

# **CRAFT WORKFORCE DEVELOPMENT 2013 AND BEYOND**

**A CASE FOR GREATER STAKEHOLDER COMMITMENT**

Originally developed in 2011

for

The National Academy of Construction

National Construction Forum

Workforce Development Team

2013 Updated Version

By

NCCER



# Table of Contents

---

## EXECUTIVE SUMMARY

## INTRODUCTION

### SECTION 1: CHARACTERISTICS OF THE CRAFT WORKFORCE AND THE SKILLED WORKER SHORTAGE

- A. Workforce Demographic Trends
- B. The Skills Gap

### SECTION 2: CURRENT PRACTICES AND INNOVATIONS IN CRAFT WORKFORCE DEVELOPMENT

- A. Current Practices in Craft Workforce Development
  - I. Delivery of Craft Training
  - II. Funding Craft Training
  - III. Assessment and Certification
- B. Craft Workforce Development Best Practices and Innovations

### SECTION 3: BARRIERS AND CHALLENGES IN CRAFT WORKFORCE DEVELOPMENT

- A. Resources for Craft Workforce Development
- B. Industry Image
- C. Owner Participation and Commitment

## Call To Action

*Many thanks to all who contributed to this document.*

Primary Author:  
Don Whyte, NCCER

Contributing Writers:  
Liz Elvin, AGC of America  
Bob Piper, ABC National  
James G. Slaughter, S&B Engineers & Constructors  
Mike Stilley, S&B Engineers & Constructors

Review and Editorial by NCCER Staff:  
Jennifer Wilkerson, Daniele Stacey, Ryan Wilder



## **Executive Summary**

For more than twenty years, the construction industry has recognized the emerging and growing shortages of skilled craftworkers, but the broad industry-wide support needed to solve the problem has not been obtained. Contractors associations like the Associated Builders and Contractors (ABC) and the Associated General Contractors (AGC), along with progressive contractors, have helped the industry make strides in attracting and training new and experienced workers. Despite these efforts, the issue is far from solved, and will intensify in the coming years. Quality comprehensive craft training is fundamental to the development of a skilled workforce. A skilled workforce is essential to safe, productive and sustainable construction and maintenance activities, which in turn, is critical to the nation's economic future.

While the industry has had great success in developing the supporting infrastructure for craft workforce development, this white paper will examine how well the industry is capitalizing on its investment in and commitment to craft workforce development. The challenges that are impacting the construction industry are also being faced across all business sectors in the U.S. that rely upon skilled workers. These challenges include the slow economic recovery, disappearing jobs, and a far-reaching demographic shift in the population. However, the critical central component of this situation is the shrinking skilled workforce. The industry has historically survived the ups and downs of the national economy, but over the last 30 years, the industry's ability to retain workers during a recession and rehire them afterward has declined. According to FMI, the industry will need to add 1.5 million workers to successfully install the volume of work that is expected in 2014. In addition, the Construction Labor Research Council (CLRC) predicts that 185,000 new workers will be needed annually for the next decade. Prior to 2008, it was estimated that 20 percent of the current workforce would retire in three years. While the downturn has slowed this departure, it has not stopped it. Although the prediction in 2008 was distressing, the reality may be even worse since those same retirements will now likely occur during a recovering, highly competitive construction market.

In 2013, the workforce is made up of four generations: traditionalists, baby boomers, generation X and millennials. This new mix will challenge our industry due to the enormous generational differences in work ethics, attitudes, outlooks and behaviors among the four groups. The construction workforce today is racially diverse and will become even more diverse as the industry recovers and moves into the future.

The purpose of this paper is to explore the current state of craft workforce development in the construction industry, the factors that have contributed to the shortage of skilled craft workers to include the demographics and trends of the industry's current workforce and those of the population that the industry needs to attract, and the emerging innovative practices in craft workforce development nationally. Through this analysis, it is the intent of this paper to identify the barriers and challenges that prevent craft workforce development from being highly effective in the creation of the current and next generation of skilled workers.

## INTRODUCTION

For more than twenty years, the construction industry has recognized the emerging and growing shortages of skilled craft professionals, but the industry has not obtained the broad support needed to solve the problem. Now, with the economy beginning to recover from the recession, the shortages have become even more critical. A 2012 report from FMI, the nation's leader in consulting and investment banking services for the construction industry, stated: "[d]uring the Great Recession, 2 million jobs vanished within the design and construction industry, making up 20% of the total national job loss across all industries (8 million in total). In a sector already facing an uphill battle in attracting next-generation leaders, the construction industry has laid off – and in many cases permanently lost – a significant pool of talent to other faster-recovering industries."<sup>1</sup> The construction industry must recognize this critical workforce crisis and come together to solve it. These shortages affect our entire industry, including suppliers, manufacturers, owners, operators and contractors.

In December 2004, The Brookings Institute released a study titled *Toward a New Metropolis: The Opportunity to Rebuild America*. The study noted: "The volume of development to be seen during the next generation will be nothing short of staggering, probably eclipsing the amount of development seen in any previous generation," and "Nearly half of what will be the built environment in 2030 doesn't exist yet."<sup>2</sup> As the industry recovers, it will face exponential growth while simultaneously wrestling with significant workforce challenges.

The construction industry first recognized the shrinking supply of skilled craft professionals in the late 1980s. Organizations like the Construction Industry Institute (CII), The Business Roundtable (BRT) and the Construction Users Roundtable (CURT) have helped focus the industry on this critical issue by conducting research, providing forums for discussion and formulating solutions. Contractor associations like Associated Builders and Contractors (ABC) and the Associated General Contractors (AGC), along with other progressive contractors, have helped the industry make strides in attracting and training new and experienced workers. Despite these efforts, the issue is far from solved, and it will intensify in the coming years.

Quality comprehensive craft training is fundamental to the development of a skilled workforce and a skilled workforce is essential to safe, productive and sustainable construction and maintenance activities, which in turn, is critical to the nation's economic future. The purpose of this paper is to explore the current state of craft workforce development in the construction industry, the factors that have contributed to the shortage of skilled craft workers to include the demographics and trends of the industry's current workforce and those of the population that the industry needs to attract, and the emerging innovative practices in craft workforce development nationally. Through this analysis, it is the intent of this paper to identify the barriers and challenges that have prevented craft workforce development from being highly effective in the creation of the current and next generation of skilled workers.

Craft workforce development has emerged as the defining term for a wide range of activities, policies and programs within the construction industry. Ronald L. Jacobs states in his 2002 paper titled

---

<sup>1</sup> FMI "Your Next-Generation Leaders: Are They Ready?" 2012.

<sup>2</sup> The Brookings Institute "Toward a New Metropolis: The Opportunity to Rebuild America", 2004.

*Understanding Workforce Development: Definition, Conceptual Boundaries, and Future Perspectives* that, “The National Governors’ Association defines workforce development as the education, employment, and job-training efforts designed to help employers get a skilled workforce and individuals to succeed in the workplace.”<sup>3</sup> Grubb (1999) further states that workforce development provides individuals with the occupational preparation necessary for employment, including technical, basic and academic competencies.”<sup>4</sup> In practice, workforce development is also often used in connection with career and technical education, which has generally replaced the term vocational education in the U.S. A construction industry-specific overview of craft workforce development must include discussion of career and technical education through apprenticeship and craft training, upgrade training, task training, continuing education, skills assessment and certification, recruitment and industry image enhancement. In addition, the mechanisms that fund these programs and motivate workers to greater educational achievements must be explored.

Since the 1980’s, much has been written and discussed regarding the need for workforce development and the looming skills shortages. In the 1990’s, a series of reports were published predicting an ongoing escalation of workforce skills shortages. At that time, the industry began exploring workforce development solutions to address these shortages. In addition to the ongoing training programs of organized labor, industry engaged numerous local and national workforce initiatives. One success of these efforts was the formation of NCCER, which was tasked with standardizing craft curriculum, offering portable training credentials and supporting overall construction craft workforce development. While the industry has had great success in developing the supporting infrastructure, it is time to make an assessment of how well industry is capitalizing on its investment, and commitment to craft workforce development.

## **RESOURCES AND APPROACH**

This document is a compilation of key industry research that spans more than 20 years of statistics, commentary and analysis from the industry’s most respected and recognized experts, think tanks and authors. Information was gathered from a broad range of studies, publications, journals and websites. Historical information is based primarily on industry-recognized sources including, but not limited to, the Construction Industry Institute (CII), FMI Corporation, the Construction Labor Research Council (CLRC), and McGraw Hill. Sources of current knowledge and perspectives include the Harvard Graduate School of Education, the Georgetown University Center on Education and the Workforce, the Institute for a Competitive Workforce, the National Career Pathways Network and the American Society for Training & Development (ASTD). Finally, input from industry experts involved in the National Academy of Construction was invaluable in completing this project.

---

<sup>3</sup> Jacobs, R. “Understanding Workforce Development: Definition, Conceptual Boundaries, and Future Perspectives,” 2002.

<sup>4</sup> Grubb, W.N. “From Isolation to Integration: Occupational Education and the Emerging Systems of Workforce Development,” 1999.

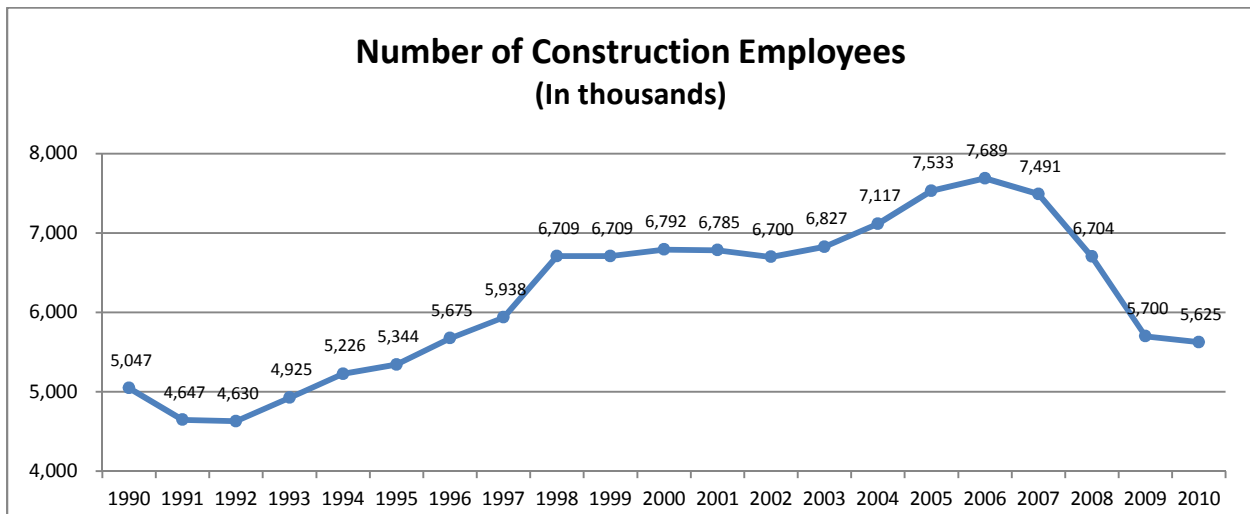
## Section 1: Characteristics of the Craft Workforce and the Skilled Worker Shortage

### A. WORKFORCE DEMOGRAPHIC TRENDS

While slow to develop, the construction industry is facing its first true transformation since the industrial revolution. The challenges that are impacting the construction industry are also being faced across all business sectors in the U.S. that rely upon skilled workers. These challenges include the slow economic recovery, disappearing jobs, and a far-reaching demographic shift in the population. However, the critical central component of this situation is the shrinking skilled workforce.

Since 2006, the industry has lost more than 2 million jobs.<sup>5</sup> (See Figure 1) In non-residential construction alone approximately 1 million jobs were lost.<sup>6</sup> While the current recession is more severe than any seen in modern times, downturns are nothing new to the industry. The cyclical nature of the construction economy has contributed significantly to the skills shortages over the years. The industry has historically survived the ups and downs of the national economy, but over the last 30 years, the industry's ability to retain workers during a recession and rehire them afterward has declined. Following the 2002 downturn and hurricane Katrina in 2005, a source at FMI stated, "People in the construction industry are either unaware of the impact of the situation or bury their heads in the sand to not deal with it."<sup>7</sup>

**Figure 1**



According to a 2012 study by the American Institute of Architects (AIA), 69% of architect, engineer and contractor professionals expect a shortage of skilled workers over the next three years,

<sup>5</sup> AGC of America "Tentative Signs of Recovery: The 2013 Construction Hiring and Business Outlook," 2012.

