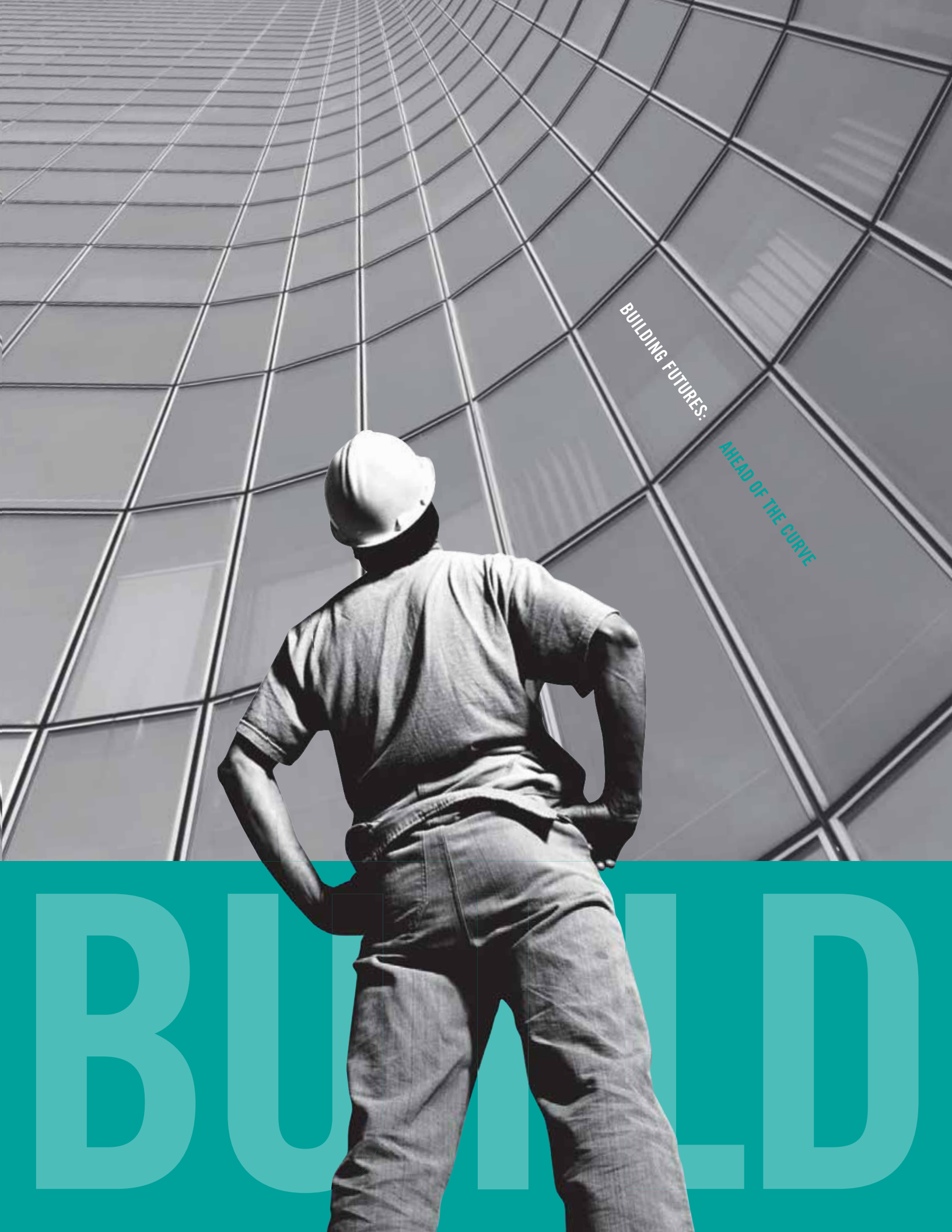
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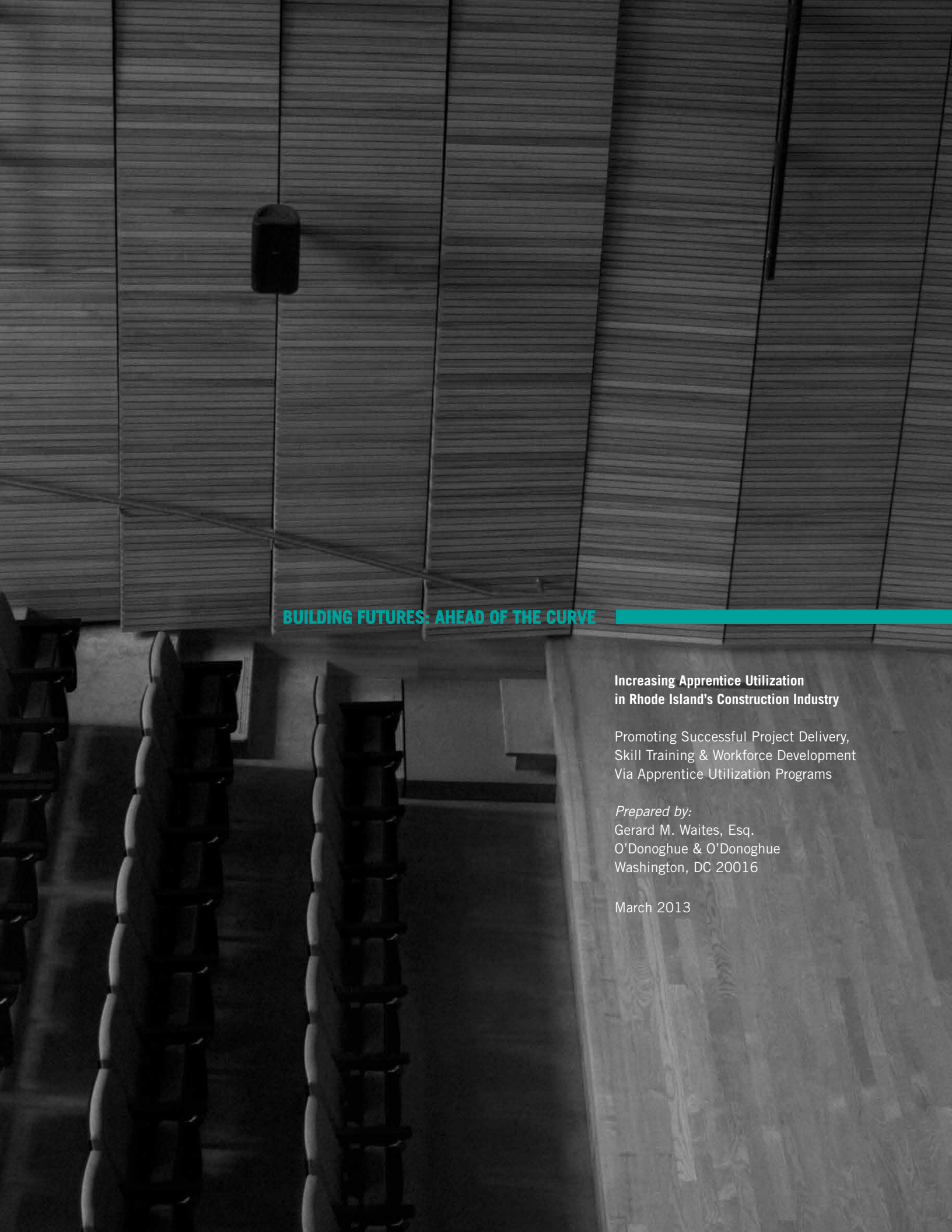

# BUILDING FUTURES: AHEAD OF THE CURVE

**Increasing Apprentice Utilization in Rhode Island's Construction Industry**

Promoting Successful Project Delivery, Skill Training & Workforce Development Via Apprentice Utilization Programs

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## CONTENTS

Building Futures provides recruitment, hands-on training, education and other workforce readiness services necessary to place qualified candidates into construction apprenticeship programs throughout the state.


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## INTRODUCTION

Building Futures is a non-profit, community-based organization created to bring systemic change to Rhode Island's construction industry. Our goal is to help the construction industry meet future skilled workforce needs while simultaneously creating good jobs and valuable training opportunities for Rhode Island residents, especially low-income and economically disadvantaged individuals.

Launched in 2007, Building Futures provides recruitment, hands-on training, education and other workforce readiness services necessary to place qualified candidates into construction apprenticeship programs throughout the state. We also promote workforce development policy designed to address the needs of industry contractors and project owners. Our work in these areas has been encouraged and rewarded by strong support from state and local government, educational institutions, private corporations and foundations, as well as labor and community groups.

The purpose of this briefing book is to provide critical information to the Rhode Island construction industry regarding the need for skill training and future workforce development and the most effective strategies for addressing these challenges. Due to changing market and demographic conditions, this is a vital issue for all industry stakeholders. Rhode Island, along with virtually all of North America, can meet these challenges by using a pro-active strategy that significantly expands investment in and commitment to apprenticeship training programs, the industry's most effective and time-tested skills development strategy by any objective measure.

This briefing book demonstrates that this solution can be best effectuated through the adoption of *Apprentice Utilization Programs* (AUPs), where project owners use bidding specifications that overlay apprenticeship training requirements on their selected contractors. We believe that the expansion of high quality apprenticeship training programs in the construction industry is good for business, good for government and good for local communities and we are proudly helping to develop this model as a leading workforce development strategy and solution for Rhode Island.

Thank you for taking the time to review this report. We hope you find the information helpful in building a better construction industry for Rhode Island.

**Andrew L. Cortés, Director** | Building Futures

## EXECUTIVE SUMMARY

Extensive evidence set forth in this report demonstrates the commonsense recognition that shifting market conditions have created serious challenges in supplying the skilled workforce necessary to support the construction industry. This second edition of *Ahead of the Curve* expands on the prior edition's discussion of the growing skills gap in construction and the positive results of adopting *Apprentice Utilization Programs (AUPs)* to address this problem. The report shows how the growing use of AUPs, including those in Rhode Island, offers the most viable solution for effectively promoting skill training and serves the best interests of all major stakeholders, including project owners, contractors and workers. Another important point developed in this edition is that AUP initiatives provide a valuable tool for countering an alarming decline in labor productivity, which is occurring in construction due to the failure of the industry to ensure an adequate level of skill training.

**Confronting the Crisis**

As the construction industry plows ahead into the 21st century, there is much work to be done. Literally hundreds of billions of dollars of new construction is needed across the country and tens of billions here in Rhode Island. Buildings wear out and population growth drives demand further. In addition, prior to the Great Recession, there was a tremendous amount of pent-up construction work on the books. This has not gone away; the backlog has just grown deeper. As the economy recovers, demand for skilled craft labor will intensify (and will do so to an even greater degree than predicted in the first edition of *Ahead of the Curve*).

The problem is, the supply side of this equation is also in trouble, crisis actually. The mass retirement of baby boomers, predicted for years, is underway and the industry is witnessing the exodus of a vast pool of talent, know-how and experience. What's worse, the industry is not ready for either of these factors, let alone both. It's generally unprepared to train an entire new generation of craft workers in the increasingly complex skills needed in the 21st century construction market. And, since most trades require three to five years of intensive training, lead time is essential for workforce development in this industry.

Due to these demographic and market changes, the industry's most respected experts uniformly predict not only severe, imminent skill shortages, but continuation of a precipitous decline in craft labor productivity that has already been occurring due to decreased training. Hand in hand with these issues come related problems with quality, cost, safety and other concerns triggered by inadequate skill supply.

**Charting a New Course**

Starting from the premise that these issues are vital to the construction industry, especially as it moves into the future, this briefing book:

1. Examines the critical role of craft labor in construction project delivery and the growing importance of this role due to changing market and demographic conditions;
2. Demonstrates the need for the industry to address pressing challenges in developing an adequate level of skill training and craft labor supply to meet future demand; and
3. Reviews effective strategies that offer important advantages for meeting these challenges.

