

RECRUITMENT AND RETENTION IN CONSTRUCTION

By

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To my mother and father, whose sacrifices can only be realized through my accomplishments in life--may this be one of the many reasons why your sacrifices were made--I love you both with all my heart.

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The current construction labor force of the United States is insufficient to meet the increasing demands of the industry. This is evident in all trades and is experienced on projects throughout the country and is affecting the industry in a negative way, resulting in increased costs and project delays.

Since construction is the second largest industry in the United States, it is important to not ignore this issue. It is generally understood that Hispanic immigrants comprise the majority of the South Florida labor force and this is impacting the industry in many ways. These workers have varying communication and skill levels, causing the industry to implement necessary changes in how it operates.

The image of the construction industry as an employment option is becoming less desirable due to the increasing belief that everyone must go to college. Because of the lack of experience and general understanding about the construction industry as an employment option, many people, especially high school students who are not interested in going to college, are missing out on an opportunity to be part of building the infrastructure in which they live. If high school students could see that working in construction is about being a creative, problem solver who creates unique projects, maybe there would not be a labor shortage in construction.

The industry needs to focus on three main aspects of the construction workforce: recruitment, training, and retention to devise solutions for the shortage. This research evaluates the current state of the workforce focusing on South Florida contractors and specialty contractors to identify efforts in recruitment and retention. Surveys were used to evaluate how construction companies obtained their labor force and what activities are in place for recruitment.

Through the data obtained from the surveys, the report outlines current efforts for improving the labor force shortage and provides suggestions for recruitment and retention of the construction trade labor force. Through active recognition of the issue and participation in implementing a solution, the labor force of South Florida can be restored as an effective asset of the industry.

CHAPTER 1 INTRODUCTION

The construction industry is volatile with peaks and falls in employment that coincide with the state of the economy. Its volatility has much to do with the well known fact that construction is the second largest industry, next to the US government. Even if the industry is booming, without a large skilled labor force it cannot satisfy the demands.

The industry is changing, especially in the general composition of its most valuable asset: the labor force. A once primarily white male group, the labor force is becoming dominated by minorities and now women are choosing construction as a career. This presents many challenges including language barriers and ethical dilemmas, all of which require new considerations on how the industry recruits, trains, and most importantly retains its workforce.

Attitudes need to be changed and practices and procedures need to be revised. Actions are being put forth by many companies in the construction industry with some being more successful than others. The purpose of this research is to find out what construction companies are doing from all facets of the industry to retain their workforce and how these practices may convince people to pursue a career as a skilled construction trade worker.

In today's society, there are many careers in construction; however many consider that there are better jobs outside of the construction industry. The jobs may not pay and they may not really inspire or motivate a person to have a purpose or goal, but they offer benefits - health insurance, a family environment, stock packages and 401K options - that are important for today's society in terms of having a family and living the "American Dream." For management positions in construction these benefits are usually a given, but for laborers and skilled workers, these benefits are not always offered.

In terms of the construction industry, if the main goal is to recruit a large workforce, one that is skilled and knowledgeable and can produce a quality project, then the industry will have to start focusing on what they can offer the average American worker. If someone has to put in time training for a position, then the industry needs to make an investment on the workers' time and efforts. The common attitude of the industry in terms of training is a negative and pessimistic one. To say a company is reluctant to invest in someone because they will most likely leave to work with another company implies something about the company who has that view. If an investment is made in a person, taking into consideration all their needs, then why would that worker leave once training is complete? Competition exists in the construction industry due to the lack of skilled laborers, but a worker who feels valued will stick with the company. There is more to a job than a paycheck, and the industry needs to start to understand this.

If the industry can focus on convincing society that it understands its needs in terms of employment and career options, then more high school students who are not interested in the challenge of college can choose the challenge of enrolling in training programs and become an asset to the companies that invest in them. Construction companies and training programs can join together and discover what the worker's wants and needs are and formulate a plan that will help to develop a valuable workforce.

This research focuses on the South Florida construction industry and the current recruitment and retention practices of these companies and how they view the labor force. Through surveys this research will give insight for other companies to follow and implement to rejuvenate the workforce and the industry.