<sup>6</sup> U.S. Bureau of Labor and Statistics.

<sup>7</sup> Spillane, J. "The Perfect Storm in the Construction Industry," *Construction Executive*, June 2004.



with 32% anticipating a shortage of specialty trade contractors by 2014. In addition, 49% of general contractors are concerned about a shortage of skilled craft workers by 2017.<sup>8</sup>

Such a shortage stems in part from an aging workforce. According to the “Talent Pressures and Aging Workforce Industry Report Series,” conducted by the Sloan Center on Aging & Work at Boston College, of 58 construction firms surveyed, 50% indicated the aging workforce would “negatively” or “very negatively” affect their business — a figure significantly higher than other business sectors studied.<sup>9</sup> With baby boomers rapidly approaching retirement age, the industry faces a significant skills gap as fewer skilled workers are available to take their place.

The recession also took a substantial toll on available talent. As the number of construction projects plummeted and unemployment figures skyrocketed toward 30%, workers fled the industry in droves seeking viable employment in other industries. Those who succeeded are unlikely to return to construction any time soon, if at all. And while there are prospects to take their place, few have the necessary skill sets to assume key roles on most jobsites.<sup>10</sup> In addition, a 2010 workforce survey by Manpower Inc., found that construction ranked #1 for demand of qualified workers and that construction skilled trade employment requests are the most difficult to fill.<sup>11</sup> In its 2010 publication titled, *The Next Big Threat ... And It's Probably Not What You're Expecting*, FMI conducted detailed craft labor studies that assessed the balance of labor supply and demand for specific crafts in a given geographical location. (Table 1)<sup>12</sup> These studies consider the intensity of specific crafts to various types of projects and the design characteristics of structures being built. By applying these models to the national construction outlook, a sense of the magnitude and craft segmentation of potential future shortages is given. Using 2010 as a baseline, it is clear the industry will need to add 1.5 million workers to successfully install the volume of work that is expected in 2014.<sup>13</sup>

---

<sup>8</sup> McGraw Hill Construction “Construction Industry Workforce Shortages: Role of Certification, Training and Green Jobs in Filling the Gaps,” 2012.

<sup>9</sup> American Society for Training and Development “Aging Workforce Worries Construction Industry,” Dec. 2010.

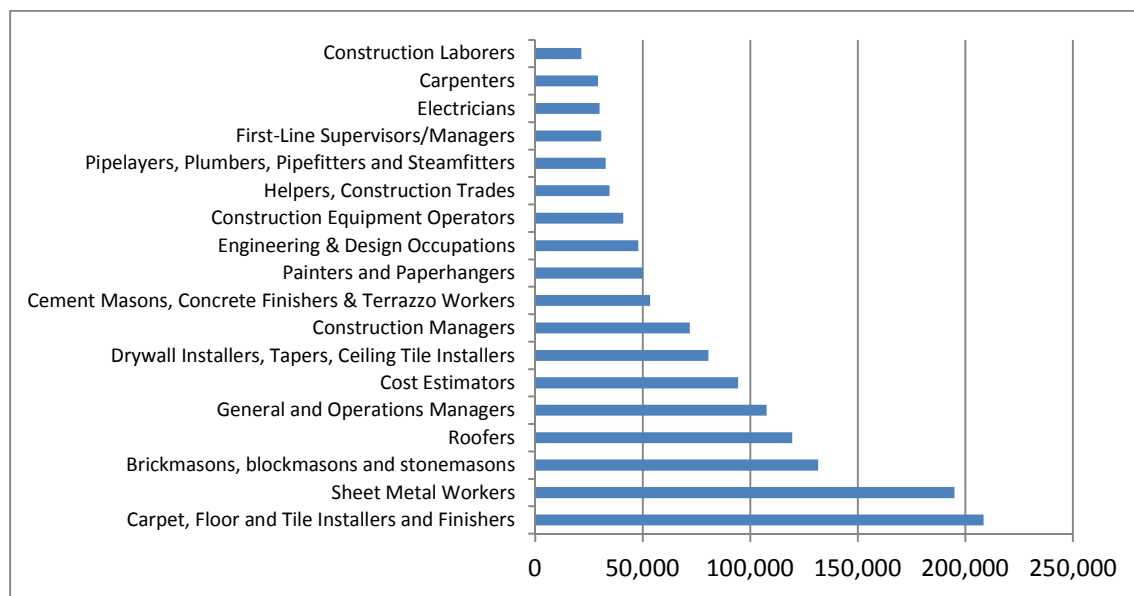
<sup>10</sup> Schultz, B. “Beat the Clock: Develop Workers Now to Replace an Aging Workforce,” ForConstructionPros.com, Nov. 19, 2012.

<sup>11</sup> Manpower Inc., “Employment Outlook Survey,” 2010.

<sup>12</sup> FMI, “The Next Big Threat ... And It's Probably Not What You're Expecting,” 2010.

<sup>13</sup> See FN12.

**Table 1:** Forecast change in full-time employment demand: Year 2014 versus current state 2010<sup>14</sup>



In addition to the projected shortages shown above, the Construction Labor Research Council (CLRC) predicts that 185,000 new workers will be needed annually for the next decade.<sup>15</sup> In 2010, it was estimated that 20 percent of the current workforce would retire in three years.<sup>16</sup> While the downturn has slowed this departure, it has not stopped it. Although the prediction in 2010 was distressing, the reality may be even worse since the retirements will likely occur during a recovering, highly competitive construction market.

These changing demographics of the workforce will create challenges and financial impact for our industry. Seventy-five million baby boomers approached retirement age in 2010, putting over half of the United States population over 50 years old. Beginning on Jan. 1, 2011, and continuing for the next 19 years, 10,000 baby boomers will reach age 65 every day.<sup>17</sup> The aging of this huge cohort of Americans (26 percent of the total U.S. population) will dramatically change the composition of the country and our industry. In the executive white paper, *Coming of Age: How Generational Diversity Impacts Employee Recognition*, by Janet North, the mass exodus is referred to as "boomer brain drain."<sup>18</sup> While the loss in the quantity of available workers is important, the quality of the workforce creates a critical threat and challenge to industry's ability to compete for talent and to succeed financially. This is substantiated by most industry experts, including Towers Perrin, who estimate that 60 percent of professional jobs will require skill sets possessed by only 20 percent of the workforce.<sup>19</sup> Furthermore, the number of workers aged 35 to 44 will decrease, likely causing a widespread shortage of middle managers and the youth

<sup>14</sup> See FN12, at Exhibit 4.

<sup>15</sup> Construction Research Labor Council "Craft Labor Supply Outlook 2005—2015," 2005.

<sup>16</sup> Cummings, O. "The Construction Carpenter: Trends, Tasks and Skills," *Construction Executive*, May 2010.

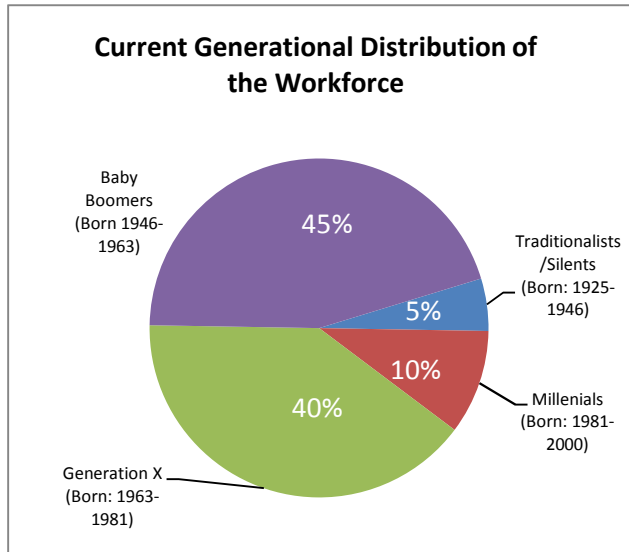
<sup>17</sup> Pew Research Center "Baby Boomers Retire," Dec. 29, 2010.

<sup>18</sup> North, J. "Coming of Age: How Generational Diversity Impacts Employee Recognition," not dated.

<sup>19</sup> See FN18.

demographic (ages 18 and younger) will shrink in size compared to the adult population.<sup>20</sup> It's clear that there will be fierce competition for the attention of young people entering the workforce, a competition the construction industry is currently not prepared to enter and win.

**Figure 2**



For most of the last 50 years, the workforce has been made up of two generations: the traditionalists (aka the silents) and the baby boomers. The knowledge, skills, work ethic and social values shared by these two generations were the driving force that led the industry and country to prosperity. In contrast, in 2011, the workforce is made up of four generations: traditionalists, baby boomers, generation X and millennials. (Figure 2)<sup>21</sup> This new mix will challenge our industry due to the enormous generational differences in work ethics, attitudes, outlooks and behaviors among the four groups. Traditionalists and boomers are still the industry's predominant source of experience and skills, but this is changing quickly.

Anick Tolbize summarized these values in a 2008 University of Minnesota publication, *Generational Differences in the Workplace*. (Table 2)<sup>22</sup> A generationally diverse workforce will require employers to have an understanding of the value each group places on work-life balance.

<sup>20</sup> AARP "The Business Case for Workers Age 50+: Planning for Tomorrow's Talent Needs in Today's Competitive Environment," Dec. 2005.

<sup>21</sup> U.S. Census Bureau.

<sup>22</sup> Tolbize, A. "Generational Differences in the Workplace," University of Minnesota, 2008.

**Table 2:** Generational differences in work related characteristics and expectations

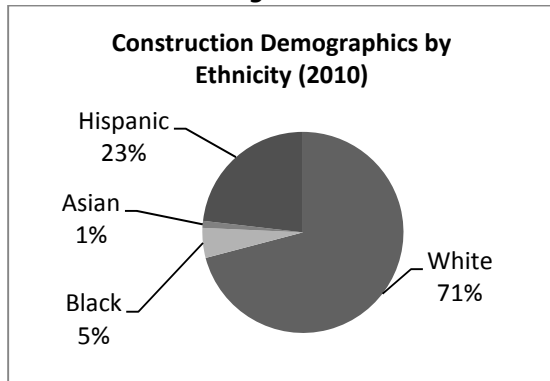
	Traditionalists	Baby Boomers	Generation X	Millenials
Most important aspects of workplace culture	I. Fair	IV. Fair	IX. Fair	XIV. Fair
	II. Ethical	V. Ethical	X. Ethical	XV. Ethical
	III. Straightforward Professional Collaborative/team feeling	VI. Straightforward Professional	XI. Straightforward	XVI. Friendly/social
		VII. Professional	XII. Collaborative/team feeling	XVII. Straightforward
Communication tools used for work		VIII. Collaborative/team feeling	XIII. Friendly/social	XVIII. Professional
	XIX. Desktop computer	XXV. Desktop computer	XXXI. Desktop computer	XXXVII. Desktop computer
	XX. Landline phone	XXVI. Landline phone	XXXII. Landline phone	XXXVIII. Landline phone
	XXI. Fax	XXVII. Fax	XXXIII. Fax	XXXIX. Fax
	XXII. Mobile/cell phone	XXVIII. Mobile/cell phone	XXXIV. Mobile/cell phone	XL. Mobile/cell phone
	XXIII. Laptop computer	XXIX. Laptop computer	XXXV. Laptop computer	XLI. Laptop computer
Top values	XXIV. PDAs with phone and internet	XXX. PDAs with phone and internet	XXXVI. PDAs with phone and internet	XLII. PDAs with phone and internet
	XLIII. Family	XLVI. Family	XLIX. Family	LII. Family
	XLIV. Integrity	XLVII. Integrity	L. Love	LIII. Love
Top reasons for Happiness in the workplace	XLV. Love	XLVIII. Love	LI. Integrity	LIV. Spirituality
	LV. Feeling valued	LX. Feeling valued	LXV. Feeling valued	LXX. Feeling valued
	LVI. Recognition and appreciation	LXI. Recognition and appreciation	LXVI. Recognition and Appreciation	LXXI. Recognition and appreciation
	LVII. Supportive environment	LXII. Supportive Environment	LXVII. Supportive Environment	LXXII. Supportive environment
	LVIII. Leadership I can relate to	LXIII. Leadership I can relate to	LXVIII. Capable workforce	LXXIII. Capable workforce
LIX. Shared vision, values and pride	LXIV. Capable workforce	LXIX. Leadership I can relate to	LXXIV. Being part of a team	

Employers must first make sure that regardless of the age group, the expectations of the job are the same for all. The challenge will be to communicate in the style that is most effective for each group. Simply stated, the same message may have to be communicated face to face, via email, and/or in a written memorandum in order to effectively reach workers in all age groups.