While the challenges the construction industry faces are serious, they are more daunting for states that have failed to take action. While the construction industry in Rhode Island still needs to expand skills training considerably, it has taken several concrete steps to begin addressing this problem and has implemented effective workforce strategies in a number of areas. Due to new industry partnerships, for example, a number of public and private institutions have adopted AUPs over the last several years as a method to promote greater skill training. These include governmental agencies, such as the City of Providence, and institutional partners like Brown University and Providence College, as well as private sector owners such as Blue Cross/Blue Shield, CVS Caremark and Hasbro, among others. In addition, the Rhode Island General Assembly passed landmark legislation in 2008 that began to address apprentice utilization for all state-funded construction projects over $1 million.

These examples, plus substantial additional information gathered in this report, demonstrate that AUPs provide a reliable tool for ensuring that participating projects are staffed with qualified labor, while also promoting effective workforce development needed for the future. Our goal is for AUPs to become the dominant practice in Rhode Island as this strategy promotes the interests of all industry stakeholders, including project owners, contractors and workers, as the second edition of this report conclusively shows.

CHAPTER 1

## CONSTRUCTION WORKFORCE CHALLENGES AND COST OF INACTION

### The Critical Role of Craft Labor in Construction

Many factors must be considered when planning capital facility construction, including financing, design, permitting, delivery methods and source selection of architects, engineers and contractors. However, a critical factor often overlooked in this process is the importance of *construction craft labor.*

This can be a major mistake. First, construction is a highly labor intensive industry. Second, construction relies on multiple, diverse high-skill trades (electricians, pipe fitters, carpenters, etc.). Third, the availability of qualified craft labor is affected by a general decline in skills training over the last several decades and a corresponding decline in labor productivity, coupled with serious, imminent skills shortages predicted for the future.

For these reasons, when developing and planning new projects, project owners and other stakeholders should address several key questions regarding craft labor resources, including:

1. How will the project be staffed? Will the craft labor supply sources be adequate and reliable?
2. What level of skill training and safety training will craft workers deployed to the project have and will it be sufficient to meet the project demands?
3. Have parties responsible for the project taken the necessary steps to ensure sufficient quality control over craft labor issues and avoided risks posed by improper staffing?

Thus, under any circumstances or market conditions, the role of craft labor is critical to the success of any capital facilities project and as such is not something project owners should leave to chance. It is, in fact, an area over which effective quality control can and should be exercised. As shown below, the most effective means for achieving quality control is for the project owner to adopt AUP requirements in its bid specifications. If there is any doubt this is necessary, the remaining information in this chapter and the next should be carefully considered.

### Construction Skill Shortages: an Industry Crisis

There is no question the U.S. construction industry is facing a craft labor skills shortage. At least three new major reports have been issued recently, from top industry sources, warning that a crisis is at hand and that action is critically needed to address this challenge. Nationally, industry experts fear that a labor shortage will make it impossible to respond to the backlog of demand for construction.[1] A 2012 Construction Labor Market Analyzer study, *Projected Demand for Craft*

There is no question the U.S. construction industry is facing a craft labor skills shortage. At least three new major reports have been issued recently, from top industry sources, warning that a crisis is at hand and that action is critically needed to address this challenge.

*Labor for the Southeast United States (2012–2017)*, highlighted that the construction industry faces a national skills shortage in the near future.[2] Similarly, McGraw Hill Construction's 2012 report, *Construction Industry Workforce Shortages: Role of Certification, Training and Green Jobs in Filling the Gaps*, indicated that a nationally aging workforce and inadequately trained younger generation of workers are contributing to a skills shortage throughout the U.S. construction industry.[3] *The 2013 U.S. Markets Construction Overview*, FMI Corporation (2012) and *2013 Dodge Construction Outlook*, McGraw Hill Construction (2012) make similar findings.

The McGraw-Hill Report underscored significant industry anxiety over future workforce shortages, with two-thirds of the industry reporting concern.[4] Nearly half of general contractors expect difficulty finding experienced craftworkers by 2014.[5] Respondents anticipate that specialty trades will experience the highest shortage levels.[6] Specifically, respondents indicated that the loss of knowledge and experience due to retirement and layoffs will reduce the number of skilled workers available.[7] Furthermore, fifty-six percent of specialty trade contractors believe that the "next generation" of employees will receive "inadequate education" essential to entering the workforce.[8]

In addition, the McGraw-Hill forecast predicts "a real burst of construction start activity" as early as 2013.[9] From 2013 to 2015, the amount of commercial building is expected to increase from 10% to 25% per year in current dollar terms.[10] Naturally, the boost in construction activity will cause an increase in labor demand.[11] With large numbers of workers leaving the industry during the recession and the expected retirement of baby boomers, "the combination of workers lost due to economic conditions and the aging demographics of the workforce could have serious implications in the face of a healthier construction market in as few as two years."[12]

This is a crisis that has been brewing for decades. Throughout the 1990s and 2000s, there was clear consensus that craft labor shortages was the single biggest concern to the industry. The Great Recession merely masked the problem temporarily. Now, as the industry begins to revive itself, the problem is right back front and center and bigger than ever. As the new studies show, the increased scope of the problem is due to several factors, including: a) realization of mass baby boomer retirement previously predicted; b) new construction driven by new needs, plus significant pent-up work put on hold during the recession; and c) the severity of the prior recession forcing a great number of workers, who won't be returning, to look for work outside the industry.

Like all markets, construction is subject to the law of supply and demand. As demand outstrips supply, the cost of labor will increase. In addition, given the overall decline in skills training, the quality and reliability of craft labor will also decrease. The result: project owners will not only have to pay more, but will get less – less productivity, less on-schedule work, less safety. These challenges are real and will only grow more acute with each passing month and year.

**Decline in Skills Training Driving Decline in Productivity**

At the 2010 Annual Conference of Construction Users Roundtable (CURT), Dr. Shyam Sunder, a senior official with the National Institute of Standards and Technology (NIST) and Vice President of the International Council for Research and Innovation in Building and Construction, revealed an alarming fact: construction has the *lowest productivity of any non-farm industry.* This low productivity is primarily the result of a precipitous and dangerous decline in skills training throughout much of the construction industry over the last several decades, as revealed by a recent NIST research report (discussed below).

Generally, this means that in every successive year, with every new project, facility owners face an increasing risk that the contractors undertaking their projects may lack adequate craft labor, which in turn threatens all key aspects of project delivery. Moreover, unless corrective action is taken immediately, the steep decline in training and productivity will be greatly compounded by future skills shortages driven by shifting demographics and related industry dynamics.

Worker productivity in the construction industry has been an issue of pressing concern for years. For instance, a recent study by the National Institute of Standards and Technology (NIST) of the U.S. Department of Commerce, *Metrics and Tools for Measuring Construction Productivity: Technical and Empirical Considerations*, found that over the past 40 years, labor productivity in construction has actually trended *downward* at an average annual rate of -0.6 percent.[13] This statistic is even more troubling when construction labor productivity is compared to other industries. The NIST report reveals that labor productivity in all non-farm industries has increased at an average annual rate of 1.8 percent over the same time period.[14]

The root of this problem, the study finds, is the shortage of skilled workers in construction. The report bluntly notes that "[o]ne of the greatest challenges facing the construction industry is its ability to attract and retain qualified workers. This is underscored by the fact that shortages of skilled workers continue to plague the construction industry."[15] As far back as 1996, a survey of the Business Roundtable found that 60 percent of its members reported a skilled labor shortage on construction projects.[16] The industry routinely cited labor shortages as its "Number 1" problem before the recent downturn in construction markets.[17] Over the last several decades, the skilled workforce has gradually been shrinking relative to the overall size of the industry.[18] As older skilled workers increasingly leave the job force, their younger, less-experienced counterparts are being neither recruited nor trained in sufficient numbers to maintain skill and productivity levels.[19]

The NIST study also recognized that the challenge of passing on skills and knowledge to a new generation of construction workers is "compounded by the decline in training programs."[20] The study notes that "typically, training programs are funded by both owners and contractors through union and collective bargaining agreements. While open shop [non-union] training programs exist, they tend to be rare."[21] Construction contractors that hire union workers benefit from "well-designed apprenticeship programs specific to [the union's] trade."[22] Data from the past forty years has shown

that "[w]ith the decline of union membership and collective bargaining agreements, training programs and the number of apprentices also have declined."[23]

NIST also found that the problem of staffing projects with skilled construction workers has resulted in higher costs for project owners and greater schedule delays.[24] It cautions that the challenge posed by a shortage of skilled workers is only projected to grow worse in future years as new employment opportunities open up in the construction sector.[25]

Years of underinvestment and neglect of skills training has led to a serious, steady decline in productivity and construction quality (just ask a quality control inspector to compare craft labor today to 40 years ago). On the other hand, the limited segments of the construction industry which regularly invest in skills training achieve better performance. As the National Institute of Standards has commented:

> Craft training benefits project financial performance by increasing the craft workers' average duration on a project and reducing turnover. Craft training also benefits individual workers by increasing their skills and knowledge, income, and job satisfaction. It is also essential for providing the skilled labor the industry needs.[26]

An often overlooked fact about the construction industry is that the quality of craft labor can play a pivotal role in successful project delivery. Construction is a highly skilled, highly labor intensive industry. Labor is the second highest cost component after materials. In addition, given its transient, seasonal and demanding nature, when compared to other industries, new entrants can be difficult to attract.

Significantly, the NIST study concluded that effective training is not only the best way to increase labor productivity, but also essential to attracting young people to the industry to meet workforce development challenges of the future.[27]

Project owners and others who purchase construction services have a vested interest in making sure there is an adequate craft labor workforce available in the market – in terms of both supply and skill levels. Craft workers must be educated with proper training and skills in each of the appropriate trades. What's more, training workers in the construction trades is not like other industries. Construction projects are not simple manual labor jobs where workers can be hired off the street. The workforce must instead be trained, on average, for three to five years due to the highly skilled nature of the industry.[28]

In the wake of the Great Recession, slow construction markets over the past several years have only temporarily masked the skills crisis confronting the industry. The key trends detected by the NIST study – the declining investment in skills training, the corresponding drop in productivity, and the forecasted mass retirement of baby boomers – should be a wake-up call to the entire industry.

**Need to Rebuild Rhode Island's Construction Workforce**

Rhode Island is no exception to this national trend. Notably, Rhode Island experienced construction-worker shortages prior to the recession.[29] With the imminent retirement of baby boomers, Rhode Island must respond to further labor shortages. Addressing the issue of looming lack of skilled labor, a new report by the Rhode Island Governor's Workforce Board notes that:

> In the coming decade great swaths of our workforce will retire, in larger proportions than in almost any other region of the USA, taking with them their skills and knowledge. [Consequently, the] most significant contraction of human resources in nearly a century has the potential to undermine the most vital sectors of our economy.[30]

Construction is one of these vital sectors at risk. A Building Futures study prepared in 2008, *Skills Gap Analysis: RI Construction Trades*, found that: "[t]he impending retirement of the baby boom generation could dramatically reduce the pool of skilled construction journey-workers."[31] Three years later, *RI Construction Industry Trend and Forecast Plan*, a study conducted by Community Economic Futures, concluded that "Rhode Island is on a path to experiencing shortages of trained journey-level workers as baby boomer retirements accelerate and the economy recovers."[32]

According to the *Forecast Plan* study of the Rhode Island construction industry, the state has "a need for new labor entrants to replace workers leaving the construction industry."[33] Consider these findings from both the former Governor's 2008 Strategic Workforce Plan and the Community Economic Futures' *Forecast Plan*:

- Rhode Island suffers a net out-migration of young, single and college educated residents. Between out-migration of the young and low population growth, the Rhode Island workforce is quickly aging, even faster than the national average.[34]

- Large numbers of people are losing their jobs (especially from the manufacturing sector and are unemployed, yet a large number of employers can't find qualified applicants.[35] This is due to the fact that applicants lack requisite qualifications for these jobs.

