work force shortage solutions.

Throughout the day, industry experts identified and discussed nearly a dozen potential solution areas, ultimately condensing ideas into priority groups through a consensus voting process. These groups addressed areas in which the participants believe industry action would have the greatest impact on work force shortages most immediately.

Priority areas included:

- Education and training
- Immigration reform
- Better pay and working conditions
- Productivity increases
- Improved industry image through full industry engagement

Long-term solutions will require additional actions, such as government support, educational outreach, effective offshoring and employee retention programs.

Research and Statistics Illustrate Gravity of Work Force Crisis

According to the U.S. Bureau of Labor Statistics, the construction industry will need 1 million new workers in the next six years, and 2.4 million by 2014. This will place construction among the economy's top ten largest sources of employment growth.

Filling these new jobs will be particularly problematic due to the gap between industry needs and education trends:

- 65% of construction industry jobs require an Associates degree or advanced training...
- But only about 32% of high school freshmen plan to attain that level of education.¹

The prospect of a dwindling labor force could dramatically impact the construction work environment, causing

- Missed schedules
- Lower productivity and diminished quality
- More accidents
- Higher overtime costs
- Higher bids and budgets

The crisis is further exacerbated by external factors, such as increased pressure on the industry generated by the impact of recent natural disasters. For example, 69% of industrial construction contractors reported increased hiring since the hurricanes in 2005.²

¹ "Work force 2020: Work and Workers in the 21st Century," National Center for Construction Education and Research.

² March 2006 survey of industrial construction contractors for the Associated Builders and Contractors, 29% response rate of which 82.1% say they work in the hurricane-affected areas and 60.7% say they are engaged in reconstruction.

ACTION AREA: Education and Training

Who Needs to Act

It will take comprehensive efforts to insure that the most successful programs are implemented and perpetuated.

- **Construction firms** should mandate appropriate training programs.
- **Owners** can require their contractors to have and use training programs.
- **Government agencies** can encourage and fund programs, while also serving as a clearinghouse for program information.
- **Trade associations** can work together to unite the industry and avoid duplicative efforts.
- **Schools and training facilities** can integrate programs into curricula.

Why This Area Is Critical

In an industry that requires a broad range of specialized skills, education and training programs are required to recruit and develop a stronger work force. Unfortunately, only 70% of high school students are graduating.³ Of those, many do not enter training and educational programs required for construction industry jobs.

Recommendations

In order to establish an educated, prepared work force, the industry leaders proposed six actions:

- **Create and fund technical training programs affiliated with universities.** A consortium of companies, associations, government agencies and others could fund technical training programs or centers that can be linked to a university.
- **Identify best practices and expand them.** There are a number of local programs within the U.S. and internationally that are experiencing success. These need to be catalogued into a clearinghouse and replicated or modified for national impact.
- **Establish and publicize a clear track for students coming into the industry.** Intervention is needed early in the educational process. The greatest impact can be made by introducing construction industry jobs (within crafts and professions) at the middle school level or earlier. Industry members should communicate the benefits of construction careers with pride.

- **Retrain workers already in the industry, as well as those originating in other sectors, in new skill areas.**

Workers in industries that are downsizing, such as automobile manufacturing, and military veterans can be retrained through educational programs such as “Helmets to Hardhats.” This effort, sponsored by the AFL-CIO’s Building and Construction Trades Dept. and its member unions, helps military personnel prepare for new construction careers. More programs such as this can help match unemployed workers with jobs suited to their skill sets.