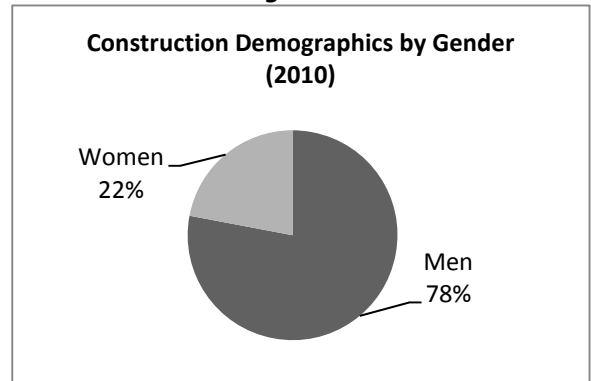
A generationally diverse workforce will also require diverse approaches in training. Older age groups will prefer traditional training approaches, such as the stand-and-deliver classroom approach, while gen-xers and millennials may prefer computer-based training. The training needs for each generation will also vary: the younger employees may need more leadership training, while the baby boomers and traditionalists may need upgrade training in their areas of expertise or new technologies.

To further complicate the situation, the racial demographics of our current workforce are undergoing significant change and look dramatically different than in the past. Prior to 2008, the Hispanic segment of our workforce was projected to grow from 12 percent to 15 percent.<sup>23</sup> This is an increase of approximately 33 percent, a growth rate that is more than three times that of non-Hispanic workers.<sup>24</sup> This population is the fastest-growing population segment of the craft workforce and is predominantly Spanish-speaking, which increases demand for workers and managers fluent in both English and Spanish.<sup>25</sup> Hispanic craftworkers are important to the construction industry and have historically had deep roots in the craft professions. They typically have a strong work ethic, pride in craftsmanship, good attitude, are family oriented, have a strong sense of loyalty to their employer and seek opportunities to learn and grow. The construction workforce today is racially diverse and will become even more diverse as the industry recovers and moves into the future. (Figure 3) According to the Census Bureau, by 2045 non-Hispanic whites will make up 54.5 percent of the population, down from 71.4 percent in 2000.<sup>26</sup> At the same time, the Hispanic population will grow from 11.5 percent to 23.1 percent of the population, African Americans from 12.2 percent to 13.2 percent, and Asian and Pacific Islanders from 3.9 percent to 8.4 percent.<sup>27</sup> Age, race and even gender diversity will need to be addressed by the industry as it progresses into the future. Women already account for 22 percent of the workforce and this will grow moving forward. (Figure 4)<sup>28</sup>

**Figure 3**



**Figure 4**



<sup>23</sup> Whyte, D., Greene, S. "The Skilled Workforce Crisis," NCCER, 2004.

<sup>24</sup> See FN23.

<sup>25</sup> See FN23.

<sup>26</sup> American Society for Training and Development (ASTD) "The Human Capital Challenge," 2003.

<sup>27</sup> See FN23.

<sup>28</sup> U.S. Census Bureau.

## B. THE SKILLS GAP

Today's secondary and postsecondary career and technical education students can benefit greatly from the career opportunities the construction industry has to offer. However, it is incumbent upon the industry to form relationships that will facilitate the transition of young people from the classroom to the job site. Today, 50 percent of high school graduates go to college, but only half of these students earn a degree.<sup>29</sup> The result is that 75 percent of our high school graduates are looking for jobs that do not require a college degree.<sup>30</sup> Unfortunately, we are not attracting them to the construction industry. It is essential to the industry's future that we reach out to young people and expand career-training opportunities to them. Currently, only 26 percent of high school students and 64 percent of postsecondary students who take craft training while in school enter the industry.<sup>31</sup> The industry needs to substantially increase the percentages of these young people that enter the industry and make sure to retain them by addressing their needs in the workplace.

The link between industry and academia is extremely important. The educational system, in general, is not preparing young people for the career opportunities that are available in the crafts. The study, *Workforce 2020: Work and Workers in the 21st Century*, evaluated what types of jobs would be available in 2020, in comparison to what ninth graders were studying (See Figure 5 at p.12 below). The study estimated that 28 percent of today's ninth graders will complete college, but only 20 percent of the jobs will require a four-year degree. Conversely, 40 percent of today's ninth graders will have dropped out of school or will have only the skills required for 15 percent of the jobs. The remaining 32 percent of the population will have the necessary training that 65 percent of the jobs will require.<sup>32</sup> It is incumbent upon industry to work closely with schools to prevent this astounding shortfall with educational preparation.

Figure 5



Workforce 2020: Work and Workers in the 21st Century

<sup>29</sup> See FN23.

<sup>30</sup> See FN23.

<sup>31</sup> See FN23.

<sup>32</sup> Judy, R., D'Amico, C. "Workforce 2020: Work and Workers in the 21st Century," 2005.

Even students that successfully complete training and plan to enter the construction industry may not be adequately qualified, because many of the training programs do not meet industry's needs due to a skills gap. In a 2006 article, "Bridging the Skills Gap," ASTD defined the skills gap as "a significant gap between an organization's skill needs and the current capabilities of its workforce. It is the point at which an organization can no longer grow and/or remain competitive in its industry because its employees do not have the right skills to help drive business results and support the organization's strategies and goals."<sup>33</sup> ASTD identifies four factors that are contributing to the skills gap:

**1. CHANGES IN THE TYPES OF JOBS THAT ARE IN DEMAND**

Jobs are becoming more complex as technological advances are integrated into all industries, requiring a workforce with a higher level of skills and knowledge. The construction industry has traditionally been viewed as low tech, therefore unappealing to the younger demographic that has grown up in a technology-rich environment. This is not the reality of today's construction industry. From high-tech tools to more elaborate building processes and materials, the craft professionals and supervisors of the new construction workforce must be more than just computer literate, they must be computer-proficient and technologically competent.

**2. SLOW POPULATION GROWTH**

Baby boomers make up the largest portion of the current construction workforce, and subsequent generations are considerably smaller. The quantitative gap will persist until the millennials begin entering the workforce in larger numbers. "The combination of baby boomers, immigrants, and working women has helped swell our workforce by 1.6 percent a year for the past 50 years," according to the authors of "The Jobs Revolution: Changing How America Works." "But during the coming 50 years America's workforce will grow by approximately 0.6 percent annually, about one-third the pace set over the last half-century."<sup>34</sup>

**3. EDUCATIONAL ATTAINMENT IS LAGGING THE NEED FOR SKILLS**

Employability skills are those basic skills necessary for getting, keeping, and doing well on a job. These are the skills, attitudes and behaviors that are indicators of potential success in the workplace. Employability skills are generic in nature and apply to all industry types.<sup>35</sup>

Figure 6 illustrates the percentage of the existing skills gap of the general workforce. These deficiencies are expected to grow as more of the skilled workforce retires or seeks employment in other competing industries.

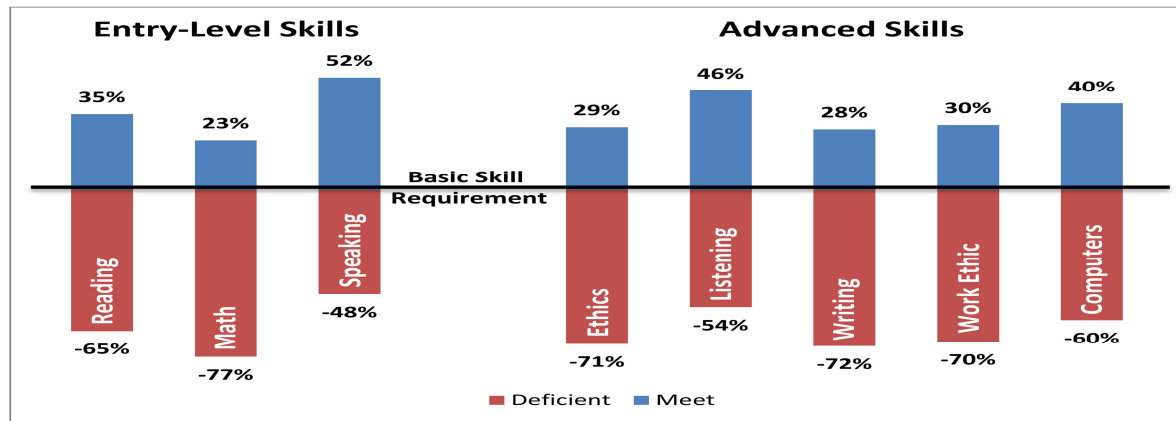
---

<sup>33</sup> ASTD "Bridging the Skills Gap: How the Skills Shortage Threatens Growth and Competitiveness...and What to do About It," 2006.

<sup>34</sup> Gunderson, S., Jones, R., Scanland, K. "The Jobs Revolution: Changing How America Works," 2004.

<sup>35</sup> See FN34, at p.5.

Figure 6<sup>36</sup>



Current research on the public education system agrees that students are no longer prepared for entry into the workforce. *Pathways to Prosperity*, a study conducted by the Harvard School of Education, concluded: “Far too many young people are inadequately prepared to be successful” finding that more than half [of high school graduates] were “deficient” in such skills as oral and written communication, critical thinking, and professionalism. In a comparison between the Department of Education statistics and employer perceptions of the skills of young workers, 65 percent of high school graduates do not have the basic reading skills and 77 percent do not have the basic math skills necessary to succeed in the workplace.

#### 4. BUSINESSES ARE NOT LEVERAGING THEIR LEARNING INVESTMENTS EFFECTIVELY

The quality and availability of training, certification and career education resources has increased dramatically since the early 1990s, along with owner and contractor involvement. On an annual basis, NCCER’s training module completion rate has increased more than 2000 percent since 1995. Associations like ABC and AGC have invested heavily over the years to create craft training facilities and programs that are a significant part of the industry’s training infrastructure. However, most still use the traditional evening and weekend approaches to training and their facilities largely sit idle during regular business hours. Typically, contractors are unwilling to give up their workers for training during regular business hours even though they would acquire a safer, more productive worker in a significantly shorter period of time.

Closing the skills gap is a critical issue for construction and all other industry and business sectors. In fact, ASTD’s 2005 State of the Industry Report and Manpower Group’s 2012 Talent Shortage Survey, together surveyed approximately 40,000 employers across 39 countries and found that industry has made very little progress in the area of its commitment to developing its human capital. In addition, Manpower Inc. states that “Approximately three-quarters of employers globally cite a lack of experience, skills or knowledge as the primary reason for the difficulty filling positions. However, only one in five employers is concentrating on training and development to fill the gap

<sup>36</sup> Figure 6 was compiled by NCCER for the purposes of this paper. The data was obtained from the U.S. Department of Education, National Center for Education Statistics; National Assessment of Educational Progress (NAEP) published April 2010 and 2009.



and only a mere 6 percent of employers are working more closely with educational institutions to create curriculums that close knowledge gaps.”<sup>37</sup>

According to “Pathways to Prosperity,” a 2011 report by the Harvard Graduate School of Business, the good news is that: “[c]utting-edge CTE bears little relationship to the old vocational education programs that were often little more than dumping grounds for students who couldn’t cut it in college prep. Today’s best CTE programs do a better job of preparing many students for college and career than traditional academics-only programs.”<sup>38</sup>

The Construction Industry Institute’s (CII) 1992 publication titled “An Assessment of Education and Training Needs Among Construction Personnel,” states that: “Most owners and contractors do not perceive current construction education and training to be adequate, particularly in regard to advancing technologies.” A key recommendation of the study was for the industry, both owners and contractors, to become more involved in construction education and training.<sup>39</sup>

Contractors and owners must substantially elevate their commitment to workforce development to include supporting and driving the resurgence of career and technical education and funding craft training programs that meet industry standards.

---

<sup>37</sup> ManpowerGroup, Inc. “2012 Talent Shortage Survey Results,” 2012.