- Looking at historical retirement rates in the construction industry, an estimate of 3,400 to 3,900 retirements from the Rhode Island construction industry will likely occur by 2020.[36]

- Rhode Island is on a path that will fall short of training sufficient apprentices to replace retiring journeyworkers from the baby boom generation in five to ten years.[37]

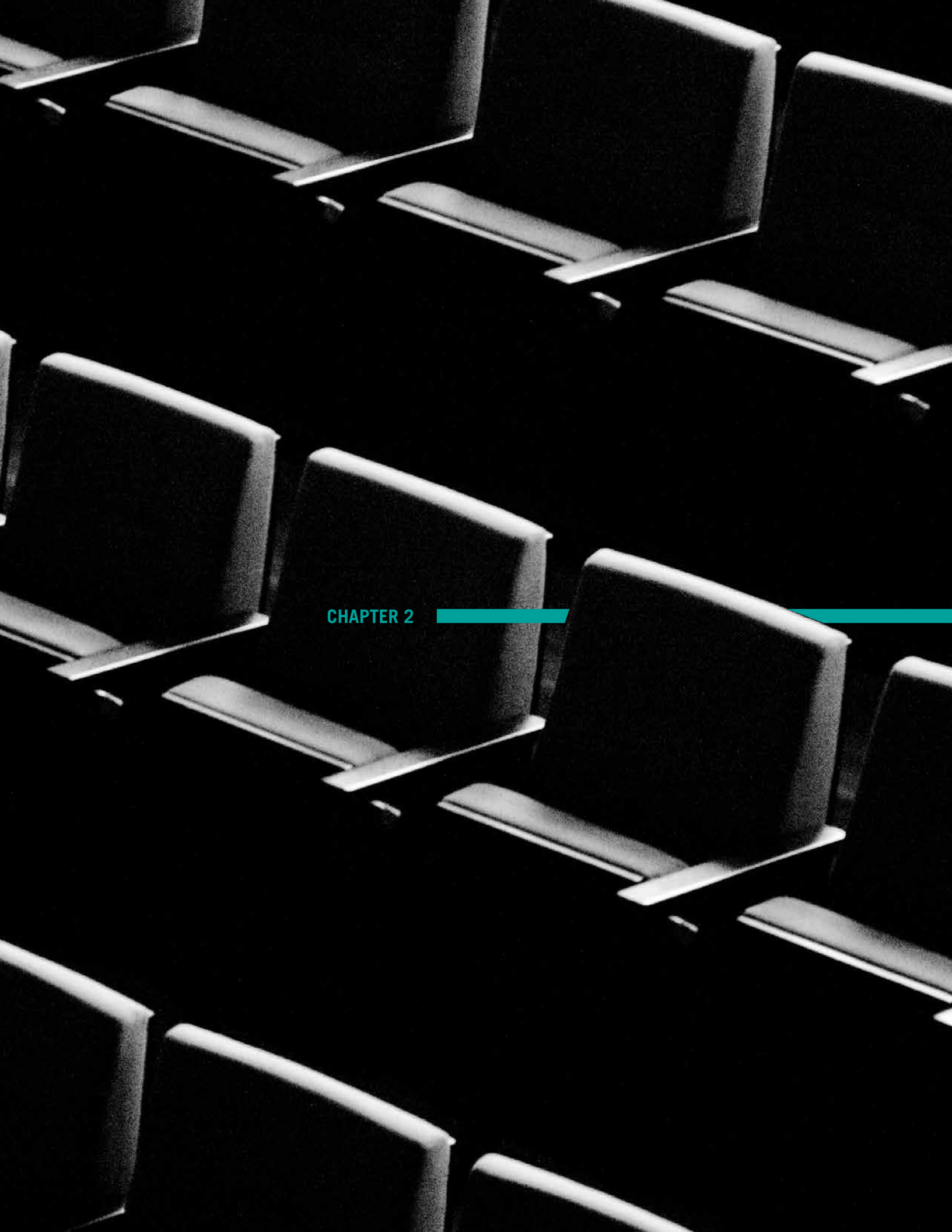
- The industry is currently unprepared for these challenges. The *Forecast Plan* report estimates that "[t]he status quo has uneven participation in apprenticeship programs by employers and openings for apprenticeships have emerged as a critical bottleneck in the training pipeline."[38]

The industry locally and nationally is failing to deliver the level of craft labor it needs. As one commentator lamented:

> Workforce development issues have been discussed for decades in construction. Blue Ribbon task forces have been convened, dozens of conferences have been held and large amounts of data have been compiled with little if any tangible improvement. Shortages of skilled labor continue to head the list of concerns among contractors, according to the Construction Financial Management Association's upcoming annual survey.[39]

Given the current state of the construction industry workforce and the changes that have occurred over the last several decades, there is no question that a great deal of training needs to be done to rebuild skilled labor supply for the future, both nationally and in Rhode Island. Forward thinking and proactive planning to address this challenge is vital for the long term, or project owners face the worst of all worlds when purchasing craft labor in the construction market. They will pay higher wages to recruit from a smaller pool of available skilled workers or get less from a larger workforce lacking the requisite skills.





CHAPTER 2

## REVIEWING THE TRAINING OPTIONS: DO VIABLE SOLUTIONS EXIST?

Experience has shown that leaving this issue to the market to address does not work. Yet further inaction will jeopardize the industry as a whole, particularly the interests of project owners. Since there is little room for debate as to *whether* new training needs to occur, the remaining question is: *How* will this goal be accomplished? This section focuses on the options available for addressing this challenge.

**Relying on Market Forces Will Not Solve the Problem**

Waiting for the market to solve the problem is a familiar course for construction industry stakeholders, and has led to the current crisis. It presupposes that the market can be relied on to correct imbalances in the demand for and supply of training merely by creating incentives. This, of course, has not happened for a number of decades.

One substantial reason, well known to industry stakeholders, is the "free-rider" problem; those who want others to train the skilled workforce needed, instead of addressing the issue head on. While stakeholders, particularly contractors, *know* that the industry needs training, they individually lack appropriate incentives to provide it. This individual lack of incentive flows from the nature of the industry itself.

Construction work is inherently short-term and transient. An individual worker's employment with a particular contractor will be limited to a single project before taking his or her skills and experience to a new project, often for a different contractor and a different project owner. Contractors are understandably reluctant to invest in training for workers only to see them move on to possible competitors who contributed nothing to their new employees' training. The unionized sector avoids this problem by establishing multi-employer apprenticeship programs supported through joint labor-management training funds, but these only account for a limited share of the market. Whether union or non-union, when apprenticeships are sponsored collectively by a group of employers, an apprentice can continue his or her training seamlessly from project to project and contractor to contractor. The sponsoring employers share the responsibility of training the next generation of craft workers, without undermining each other's efforts. The majority of the industry does not coordinate on training, especially not to the large scale required to solve such an enormous challenge. Thus, the gap between the demand for training and the supply of training has been growing ever wider.

Contractors are also deterred from investing in training because of the day-to-day competitive pressure of low bid procurement models. Training is among the costs that are represented in a contractor's bid. It is to a contractor's short-term advantage to eliminate these costs in order to lower a bid and undercut the competition. When coupled with the general disincentive to invest in transient workers, this short-term competitive pressure overpowers the larger, long-term needs for training in the industry. Thus, reliance on market forces has not worked, and is unlikely to work going forward.

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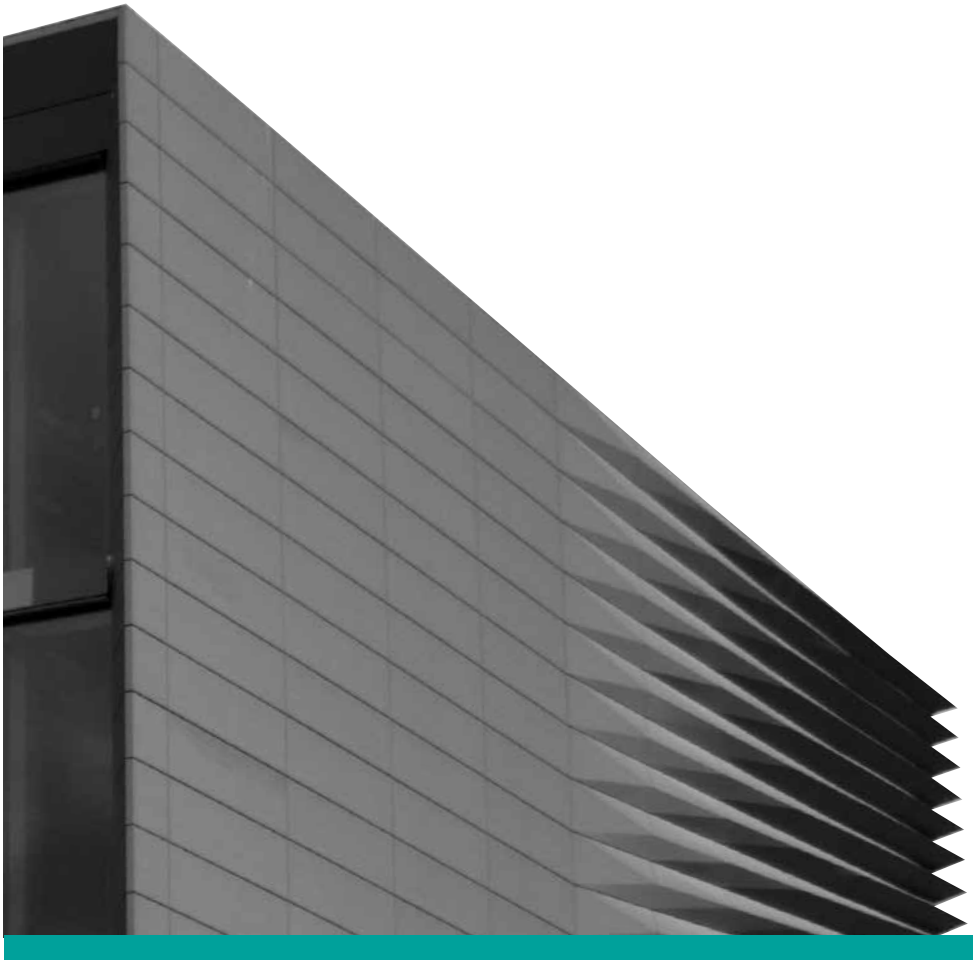

**Voluntary Training by Contractors Has Proven Unsuccessful**

Training programs in the construction industry have declined in recent years because a growing share of projects were awarded to contractors who neither invest in nor commit to formal apprenticeship training programs. At one time, collective bargaining agreements successfully mandated contractor contributions to apprenticeship training programs. Alternatives to this model have largely proven unsuccessful. One industry report explains this trend as follows:

> At the national level, the non-union Associated Builders and Contractors (ABC) has attempted to replicate the union system of bargaining for hourly contributions to a training fund. It is difficult, however, to induce ABC's member contractors to include general training costs in their bids. Each contractor fears that his competitors will not include training costs. Thus, in an attempt to be the low-cost bidder, ABC contractors often refrain from including training costs despite the ABC initiative.[40]

CURT made similar findings, noting that the "cents-per-hour voluntary contribution method" for open-shop training has largely failed. After all, owners have no way to verify that contractors are directing funding to training.[41] The "community college" model for construction training has also proved to be a disappointment. For example, only 27 percent of general contractors reported that they found community college programs, such as vocation & technical programs, useful as an employee training mechanism.[42]

**Government-Sponsored Training Programs Are Inadequate**

While some segments of the construction industry have hoped that the public sector, through government funded workforce development or educational programs, could step in and train the construction workforce of tomorrow, this solution is unlikely. While the government sets standards and provides some oversight of apprenticeship programs, it lacks the technical expertise, understanding of industry conditions and drive to innovate necessary to operate and/or fund appropriate training programs. There are a number of practical reasons to believe that government would be ineffective in doing so, even if it could.