- **Identify and secure funding from sources such as government, contractors, owners and trade associations.**

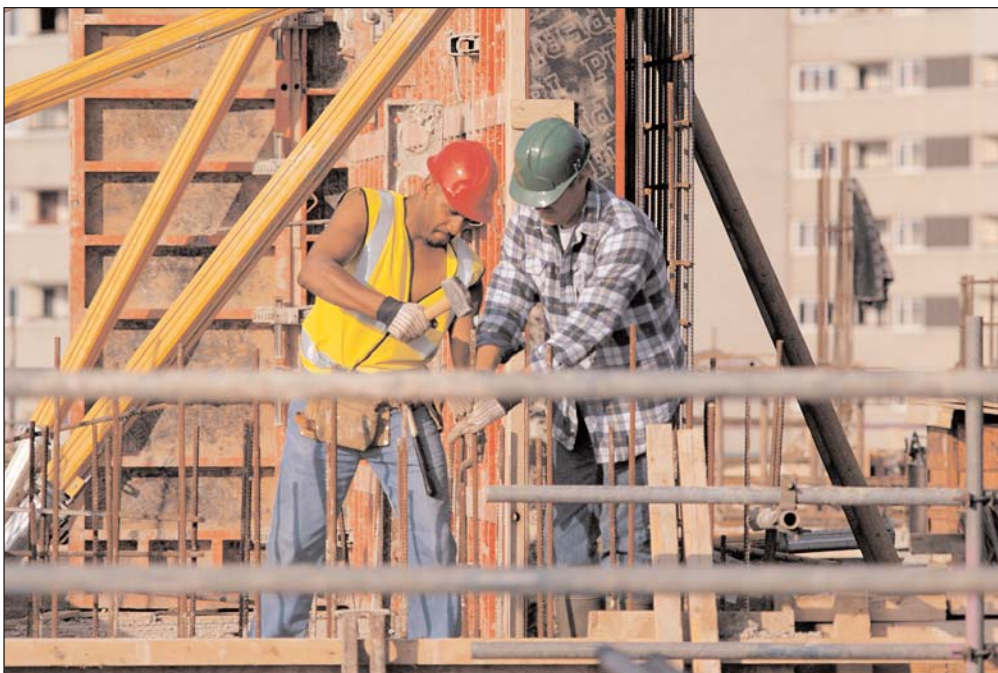
The passing of the “Carl D. Perkins Career [formerly ‘Vocational’] and Technical Education Improvement Act of 2006” was a step in the right direction. Additional funding and support (both public and private) is needed to help insure the success and sustainability of career and technical training programs.

Some suggestions:

- U.S. Departments of Labor and Education can effectively spend dollars on training programs.
- Contractors should fund programs to produce specific skills.
- Trade associations can support program development and implementation through member contributions.
- Union training programs, such as apprenticeship efforts in high schools, can expand and be connected to other efforts.

- **Eliminate the disincentives that keep workers from attending training programs.** It is critical, for example, that supplemental income be provided during retraining. Another example would be to provide housing for workers to relocate to where the greatest job opportunities exist, such as along the Gulf Coast.

³ Pinkus, L., “Who’s Counted? Who’s Counting? Understanding High School Graduation Rates,” Alliance for Excellent Education, <www.all4ed.org/publications/WhosCounting/WhosCounting.pdf>, June 2006.



ACTION AREA: Immigration Reform

Who Needs to Act

- **Firms in architecture, engineering and construction**, and the **owners** they work for, must encourage legislators to reform immigration policies. They must also help create solutions that do not compromise national security.
- **Government** must be willing to work cooperatively to create better policies.

Why This Area Is Critical

Increasingly, immigrants, mostly from predominantly Spanish-speaking nations, have been needed to fill the demand for construction workers. The industry has now become the leading employment source for new Americans, with 17.1% finding jobs there, compared with only 7.7% among all U.S. citizens⁴. With immigration policy again set to be in the forefront of national politics as well as in border states, the construction industry has an opportunity to secure, with more certainty, additional workers for positions that are difficult to fill by using U.S. citizens alone.

Recommendations

Actions that may have a positive impact:

- **Modify work visa programs** for craft workers to more rapidly approve applications that are sponsored by a construction firm.
- **Provide incentives** to firms that are training their employees by giving them priority clearance for guest workers.