<sup>38</sup> Harvard Graduate School of Business, “Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21<sup>st</sup> Century,” 2011.

<sup>39</sup> Construction Industry Institute, “An Assessment of Education and Training Needs Among Construction Personnel,” 1992.

## **SECTION 2: CURRENT PRACTICES AND INNOVATIONS IN CRAFT WORKFORCE DEVELOPMENT**

### **A. Current Practices in Craft Workforce Development**

#### **I. Delivery of Craft Training**

Craft training plays a critical role in the construction industry. Contractors cannot provide a safe and productive workforce to construction users without effective craft training. Craft training is a general term used to describe delivery of knowledge and skills necessary for trainees to meet the minimum skills requirements for a craft and a career in construction. Various models of construction craft training occur across the U.S. with two primary goals. First, craft training should enhance the skills, earnings potential and career opportunities of the construction workforce. Second, craft training should meet the skills development needs of the industry. Craft training occurs at a variety of educational levels and through an assortment of program models to include apprenticeship, traditional craft training (an apprenticeship equivalent without the regulatory and administrative approvals and burdens), task training, upgrade training, and continuing education. Apprenticeship and craft training generally last from one to five years with the goal of training the worker on the complete craft. Task and upgrade training occur over a much shorter time and typically focus on a narrow competency or process area of the craft. Often, and preferably, an expert or seasoned journeyman in the given craft conducts the training. Along with effective instructor education and training, this practice ensures the trainer is qualified and competent in their area of instruction. The delivery of craft training occurs through a diverse group of organizations. Trade associations, labor unions, secondary and post-secondary schools (high schools, charter schools, career and technical schools, community colleges, career and technical colleges and for-profit career colleges), in-house contractor and owner training programs, and government entities such as Job Corps, Youth Build, state and federal corrections facilities, and branches of the military all deliver craft-related training. Since the early nineties, the industry, in conjunction with education and government, has built ample capacity to meet the training and workforce development needs. As an industry, we need to maximize the use of the various types of training models described below.

#### **Apprenticeship**

Apprenticeship is one form of craft training regulated by state or federal guidelines. The state apprenticeship agency or the U.S. Department of Labor, Office of Apprenticeship registers, approves and oversees apprenticeship programs. Over a specified number of years unique to each craft, apprenticeship covers the wide range of skills inherent in the craft. By design, an apprenticeship program should produce a fully trained craft professional. Apprenticeship creates a formal contract between the apprentice and the sponsor, often referred to as an “indenture.” Some states have changed the name of the indenture to the “apprentice contract.” Organized labor, trade associations and non-industrial in-house contractor programs typically conduct apprenticeship programs. Contractors who perform state or federal government construction may be required to operate or participate in an apprenticeship program. State and federal governments recognize apprenticeship programs for the purpose of the Davis-Bacon Act and other “prevailing wage” legislation. Prevailing

wage and Davis-Bacon laws require specific worker wage rates and benefits for workers on state or federal projects.<sup>40</sup> Only registered apprentices receive less than the full skilled worker rate, in accordance with the percentages outlined in an apprentice wage schedule. This can offer the contractor who trains registered apprentices a significant advantage in bidding work. Non-apprentice trainees or helpers receive the full skilled craft rate determined by the state or federal agency. In addition to defining the wage rates, apprenticeship contracts define the term of the apprenticeship program, hours of related classroom instruction and specific work processes included in on the job training (OJT). In the past, apprenticeship was the predominant source of trade or craft training but for numerous reasons – including slow government response to new training approaches – it has seen little growth over the last two decades. Since apprenticeship is a formal training program overseen by government agencies, there are several requirements imposed, such as stringent record keeping, maintaining a specified ratio of apprentices to skilled workers and compliance with equal opportunity selection procedures.<sup>41</sup> While many consider these requirements a disadvantage, they do help ensure the quality delivery of craft training. In the end, an apprenticeship completion certificate is a valuable credential to both the apprentice and the employer and may be required on public works projects and for licensing and certification in certain states and jurisdictions. Apprenticeship programs offer craft training through a combination of on-the-job training/experience and an annual minimum of 144 hours of related classroom instruction. Individual employers, joint employer and labor groups, and/or employer associations may sponsor apprenticeship programs. Registered apprenticeship programs allow a program sponsor to determine the most effective method for training. In 2008, the US Department of Labor, Office of Apprenticeship, amended Title 29, Code of Federal Regulations (CFR) Part 29, standards for registered apprenticeship programs to add new training modalities to supplement the long-held traditional time-based approach.<sup>42</sup> A competency-based and a hybrid approach was added to allow for the integration of online training that meets the needs for an accelerated apprenticeship.

Apprenticeship training is most prevalent in the commercial construction sector and with contractors who perform government-related or public work. Trade associations, labor unions, and in-house contractor and owner training programs can conduct apprenticeship. Most major labor unions use apprenticeship as their core style of training.

## **Traditional Craft Training**

Traditional craft training is an apprenticeship equivalent without the bureaucratic regulatory and administrative burdens, approvals and oversight. Many organizations operate craft training programs alongside formal apprenticeship training. Traditional craft training programs have similar classroom instruction hours and length requirements to their apprenticeship program counterparts. In some states and programs, registered apprentices and craft trainees can be (and sometimes are) in the same classes at the same times, although there are some state laws that prohibit mixing types of students. Many organizations operate craft training programs instead of formal apprenticeship training because they perform little or no public work governed by Davis-Bacon or other prevailing wage laws. A traditional craft training program also provides flexibility in instructional approaches and curriculum that helps better meet the needs of the trainee, the contractor and the training organization. Using traditional craft training, a contractor might combine crafts like carpentry and concrete finishing, or structural ironwork and rebar, to develop a cross-skilled worker that performs work for a longer portion

---

<sup>40</sup> U.S. Department of Labor (<http://www.dol.gov/compliance/laws/comp-dbra.htm>).

<sup>41</sup> See FN40.

<sup>42</sup> 29 C.F.R. 29.5(b)(2).

of the project or throughout the life of the project. This benefits the worker and the contractor. Craft training programs use online training, simulation and other training methodologies to accelerate or compliment classroom instruction or supplement hands-on experience. A traditional craft training program provides contractors, training organizations and trainees with the flexibility to create a program that best fits their needs.

Until the creation of NCCER, the construction industry as a whole did not recognize craft training outside of apprenticeship as being of the same quality as apprenticeship training. Today, with the emergence of NCCER, both the construction industry and government entities alike are recognizing training conducted by NCCER Accredited Training Sponsors as quality training. In 2004, the Texas Skill Standards Board formally recognized NCCER Accredited Training Programs as equivalent to approved apprenticeship programs. In general, owners recognize NCCER accredited training programs and organized labor's approved apprenticeship programs as the quality standards for craft training because they meet industry-recognized standards and provide trainees with both knowledge and hands-on skills development. Traditional craft training programs have greater flexibility than apprenticeships and are used in all sectors of the industry where training occurs, including residential (primarily through secondary and post-secondary schools), commercial, industrial and power. Craft training occurs on long-term capital projects, maintenance projects and in community training programs – like those found along the industrial gulf coast – that have a large workforce that is shared among the contractor community. Traditional craft training is conducted by trade associations, secondary and post-secondary schools (high schools, charter schools, career and technical schools, community colleges, career and technical colleges and for-profit career colleges), in-house contractor and owner training programs, and government entities such as Job Corps, YouthBuild, state and federal corrections facilities, and branches of the military.

### **Task and Upgrade Training and Continuing Education**

Task and upgrade training are similar in that they generally focus on providing knowledge and skills for a narrow task or skill area of a craft. The difference is generally in who is receiving the training. Any level of worker can benefit from task training. Generally, task training occurs to accommodate a special type of project or project process or to accommodate a short duration project. The duration of turnaround projects and short-term capital projects and the work schedules they typically require make it difficult to support long-term craft training programs. However, projects such as these may have special or critical skill needs that a contractor wants to ensure his workforce is properly prepared to perform. In such cases, the contractor will implement a short-term task training program on the special or critical tasks. Contractors who leverage suppliers and manufacturers to introduce and train workers on new materials and/or processes often use task training. Journeymen craft professionals generally receive upgrade training as a way to ensure they are keeping their skills current and up-to-date. Thus, another term for this type of training that is often used is "journeyman upgrade." Some consider journeyman upgrade to be continuing education but the concept is identical. Continuing education is more widely associated with certified and/or licensed crafts that are required to complete annual training or continuing education. Task and upgrade training and continuing education are flexible and valuable tools that help contractors keep workers current and productive.

### **New Instructional Models**

New instructional methodologies emerge as needs and demands change in the industry. Technology-based instruction was discussed above and includes computer-based, web-based and

simulation training. Accelerated craft training models have emerged in the last ten years as a means of training a craft worker in less time. Accelerated models compress long-term craft training instruction into dramatically shorter periods of classroom instruction. Three- and four-year training programs have been compressed into blocks of 6 to 24 months. On the surface, this appears to be most beneficial to the industry. However, as discussed earlier in this paper, the next generations of craft workers do not want to spend three to five years training to reach journey-level, so an accelerated model can be beneficial in recruiting the younger generation to the industry. As noted, there are benefits to the accelerated models, but there are also notable challenges to address. The primary benefit is faster preparation of trainees to meet the skilled workforce demands of our industry. The primary challenge is in meeting the hands-on skills development requirements of the craft. Accelerated and technology-based instruction does an excellent job of enhancing, supplementing and shortening classroom delivery or the knowledge side of craft training. However, hands-on skills development is still essential to the overall training needs of a craft worker. Hands-on skills development takes time and it is difficult to simulate and accelerate. Although a worker has gone through an accelerated program and likely will have a credential noting that completion, a contractor must recognize both the benefits and limitations of such programs and provide the craft worker with opportunities to gain experience that will develop their hands-on-skills.

## **Career and Technical Education**

The National Governors Association (NGA) Center for Best Practices published an article in 2007 which explained that “Traditional CTE programs, such as carpentry, which emphasized employment in a specific trade, are evolving into programs that now educate students for a range of careers in the broader construction industry.” The article continues, “Despite CTE’s past reputation as a less-demanding track, research proves that career and technical education engages and motivates students by offering them real-world learning opportunities, leading to lower dropout rates and greater earnings for high school graduates. When CTE courses incorporate more academic rigor, research shows that student achievement significantly increases.”<sup>43</sup>

With the “college-for-all” mentality of education, there is an increasingly large demand for high school students to focus solely on college pre-requisite, which prevents students from enrolling in elective courses such as construction trades. In a 2008 study by the American Youth Policy Forum, Betsey Brand writes “This broader mission is often lost in the debates on education and school reform that focus too myopically on getting students to pass a certain test or gain entrance into Ivy League colleges. While the benefits of college in terms of lifetime earnings, health, and civic participation are known, success in our economy and society isn’t limited to the attainment of a four-year college degree, and many well-paying careers do not require a bachelor’s degree.”<sup>44</sup> This narrow focus on college prep limits students’ opportunities to be introduced to the rewarding careers offered in the construction industry.

In 2007, NGA stated: “CTE, formerly known as vocational education, emerged in the 1920s as America transitioned from an agriculture-based economy into a manufacturing economy. The new science of measuring IQ also advanced the notion that intelligence was innate: Some students were tracked into manual-labor trades while others followed an academic curriculum and entered managerial

---

<sup>43</sup> NGA Center for Best Practices “Retooling Career Technical Education” issue brief, June 11, 2007.