One practical impediment to government-administered training programs is that government does not have the time or the resources to support construction training programs to the degree required. For example, the U.S. Department of Labor's Office of Apprenticeship is charged with overseeing registered apprenticeship programs and enforcing standards for over 1,000 recognized apprenticeable occupations. This Office does not have the resources to run the construction industry's apprenticeship programs and keep them up to date. Indeed, as the Administrator of Apprenticeship for the U.S. Department of Labor, John Ladd, during a discussion with the federal Advisory Council on Apprenticeship admonished stakeholders of his Office's priorities for 2011, "we…have to recognize that moving forward we're moving into a period of austerity here, that budgets are going to be extremely limited and tight and it's unlikely that we're going to be looking at adding new staff or adding new resources in the coming months. So the resources we have are the resources we're hoping to hold onto, but it's going to be a challenging environment moving forward."

Similar funding constraints militate against the establishment of state-administered programs in Rhode Island and other states as well. In its 2012 Biennial Plan, the Rhode Island Governor's Workforce Board admitted that existing job-placement programs "are facing funding cutbacks and are struggling to do more with fewer resources."[43] Rhode Island's workforce development programs rely primarily on federal funds.[44] With American Recovery and Reinvestment Act (ARRA) funds ending, the Governor's Workforce Board anticipates that the state will lose $2.5 million in federal workforce development funding in 2013.[45] The state's two workforce boards report that they can only fund pre-employment training for two to three individuals per week.[46] Simply stated, Rhode Island cannot afford to fund viable apprenticeship programs for the construction industry.

**One Viable Solution: Training Requirements Imposed by Owners**

As discussed in detail in the next Chapter, owner-driven reforms offer the most viable solution for addressing the skills gap issues and producing a safer and more productive industry. These reforms are as simple as making skills training a part of owners' contractor prequalification procedures or other mandatory contracting specifications.

Unlike the "wait for the market" option, the owner-driven approach addresses the free-rider problem by requiring all contractors to participate in a skills training program as a requisite to performing the project work. In addition, unlike the government funded training programs, registered apprenticeship training uses industry expertise and does not require government funding, extensive lobbying, or politicking to keep it afloat.

Most importantly, unlike other options, there is compelling evidence from the industry suggesting that owner-driven reforms for skills training will be successful. CURT stressed this point in *Confronting the Skilled Construction Workforce Shortage*:

> Not that long ago, safety on construction sites was a matter of choice—contractors either chose to invest in improving safety or chose not to invest. Those who recognized the moral obligations and the financial benefits of performing work safely were the most successful. However, it took the owner community to really make safety a top priority. When owners made safety a condition of employment, everyone benefited. And when safety became a requirement, there were no discussions of how to pay for it. The owners knew that any costs incurred to ensure safety was more than offset by the savings incurred on reduced insurance premiums and productivity.
>
> Like safety, training is both essential and cost-effective long term. And 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. That approach could ensure that contractors make training a priority.
>
> Project owners have a unique opportunity to ensure the future well being of the construction industry for decades to come by making real and genuine efforts now to implement viable skills training programs.

NEXT PAGE **HUNTER LAB**

Owner-driven reforms offer the most viable solution for addressing the skills gap issues and producing a safer and more productive industry.

CHAPTER 3

## INDUSTRY-DRIVEN SOLUTION FOR ADDRESSING SKILLS GAP

### Skill Training Requirements Mandated by Project Owners

Many strategies have been attempted over the years to address the skills gap – from trying to improve construction's image to increasing traditional and non-traditional recruitment efforts to relying on different "public" options – but few have shown progress. Further, it's often difficult for various industry stakeholders to agree on a single plan of action. Yet, a review of existing literature on the issue shows that a wide-ranging consensus has finally evolved for one proposed reform – requirements by project owners that all contractors seeking business participate in quality bona fide skill training programs.

This particular reform encourages project owners to take direct control over the skills issue themselves and demand training take place – a solution which ensures both that craft workers brought to owners' jobs will have requisite skills and that future supply issues will be properly addressed.

Because of the high return on investment from training, many industry experts advocate that project owners address this skills crisis by implementing critical changes in their contracting and procurement policies to require, as a condition of bidding or performing work, that contractors and subcontractors provide effective skills training to their craft workforce. Owners can include skills training in contractor prequalification procedures or otherwise stipulate this condition as a mandatory specification in contracting documents.

Reform is needed because most project owners do not currently require craft labor training in their prequalification or other contracting policies. As a result, no consideration is given to this issue in the contractor qualification and selection process. Moreover, history shows that most contractors will not voluntarily commit to apprenticeship programs or other skills training; if they would, there would not be such a pressing need to train a whole new generation of workers.

**Consensus Recommendation: Skill Training As a Bid Specification**

Given both the short- and long-term advantages offered by this strategy, building skill training into contractors' bid specifications has attracted wide support from leading industry authorities. Indeed, variations of this policy have been advocated by an impressive line-up of industry associations, government agencies and experts as evidenced by the following:

1. Business Roundtable: Confronting the Skilled Construction Workforce Shortage (1997)
2. Associated General Contractors Model Contract Language (1999)
3. CURT Report: Confronting the Skilled Workforce Shortage (2004)
4. CURT/ABC Prequalification Committee Statement (2005)
5. FMI Inc. Consulting Market Survey (2005)
6. McGraw Hill/ENR Industry White Paper (2007)
7. CURT National Conference Presentation (2011) [47]

Such consensus is rare on a major issue but, as demonstrated below, virtually all stakeholders endorse the inclusion of training requirements in project prequalification requirements.

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**1. Business Roundtable Skills Shortage Report (1997)**

In an industry report titled *Confronting the Skilled Construction Work Force Shortage—A Blueprint for the Future*, the Business Roundtable addressed staffing concerns from its members and developed strategies for the future. After finding that over 60 percent of its members surveyed encountered shortages of skilled labor on construction projects, the group ultimately recommended that project owners only do business with firms that "invest in training and maintain the skills of their work force."[48] The group underscored the need for owners to examine training investments, because contractors may have programs only "on paper" without any real efforts to provide meaningful training.[49]

**2. Associated General Contractors Model Contract Language (1999)**

The Private Industry Advisory Council of the Associated General Contractors advised construction purchasers to include craft training as one of the owners' key selection factors. Like the Business Roundtable, the Council also recommended that owners examine the specific types of training a contractor provides, the sources of the contractor's training and the amount of funds the contractor has invested in training.[50]

**3. CURT Skill Shortages Report (2004)**

In an industry white paper titled *Confronting the Skilled Workforce Shortage*, the Construction Users Roundtable (CURT) categorically recommends that project owners mandate that contractors provide skill training to their craft labor force and require this as a matter of prequalification. Specifically, in its *Recommendations for Owner Companies*,[51] CURT, widely recognized as the premiere construction owner trade association, states as follows:

> 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 . . . . CURT believes that owners must:
>
> - Recognize the necessity of investing in training
> - Establish expectations in the areas of workforce training and development . . .
> - 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 . . . [52]

Having recognized the coming storm in the craft labor market, CURT forcefully advocates that project owners "prequalify contractors on the basis of skill training and maintain high qualifications for their craft labor force." [53] This policy should be applauded for its foresight and embraced throughout the industry.





**4. CURT/ABC Workforce Initiative (2005)**

The issue of workforce development has attracted support from diverse groups within the industry. In fact, the specific policy of prequalifying contractors on the basis of skill training has even been endorsed by the Workforce Development Committee initiated by CURT and the Associated Builders and Contractors (ABC). Reporting on this issue in its journal, CURT noted that "the CURT/ABC Workforce Initiative Team established a position requiring prequalification of construction contractors based on training development programs."[54]

**5. FMI Construction Market Overview (2005)**

Noting that "[l]abor is still the second highest direct cost item for most construction projects," FMI Management Consulting, a highly respected information source in the industry, stressed the need to develop conditions that lead to better labor productivity on the job site, including owner requirements for skill training, in its annual market report.[55] To this end, FMI counsels owners to help drive changes needed for future workforce development. Specifically, it recommends:

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> Construction owners might well provide some of the leadership toward a broader and better trained workforce by supporting the notion of the craft worker certified in their skills. It may take owner requirements of a certified workforce to drive construction companies to the same effort that OSHA has required in safety since the early 1980s. Even insurance companies might join the support team by providing preferential underwriting to projects that employ a certified workforce. Should the insurance industry develop training metrics as a profound element in underwriting surety, G/L or even workers' compensation coverage, contractors would find a way to fund essential training.[56]

**6. McGraw Hill/ENR White Paper (2007)**

In an industry white paper titled *Solving the Construction Industry Workforce Crisis – Ideas for Action*, McGraw Hill/ENR summarized key recommendations from leading industry groups brought together for a special construction industry summit on skills shortages held in 2006.[57] This paper highlights the need for reforming procurement policy in the industry, stating that "[o]wners can help influence contractor behavior through contracting language." It explains that project owners should:

> Develop alternative procurement strategies to avoid bidding on cost alone. Such approaches could allow firms to raise wage rates and invest in better training because they will be less pressured to provide low bids.[58]

Explaining these recommendations at the National 2006 CURT Conference, Mr. Stephen Jones, a senior director for McGraw Hill, stressed the following points in support of the white paper's advice:

- Owners can mandate their contractors have and use training programs
- Project owners [should take a] leadership position and reward bidders with training programs

Mr. Jones also emphasized the need to pay higher wages and invest in training for craftsmen so firms won't be as pressured to under-bid projects.[59]

**7. CURT Tripartite Initiative Workplace Attitudes Owner Responsibilities (2011)**

In 2011, CURT publicized recommendations from its tripartite initiative, a working group that developed recommendations for multiple construction industry stakeholder groups. The initiative emphasized that "all stakeholders rely on each other"[60] in order to promote a healthy construction industry. Under its recommendations for project owners, the tripartite initiative included a responsibility to include a craft training program as part of labor prequalification requirements in order to ensure competence in the workforce.[61] The initiative also recommended that owners make these requirements explicit in their contracts. These recommendations are warranted in light of several presentations at CURT's annual conference in 2011, which underscore the continuing need for a commitment to training programs as a response to the ongoing skills gap in the construction labor force.[62]

**Implementing Consensus Recommendation: A Growing Trend**

Historically, project owners have concerned themselves very little with craft labor issues, letting the market take care of such issues. As this document has illustrated, that approach has helped lead to the current skills gap. A strong consensus is developing to urge project owners to take an active role on craft labor issues. These recommendation are gaining acceptance as project owners have begun to implement various types of skills training requirements, including apprenticeship utilization programs, in contracting and procurement policies.

Implementing these owner-driven reforms means that all construction firms seeking to bid or perform work for a project owner would be required to prove that they participate in bona fide skills training programs. This allows the owner to obtain assurances that craft workers deployed on its project have proper training and meet minimum skill levels. It also promotes substantial contractor investments in craft training programs – investments desperately needed by the industry that are not being made anywhere near the level required.

The growing list of examples of such practices indicates the birth of a new trend where owners are demanding and specifying that contractors provide qualified craft labor resources as a requirement of bidding and performing projects. In Rhode Island and across the country, Fortune 500 companies, state, county, and municipal governments, among others, have begun adopting various types of apprenticeship and other skill training requirements to ensure requisite quality levels and meet changing market demands.