- **Allow for temporary permits** as immigrants transition to securing green cards, in order to fill construction labor shortages in geographic regions where they are most acute.

⁴ "How the newest Americans compare with all of the U.S. Population," *USA Today*, December 4, 2006.

ACTION AREA: Better Pay and Working Conditions

Who Needs to Act

The burden is on the entire construction industry to act.

- **Construction firms** are responsible for insuring proper working conditions.
- **Owners** can help influence contractor behavior through contracting language.
- **Trade associations** can promote wage and benefit packages more broadly.

Why This Area Is Critical

As the construction labor crunch worsens, working conditions in the industry are also declining. This is driving potential workers away from entering the construction work force at a very critical time. Therefore, enhanced salaries and improved workplaces become crucial in order to boost worker morale and improve the industry's image.

Recommendations

In order to attract more workers, construction firms need to create attractive compensation and workplace packages.

Industry leaders recommended the following actions:

- **Change methods of work by increasing use of modularization.** By adopting pre-fabrication processes, construction work will include more technologically advanced techniques. For employers, this will translate to higher jobsite productivity and reduced project costs.
- **Develop alternative procurement strategies to avoid bidding on cost alone.** Such approaches could allow firms to raise wage rates and invest in better training because they will be less pressured to provide low bids.

- **Change the image of construction workers by emphasizing and promoting their training and skill level.** The construction industry's image needs to be enhanced, with more focus on workmanship and less on labor. Media campaigns can help sway public opinion, while hands-on education can change individual perception. Thus, it is important to reach students at early ages.

- **Shift perception toward career opportunities rather than job openings.** The industry will retain more workers if it emphasizes job training and career development. Industry employers could offer incentive packages to boost retention.

- **Work with managers and owners to encourage quality and productivity.** Incentives, financial and other, should be offered as a reward for high quality work. These would create a performance culture versus one based solely on output.

ACTION AREA: Improved Productivity

Who Needs to Act

Industry and government alike can help influence productivity improvements.

- **Construction firms** have lead responsibility to change how work is done.
- **Owners** can influence change by working closely with engineers and contractors prior to project start.
- **Government** can provide incentives rewarding innovation and productivity.

Why This Area Is Critical

There is an increased demand for construction, but the work force shortage has made it more difficult for the industry to meet it. Productivity improvements can help alleviate the severity of the problem and lead to improved working conditions and new efficiencies.

Recommendations

The session's industry leaders suggested the following methods to improve productivity:

- **Focus on worker incentives.** These might include monetary rewards for early project or training completion. These kinds of programs are essential to deter turnover and lost productivity.
- **Enhance automation and robotics.** Automation can lead to a more profitable industry, eliminating repetitive and boring work tasks that often cause high turnover and reducing the total number of workers needed.
- **Avoid the negative effects of excessive overtime.** This has been shown to lead to reduced productivity and increased project costs. A robust and efficient work force can be created using “smart” work procedures and incorporating innovation and new production processes.
- **Create better contracts through communication.** Encourage the industry to collaborate in the contracting process, with better communication among architects, engineers, contractors and owners. Such collaboration will create more efficiently designed and constructed projects.
- **Control access to construction sites by outside vendors.** By having appropriate food and other types of vendors on-site, firms can enhance work environments that meet employee needs and insure productivity. Uncontrolled access often disrupts scheduled activities.

Other Action Areas

Industry leaders identified other areas that may help alleviate work force pressures faced by the construction industry. These also need to be addressed to sustain a robust employee base.

Government Programs

Government agencies can support and initiate programs that can contribute to filling work force shortages, particularly in the long-term.

Suggested actions:

- Provide **tax breaks** for companies that have training programs.
- Create and support **public-private partnerships**.
- Fund existing and pilot programs with **grants** rather than loans.
- Create **online information sources** and **career centers**.

Offshoring

To alleviate immediate work force shortages in the U.S., offshoring can be a short-term solution for certain types of work. For example, with improvements in information technology and the drive to reduce engineering costs on projects, there is a recent trend toward increased offshoring of engineering, architecture and construction management services⁵.