<sup>44</sup> Brand, B. “Supporting High Quality Career and Technical Education through Federal and State Policy,” American Youth Policy Forum, 2008.

careers. Despite efforts to reform vocational education, with programs such as School-to-Work and Tech Prep, it continued to be perceived as a set of less-demanding classes taken by students who were not interested in or able to go to college. A strong vocational education system is again critical to a state's economic success, but it remains saddled by a second-class image. To combat this perception, leaders have changed the name to career and technical education. This name change has been anything but cosmetic. It signals the need to couple a rigorous academic platform with elective CTE courses that help students apply their knowledge. The new CTE is responsive to the demands of the innovation economy and grounded in the belief that the skills and abilities students need to succeed in college and careers are virtually identical. High school students now face multiple paths of study—some will follow a purely academic track, whereas others may choose a more applied course of study. Regardless, both pathways should help students develop the same set of knowledge and skills reflected in state standards.<sup>45</sup>

Typically, CTE aligns with one of sixteen nationally recognized career clusters. Career clusters contain occupations in the same field of work that require similar skills. Students, parents and educators can use career clusters to help focus education plans towards obtaining the necessary knowledge, competencies and training for success in a particular career pathway. The career cluster for Architecture and Construction includes all CTE programs that deliver construction craft training in the areas of designing, planning, managing, building and maintaining the built environment.<sup>46</sup>

According to the Association for Career and Technical Education (ACTE), CTE today provides students with:

- academic subject matter taught with relevance to the real world
- employability skills, from job-related skills to workplace ethics
- career pathways that link secondary and postsecondary education
- second-chance education and training
- education for additional training and degrees, especially related to workplace training, skills upgrades and career advancement.<sup>47</sup>

CTE is evolving, but not as fast as our industry needs it to. Students who depart secondary education grounded in CTE will be the future of the construction craft workforce. The construction industry needs to engage in promoting CTE at the local, state and federal levels. The construction industry also needs to reach out to education in every community to support and help guide CTE efforts.

## **II. FUNDING CRAFT TRAINING**

There are a variety of funding options available to implement craft training programs. These include cents-per-hour agreements, tuition, grants, scholarships and employer funding through direct budgeting and/or tax credits for hiring and training. When training in cooperation with education, there are additional funding options available as well. The most sustainable and successful training programs use a combination of all these strategies.

---

<sup>45</sup> See FN43.

<sup>46</sup> National Association of State Directors of Career Technical Education Consortium (NASDTEC)(<http://www.careertech.org/career-clusters/glance/careerclusters.html>)

<sup>47</sup> Association for Career and Technical Education (ACTE), CTE Information ([www.acteonline.org/cte\\_info.aspx](http://www.acteonline.org/cte_info.aspx))

## **Employer-Funded Training**

Many employers build craft training expenses directly into their operating budgets. They view safety and craft training costs as an overhead expense that they then factor into project overhead costs. On public works projects, a training investment by the contractor (typically tied to an apprenticeship program) may be required as part of the wage structure and benefits for apprentices. In the organized labor sector, training costs are included in collective bargaining agreements and are then passed on by contractors to owners through project agreements. Employers may also supplement their training dollars through grants and partnerships with education and workforce development agencies.

## **Work Opportunity Tax Credit (WOTC)**

The Work Opportunity Tax Credit (WOTC) encourages employers to hire from specific target groups of job seekers most in need of employment. This is an effective strategy for recruiting new people into the construction workforce and training them for sustainable careers. Employers gain qualified workers at reduced training costs through the tax savings generated from the federal WOTC. The maximum tax credit ranges from \$2,400 to \$9,600, depending on the employee hired.<sup>48</sup>

## **Cents-Per-Hour-Funding**

A long recognized method for funding workforce development activities is a cents-per-craft labor hour assessment. A third party that is typically a labor union, training provider and/or workforce development organization manages cents-per-hour funds. Collective bargaining agreements determine the cents-per-hour costs in labor environments. In most other cases, contractors either voluntarily contribute a predetermined amount per craft labor hour to an individual workforce development account maintained on their behalf or they participate under a local owner agreement. Cents-per-hour funds are strictly for activities related to training and workforce development.

NCCER provides a cents-per-hour funding mechanism through its National Training Services Agreement (NTSA). Participating contractors voluntarily contribute 16 cents-per-craft labor hour to an individual account that NCCER establishes and maintains for the contractor. Thirteen cents is available to the contractor for direct reimbursement of approved training and workforce development expenditures. Two cents support NCCER's operations, including development and maintenance of services and products. Recruitment and image enhancement activities, including the *Build Your Future* initiative, are supported by the final one cent.

## **Davis-Bacon Training Contributions**

The Davis-Bacon and Related Acts apply to contractors and subcontractors performing on federally funded or assisted contracts in excess of \$2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works. Contractors and subcontractors affected by the Davis-Bacon and Related Acts must pay their laborers and mechanics employed under the contract no less than the locally prevailing wages and fringe benefits for corresponding work on

---

<sup>48</sup> U.S. Department of Labor, Employment and Training Administration  
(<http://www.doleta.gov/business/incentives/opptax/>)

similar projects in the area. The Davis-Bacon Act directs the Department of Labor to determine such locally prevailing wage rates.<sup>49</sup> Some states, under the Davis-Bacon Act, require that contractors donate funds for apprenticeship training on a cents-per-hour model. These funds go to state and local apprenticeship offices, or to local association chapters and/or unions who provide the training.

## **Grants and Scholarships**

Workforce development organizations seek grants and scholarships to supplement the training costs for new and incumbent workers. Typically, grants and scholarships target specific training or workforce development needs. However, they offer students an opportunity to pay for their educations, while reducing or eliminating the costs contractors would typically pay to train new workers. There are an endless variety of workforce training and education grants available from federal, state, local and private sources. Often, the most difficult challenge for students is finding information on where and how to apply for these funding options.

## **Carl Perkins Vocational and Technical Education Act of 1998**

Reauthorization of the Carl D. Perkins Career and Technical Education Act (Perkins) occurred most recently in August 2006.<sup>50</sup> The purpose of Perkins is to provide individuals with the academic and technical skills needed to succeed in a knowledge- and skills-based economy. Perkins supports career and technical education (CTE) that prepares students for postsecondary education and careers. Federal resources help ensure that CTE programs are academically rigorous and up-to-date with the needs of business and industry. The federal contribution to CTE, about \$1.3 billion annually, supports innovation and expands access to quality programs. State and local funding supports the CTE infrastructure and pays teachers' salaries and other operating expenses. Federal funds provide the principal source for program improvement. Perkins Basic State Grant funds go to states that, in turn, allocate funds by formula to secondary school districts and postsecondary institutions. States must distribute at least 85 percent of the Basic State Grant funds to local secondary and post secondary CTE programs using either the needs-based formula included in the law or an alternate formula that targets resources to disadvantaged schools and students. States may reserve up to ten percent for leadership activities and five percent (or \$250,000, whichever is greater) for administrative activities. States also receive Tech Prep grants. States apply Tech Prep grants to Basic State Grant funds or to consortia of secondary and postsecondary partners that develop articulated pathways. State and local funds serve a variety of activities that include program improvement, strengthening integration of academic and CTE tracks, developing and improving curricula, purchasing equipment for classrooms, providing professional development and technical assistance for teachers, counselors and administrators, and supporting CTE student organizations. Current Perkins law allows for more state and local flexibility and raises expectations for students.<sup>51</sup> To avoid federal and state Perkins budget cuts, the industry must support CTE and Perkins in every community.

---

<sup>49</sup> See FN42.

<sup>50</sup> U.S. Department of Education, Aug. 2006  
(<http://www2.ed.gov/policy/sectech/leg/perkins/index.html>)

<sup>51</sup> ACTE (<https://www.acteonline.org/perkins.aspx>)



## **Workforce Investment Act of 1998 (WIA)**

On August 7, 1998, President Clinton signed the Workforce Investment Act of 1998 (WIA). The WIA reformed federal job training programs and created a new, comprehensive workforce investment system. The reformed system was intended to be customer-focused, to help Americans access tools to manage their careers through information and high quality services, and to help U.S. companies find skilled workers.

Through the One-Stop Delivery System, programs and providers co-locate, coordinate, and integrate activities and information, so that the system as a whole is coherent and accessible for individuals and businesses alike. The WIA provides financial power through individual training accounts, while simultaneously offering greater levels of information and guidance through the one-stop delivery system. All individuals have access to the one-stop system and to core employment-related services. At the one-stop, students have universal access to information about job vacancies, career options, student financial aid, and instructions on how to conduct a job search, write a resume or interview with an employer. The goal of the WIA is to increase employment, retention, and earnings of participants, and in doing so, improve the quality of the workforce to sustain economic growth, enhance productivity and competitiveness and reduce welfare dependency. Local Workforce Investment Boards and the Private Sector, in a coordinated effort, act as "boards of directors," focusing on strategic planning, policy development and oversight of the local workforce investment system. States and localities have increased flexibility – with significant authority reserved for the Governor and chief elected officials – to build on existing reforms in order to implement innovative and comprehensive workforce investment systems tailored to meet the particular needs of local and regional labor markets. Youth programs are linked more closely to local labor market needs and community youth programs and services, and provide strong connections between academic and occupational learning. The WIA establishes requirements that training program providers must meet in order to remain eligible to receive adult or dislocated worker funds.<sup>52</sup>

### **III. Assessment and Certification**

Many states and local jurisdictions require certification and/or licensing for certain crafts. Most certification and/or license processes require knowledge or written tests but do not use hands-on skills examination. Typically, these processes will require minimum experience qualifications along with other stipulations and verifications in order to sit for the exam. Once certified or licensed, annual continuing education or skills maintenance is required to retain the credential.

With the introduction of NCCER's National Craft Assessment and Certification Program (NCACP) in 2000, many contractors and organizations use the assessments to help them determine the qualifications of their workers. Successful candidates obtain certifications that are industry-recognized and portable. NCCER offers two levels of certification. The Knowledge Verified credential is issued to craft professionals who successfully pass a written assessment. Performance Verifications are used to determine hands on skills qualification. A craft professional who passes the written assessment and the Performance Verification is granted a Certified Plus credential, the highest credential in most crafts. All craft workers who take an assessment receive a "targeted," task specific training prescription that outlines strengths and deficiencies. Craft workers use the training prescriptions to upgrade their

---

<sup>52</sup> U.S. Department of Labor (<http://www.doleta.gov/programs/factsht/wialaw.cfm>)

competency levels. Contractors and training organizations use training prescriptions to offer task specific module-based training to elevate the competency level of their workers.

## **B. CRAFT WORKFORCE DEVELOPMENT BEST PRACTICES AND INNOVATIONS**

CURT's Construction Labor: Craft Employee Training Evaluation Tool (T-404) states that a comprehensive craft workforce development program must include recruitment, training, assessment, and retention.<sup>53</sup> Recruiting young people into our industry has been an important issue for many years. As the industry begins to recover, it will be especially important to focus on outreach to young people along with workers displaced from other industries, those seeking career changes and under skilled workers. To develop the most skilled workforce possible in the short term, training new and incumbent workers is essential. Assessment of incumbent workers who have experience but little documentation of training will be required to determine their competency level and provide task or upgrade training where deficiencies exist. To keep developing workers motivated and engaged, proven programs like skills progression incentives or programs that reward skill attainment will be an essential element of comprehensive programs. To retain the best workers, contractors and owners will need to be competitive in wages, benefits, working conditions and cultures, while providing opportunities for additional training and advancement.

This section will provide an overview of accomplished programs that exhibit innovation or best practices in one or more of the four key areas of craft workforce development that includes recruitment, training, assessment or retention. This is not a complete or comprehensive list but simply a sampling of outstanding programs to spark interest and awareness. Organizations ranging from trade associations, organized labor and government agencies to a nonprofit student organization have created a wide range of innovative programs. A summary of these programs follow:

### **SkillsUSA**

SkillsUSA is a not-for-profit career and technical education student organization that has more than 300,000 student members in 50 states and 2 territories. Students join the organization as an extracurricular program in high school and/or college and receive leadership and teamwork training to supplement their technical education. Students come together to compete at regional, state and national competition in their respective vocations, while also honing their leadership and professional skills through interviews and presentations. In addition to the potential achievement recognition, the competitions offer students a place to gather understanding of the skill demands employers expect of new employees while simultaneously connecting students with future employers. SkillsUSA serves many CTE vocations from medical and automotive technicians to hospitality and construction craft occupations. SkillsUSA is the leading CTE student organization in the country. For every program it supports, SkillsUSA has nurtured a strong link with industry representatives who support its mission and activities.<sup>54</sup>

---

<sup>53</sup> Construction Users Roundtable (CURT) "Construction Labor: Craft Employee Training Evaluation Tool (T-404)," 2006.

<sup>54</sup> SkillsUSA (<http://www.skillsusa.org/index.shtml>)

## **Job Corps**

Job Corps was created in 1964 under the Economic Opportunity Act. It was the Johnson administrations central program in the war on poverty. Its mission is to help young people ages 16 through 24 improve the quality of their lives through career and academic training. Job Corps has served more than two million young people and now serves approximately 60,000 youths annually at Job Corps Centers throughout the country. Job Corps offers career planning, on-the-job training, job placement, residential housing, food service, driver's education, basic health and dental care, a bi-weekly basic living allowance and clothing allowance. Some centers offer childcare programs for single parents as well. Besides career and technical training, the Job Corps program also offers academic training, including basic reading and math, GED attainment, college preparatory, and Limited English Proficiency courses. Job Corps provides career counseling and transition support to its students for up to one year after they graduate from the program. Of the Job Corps 12 CTE focus areas, construction craft training is one of the largest. Many Job Corps centers use NCCER resources for their construction training programs.