In the private sector, major corporations, such as Exxon and DuPont, have recently been adopting new bidding and contracting procedures requiring contractors to participate in craft labor training. These corporations require proof of training from contractors who submit bids or proposals for projects.[63] Used throughout construction planning – from short-listing or prequalification through contractor evaluation and selection – these procedures help project owners gain a measure of quality control over craft labor that rarely existed before these initiatives were implemented.

In the public sector, a similar set of performance qualification tools have emerged, known as Responsible Contractor Policies (RCPs). Like prequalification, these policies establish qualification standards and bidding criteria for public construction projects. While they cover various areas including safety, past performance, licensing and bonding, RCPs also include some type of apprenticeship utilization requirement. Now used by state governments, cities, counties, boroughs, townships, school districts and other public bodies, the use of RCPs has grown tremendously across the U.S. in recent years.[64]

For example, approximately 20 jurisdictions in New England alone have adopted RCPs.[65] Some of these, such as those enacted in Boston and Cambridge, have been in place for over a decade and have had continuous, positive results. Specifically, these jurisdictions have reported that RCPs help ensure the selection of qualified contractors and craft workers for their projects, do not increase project cost and are relatively easy to administer.

One of the most significant developments in this area was the adoption of Responsible Contractor/ Apprentice Utilization legislation by the Rhode Island General Assembly in July 2008.[66] This new law requires contractors seeking state work to participate in craft labor apprenticeship programs as a condition of performing public works projects in Rhode Island.[67] On a municipal level, the City of Providence has integrated AUP into their contracting procedures for publicly funded projects above $100,000 in value and extends similar requirements to private sector developments which receive public benefits, such as Tax Stabilization Agreements.

On the other side of the country, in 2006, the Seattle Apprenticeship Opportunities Project (AOP) pushed for a voluntary commitment from public and private developers to fill at least 15 percent of contracted labor-hours with apprenticeship labor.[68] Subsequently, other localities in Washington State required similar commitments from construction contractors.[69] By 2006, Washington State voters approved an initiative that requires renewable energy projects to have a certain level of registered apprentice labor hours. The Washington State Apprenticeship and Training Council established a goal of 15 percent apprenticeship labor hours that has been attached to both renewable energy projects and all public works projects over $1 million in school districts across the state.[70] Similarly, the Los Angeles Harbor Department negotiated a five-year Port-wide Project Labor Agreement requiring construction apprentices to perform 20 percent of total work hours on state-sponsored "Capital Improvement Program" projects over the next five years.[71]

Requiring project owners to meet certain craft labor training requirements as a condition of bidding or performing work allows a project owner to protect its short-term interests in securing successful project delivery on immediate projects while also promoting its long-term interests in future workforce development. As discussed below, when such requirements are implemented through specifically defined apprenticeship utilization criteria, the project owner has greater assurances of reaping the maximum benefits from such programs and ensuring successful workforce development.

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CHAPTER 4

## BID SPECIFICATION REQUIRING "APPRENTICESHIP" TRAINING

Formal apprenticeship programs have long been recognized as time-tested training vehicles and the construction industry's most effective approach to providing skills training to craft workers.

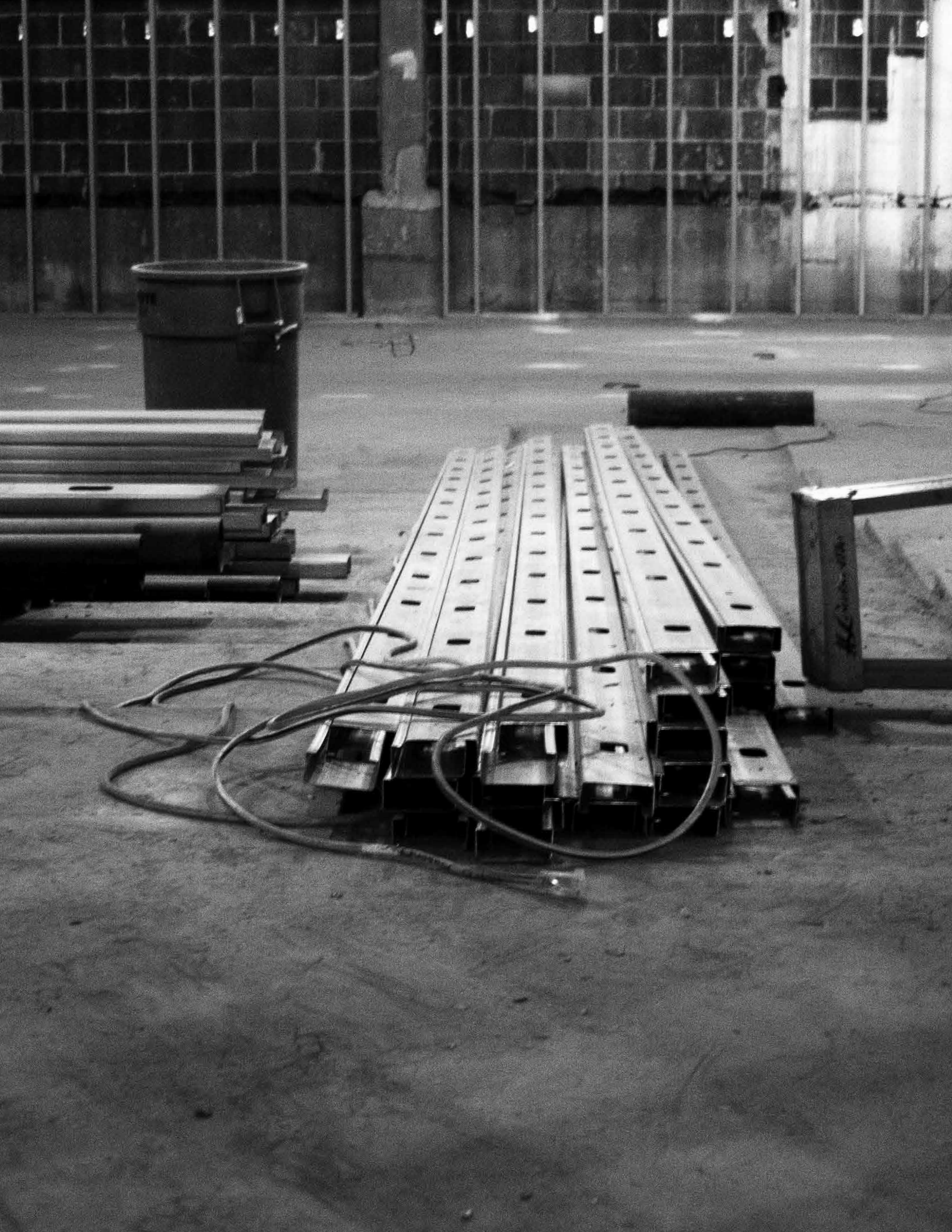
The advantages of these programs are widely recognized throughout the industry. As the Rhode Island State Apprenticeship Council explains, apprenticeship programs provide:

> . . . an effective and time-honored way to help sponsors build a skilled, competent workforce [through] a combination of on-the-job training and related classroom instruction in which workers learn the practical and theoretical aspects of a highly skilled occupation.[72]

A recent study commissioned by the U.S. Department of Labor reinforced that apprenticeship programs create substantial societal benefits. The study emphasized that apprenticeship participants achieve higher productivity and efficiency in the workplace than those workers who are not trained through apprenticeship programs. They also increase federal, state, and local tax revenue and are less dependent on government assistance. Consequently, an apprenticeship participant will generate an estimated net social benefit of $124,057 over the course of his or her career.[73]

In a study assessing New York City economic development, the Pratt Center for Community Development and the National Employment Project stressed that "[construction a]pprenticeships are a proven way to deliver quality skills training for construction careers and can be effective conduits for bringing in excluded or difficult-to-reach communities."[74] Similarly, the DOL explained that registered apprenticeship programs are "a proven strategy that ensures quality training by combining on-the-job training with related theoretical and practical classroom instruction to prepare exceptional workers for American industry."[75]

The DOL further notes that registering such training programs with federal or state apprenticeship agencies "ensures, through standards, that working apprentices, program sponsors/employers and the public all have a clear understanding of the training that the apprentices are to be provided and the measures taken to provide for ongoing quality assurance."[76] Requiring contractors to meet specific, identifiable apprenticeship standards permits the owner and contractor to know exactly what is expected in bidding and contractor performance requirements.



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Registered Apprenticeships are 'earn and learn' opportunities and provide access to education and training that may not otherwise be accessible to many adults.

One reason apprenticeship training is successful is because the programs must be carefully designed to ensure quality control and administered in accordance with these established federal and state apprenticeship standards. Among other things, these standards do not allow apprentices to advance from one level or year to another within a given apprentice training program, and hence move up to the next higher level of pay, unless they successfully meet the requirements and pass applicable skill tests for each level. [77]

Apprenticeship training is also successful due to the "*earn and learn*" approach incorporated into these programs. A study by the U.S. Department of Labor's Employment and Training Administration explains:

> Adult learners with families and financial obligations frequently are unable to stop working while they gain additional education or workforce skills. Young adults may not be able to go to school full time without the benefit of a job. Registered Apprenticeships are 'earn and learn' opportunities and provide access to education and training that may not otherwise be accessible to many adults.[78]

In fact, because apprenticeships provide both an educational opportunity and a steady income, the DOL found that some 82 percent of registered apprentices are usually still employed nine months after registration as apprentices.[79] In addition, a study conducted by the Urban Institute, a non-profit, public policy research organization, found that a majority of sponsors of apprenticeship programs reported completion rates for their programs at or above 80 percent.[80]

Taken together, these facts provide compelling evidence that apprenticeship training is the most effective way to adequately train workers for a career in the construction industry. Experts in the industry also commonly agree that practical experience on the job site supports this point. On the other hand, the reports and statistics on declining construction productivity show that curtailing reliance on apprenticeship training harms the industry and presents numerous risks for the future.

In other words, years of project owners using low-cost contractors who fail to invest in bona fide skills training programs are finally catching up with the industry, and the negative impact on construction delivery is becoming increasingly apparent. Consequently, there is now a strong and growing consensus across the industry that effective training programs must be strongly promoted and indeed strictly required by the project owner community to reverse this trend.

CHAPTER 5

## APPRENTICE UTILIZATION PROGRAMS: ADVANTAGES FOR PROJECT OWNERS

Craft labor specifications that require participation in formal, registered apprenticeship programs have distinct advantages over more general skill training requirements. In the construction industry, a "registered apprenticeship program" is known to be a time-tested system, developed and maintained according to set government standards and designed for each particular craft or trade in the industry.

As explained above, expansion of skills training in construction will not occur without the project owner community taking the lead and driving the change. If project owners and facility managers take such action and begin to adopt *Apprentice Utilization Programs*, they can reap valuable benefits for their construction programs by:

1. Securing a more reliable and better trained craft labor force to meet their immediate construction project needs;
2. Achieving cost, productivity, schedule and safety advantages through the use of a more highly skilled workforce; and
3. Promoting long-term workforce development in the skilled craft labor trades needed to address future project needs.