CHAPTER 2 LITERATURE REVIEW

Construction Labor Shortage

The construction industry is the second largest US employer and it is facing an unprecedented nationwide shortage of skilled labor: a construction company's most important asset. The United States Construction industry shortage of skilled labor was predicted more than two decades ago (Srour et al. 2006). A 1983 report by the Business Round Table described a skilled labor shortage as one of the main challenges the industry would be facing in the last decade of the past century which was attributed to the contractor's lack of interest in training and the owner's ignorance (Srour et al. 2006).

A Construction Industry Institute study showed that 75% of participating contractors were experiencing shortages and a Business Roundtable Construction Committee found that 25% of their member's projects encountered cost overruns and schedule delays caused by labor shortfalls (Garrity 1999). In a more recent study in 2001 by the Construction Users Round Table, the skilled labor shortage was viewed by owner companies as the most critical problem facing the industry with 82% of the responding companies experiencing shortages of skilled workers on their projects. The study revealed that all project types were affected, but that electricians, pipe fitters, and welders were the most critical trades experiencing a shortage (Srour et al. 2006).

An article titled "No easy solution to construction labor shortage" by Kathleen Garrity of the Associated Builders and Contractors stated the reason for the shortage was due to the view of the industry – that building things with your hands was undesirable, something you would do if you were unable to do anything else for a career. High school students surveyed about attractive careers listed construction 249th out of 250 possible occupations. They stated that they viewed a construction career as "dirty, uninteresting work done in bad weather by not very bright people."

(Garrity 1999). A 1999 Construction Industry Institute study titled “Key Workforce Challenges Facing the American Construction Industry: An interim assessment” stated the workforce problem is due to the industry’s poor image, an undesirable working environment, the need for workers to relocate for each new project, and a career path that seems unclear (Srouf et al. 2006).

Image of the Construction Industry and Workforce

A study done in 1972 on the sociology of the construction industry workforce demonstrated that the construction industry was distinctive in the uniqueness of the job and its resulting personal satisfaction for the worker when compared to the industrial industry. Construction is an industry in which each project (consisting of a unique location and often one-of-a-kind design) has special characteristics. Each project provides its own challenges as the design materializes as a tangible product through the efforts of many different crafts who install various types of materials. Construction is flexible by nature requiring decision making at all levels of the workforce; this opportunity to make decisions is one of the many reasons why construction is a satisfying career (Borcherding 1972).

The industry as a whole needs to concentrate on improving the image of construction, but it also needs to focus on putting forth a maximum effort on improving training capacity, enhancing wages, benefits, and working conditions (Garrity 1999). The construction industry may find it difficult to fill positions and find potential workers with all the necessary skills given the poor image of the industry (Srouf et al. 2006). A report issued in 2001 by the Construction Users Round Table attributed the problem of the workforce shortage to several factors including poor retention, poor training, and relatively low wages (Srouf et al. 2006).

Recruitment

The Bureau of Labor and Statistics with the US Department of Labor has estimated that the construction industry needs to attract 240,000 workers each year to replace those who are retiring

or leaving the industry and to allow for some growth in capacity (Garrity 1999). A 2004 report by the Bureau of Labor Statistics indicated a need to replace almost 1,500,000 construction trade worker jobs by 2010 with a subsequent demand for new construction laborers increasing by over 100,000 (Srouer et al. 2006). In 1999, the average age of a construction worker was 47 years and is climbing today (Garrity 1999). The construction industry is looking at a future workforce that will be mainly composed of minorities and women, something that is very uncharacteristic of the traditional compilation of the industry and will require the industry to provide training in dealing with a diverse workforce (Garrity 1999). An industry that has been inwardly focused in operating and solving problems will need to look outside for solutions to the current labor shortage (Borcherding 1972).

Recruitment of construction workers will be facilitated by improving the image and awareness of construction trade careers by encouraging more young people who are not planning to go to college to consider a career in construction – focusing recruitment efforts on parents and school career counselors as well as high school students is the best way to accomplish this (Poole et al. 2005). This can be further facilitated by an aggressive and creative recruitment program and more importantly, and an increase in wage rates. The lack of recruitment of students in training programs is attributable to the low opinion of the trades and low wages (Brown Jr., Markus 1988).