## **YouthBuild**

Like Job Corps, YouthBuild programs serve low-income young people ages 16 to 24 who work full-time for 6 to 24 months toward their GEDs or high school diplomas while learning job skills by building affordable housing in their communities. YouthBuild is a non-profit organization that provides education, counseling and job skills to unemployed young American adults who are generally high school dropouts. There are 273 YouthBuild programs in the United States, with a total capacity of about 10,000 students annually. Similar programs are underway in over 15 countries. The YouthBuild program has five components: construction, education, counseling, leadership, and graduate opportunity. Students spend every other week on a job site, learning the construction trade by building homes for their own communities. This creates housing for low-income people, and gives the students marketable job skills. The alternate weeks are spent on education in the YouthBuild classroom, with the goal of attaining a GED or completing their high school diploma. Leadership development, community service, and the creation of a positive mini-community of adults and youth committed to each other's success is an emphasis. At exit, they are placed in college, jobs, or both. The Department of Labor oversees YouthBuild. Along with the Department of Labor, private foundations, corporations, and individual donors provide funding. YouthBuild is an Accredited Training Sponsor of NCCER.

## **Construction Labor Market Analyzer (CLMA)**

The CLMA is a dependable and cost-effective solution over the traditional methods of forecasting and project labor planning. CLMA aggregates capital and maintenance project demand information, and craft labor supply data to produce a comprehensive understanding of craft labor supply and demand at the local, regional and national levels. That information is collected confidentially and directly from the source to ensure its accuracy and reliability. The CLMA enables users to graph predictive Labor Scenarios to help plan future projects; avoid labor shortages; reduce premium labor costs; improve productivity, quality and safety; and meet the project objectives reliably. Using the CLMA, the industry will be able to better predict shortages of craft workers and target recruitment efforts.<sup>55</sup>

---

<sup>55</sup> The Construction Labor Market Analyzer (CLMA) (<http://myclma.com/>)

## **Build Your Future (BYF)**

BYF is a well-known recruitment and image enhancement initiative. By leveraging the strength of BYF with the commitment and support of NCCER, its partners and the industry, grassroots career education, image enhancement and recruitment will be elevated to meet the challenges of building the current and future workforce. Since its inception in 1997, BYF has distributed over 2 million career videos, reached over 35 million students with construction career education, created the National Careers in Construction Week (CICW) that has been proclaimed in 40 States and the White House and has earned more than a dozen awards (including the 2006 CURT Workforce Development Award). BYF is a construction recruitment initiative connecting the industry to America's youth and displaced workforce with a mission to close the skills gap. BYF promotes career awareness and readiness through education and training. The campaign has developed award-winning recruitment videos, national advertising, student and instructor resources, construction career events, a Career Center (job board) website and many other valuable tools used by companies and organizations nationwide. BYF is a recognized campaign under the Choose Construction Initiative, which CURT, ABC and AGC supports and endorses.

## **GoBuild Alabama**

The Alabama Workforce Development Initiative (AWDI) was formed as a non-profit corporation to address the shortage of highly skilled construction tradesmen and women. Between an increase in demand for workers and a decrease in the perception of the industry, a crisis was forming. In order to fund a branding campaign to help enhance the image of construction and recruit younger people into training, AWDI partnered with the Alabama Construction Recruitment Institute (ACRI) as a pilot program. Under the leadership of AWDI and ACRI, the Go Build Alabama marketing campaign emerged successfully. The campaign is a partnership with CURT owners, union and non-union labor and training providers and contractor associations. Go Build was designed to educate young people on the value of learning a trade, dispel their misconceptions about the construction industry and inspire them to consider building a career as a skilled construction tradesman. Through this advertising, public relations and social media campaign, ACRI aims to provide better opportunities for construction tradesmen, more highly skilled employees for construction businesses and enhanced economic development for Alabama and the nation.<sup>56</sup>

## **Helmets to Hardhats**

Helmets to Hardhats is a national, nonprofit program that connects National Guard, Reserve, retired and transitioning active-duty military service members with skilled training and quality career opportunities in the construction industry. The program is designed to help military service members successfully transition back into civilian life by offering them the means to secure a quality career in the construction industry.

Most career opportunities offered by the program are connected to federally-approved apprenticeship training programs. Such training is provided by the trade organizations themselves at no cost to the veteran. No prior experience is needed; in fact, most successful placements start with virtually no experience in their chosen field. All participating trade organizations conduct three to five

---

<sup>56</sup> Go Build Alabama (<http://gobuildalabama.com/about/>)

year “earn-while-you-learn,” apprenticeship training programs that teach service members everything they need to know to become a construction industry professional with a specialization in a particular craft. And, because these apprenticeship programs are regulated and approved at both federal and state levels, veterans can utilize their Montgomery G.I. Bill benefits to supplement their income while they are learning valuable skills and receiving on the job training.

In 2007, Helmets to Hardhats supplemented its existing program with a disabled American veteran program known as the “Wounded Warrior” program, which serves to connect disabled veterans with employment opportunities in the construction industry and the careers that support construction.<sup>57</sup>

### **ACE Leadership High School-New Mexico**

Associated General Contractors-New Mexico Building Branch worked with the New Mexico Building Education Congress to provide the founding voices and seed money for the Architecture, Construction and Engineering (ACE) Leadership High School in Albuquerque. The founding of the school came out of a desire to improve perceptions about construction as well as to have an impact on the quality of students entering the construction profession. Students at the school “learn through the lens of construction,” being exposed to all academics through real construction projects that they visit and contribute to. The school emphasizes a broad academic curriculum where instructors are trained by and work with on-staff construction coaches who come with experience from the field. Upon completing various curricula, students receive an NCCER credential, validating their knowledge. The school even offers a re-engagement program that recruits prior high school dropouts and gives them the opportunity to go back to school in the evenings. However, the learning does not stop at the classroom or job site visits. Students are also paired with industry mentors who help them develop further leadership skills and understand the opportunities the students can strive for through education and training. With intentions to move the student campus to the same location as the chapter offices, AGC New Mexico is looking forward to more opportunities for students and future employers to interact on a daily basis. More than 90% of graduates are now working or pursuing further education.<sup>58</sup>

### **Louisiana Community and Technical College System (LCTCS)**

LCTCS developed a system of articulation agreements in order to create a more coherent secondary-to-postsecondary transition process, thereby reducing duplication of instructional efforts and minimizing costs associated with student mobility. Articulation agreements provide alignment of high school or secondary and post secondary curriculum, thereby awarding college credit to all students who meet given criteria. Working with the Louisiana construction industry and NCCER, LCTCS created articulation agreements using NCCER curriculum to facilitate craft workforce development in the state. Currently, Louisiana high schools can offer craft training and NCCER credentials in welding, carpentry and electrical. Students who take classes using the NCCER curricula can also earn college credit.<sup>59</sup>

---

<sup>57</sup> Helmets to Hardhats (<http://helmetstohardhats.org/about-us>)

<sup>58</sup> ACE Leadership High School (<http://aceleadership.org/>)

<sup>59</sup> Louisiana Department of Education, “Statewide Secondary to Postsecondary Articulation Agreement (AY2009-2010)”.

## **Alaska Construction Academies**

In 2006, Associated General Contractors (AGC) of Alaska, Anchorage Home Builders Association, Anchorage School District, Alaska Works Partnership, Inc., Alaska Department of Labor & Workforce Development and Cook Inlet Tribal Council created a construction workforce pilot project, the Anchorage Construction Academy.

A year later, state funding was obtained for the development of Academies in other communities, including Fairbanks, Juneau, Kenai, Ketchikan and Mat-Su. With additional funding from the Denali Commission, more Academies have also been established in several rural communities. Labor statistics show that about 1,000 new construction workers are needed each year in Alaska and the Academies offer a leg up to workers who want one of those jobs. Students get free training and help with job placement.

Approximately 70 percent of people coming out of the program are later employed, and the average income for those who took training at the Academies was \$750 higher per quarter than the general workforce.

The Academies also offer support to a program called “Women in the Trades.” These are two- or three-week-long intensive classes where women are introduced to various aspects of construction: carpentry, electrical, plumbing and welding, for example. The Academies trained more than 4,000 young adults in one or more construction-related classes, along with 500 receiving more specific hands-on training.<sup>60</sup>

## **ACT - National Career Readiness Certificate (NCRC)**

ACT's National Career Readiness Certificate (NCRC) is a portable credential that demonstrates achievement and a certain level of workplace employability skills in Applied Mathematics, and Locating Information, and Reading for Information. In the future, ACT Career Credentials powered by ACT WorkKeys is an expanding program that will offer certifications in other areas.

Individuals can earn the NCRC by taking three WorkKeys assessments:

- Applied Mathematics
- Locating Information
- Reading for Information

WorkKeys assessments measure "real world" skills that employers believe are critical to job success. Test questions are based on situations in the everyday work world.

Combining measures of cognitive skills with measures of work-related behaviors—or soft skills—brings even greater accuracy to predictions about an individual's success at work or in training. In addition to the cognitive skills listed above, the NCRC Plus ranks individuals in the following soft skills categories:

- Work Discipline: Productivity and dependability

---

<sup>60</sup> Alaska Construction Academies (<http://www.alaskaca.org/>)

- Teamwork: Tolerance, communication, and attitude
- Customer Service Orientation: Interpersonal skills and perseverance
- Managerial Potential: Persuasion, enthusiasm, and problem solving

NCRC offers the efficient matching of talent with work—which helps people find great jobs, companies find skilled workers, and promotes economic growth. Today, more than 1 million certificates have been issued and more than 40 states have statewide or regional certificate programs.<sup>61</sup>

### **Mississippi Construction Education Foundation (MCEF)**

The Mississippi Construction Education Foundation (MCEF) is a coalition of construction associations joined together in 1996. The Board of Directors includes nine major trade associations including Associated Builders & Contractors, Associated General Contractors, Asphalt Association, American Subcontractors, Manufacturers Association, Concrete Industries Association, Road Builders Association, Southern Brick Institute and the National Association of Women in Construction. The mission of MCEF is to promote careers, recruit capable individuals, and train a quality workforce for the construction industry in the state of Mississippi.

The state’s construction industry requested the Mississippi legislature to increase commercial construction licensing fees and dedicate the increase to the construction education fund [CHB260] to be used for construction and craft training. This fund is the major source of funding for the foundation. The foundation is an NCCER Accredited Training Sponsor, and MCEF and the Mississippi Department of Education (MDE) have established a partnership that utilizes NCCER curricula. MCEF’s regional directors work with all high school career and technical education programs in the state. The foundation has grown over the years and provides training for four (4) categories of students including high school CTE, apprenticeship, skills upgrade and outreach to train or retrain people wanting to change careers. MCEF currently offers NCCER training and assessments in 11 different crafts.<sup>62</sup>

### **NCCER**

Over the last 20 years, NCCER has emerged as a leading provider of critical workforce development resources across a wide spectrum of organizations and delivery models. NCCER is a nonprofit education foundation headquartered in Alachua, Fla. and affiliated with the University of Florida’s Rinker School of Building Construction. NCCER was created specifically to address the critical workforce shortage facing our industry and to build awareness of rewarding construction career opportunities. NCCER’s processes offer industry, education and government entities consistent guidelines for delivering quality training, an industry-driven standardized curriculum, uniform quality competency testing, portable, industry-recognized credentials and outstanding career education and recruitment resources. As the accrediting body for the industry, NCCER establishes and enforces the benchmark for quality training. Working in partnership with industry and academia, NCCER has developed a system for program accreditation that is similar to those found in institutions of higher learning. This accreditation process ensures that students receive quality training based on uniform standards and criteria. With the combined support of industry and academia for standardized training and credentialing, a curriculum that started with five basic crafts in 1996 has evolved to over 60 craft

---

<sup>61</sup> ACT (<http://www.act.org/products/workforce-act-national-career-readiness-certificate/>)

<sup>62</sup> Mississippi CEF (<http://www.mcef.net/>)



training programs and a complete series of more than 70 assessments. In addition, a safety emphasis exists throughout every craft training program and in individual career preparation and advancement programs for safety management, crew leadership, supervision, women's leadership and project management programs.