Several federal agencies and states have taken note of apprenticeship programs' success and have included craft labor provisions in their project proposals. These projects include: the U.S. Navy's Philadelphia Shipyard and the U.S. Army Corps of Engineers' D.C. School Construction Program. At the state level, California's "Design-Build" school construction law requires that at least 50 percent of the overall weight in contractor selection be given to factors that include skilled labor force availability and acceptable safety record. Virginia's Public-Private Education Act directs state request for proposals to solicit information on skills training, staffing and safety capabilities.[81]

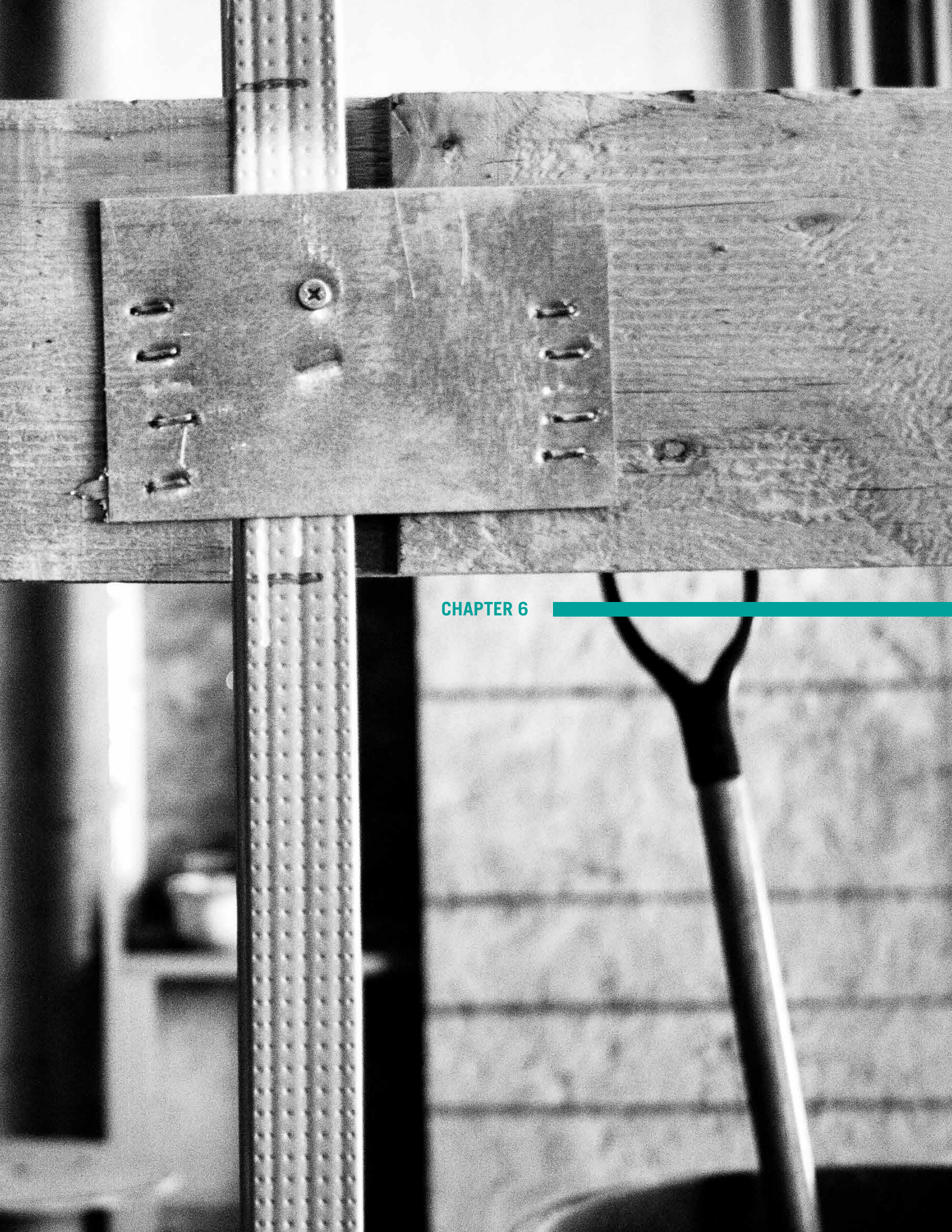
As reported above, Washington State recognized the value of apprenticeship programs in 2005 when it passed legislation requiring contractors to use at least 15 percent registered apprentice labor for public works contracts valued at $1 million or more.[82] The legislation mandated that contractors select apprentices who participate in state-approved apprenticeship programs.[83] An Apprenticeship Utilization Advisory Committee, established pursuant to this legislation, subsequently issued a 2008 report finding that "[b]y requiring public works contractors to use apprentice labor on state contracts, the state creates opportunities for training that will assure a skilled workforce is available to construct public works contracts in the future."[84]

Private sponsors of registered apprenticeship programs concur. The Urban Institute found that 97 percent of sponsors of registered programs said they would recommend apprenticeships to others, with 86 percent stating they would strongly recommend them. Over 80 percent of sponsors said one of the most important benefits of apprenticeships is helping meet their demand for skilled workers. Other identified benefits included raising productivity, strengthening work morale and pride, and improving worker safety. The majority of sponsors – 63 percent – also noted that instruction costs were not a problem.[85]

The productivity advantage for workers trained through formal apprenticeship programs is particularly important. Since construction is a highly skilled, labor-intensive industry, the productivity level of craft workers has a huge impact on project schedule and cost. This advantage was well documented in a report given to the 2003 National CURT Conference by the research firm Independent Project Analysis (IPA), which demonstrated that construction craft workers trained through established apprenticeship programs were 17 percent more productive than workers who were not. Based on a survey of data for over 1,000 projects in the United States and Europe, this study shows what most industry observers already know – formal apprenticeship programs offer the most effective tool for providing skill training in the industry, and workers who complete such programs offer substantial project delivery advantages for project owners.[86]

Fortunately, Rhode Island is well equipped for this approach. It has already developed an infrastructure of craft apprenticeship programs in the various construction trades. To date, the state has some 925 programs in 37 occupations currently registered with the RI Department of Labor and Training and the State Apprenticeship Council.[87] Thus, the basic capacity is in place. But contractors and subcontractors need to use the existing system and begin training a great deal more craft workers to meet industry demand.

For all these reasons, the most effective way to foster workforce development in construction is by actively promoting substantial investment in and the use of formal, registered apprenticeship programs. Using the existing training infrastructure that these programs provide, and the time-tested methods that have served the industry well for decades, can supply the industry with the capabilities it needs to train the next generation of craft workers.



CHAPTER 6

## APPRENTICE UTILIZATION PROGRAMS: ADVANTAGES FOR CONTRACTORS

This solution is also cost effective. At the 2012 National Education and Action Summit, United States Labor Secretary, Hilda Solis, emphasized that apprenticeship programs "improve skills, they improve wages, and they improve a company's bottom line."[88] Indeed, properly trained craft workers, particularly those who participate in formal, industry-based apprenticeship programs, offer significant advantages over untrained workers, including increased productivity, improved quality and safety, and greater overall value and reliability.

Research also shows that contractor participation in apprenticeship training yields a solid return on investment. Summarizing benefits to contractors, a recent 2012 Building Futures' study explained that "[r]ecognized benefits to employers include having highly skilled and loyal employees, reduced turnover rates, higher employee productivity, lower recruitment costs, a more diverse workforce, and career paths."[89] According to another report, *From Collaboration to Transformation: Solutions for Today's Construction Industry*, which evaluated recent construction projects in various markets, skills training investments yield a return on investment of between 2 to 1 to 3 to 1, when considering factors such as lower employee turn-over, improved quality, fewer defects and higher productivity.[90]

Specifically, where contractors invested just one percent of total craft labor costs in skill training, the typical project benefits included the following:

(a) Productivity improvement: 11%;
(b) Turnover cost reduction: 14%;
(c) Absenteeism cost reduction: 15%;
(d) Rework cost reduction: 23%; and
(e) Injury cost reduction: 26%.[91]

Another major study conducted by the *Construction Industry Institute, Construction Industry Craft Training in the United States and Canada*, concluded that each dollar invested in training programs provides a return of between $1.30 and $3.00 due to increased productivity and reductions in turnover, absenteeism, and rework.[92]

CHAPTER 7

## APPRENTICE UTILIZATION PROGRAMS: ADVANTAGES FOR CRAFT WORKERS

The part of the workforce shortage problem that must not get lost in policy discussions is the worker. The reason the average age of construction workers has increased in recent years is because young people no longer believe construction provides a viable career. The decrease in union representation and the increase in workplace injuries have no doubt fueled that perception, but as the skill shortage grows and owners and contractors begin to understand the importance of the profession and proper training techniques, that perception must and will change.

In a study assessing New York City economic development, the Pratt Center for Community Development and the National Employment Project stressed that "[construction a]pprenticeships are a proven way to deliver quality skills training for construction careers and can be effective conduits for bringing in excluded or difficult-to-reach communities."[93]

Apprenticeships are also the best way to attract young workers who seek to establish a quality career in the construction industry. A study in Washington State found that those completing apprenticeships earned nearly $17,200 more per year than their primary comparison group. These earnings gains were nearly three times the comparable gains for those graduating with a vocational degree from community colleges.[94] In 2006, a separate study in Washington State[95] found that the net social benefits to apprenticeship are about $50,000 per apprentice, based on earnings during the first two and a half years after exiting an apprenticeship program. On a lifetime basis, the present value of earnings gains, less costs, are approximately $269,000 per apprentice, compared to $96,000-$123,000 per community college attendee, and about $40,000 per Workforce Investment Act trainee.[96]

In the national context, a 2012 Mathematica Policy Research study concluded that registered apprenticeship (RA) participants and completers 1) earn significantly more, 2) are employed significantly more often, and 3) provide a positive net social benefit.[97] The U.S. Department of Labor commissioned this study to examine whether the remarkable findings in Washington State regarding earnings and social benefit of RA participation would be found across states. Therefore, states were selected based on variations between labor market characteristics, such as the degree of union representation in the state, and other factors such as geographic location. The states selected were Florida, Georgia, Iowa, Kentucky, Maryland, Missouri, New Jersey, Ohio, Pennsylvania, and Texas.

Specifically, the Mathematica study found that RA participants earn $123,906 more than non-participants over the course of their careers. Those who complete RA programs have substantially higher gains. "Over the career of an apprentice, we estimated the average earnings gain associated with completing the RA program would be $240,037. Including benefits, RA completers would receive an average of $301,533 more in compensation than nonparticipants over their careers."[98] Additionally, RA completers are employed 18.9 percent more often than non-participants nine years after enrolling in an RA program. Finally, as noted above, the net social benefit of an RA participant is $124,057 per participant over the course of his or her career and for participants who complete their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apprenticeship program, "[a]djusting for estimated taxes, reduced UI compensation, and low public assistance benefits, the net benefits of RA completion are $242,417."

In Rhode Island, the average annual pay for workers in the non-residential building construction industry is $77,958, compared with $41,315 in the entire private industry. Earnings in this industry have grown substantially faster than the all-industry average earnings from 2001 to 2009.[99] This message is important for young people in Rhode Island struggling to find jobs. A study commissioned for Building Futures notes:

> All Rhode Island youth have heard the message that they will need education beyond high school to access middle class wages, yet half of graduates do not enroll in college after high school. Fifteen percent of those enrolling in a 2 year college complete a degree within six years and 71% of students in four year colleges complete a degree. The 'market' of students who might be well served by the earn-as-you-learn apprenticeship model is many times the number currently entering apprenticeship programs.[100]

Encouraging apprenticeship training in this market benefits not just the workers themselves but also owners, contractors, and society alike. An Urban Institute study points out that nearly all the countries that make extensive use of apprenticeship programs have relatively low youth unemployment rates, likely because apprenticeships result in "much smoother transitions from school to careers" than most school-based preparation.[101] Apprenticeships may also offer smooth transitions for National Guard, reserve and active-duty military personnel who tend to have relevant skills, high unemployment and the need to position themselves for a civilian career.[102] Programs such as Helmets to Hardhats and the UA Veterans in Piping Program are examples of successful targeted programs with a direct partnership with the military.