Training

“Much of the workforce remains unskilled or under-skilled, therefore training must be considered as an option when staffing for a project” (Srouer et al. 2006). Many people who decide to go into a construction training program decide to take on a different career path before or after completion of the program due to the low pay in the industry, thus resulting in low annual employment rates in the construction industry (Brown Jr., Markus 1988). Other reasons

for high dropout rates include cultural barriers and economic burdens due to the long term commitment and investment of apprenticeship programs (Poole et al. 2005). In an assessment study done in Arizona concerning the construction industry workforce, the apprentices who completed training programs only accounted for thirty-three to 50% of the number of qualified workers needed during the next decade (Poole et al. 2005). A solution for the drop-out rate of apprenticeship and training programs was to improve prequalification assessments of the applicants (Poole et al. 2005).

Beyond the drop-out rate and recruitment issues of training programs, training programs are not being conformed to the needs of the industry; there is a lack of consistency in training through apprenticeship programs which does not produce the same quality of trained workers (Poole et al. 2005). Major discrepancies exist in terms of the curriculum of training programs from the view of the educators and industry members, and this is resulting in a lack of good craftsmen.

Contractors need to improve on the job training programs by incorporating classroom and shop training resulting in a competency-based program (Brown Jr., Markus 1988). The industry uses an age old system of on the job training, along with classroom instruction as the best way to pass along knowledge (Garrity 1999).

Training programs of unions have affected the efforts of open shop sectors in training skilled construction workers. Unions offer an incentive in that employers are guaranteed that they will get a worker that has the necessary skills to complete the job task at hand.

Traditionally, unions have limited the number of new apprentices they accept into their programs, training only enough for the anticipated needs of union employers. Unions only represent a quarter of the construction industry and therefore they do not have the capacity to

train enough workers for the entire industry and its current needs (Garrity 1999). As a result, the open shop sector has had to make a commitment to train the thousands of workers that are needed. Associated Builders and Contractors developed the Wheels of Learning program over twenty years ago as a training solution. The program's standard curriculum can be used for task training, apprenticeship training, and cross training of construction trade workers (Garrity 1999).

A 1994 effort by Associated Builders and Contractors with twenty-two other trade associations and major open-shop industrial contractors resulted in the creation of the National Center for Construction Education and Research to maximize the money and resources spent on construction craft training. The effort has resulted in an improvement in training that has brought well rounded and highly qualified journeymen to go on and build 70% of construction projects in America (Garrity 1999). Yet, this is not enough.

Retention

Even after training these workers successfully, the industry cannot retain the skilled workers and regularly loses them to other occupations. In the dissertation written in 2004 titled "An Assessment of Implementation Requirements for the Tier II Construction Workforce Strategy" by M.P. Pappas, solutions listed for the skilled labor shortage ranged from increased wages and other incentives such as guaranteed overtime, training incentives to employing foreign labor or outsourcing work to foreign sources and reducing the workforce demands through implementation of automation and technology (Srour et al. 2006). The industry must take a serious look at how workers are paid and what benefits are offered for them and their families. Workers want good wages and benefits, scheduled overtime, safe and pleasant working conditions, per diems, travel pay, and other perks (Garrity 1999).

CHAPTER 3 RESEARCH METHODOLOGY

Initially, the research of the literature was focused on the current labor shortage of South Florida and the training efforts of the industry. While conducting the literature review, some information on recruitment and retention practices in the industry was also obtained. The research was initially intended to focus on the whole process of attracting people to work in the industry, training the workers so they are capable of being valuable and skilled, and then on how the industry's current practices to retain people that have chosen a career in construction.

Because of the varied demographics of the workforce and the fact that there is such a critical shortage, the research focus began to shift. Training programs are provided through vocational and technical schools, union organizations, and trade organizations, such as the Associated Builders and Contractors. Without sufficient numbers of people interested in pursuing a career that requires the training, the programs are having vastly diminished value. Retention practices are often futile due to the fact that there are many jobs available and it has been found that many workers currently in the industry will leave a company because another company pays a few cents more per hour. Even if the company they were working for had a great culture, just a few cents per hour extra can entice many workers to forget their loyalty to the firm and move on. Companies often feel that they cannot afford to raise its pay whenever a worker threatens to leave. This is despite the fact that construction worker pay has declined in recent years. The pay range for workers in the industry today is low compared to the wages of the 1970s and this directly affects the labor force causing the shortage due to general disinterest of people in seeking a career in construction. Recruitment is required to increase the industry workforce. The current public opinion of construction is a false one of misunderstanding and prejudice. The industry is responsible for being an advocate for construction. The construction

industry is suffering from an aging workforce, one in which some workers have been noted to be 70 years old. The industry needs a fresh new group of young people who have the capability to become skilled in any of the trades or even for management positions. Programs are in place through some of the trade/industry organizations, but more effort needs to be put forth by the company owners doing business in construction. Therefore the topic of the research changed focus to determine if the industry is currently making an effort to recruit workers for the industry and to determine what type of retention programs they may have in place.