NCCER depends on a network of nearly 700 accredited training sponsors, more than 350 accredited assessment centers, and over 4,500 training units to train and certify craft professionals according to industry-based standards. To ensure uniform and consistent delivery of training, all NCCER master trainers, instructors, and proctors train and certify through the NCCER Instructor Certification Training Program (ICTP). This provides the best teaching and mentoring possible to individuals in all stages of their construction careers. Through this process, NCCER certifies the Master Trainer. In turn, the Master Trainer certifies the local Craft Instructor. A typical Craft Instructor is a journeyman craft professional or career and technical educator trained and certified to teach NCCER's standardized curriculum. This network of certified instructors ensures that NCCER training programs meet the standard of instruction set by the industry. There are more than 4,500 Master Trainers and nearly 50,000 Craft Instructors within the NCCER network.

NCCER's standardized curriculum is developed and maintained by leveraging the journey-level craft experience and instructional experience of Subject Matter Experts (SMEs) who represent a variety of geographic regions, companies, schools, training organizations and trade associations. Through this process, the curriculum also sets or aligns to national skill standards. The curriculum's modular structure provides flexibility for task training and when clustered, the modules form levels that support annual craft training and apprenticeship models. Each level of the curriculum aligns with apprenticeship and on-the-job standards set by the Department of Labor's Office of Apprenticeship. The modular format also gives contractors, training organizations and instructors the flexibility to teach the curriculum in the order that best fits their needs. Before students receive credit for training, they must satisfy both written and performance evaluation components for each module. Through the delivery of standardized craft training programs, education and training organizations offer trainees the critical competencies demanded by the construction industry for high skill, high wage jobs. NCCER has provided the industry with wide access to credible, quality training programs and the potential capacity to train large numbers of trainees annually.

### **CURT Workforce Development Awards Program**

CURT endorses the NCCER as the primary resource for establishing training curriculum, performance standards, skills assessment and certification in the open-shop sector. CURT continues to recognize and support a robust apprentice and journeyman training in the union sector and encourages the increased use of apprentice craft professionals on job sites. To recognize the achievements of those who are making substantive progress in the area of workforce development, CURT has established the Workforce Development Awards Program, which annually honors and recognizes contractors and allied organizations with significant achievements in these important areas. The basis of the CURT program came from long standing models for workforce awards developed by organizations like the Houston Business Roundtable and the Greater Baton Rouge Industry Alliance.



## **SECTION 3: BARRIERS AND CHALLENGES IN CRAFT WORKFORCE DEVELOPMENT**

### **A. Resources for Craft Workforce Development**

Contractors are competitive by nature; they do not want to incur an expense that helps their competitor. Short-term payback (single project) on training is difficult to measure, although recent studies have shown positive gains on projects as short as eighteen months with regard to improved safety performance, decreases in absenteeism, turnover, rework and increased productivity. Even though most industry executives intuitively believe there is a positive, if not substantial, return on their investment in training; they still, and have historically, looked at training as an expense. They believe their investment in training a worker will only benefit the next contractor who employs that individual. This shortsightedness has caused skilled craft professionals to diminish over time. Historically, expert craft professionals – through on-the-job interaction and mentoring – handed down many skills utilized by the next generation. Over the last 30 years, as fewer individuals have followed relatives into the industry, this practice has progressively diminished and, conversely, the need for formal classroom and laboratory training has increased. The retirement of employees from the Traditionalist and Baby Boomer generations has made replacing them solely through on-the-job experience impossible. Skills degradation has been gradual over the last 30 years. Contractors are able to compete with each other because the playing field is level, with everyone drawing from the same labor pool but getting workers with ever-decreasing skills. They are making profits, and perceive any significant investment in training as more likely to help their competitors than themselves. Owners are paying the higher cost for the loss of skills, and ultimately that cost is passed on to the owners' customers.

The construction industry is cyclical. The demand for skilled workers rises and falls with the tides of the economy. Prior to the downturn in 2008, the scarcity of skilled workers was painfully apparent. To meet demands, overseas workers were imported. Training did find some roots, but after the downturn, craft workers were plentiful, even if their skills were not up to industry standards. All consideration for the benefits of training vanished with this temporary surplus of workers.

Similarly, in the early eighties, the bottom fell out of construction. In 1979, the going hourly rate for a Class 1 Pipefitter was \$13.50. The wage plummeted to \$12.50, then \$11.50 (and even \$10.50 with some contractors) as supply overcame demand. It took ten years for the wages to return to \$13.50. However, real wages fell over the 10-year period to an equivalent \$6.00 in 1979 dollars. Construction had a mass exodus of talent during the 10-year period.<sup>63</sup> Along with retirements, workers with the most "snap" left the industry in an attempt to maintain their standards of living. The need for training became increasingly evident starting in the mid 80's to the present date. Training has increased but has not been able to keep pace with the need for skilled workers. Importing labor from foreign countries became a necessity in the mid 2000's. The downturn of 2007 has left the industry vulnerable to another potential mass exodus of talent. How many workers will have permanently left the construction industry and will not return as it recovers? With high unemployment, what will be the political acceptability of importing skilled workers? Craft workforce development will be more critical than ever in a recovering construction industry.

To add to this, today most craft training is conducted on a voluntary basis. This means workers, even though it would benefit their overall competency and skills, are not mandated or paid to

---

<sup>63</sup> Slaughter, J. "The Short-Sightedness of the Open Shop Contractor," 2011.

participate in training. Without a robust skills progression program that pays workers for skills attainment, it is increasingly more difficult to recruit workers into training. This assumes that wages, benefits, working conditions and company cultures are competitive enough to retain workers once they receive training.

One of the greatest obstacles to implementing a quality training program for any organization is lack of funding. Contractors fear they will lose jobs if they include the cost of training in their bid packages. Trade associations cannot establish or implement training until they have a commitment from contractors to support and pay for training. Schools fear that enrollments will not meet expectations, which directly affects funding. Most training programs are funded either by charging students tuition or by collecting contributions from employers based on hours worked. A few programs are funded by a combination of both. In some areas, open shop formal training programs are funded through cents-per-hour voluntary contributions from owners and contractors into a local training fund, although this occurs much more infrequently than in the union sector. Most training programs in the unionized section of the industry are funded through cents-per-hour contributions established in a collective bargaining agreement. In most cases, open-shop apprentices often pay for all or a portion of their training (BRT, Report D-4, 1982).<sup>64</sup>

Today, the industry has the capacity to conduct quality craft workforce development that will greatly improve the skills shortages that are diminishing its productivity. What is lacking is the broad industry-wide commitment from owners and contractors to craft workforce development.

On a related front, CTE programs have replaced the old Industrial Arts programs, or shop classes. At both the secondary and postsecondary level, CTE programs are evolving to meet industry's standards. Education in general is not placing enough emphasis on these programs, choosing instead to continue pushing the higher education track. The lack of emphasis on CTE programs has contributed to a 31 percent national dropout rate and poor career preparation for the 75 percent of the high school graduates who do not attain four-year college degrees.<sup>65</sup> Our nation's schools must reemphasize CTE programs and the construction industry must engage in the political process to push this need. CTE will be a significant part of craft workforce development in the years ahead but this valuable resource will not be available if we do not force significant changes today.

## **B. Industry Image**

The generally negative public perception of the construction industry is largely self-inflicted. There are roughly 500,000 contractors in the USA. It is estimated that the top 20 percent of these contractors do 80 percent of the work, touch the most workers and, in general, set many of the standards of practice for the rest of the industry. Unfortunately, only the top 5 to 10 percent of these contractors are committed to doing the right things with respect to image enhancement and craft workforce development. Whether you are a large, medium or small contractor, this scenario applies in that only a small percentage of those contractors at the top of each category are committed to craft workforce development.

---

<sup>64</sup> Business Roundtable, "Training Problems in Open Shop Construction: A Construction Industry Cost Effectiveness Project Report (Report D-4)", 1982.

<sup>65</sup> See FN23.

The objective of CII Task Force 200: Attract, Recruit, and Retain Construction Leaders (2003-2004) was to provide recommendations that would stop the loss of construction professionals in the industry. The research conducted 272 in-depth interviews with college students and employees from 24 owner, engineering and construction firms across the U.S. The research found that the most important attraction and retention factors are competitive compensation and benefits. Following closely behind were better career path definition, continuing education and training opportunities, greater coaching/mentoring, and better recognition for a job well done.<sup>66</sup> It is commonly believed that the main reasons craft workers leave the industry include undesirable, relatively low pay and benefits, the generally poor image of the construction industry and its workers, unclear career paths in construction, and the transient nature of construction work.<sup>67</sup> These factors are supported by the findings of the survey of CII research project RT-135. The research listed poor pay and benefits, the need for a permanent job, poor safety, poor treatment and poor working conditions as top five reasons causing workers to leave the construction industry.<sup>68</sup> The study also identified the key activities to retain workers including:

- **Conduct a needs assessment to train workers on a continuous basis.** The survey found that successful contactors conducted needs assessments on projects and trained their workers in needed skills. They viewed training as something that is done continuously to sharpen craft worker's skills and to make qualified workers available.
- **Conduct supervisory human relations training.** The survey found that training can build workers' skills and increase their self-esteem, satisfaction with their job and help retain them in the workforce. Even union workers were given additional training to build skills to provide them the right tools at the right times to keep them engaged in meaningful work.
- **Tie documented wage progression to skills.** Wage progression tied to skills gives workers an incentive to build skills while also building their self-esteem.
- **Give long-term preferential treatment to tenured employees.** The preferential treatment includes benefits, relocation packages, and training.
- **Inform employees of project progression.** The survey found that successful contractors not only inform their workers of job progress but also ask for feedback to get the job done quicker at lower costs.
- **Emphasize the community side of construction.** Company newsletter, picnics and other events can help employee feel more a part of the company and of the construction community.<sup>69</sup>

In 1990, the Construction Industry Workforce Foundation (CIWF) commissioned a study on perceptions of youth regarding construction in 1990. It identified the dichotomy in young people's views between the concepts of "construction" as an industry and "construction worker" as an occupation. Construction was seen as making important contributions to society by creating shelter, business, roads and jobs, but the construction worker was seen as being associated with dirt, sweat, obscenities, loafing and low prestige. For non-college bound youth, careers in the military or law enforcement are respectable while working in construction is merely a paycheck. According to the CIWF study, young

---

<sup>66</sup> CII "Attracting, Recruiting, and Retaining Top Quality Construction Leaders/Managers," 2005.

<sup>67</sup> Construction Users Roundtable "The Skilled Construction Workforce Shortage," and "CURT Workforce Development Survey Results," 2001.

<sup>68</sup> CII "Attracting and Maintaining a Skilled Construction Workforce," 1999.

<sup>69</sup> CII "Attracting and Maintaining a Skilled Construction Workforce (Research Project RT135)," 2000.

people believe that construction work is boring and lacking opportunities for advancement, employment is unstable, workers are expendable and construction historically excludes minorities and women.<sup>70</sup>

Since this study, perceptions of the industry have not changed. According to a survey conducted by RIDGID, a leading supplier of professional grade tools, only 6 percent of high school-age respondents saw themselves having a career in construction. The survey identified the opinions and attitudes of the 94 percent of high school students who were uninterested in pursuing careers in construction. The following attitudes and perceptions are barriers to the industry in attracting the next generation of skilled craft professionals:

- Perceived lack of knowledge of the industry—21 percent of student respondents claimed they would not consider a career in the skilled crafts because they knew very little about the industry.
- Assumptions regarding need of mechanical skills or innate ability to fix things—25 percent of students cited they were not interested in working in the skilled crafts because they are not mechanically inclined, while 24 percent say they are not good at fixing things.
- The assumptions above suggest that the students believe the skills used in the construction industry are not learned, but rather are innate qualities that cannot be improved or developed. This is problematic as Millennials are concerned with learning and building on new skills.
- Perceived lack of opportunities—15 percent of students would not consider a career in the skilled crafts because they believe there are very few opportunities available to them in construction.
- 54 percent of young people believe there is a better future working in computers than working in skilled crafts.
- This data suggests that high school youth believe there are limited opportunities for career advancements, relatively low salaries, and less-than challenging work in the construction industry. This is problematic as Millennials are looking for rapid career advancement, competitive salaries, and skill development, as well as meaningful and fulfilling work.
- Construction is perceived as un-cool—25 percent of young people believe skilled craft jobs are old-fashioned.
- 11 percent of students were not interested in construction careers because they do not think crafts are cool.
- 10 percent of students were not interested in construction careers because they believe the industry is not high-tech.
- Construction is not viewed as a prestigious industry—37 percent of young people believe working in an office is more respected than working with your hands.<sup>71</sup>

The image of the construction industry is not the only factor in this generation's lack of interest in a career in construction, the pathway through a four-year university degree is the perceived way to success, while those not attending college are thought to be less successful in life. However, students who receive some post-secondary training or a professional certificate can and do find success. In *Pathways to Prosperity*, a report from the Harvard Graduate School of Education, they state, "27 percent

---

<sup>70</sup> Construction Industry Workforce Foundation, 1990.