Youth apprenticeship programs are cropping up across the country. The Pierce County Workforce Investment Board in Washington State offers an innovative pre-apprenticeship program in electrical work to high school juniors in the Tacoma School District. These students take part in a nine-week summer program where they take classes and earn money through work. Upon graduation from high school, the students can enter a registered apprenticeship program in electrical work.[103] In Wilkes-Barre, Pennsylvania, the local Workforce Investment Board has partnered with the Building and Construction Labor-Management Council and local school districts to prepare at-risk youth to enter apprenticeship programs.[104] And, in Washington, D.C., $1.2 million has been invested in pre-apprenticeship programs. Sponsors of Registered Apprenticeship programs have agreed to take students who complete the programs.[105]

These programs illustrate the mutually beneficial nature of registered apprenticeships. Workers receive practical education that results in higher paying and more fulfilling careers, owners reap the benefits of a higher skilled and better trained workforce and the government and society gain increased tax revenues and workers who are productive members of society.

CHAPTER 8

## BUILDING FUTURES' APPRENTICE UTILIZATION PROGRAM

### Growing Use of Building Futures' Model AUP

Using best practices research, Building Futures has developed a model *Apprentice Utilization Program* (AUP) that incorporates the key findings and advantages of other strategies, but offers a unique approach to workforce development for Rhode Island. This program provides project owners with model bid specifications and other necessary implementation documents that can be incorporated into owners' bidding and contracting procedures to ensure that all construction firms participate in and maintain adequate bona fide apprenticeship training programs for the crafts they employ.

In the short time it has been using this AUP model, Building Futures has received strong support from the local project owner community. This policy is currently being used by several major public and private institutions in Rhode Island, including the City of Providence, Brown University, and Providence College and has been implemented for private sector institutions such as Blue Cross/Blue Shield, CVS/Caremark and Hasbro, among others. These entities are leading the way by proving that this new and different approach to construction contracting – which promotes high quality training and good jobs for local residents – is both feasible and beneficial for project owners.

### Key Features of Apprenticeship Utilization Program

The Building Futures' AUP is designed to be relatively easy to implement, while also including features that will help ensure maximum quality control for project owners. Key components of this program are as follows:

1. *Prequalification Standards:* Following CURT's recommendation, Building Futures' AUP recommends that the craft training requirement be adopted as part of a contractor prequalification program and be made a mandatory condition of bidding and performing work on all owner projects (over a reasonable dollar threshold per the particular needs of each owner, e.g., $1,000,000 for larger construction programs).

2. *Registered Apprenticeship Participation:* It is inadequate, however, to simply prequalify on the basis of some vague notion of "skills training." The better approach is to require participation in registered apprenticeship training programs, which are time-tested, structured, formal education and training programs registered with and certified by federal and state government. In addition, registered programs are required to meet certain minimum criteria in terms of on-the-job training hours, related classroom hours, supervision and other criteria to ensure proper training.

3. *Apprenticeship Utilization Rates:* Specifying the use of registered apprenticeship programs ensures quality training can take place on the project. In order to make sure participating contractors are training a sufficient number of apprentices, it also makes sense to require that a minimum percent, e.g., 15 percent of the total labor hours, will be from apprentice workers enrolled in quality registered programs. This approach provides a process of facilitating minimum levels of apprentice enrollment to maintain continuous training at levels needed to meet future workforce demand.

4. *Implementation and Documentation:* Creating the system for achieving the goals is essential to AUP success. In Building Futures' AUP, contractors provide the project owner with their apprentice utilization plan prior to being awarded their scope of work. Once mobilized to perform the scope of work, through Building Futures the contractor has a system to get qualified entry-level apprentices when needed. Contractors then document progress in achieving the apprentice utilization goals through custom report formats that require very little administrative time to complete. The submission of AUP reports is a condition for progress payments to the trade contractors from the project owner and/or construction management firm.

5. *Enforcement Procedures:* No system is effective without enforcement. Building Futures' AUP includes provisions that trigger sanctions for non-compliance, provides incentives for voluntary adherence to program requirements and protects project owners from conduct that would undermine the program. An AUP committee is established at the onset of a project. Members of the committee review specific contractor performance and any AUP exemption requests from contractors, and recommend corrective actions when needed, all prior to any economic sanctions being considered.

Implementation of Building Futures' AUP ensures that all contractors and subcontractors hired on behalf of a project owner participate in effective, registered apprenticeship training programs. This program is straightforward to administer since the self-certification procedures require firms bidding or otherwise seeking work from an owner to prove they meet the qualification standards set forth in the AUP, so contractors must show compliance with specific, well defined industry standards. For firms that already provide good training, satisfying such standards simply requires verification of participation in effective training programs. Other firms wishing to do business with a project owner would be required to increase their commitment to workforce development and improve skills training operations.

## CONCLUSION

New thinking and planning are needed to address the workforce development challenges facing Rhode Island's construction industry. The project owner community can best protect and promote its own interests by adopting reforms, such as Building Futures' *Apprentice Utilization Program*, that will ensure the industry successfully meets these challenges. After successfully implementing AUP on over 30 public, institutional and private sector projects, Building Futures knows that AUP creates exceptional results for project owners who need to ensure a skilled craft labor force for future projects, the trade contractors who gain highly qualified entry level apprentices and the apprentices who gain family sustaining careers through employment on AUP projects. Through AUP, tangible and important policy gains are also realized for the benefit of governmental agencies, given the strongly documented economic benefits of registered apprenticeship that impact public policies.

Building Futures welcomes comments and suggestions on the information provided herein from all industry stakeholders.

## ENDNOTES


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4. Construction Industry Workforce Shortages, supra n 6, at 21.

5. Id. at 1.

6. Id. at 21. Notably, the skilled trades that expect "major expected shortages" are 1) carpentry, 2) electrical, 3) HVAC/boilermaker, 4) concrete finisher/cement mason, and 5) ironworker/steel erection, fabrication and welding.

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8. Id.

9. Construction industry Workforce Shortages, supra n 3, at 9.

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20. Huang, supra n 13, at 23.

21. Id.

22. Kate Rubin and Doug Slater, Winning Construction Jobs for Local Residents: A User's Guide for Community Organizing Campaigns, Brennan Center for Justice at NYU School of Law (July 2005), at Step Three.

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26. Id. at 26.

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33. Id. at 10; see also RI Skills Gap, supra n 31, at 1-2, 9-11.

34. RI Strategic Workforce Plan, supra n 30, at 25.

35. Id. at 25.

36. Forecast Plan, supra n.32, at 14-15; see also RI Skills Gap, supra n 31, at 1-2, 9-11.

37. Forecast Plan, supra n.32, at 1; see also RI Strategic Workforce Plan, supra n 30, at 16.

38. Forecast Plan, supra n.32, at 6; see also RI Skills Gap, supra n 30, at 1.

39. B. Lockett, Global 'Hiring Hall' Proposed as New Strategy for Responding to Shortages of Skilled Labor, Construction Labor Report, Lead Report, Vol. 53, No. 2619 (April 25, 2007).

40. Peter Philips, Garth Mangum, Norm Waitzman and Anne Yeagle, Losing Ground: Lessons from the Repeal of Nine 'Little Davis-Bacon' Acts, University of Utah (1995), at 41, 43.

41. Confronting the Skilled Workforce Shortage Report, Construction Users Roundtable (CURT) (June 2004), at 7.

42. Construction industry Workforce Shortages, supra n 3, at 45.

43. Biennial Employment & Training Plan FY2014 and FY2015, Governor's Workforce Board Rhode Island (October 31, 2012), at 11.

44. Id. at 13.

45. Id. at 11.

46. Id. at 28.

47. Citations to reports referenced here provided in discussion of reports, infra, at p. 7-9.

48. Confronting the Skilled Construction Work Force Shortage—A Blueprint for the Future, Business Roundtable (October 1997), at 9.

49. Id.

50. ACG Announces Model Language for 'Training for the Trades' in RFPs, AGC News & Bulletins (February 8, 1999)

51. CURT Skills Shortage Report, supra n 41, at 9.

52. Id.

53. Id.

54. Workforce Development Committee, The Voice, The Construction Users Roundtable (Summer 2006), at 31.

55. The 2005-2006 U.S. Markets Construction Overview, FMI Management Consulting (2005), at 9-11.

56. Id. at 11.

57. Solving the Construction Industry Workforce Crisis – Ideas for Action, Executive Summary, McGraw Hill/ENR (2007), at 3, 7.

58. Id.

59. Presentation of Stephen Jones, Senior Director, McGraw-Hill Construction, What's Ahead In Job Demand: An Industry Workforce Needs Assessment, Conference Papers, 2006 CURT National Conference.

60. CURT Tripartite Initiative Workplace Attitudes, July 2011, Multimedia presentation.

61. Id. at 9 of Owner Responsibility section.

62. See, e.g., The Choose Construction Initiative: An Innovative Approach for Building Tomorrow's Workforce, CURT 2011 National Conference, Chandler, AZ (November 7-9, 2011); Proceedings Book p. 105.

63. From Collaboration to Transformation: Solutions for Today's Construction Industry, 2007 National Conference of Construction Owners, Naples, FL (November 5-7, 2007); Presentation Materials from Construction Craft Training: Generating Big Cost Savings for Owners, CII Research Team 231, Construction Industry Craft Training, Conference Paper, at 1-6.

64. In some cases, these policies are referred to as Responsible Contractor Ordinances, Responsible Employer Ordinances, Responsible Bidder Policies, etc. Additional information on this subject is available upon request (please contact Building Futures and ask for National Xcel Listing of Responsible Contractor Policies (2008)).

65. See Appendix 3, New England Responsible Contractor Policy Listing.

66. Rhode Island General Assembly, S 2173 Substitute A, amending RI Code Section 37-13 re State public works contract apprenticeship requirements (July 31, 2008).

67. Id.

68. Rubin & Slater, supra n 22, at Step Three.

69. One City One Future: A Blueprint for Growth that Works for All New Yorkers, National Employment Law Project (2008), at 32.

70. Apprenticeship Utilization Fact Sheet, Washington State Department of Labor & Industries (July 2008).

71. City of Los Angeles Harbor Department Port of Los Angeles Project Labor Agreement (May 2011), available at http://www.portoflosangeles.org/pdf/POLA_PLA_Final.pdf.

72. See Rhode Island Department of Labor, Apprenticeship website, at http://www.dlt.ri.gov/apprenticeship. For additional information regarding the role of craft labor apprenticeship programs in construction, including the purpose, structure and functions of these programs, see Appendix 1.

73. Reed et al, An effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States, Final Report, Mathematica Reference Number: 06689.090 and 40096, submitted to U.S. Department of Labor Employment and Training Administration. (July, 2012).

74. One City One Future: A Blueprint for Growth That Works for All New Yorkers, supra n 86, at 33.

75. See DOL's Employment & Training Administration website.

76. See Id.

77. 29 C.F.R. § 29.5.

78. Leveraging Registered Apprenticeship as a Workforce Development Strategy for the Workforce Investment System, Employment and Training Administration, Department of Labor (2007), at 4.

79. Id.

80. Robert Lerman, et al, The Benefits and Challenges of Registered Apprenticeship: The Sponsors' Perspective, Urban Institute (March 2009), at 22.

81. Gerard M. Waites, Growing Trend in Construction Contracting: Evaluating Skill Training Project Staffing & Community Impact Issues in RFPs (September 2005), at Exhibit 2 (citing Cal. Ed. Code § 17250.25; Implementation Guidelines for Public-Private Education & Infrastructure Facilities Act, Office of the Governor (2003), at 10-11).

82. Apprenticeship Utilization Advisory Committee Report, Washington State Department of Transportation (January 2008), at 1.

83. Id.

84. Id. at 2.

85. Lerman et al, The Benefits and Challenges of Registered Apprenticeship: The Sponsor's Perspective, Urban Institute, (March 2007), at ii.