Compilation of the Survey

A survey was developed to find out about construction companies practices related to worker recruitment and retention. The survey solicited information on the demographics of construction firms in South Florida, company perceptions of the current shortage of labor, areas where the shortage exists in terms of hourly employees (unskilled workers and skilled workers) and salary employees (superintendents, project managers, estimators, and accountants), and the extent that the shortage impacted the companies. The survey also asked about company recruitment plans that were implemented for salary employees and hourly employees, and if they felt their efforts are successful. Questions are also asked about retention practices of the companies. Companies that had a written recruitment or retention plan were asked if the company would be willing to provide a copy for the purpose of the research study.

In the development of the survey, several iterations were completed before the survey was in its final form. The initial survey was an exploration of what types of questions may be asked to obtain the necessary information on recruitment and retention. The survey was eventually divided up into sections with separate subsections for salary and hourly employees. Several questions were asked of salary and hourly employees under recruitment and retention practices of the company. Some question and answer options were different in the subsections due to the

differences between salary and hourly employees and how and where companies may focus their efforts for recruitment and retention. After about ten iterations of survey development, the final survey was completed. The final version of the survey contained over 50 questions, most of which solicited a multiple choice response. A cover letter to explain the overall purpose of the study was also prepared.

The survey and cover letter were submitted for approval by the University of Florida's Institutional Research Board (IRB). Upon approval of the survey by the IRB, the survey population was defined. Construction company names and addresses were obtained through the online databases of the Florida chapters of the Associated Builders and Contractors (ABC) and the Associated General Contractors (AGC). For the ABC, all contractors located south of Stuart were used, with annual volumes of business ranging from \$100,000 to over \$500,000,000. The contractors chosen from the AGC were also located south of Stuart. The company data on the AGC members contained no information in terms of volume of business. A total of 500 surveys were mailed to the South Florida companies, and these firms represented all major sectors of the construction industry. The survey population included most of the South Florida construction firms that are either a member of the ABC and/or the AGC.

Evaluation of Data

Upon obtaining the completed survey responses, data were coded for analysis with the Statistical Package for the Social Sciences (SPSS). The analysis revealed the current recruitment and retention practices and perceived levels of success with these practices. No companies provided a recruitment or retention plan with their responses.

Using the compiled data, an analysis determined the current efforts of companies in the industry in recruitment to increase the workforce and its retention practices in keeping these recruited workers in the industry. This information was compiled in the results chapter of the

paper to be used as insight for the industry to use to solve the current labor shortage in the construction industry.

CHAPTER 4 RESULTS

The findings of this research are based on 72 completed surveys that were received. A total of 500 surveys were mailed out, representing a response rate of 14.4%. The findings will be presented for each of the topic areas of the survey, including company demographics, company labor shortage experience, company recruitment, and company retention.

The Company

The first portion of the survey solicited demographic information about the responding companies and the composition of their labor forces. Many business sectors were represented by the respondents, with the commercial sector being addressed by over 80% of the respondents (Table 4-1). Note that the table shows all of the business sectors represented by the respondents with many respondents working in more than one sector. Thus, the results show that 80% of the respondents did at least some work in the commercial sector. As a result of this method of compilation, the percentages of all the business sectors add up to more than 100%. Those sectors categorized as “other” included public sector design/build, medical, design/assist, bridges, power-line construction and maintenance: distribution and transmission, hi-end construction, site work, utility, and transportation.