Employee Retention Programs

Retaining construction industry talent is also a major challenge ahead. Because the workforce is aging, with large numbers of baby boomers moving toward retirement, the industry must work to maintain its most experienced employees as long as possible, even while attracting new talent. New programs and incentives should be created to retain the industry's best and to foster more mentoring between industry veterans and newcomers.

⁵ John I. Messner, Ph.D., “Offshoring of Engineering Services in the Construction Industry,” Pennsylvania State University, 2006.

ACTION AREA: Improved Industry Image through Full Industry Engagement

Who Needs to Act

The responsibility for changing the industry's image rests within both the public and private sectors.

Collaboration is a key element to success in changing public opinion.

- **Construction industry firms** will need to work together, a daunting task in an industry so heavily fragmented. Nearly 98% of firms have 50 employees or less⁶.
- **Trade and professional associations** and **unions** can help unify action.
- **Government** education and labor agencies at the federal, state and local level can play an effective role in helping these industry efforts reach an appropriate audience and serve as a funding source.

⁶ *Key Trends in the Construction Industry - 2006*, McGraw-Hill Construction.

Why This Area Is Critical

A fundamental challenge facing construction today is a general lack of public support for educating and encouraging students about the opportunities and advantages of industry careers. Funding has been cut for technical and vocational curricula, counselors hesitate to encourage construction-related coursework and career choices and parents and students view industry jobs as low-paying and manually difficult.

Recommendations

To attract more workers, construction industry firms and associations must join forces to develop an enhanced industry image and identify methods to relay it.

- **Encourage college credit programs.** There have been a number of successful programs that allow students to use technical and job training programs, both within high schools and extracurricular, to count toward college credits. Such programs enable craft workers to gain business training or new technical skills.
- **Encourage apprenticeship programs to be certified as degree-granting institutions**, such as the effort now underway by the International Union of Painters and Allied Trades (IUPAT).
- **Advocate to the U.S. Dept. of Education and to local school boards for more secondary school training.** Past successes in fostering technical training have waned due to secondary schools' predominant focus on college-oriented curricula. Some industry leaders attribute high drop-out rates to this shift. By reinvesting in technical training, students - particularly those not interested in college - will have more options.
- **Improve the image of construction in academia by funding grants and research and development programs.** Engineering and construction management programs within U.S. colleges and universities could benefit greatly with increased resources to improve facilities and equipment and attract enough well-

qualified faculty members needed to meet student and industry demand.

- **Develop metrics for evaluation of existing education programs.** Educational funding must be spent wisely and efficiently. Standard performance metrics will enable the best programs to rise to the top, reduce competition for resources and offer more long-term funding potential.
- **Invest in youth-friendly messages and new tools to encourage more math and science training.** Young people today are more sophisticated in their use of online and other high-tech sources of information. Construction proponents should use multi-media tools to convey the needed preparation for a successful industry career.
- **Keep information current and fresh.** Projects such as *InDemand* magazine, a U.S. Dept. of Labor publication produced by McGraw-Hill Construction, as well as Montgomery County, Md.'s high school sustainability program, provide the latest information about innovation in construction, engineering and technology. These kinds of programs help get students excited about construction careers.

Educational Outreach

Outreach to schools will help sustain training programs and promotional activities outlined above for immediate action.

Proposed action areas:

- Establish and provide **bi-lingual communications**.
- Begin industry awareness efforts in **early childhood education**.
- Establish and promote "**heroes**" for engineering and construction.
- Develop **television programming**, such as 'Design Squad' in which teens and children solve engineering and construction problems.
- Host events to **connect students to professionals**, such as the ACE mentor program or on-site career fairs.



For more information, questions or to provide feedback related to ENR/McGraw-Hill Construction's intelligence on work force issues, email workforce@mcgraw-hill.com or visit construction.com or ENR.com.