86. Dean Findley, Understanding Labor Productivity in High Wage Regions, Labor Productivity Phase II, CURT National Conference Report, Independent Project Analysis, Inc. (2003); see also NEA Alert, Union Jobs Almost 17% More Productive Says Speaker at National Construction Owners Conference, National Erectors Association (January 2004. The IPA did not isolate apprenticeship training as a sole factor in its research, but measured productivity output in a comparative study between union and open shop craft labor forces on over 1,000 projects, concluding the union projects were 17% more productive. However, when it comes to craft training, the most significant uniform distinction between union versus open shop workers is that the vast majority of union craft persons (i.e., 90% or more) are trained through formal, registered apprenticeship programs. Moreover, when considered in this light, IPA's report is fully consistent with several earlier research reports on the impact of apprenticeship training on productivity. See e.g., S. Allen, Unionized Construction Workers are More Productive, The Quarterly Journal of Economics, Vol. 99, No. 2 (May 1984), at 251-274. As discussed below, Building Futures Apprenticeship Utilization Program promotes the use of bona fide apprenticeship programs as the best means for delivering skill training needed by the industry. Whether such programs are sponsored by union or open shop organizations is immaterial, provided they effectively produce skilled journeymen-level workers. In many ways, the union side of the industry, which has excelled in apprenticeship training, has provided the model for getting the job done, but the point is that both union and open shop contractors need to fully participate and gear up to face future demand.

87. Information drawn from U.S. Department of Labor Employment and Training Administration's registered apprenticeship sponsor database, found at: http://oa.doleta.gov/bat.cfm.

88. Gayle Cinquegrani, Panelists Praise Apprenticeship Programs As Cost Effective Means to Train Workers, BNA Construction Labor Report (Aug. 9, 2012).

89. New Directions for Registered Apprenticeship in Rhode Island, Produced for Building Futures by Coffey Consulting, LLC (2012), at 3.

90. From Collaboration to Transformation: Solutions for Today's Construction Industry, 2007 National Conference of Construction Owners, Naples, FL (November 5-7, 2007); Presentation Materials from Construction Craft Training: Generating Big Cost Savings for Owners, CII Research Team 231, Construction Industry Craft Training, Conference Paper, at 1-6.

91. Id.

92. Yinggang Wang, et al., Construction Industry Craft Training in the United States and Canada, Construction Industry Institute (2007); see also Yinggang Wang, et al., Analysis of the Benefits and Costs of Construction Craft Training in the United States Based on Expert Perceptions and Industry Data, 28 Construction Management and Economics 1269, 1283 (2010).

93. One City One Future: A Blueprint for Growth That Works for All New Yorkers, supra n 86, at 33.

94. Lerman, et al, The Benefits and Challenges of Registered Apprenticeships, supra n 85, at 7.

95. Kevin Hollenbeck and Wei-Jang Huang. 2006. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State." Upjohn Institute Technical Report No. 06-020, Upjohn Institute for Employment Research, (2006).

96. Robert I. Lerman, Expanding Apprenticeship: A Way to Enhance Skills and Careers, Urban Institute (October 2010), at 3.

97. An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States, supra 73.

98. Id.

99. Forecast Plan, supra n.32, at 2, 4.

100. Id. at 15.

101. Robert Lerman, Expanding Apprenticeship: A Way to Enhance Skills and Careers, Urban Institute, (October 2010) at 3.

102. Forecast Plan, supra n 32, at 15.

103. Leveraging Registered Apprenticeship as a Workforce Development Strategy for the Workforce Investment System, DOL, Training and Employment Guidance Letter No. 02-07 (July 12, 2007), at 13.

104. Id. at 15.

105. Id. at 16.

## ABOUT THE AUTHOR

Gerard M. Waites is a partner in the law firm of O'Donoghue & O'Donoghue in Washington, DC. A nationally recognized expert in construction policy and public works contracting, Gerard specializes in progressive procurement and contracting policies in the construction industry and has worked throughout the country in various substantive areas, including best value contracting, design-build, public-private partnerships, contractor licensing and permitting, prequalification procedures and responsible contractor programs and apprenticeship policy.

## APPENDICES



### Appendix 1: Additional Source Materials Available Upon Request

- Mathematica Policy Research, An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States (2012)
- McGraw-Hill Construction Industry Workforce Shortages: Role of Certification, Training and Green Jobs in Filling the Gaps (2012)
- Biennial Employment & Training Plan FY2014 and FY2015, Governor's Workforce Board Rhode Island (2012)
- Projected Demand for Craft Labor for the Southeast United States (2012–2017), Construction Labor Market Analyzer (2012)
- Rhode Island's Forgotten Middle Class, The Workforce Alliance (TWA) (October 2009)
- Rhode Island Skill Gap Study, Building Futures (2008)
- RI Strategic Workforce Plan, Governor's Workforce Board (2008)
- National Xcel Listing of Responsible Contractor Policies (2008)
- Apprenticeship Utilization/RCP Program Evaluations (2008)
- Apprenticeship Utilization Advisory Committee Report, Washington State Department of Transportation (January 2008)
- McGraw Hill/ENR Industry White Paper (2007)
- CURT: Training Invest Return Data Report (2007)
- FMI Management Consulting: Market Survey (2006)
- CURT/ABC Prequalification Agreement (2005)
- Winning Construction Jobs for Local Residents, Brennan Center for Justice (2005)
- CURT: Confronting the Skilled Workforce Shortage (2004)
- CURT Skilled Workforce Productivity Report (2004)
- City of Providence Code of Ordinances - Sec. 21-28.1. Qualifications of parties doing business with the city (2010)
- Washington State Apprenticeship Training Programs Law - RCW 39.04.310 & RCW 39.04.320. APPRENTICESHIP TRAINING PROGRAMS (2007)

## Appendix 2: Overview: Role of Apprenticeship Training in Construction

The Apprenticeship Training Model: An Overview of a Time-Tested Method of Providing Education and Skill Training in the Construction Industry

The following information is provided from Fact Sheets prepared by the U.S. Department of Labor's Employment & Training Administration, Office of Employer & Training Labor Services.

### THE PROCESS

Registered Apprenticeship is a training system that produces highly skilled workers to meet the demands of employers competing in a global economy.

A proven strategy, Registered Apprenticeship ensures quality training by combining on-the-job training with theoretical and practical classroom instruction to prepare exceptional workers for American industry.

The process of apprenticeship program registration with Federal and State government agencies is standards-based. It is a process designed to ensure that working apprentices, program sponsors and the general public can gain a clear understanding of the training content and the measures that are in place to ensure ongoing quality.

In the U.S. today, some 37,000 program sponsors, representing over a quarter million employers (construction and non-construction), industries and companies, offer registered apprenticeship training to approximately 440,000 apprentices. These training programs serve a diverse population which includes minorities, women, youth and dislocated workers.

*Source: U.S. Department of Labor, Employment and Training Administration, Office of Employer and Training Labor Services, Apprenticeship Fact Sheet #2.*

### KEY STANDARDS

On the Job Training: Every apprentice participating in a registered apprenticeship program enters into an Apprenticeship Agreement. The apprenticeship program sponsor and the apprentice agree to the terms of the Apprenticeship Standards incorporated as part of the Agreement. The on-the-job component is structured, supervised on-the-job training consisting of at least 2,000 hours, depending on the occupation.

The actual on-the-job training is outlined in the Apprenticeship Standards. The apprentice is supervised during the term of the apprenticeship by a skilled craft worker. The supervisor reviews, evaluates and maintains records relating to the apprentice's job performance. Upon entry into the apprenticeship program, apprentices are paid a progressively increasing schedule of wages.

As the apprentices demonstrate satisfactory progress in both the on-the-job training and related instruction, they are advanced in accordance with the wage schedule as outlined in the Registered Apprenticeship Standards.

Classroom Instruction: Related instruction is a required component of an apprenticeship program and supplements the on-the-job training. A minimum of 144 hours per year is required for each occupation. The related instruction may be given in a classroom through trade, industrial or correspondence courses of equivalent value, or other forms of self study approved by the registration/approval agency.

Basic Entry Requirements: Registered apprenticeship program sponsors identify the minimum qualifications necessary to apply for their apprenticeship program. The eligible starting age can be no less than 16 years of age; however, individuals must usually be 18 to be an apprentice in hazardous occupations.

Additional Qualification Standards: Program sponsors may also identify additional minimum qualifications and credentials to apply, e.g., education, ability to physically perform the essential functions of the occupation and proof of age. All applicants are required to meet the minimum qualifications. Based on the selection method utilized by the sponsor, additional qualification standards such as fair aptitude tests and interviews, school grades and previous work experience may be identified.

*Source: U.S. Department of Labor, Employment and Training Administration, Office of Employer and Training Labor Services, at http://www.doleta.gov/OA/ri.cfm.*

## GOVERNMENT OVERSIGHT

The National Apprenticeship Act authorizes the Federal government, in cooperation with the States, to oversee the nation's apprenticeship system. The U.S. Department of Labor's Office of Apprenticeship Training, Employer and Labor Services/Bureau of Apprenticeship and Training and individual State Apprenticeship Agencies are responsible for:

- Registering apprenticeship programs that meet Federal and State standards;
- Protecting the safety and welfare of apprentices;
- Issuing nationally recognized and portable Certificates of Completion to apprentices;
- Promoting the development of new programs through marketing and technical assistance;
- Assuring that all programs provide high quality training; and
- Assuring that all programs produce skilled competent workers.

*Source: U.S. Department of Labor, Employment and Training Administration, Office of Employer and Training Labor Services, Apprenticeship Fact Sheet #2.*

## INVESTMENT AND RETURN

Registered Apprenticeship programs are operated by both the private and public sectors. Sponsors include employers, employer associations and joint labor/management organizations.

Program sponsors pay most of the training costs while simultaneously increasing the wages of the apprentices as their skill levels increase. Registered Apprenticeship training can be competency-based or time-based, with training generally ranging from one to six years depending on the needs of the program sponsor.

For the apprentice, this translates into an educational benefit worth $40,000 to $150,000. Because the training content is driven by industry needs, the end result of apprenticeship programs is extremely well trained workers whose skills are in high demand.

As of 1996, the Federal government invested approximately $16 million for administration of the apprenticeship system, with states contributing roughly another $20 million. Thus, the total public investment amounts to an estimated $36 million – a modest $110 per apprentice.

Because apprentices pay income taxes on their wages, it is estimated that every $1 the Federal government invests yields more than $50 in revenue.

If all 440,000 apprentices earn an average annual income of $15,000 (a low average), this generates nearly $1 billion in Federal tax revenues alone, a significant return on federal and state investments. The government's return on investment in registered apprenticeship clearly outperforms other types of government-sponsored job training programs.

Apprenticeship is a proven training strategy that improves the skills of the American workforce and enhances the efficiency and productivity of American industries. Investment in the U.S. registered apprenticeship system represents a wise use of government dollars, paying for itself many times over. America faces a critical shortage of skilled workers, and expanding apprenticeship opportunities offers an effective approach to meet the needs of the U.S. industry and citizens in search of high-quality, high-paying jobs.

*Source: Id.*

**APPENDIX 3: New England Responsible Contractor Policy Listing**

Cities and Towns with Responsible Employer/Contractor Policies:

Connecticut:

- Danbury
- Hartford
- Middletown
- New Britain
- New Haven
- Stamford
- West Haven

Massachusetts:

- Amherst
- Boston
- Brockton
- Cambridge
- Lynn
- Methuen
- New Bedford
- Springfield
- Waltham
- Weymouth
- Woburn
- Worcester

*Apprentice Utilization Program and Responsible Contractor Evaluation Letters Available Upon Request*

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## NOTES

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