Many business classifications were represented by the respondents, with the subcontractor classification being addressed by over 50% of the respondents (Table 4-2). As shown in Table 4-2, respondents often represented more than one business classification. Specifically, respondents classified as subcontractors may also be represented among specialty contractors as they are considered to be the same for some respondents. Respondents classified as general contractors represented more than 40% of respondents (Table 4-2). As with respondents represented as subcontractors, respondents represented as general contractors may also represent

such categories as construction management or design/build. As a result of this compilation, the percentages of all the business classifications add up to more than 100%. Those classifications categorized as “other” included manufacturing, consultation services, highway construction, concrete pumping service, and heavy equipment.

Respondents were asked to provide information on their firms’ annual revenue which ranged from \$1.2 million to over \$8 billion (Table 4-3). This range consists of respondents who represented the business classifications as shown in Table 4-2, resulting in a large difference between the mean and median annual revenues. This is due to the large representation by respondents as subcontractors who typically have revenues that do not reach levels as those typically exhibited by large general contractors. Therefore, the median value is more descriptive of the typical respondent’s annual revenue. Two respondents reported annual revenues in the billions while the majority of respondents had revenues in the millions of dollars. This type of distribution of annual revenues would be expected when respondents consist of both subcontractors and general contractors.

Respondents completing the survey were asked to indicate their position in the company they represented. The categories noted were president, vice president, senior project manager, project manager, and “other.” Respondents classified as president were represented by over 40% of respondents and over 30% were classified as vice presidents (Figure 4-1) Those positions categorized as “other,” comprising 25% of respondents, included positions such as administrator, branch manager, business development, chief financial officer, controller, director, human resources director, office manager, and secretary/treasurer.

To determine the composition of each responding company’s work force and employee base, questions were asked about the number of hourly workers and salary employees the

respondent's company employed. In reference to hourly workers, the range was zero to 5,000 hourly workers with a median value of 60 hourly workers (Table 4-4). The mean value of 216 hourly workers represents the large difference exhibited between the respondents classified as subcontractors and the respondents classified as general contractors. One general contractor subcontracted all the work and had no hourly workers.

The number of salary employees of respondent companies ranged from zero to 6,000 employees with a median value of 23 employees (Table 4-5). The mean value of 162 employees represents the large difference in the needs of respondents classified as subcontractors (fewer employees) and respondents classified as general contractors. A minimum value of zero salary employees may be typical of a respondent classified as a subcontractor who designates a superintendent as an hourly worker rather than a salary employee as is common among some general contractors.

Respondents were asked to provide information about the age of their hourly workers which revealed a range from 17 years of age to 83 years of age (Table 4-6). The mean and median values were similar, differing by no more than one year. The oldest workers of the respondents were 60 years old (median). According to The Construction Chart Book, the median age of construction workers was 37.5 years (CPWR 2006).

Labor Shortage

Information was sought about the much-publicized construction worker shortage. Respondents were asked about their experience related to the availability of hourly workers and salary employees. More than 50% of respondents indicated that they were experiencing a shortage of labor. In terms of hourly workers, the experiences about the availability of workers were quite different for unskilled workers and skilled workers with over 50% of the respondents expressing no shortage of unskilled workers and more than 50% of the respondents expressing an

extreme shortage of skilled workers (Figure 4-2). In terms of a “slight shortage” of workers, more respondents showed a higher percentage for unskilled workers than skilled workers. The percentage was higher for skilled workers in the “no shortage” category than the “slight shortage” category, but both were surpassed in the “extreme shortage” category.

Respondents were asked to describe their experience about the shortage of salary employees. As with hourly workers, they were asked to describe the experience about the availability of individuals to fill six typical positions. For each position, they were to indicate if there was “no shortage,” a “slight shortage,” or an “extreme shortage.” The highest percent for an “extreme shortage” was designated for superintendents, a value of over 30% (Figure 4-3). The extreme shortage was next noted for project managers, estimators, and assistant project managers/project engineers. There was essentially no extreme shortage of accountants or purchasing agents. Among the subcontractor respondents, the extreme shortage of superintendents was noted by 41% of the respondents, while for general contractors 23.3% identified the shortage of superintendents as being extreme.

The demographics of the labor force have changed considerably for many respondents. For example, more than 60% of the respondents stated that there are less skilled workers (45 respondents) in their workforce and more Hispanic workers (44 respondents) in the workforce (Figure 4-4). A total of 29 respondents stated that they have experienced more Hispanic workers and less skilled workers, but there is no correlation to support a relationship. Other respondents expressed that the workforce had older workers, more women, and less than 10% of the respondents stated that the demographics of the workforce had not changed. Those demographics categorized as “other” were less unskilled workers, more Haitians, more Islanders, more licensed workers, and fewer workers willing to perform work as required.