<sup>71</sup> RIDGID survey, 2009.

(<http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a1UYvWLy6qjo>).

of people with post-secondary licenses or certificates ... earn more than the average bachelor's degree recipient." CTE is one of the many different routes to success, especially for technically oriented students. There are countless examples of successful business owners and executives in the construction industry who have each chosen their own paths to success through career and technical education, apprenticeship programs and/or four-year degrees. Regardless of the starting point, the construction industry offers limitless education and career opportunities to those wishing to achieve their career goals. Pathways to Prosperity also stated, "The 'College for All' rhetoric that has been so much a part of the current education reform movement needs to be significantly broadened to become a post high school credential for all." In addition, "A narrowly defined 'college' for all goal- one that does not include a much stronger focus on career-oriented programs that lead to occupational credentials- seems doomed to fail." Last, "We fail these young people not because we are indifferent, but because we have focused exclusively on a few narrow pathways to success."<sup>72</sup>

The construction industry is a major contributor to the economy. Despite many positive contributions, the industry suffers from a negative image. The negative image associated with construction workers discourages young people from joining the industry. It is essential that our industry gain an understanding of the reasons for our negative image and explore possible means by which these traditional perceptions can be changed, promoting a positive image of the industry.

Construction has an image synonymous with high cost, low quality, chaotic working practices and a poor health and safety record. The construction industry is seen as tedious, dirty, non-technical, nonprofessional, hazardous, cyclical, and associated with difficult working conditions.<sup>73</sup>

For an industry, its members can only create the image. Conversely, its image can only be changed by its members through interactions with stakeholders, users and the general public. Contractors must take responsibility for ethical behavior, improving wages, benefits, working conditions and the general quality of life of the workforce. Through work practices and outreach, local communities must view their resident contractors favorably and contractors must be viewed positively in the communities where they perform work. The improvement of the image of the construction industry will depend on the industry's commitment to promoting quality, effective management practices, safety and workforce development at all levels.

### **C. Owner Participation and Commitment**

Since the owners are the ultimate beneficiaries of craft workforce development, and owners pay for the lack of training through the costs of low productivity and poor quality, they should invest in it. The 1997 Business Roundtable report, *Confronting the Skilled Construction Workforce Shortage—A Blueprint for the Future*, stated, "Owners should only do business with contractors who invest in training and maintain the skills of their workforce." In 2004, the Construction Users Roundtable (CURT) updated this report and made the recommendation stronger: "As they did with safety, owners should require contractors to invest in training and maintain the skills of their workforce as a condition of employment." It further stated, "Individual contractors must recognize the necessity and benefits of

---

<sup>72</sup> See FN38.

<sup>73</sup> Reid, J. "Challenges for the Construction Industry," *Construction Business Review*, 1995.

training their employees and be willing to invest in it . . .”<sup>74</sup> However, many owners still believe it is solely the contractors’ responsibility to deliver a qualified and competent workforce, and many contractors avoid putting the cost of training into their bids for fear of losing the project. This is especially an issue in the open shop sector of the industry. Collective bargaining agreements mandate that training funds be collected for every worker hour in the organized sector, and many owner construction representatives are not even aware of the amount. In contrast, open shop contractors must always negotiate the training amount to be included in the project, and if approved, it is always significantly less than their union counterparts are.

Twenty years have passed since The Business Roundtable (BRT), as sponsor of the Construction Industry Cost Effectiveness (CICE) Project, first spoke out on the training problems in open-shop construction. A 1995 BRT publication advanced many of the ideas contained in this publication. It outlined the dangers facing owners and contractors due to the potential for craft shortages and the lack of a consistent training delivery method. The publication also addressed the lack of commitment to training by other than a small minority of the major contractors. BRT urged owners to recognize that they have a vested interest in ensuring that contractors bring qualified, skilled workers to their project sites. Therefore, training costs are part of the contractor’s cost of supplying services to the owner and the contractor should be entitled to compensation to cover those services. Many owners prefer to have contractors base their prices on both the direct and indirect costs (plus a reasonable profit) of delivering a quality product, that meets the owner’s needs. The costs a contractor incurs for providing a skilled, safety-conscious workforce should be invisible to the owner. It is the contractor’s responsibility to determine how to do this in the most cost-effective manner to remain competitive and keep their customers—the owners—competitive. Owners, however, need to recognize in their procurement practices the value of the increased productivity a skilled workforce provides.

Undoubtedly, what prevents many companies from investing in training is the lack of a clear, well-defined business case to justify their efforts. In 2007, CII conducted a landmark study, *Craft Training in the United States and Canada*, with the goal of quantifying the business case for craft training. In support of this objective, the study compiled and analyzed an unprecedented amount of data characterizing craft training efforts throughout the United States and Canada. The research found that most of the surveyed companies conducting training were not measuring the effectiveness of their training efforts. Other findings of the study included:

- **Significant benefits to craft training can be achieved through sufficient sole project efforts.** Survey and industry data indicates that a positive B/C ratio can range from 1.3:1 to 3.0:1. The benefits increased with the craft workers’ duration in a training program.
- **Offering meaningful training can help attract and retain craft workers to companies and the industry.** In addition to the tangible benefits of increasing a craft worker’s salary, training also improves a craft worker’s job satisfaction.
- **Craft training is where safety was years ago.** When owners became more involved in construction safety, the industrial construction sector witnessed significant improvement. Likewise, there is evidence that shows similar improvement in craft training is possible when the owner becomes involved and mandates craft training and certification.

---

<sup>74</sup> Business Roundtable “Confronting the Skilled Construction Workforce Shortage — A Blueprint for the Future,” 1997.

- **Most companies do not measure the effectiveness of craft training, but it can be done.** Suggested metrics for training results include improvements in absenteeism, turnover, productivity, safety, and rework.
- **Owners are paying for training on union projects, but rarely pay for training on open-shop projects.** On union projects, it is an accepted requirement that training/apprenticeship cents per hour contributions are paid by owners and contractors. Although there are instances where formal training programs are funded through cents per hour contributions in the open shop sector, it is relatively rare. Unfortunately, on many open shop projects, owners question why they should be funding the training and why it should not simply be considered the contractor's responsibility to provide a qualified work force.
- **The benefits to training do not occur at once.** Some of the training payoffs occur immediately, such as improved safety, reduced absenteeism and reduced turnover. Others will take more time to allow an increase in craft skill, such as increased productivity and reduced rework. While these benefits produce tangible results, perhaps the most important benefit is the development of skilled craft workers to meet future demands.

To help increase craft training efforts throughout both countries, CII RT 231 developed the following recommendations:

- Owners should require craft training and certification on larger projects
- Owners who have plants in areas where industry is concentrated should require training on all construction and on-going maintenance projects (e.g., U.S. Gulf Coast)
- Contractors should provide comprehensive employment packages that include competitive wage, training, and benefits
- Contractors need to participate in an established, confidential database on training certifications (e.g., NCCER)
- Measuring the benefits of training should be common
- Owners should mandate craft certification under common training standards
- Support CURT's workforce development recommendations

In an effort to address one of major recommendations of the 2007 CII study, the CURT Workforce Development Committee created the Contractor's Workforce Development Assessment to evaluate and provide a qualitative metric that would consistently and fairly represent a contractor's commitment to workforce development. Owners and contractors intend this tool for use in the pre-qualification phase of the contractor and subcontractor selection process. A validation pilot of the CWDA was recently completed and the metric will be officially rolled out later in 2013. According to CURT's Construction Labor: Craft Employee Training Evaluation Tool (T-404), "the effectiveness of craft employee training programs should be a key criterion in both the prequalification and the final selection of contractors, just as contractor safety, quality, and schedule are key selection criteria."<sup>75</sup> The CWDA will assist owners in this selection philosophy. CURT, NCCER, AGC, ABC and organized labor supported the CWDA's development.

Owners must take the lead on driving training and education. The most effective and long-lasting changes in the industry are changes that are supported and encouraged by the owner community. Owners also need to be actively involved in efforts to improve the image of the construction industry and to recruit and retain workers. CURT believes that owners must:

---

<sup>75</sup> CURT, "Construction Labor: Craft Employee Training Evaluation Tool (T-404)," 2006.

- Recognize the necessity of investing in training.
- Establish expectations in the areas of workforce training and development, workforce recruitment, and worker retention.
- Only do business with contractors who invest in training and maintain the skills of their workforce.
- Make contractor commitment to craft training a factor in the prequalification process.
- Evidence of support for the continued updating and improvement of apprenticeship training and journeyman upgrade training in the union sector.
- Support the NCCER initiatives as one approach to standardizing training curriculum, performance standards, and certification in the open-shop sector.
- Provide proactive leadership and support for the development and implementation of craft training programs at the regional and local levels.
- Develop, in conjunction with research entities such as the Construction Industry Institute (CII), improved methods to measure the effectiveness of craft training and delivery.
- Provide proactive leadership and support for contractor, contractor association, and labor union programs that enhance the image of careers in construction, improve the recruitment of entry-level applicants, and increase worker retention.<sup>76</sup>

Active owner involvement is critical to changing the landscape of craft workforce development in the construction industry.

## Call to Action

The growing gap between the demand for and supply of skilled craft professionals is a major problem facing the industry. The latest projections indicate that, because of attrition and anticipated growth, the industry will need to recruit 185,000 new workers annually for the next decade to meet the expected need. Unfortunately, demographics and poor industry image are working against the construction industry as it tries to address this dilemma.

Decades of assembled research and factual data overwhelmingly acknowledge that this workforce shortage has become the industry's biggest current and future challenge. As the evidence presented in this paper suggests, owners and contractors must be willing to commit to and invest in craft workforce development, to include high-quality CTE programs and industry-recognized training programs. Industry support of efforts to promote a reemphasis of CTE in secondary and postsecondary schools throughout the nation will be a key component in training the next generation construction workforce. Moreover, support for organizations that develop craft training that both meets industry standards while providing craft professionals with increased earning potential and opportunities for skills development is paramount. Research has shown that effective craft training programs improve workforce productivity and safety, and reduce absenteeism, turnover and rework rates.

In addition, stakeholders must make efforts to improve the public image of the industry and educate potential entrants about the availability of well-paying careers in construction. Recruitment programs must include image enhancement and outreach to students who either have not considered or been provided with the right information to consider construction as a viable career path. The

---

<sup>76</sup> CURT "Confronting the Skilled Workforce Shortage (WP-401)," updated June 2004.



needed results can only be achieved when industry and education work collaboratively to improve both the quality and quantity of such initiatives.

As discussed herein, owners must take the lead in driving training and education by requiring contractors to demonstrate a commitment to craft workforce development as a condition of employment. Newly developed metrics like the CWDA can be instrumental in facilitating such owner mandates by providing an objective measure of contractor commitment to training. Owner adoption of policies that promote workforce development and retention (e.g. mandating craft training) can have a tremendous positive impact on the industry's recruitment and retention efforts.

The construction industry as a whole must address these critical issues now to prevent them from becoming overwhelming and unmanageable. The approaches and best practices described in this report would help make significant headway in expanding the skilled craft workforce enough to meet current and future needs. To accomplish this goal, owners, contractors, organized labor, educators and government must be active participants in the solution, not merely spectators.

!

!  
!#\$%&'()\*+,-./01!  
2.034-05!6.(710!!#8\$9  
:;\$88;#<8=!>!#:\$;9"::\$9=≠  
?33\*!(!)!