Company Recruitment

One section of the survey focused on company recruitment efforts. Information was sought to determine if company membership in industry associations helped respondents benefit in their recruitment efforts. Respondents were requested to state if they were members of any industry associations. Nearly 70% of the respondents were members of the Associated Builders and Contractors (ABC) and over 50% of the respondents were members of the Associated General Contractors (AGC) (Figure 4-5). This level of membership might be expected as the mailing list for the survey was developed from the ABC and AGC directories. Organizations categorized as “other” were Contractors Association of South Florida (11 respondents), Electrical Contractors Association (2 respondents), Mechanical Contractors Association (two respondents), with one member in the American Concrete and Paving Association, American Institute of Steel Construction, Inc., American Society of Concrete Contractors, Building Officials Association of Florida, Concrete Sawing and Drilling Association, Construction Industry of South Florida, Electrical Contractors Association, Federated Electrical Contractors, Florida Fire Sprinkler Association, Florida Transportation Builders Association, Florida Engineering Society, The Florida Roofing, Sheet Metal and Air Conditioning Contractors Association (FRSCA), International Electrotechnical Commission, Jack Miller Network, National Utility Contractors Association (NUCA), National Fire Sprinkler Association NAPA, NECA, NFIB, NRCA, PHCC, Tilt-up Concrete Association, and Florida Electrical.

The data were divided to analyze responses regarding member organizations and the efforts of these organizations to recruit (Figure 4-6). For respondents who were members of ABC, 79% said that the ABC did promote recruitment activities. Of those respondents, 57.5% stated that the ABC was the most active in promoting recruitment activities. An equal percentage of respondents (39%) stated that they participated in the recruitment activities of the

ABC and had experienced a direct benefit from their participation in those activities. In terms of the AGC, 87% of respondents stated that their membership organization promoted recruitment activities. Of those respondents, 56% stated that AGC was the most active in promoting recruitment activities. A total of 46.7% of respondents who were members of AGC stated that they participated in AGC recruitment activities, and of those respondents, 34.4% had experienced a direct benefit from that participation.

In addition to the direct recruitment of workers, the survey asked about individual company efforts in promoting employment opportunities in the construction industry in order to bring awareness to the community. Over 30% of the respondents stated that they promoted the construction profession in local newspaper ads (Figure 4-7). Online ads, company sponsored events, school career fairs, and ads on television were also utilized to promote the construction industry. Note that the chart shows all of the promotion efforts of the respondents with many respondents utilizing more than one method. Promotion of opportunities in the “other” category included internet websites; high school co-ops and outreaches; military, college, and general career fairs; radio; universities; ads on company vehicles; college employment postings; recruiting through current employees; workforce alliances; labor agents; and construction toolbox kits for elementary and middle schools.

Hourly Worker Recruitment

Additional questions were focused on recruitment and hiring experiences related to hourly workers. Experiences were quite varied depending on whether the workers were skilled or unskilled. Companies generally had no difficulty in hiring unskilled workers but found it very difficult to hire skilled workers (Figure 4-8). In the “hire with some difficulty” category, experiences were about the same.

In terms of recruitment, 30% of the respondents stated that recruitment of hourly workers through word of mouth was the most successful method in hiring hourly employees (Figure 4-9). The recruitment avenues with “no success” included high schools, community colleges, union organizations, and industry publications. Recruitment avenues in the “other” category that respondents found to be “very successful” included

- Recruiting through current employees
- Headhunters
- Radio advertisements
- “Now Hiring” signs on company vehicles

Other activities that solicited “little/some success” included using recruiters, referrals, referral bonuses, and through current workforce. One respondent stated reputation as a recruitment tool.

Respondents were asked if they had success in hiring quality hourly workers. There was no dramatic difference in the experiences of hiring unskilled and skilled workers (Figure 4-10). Generally, most (nearly 50%) respondents had “some success” in hiring quality hourly workers, whether skilled or unskilled. There is a slight indication that the “little success” efforts were noted more with skilled workers and that the “very successful” efforts were noted more with unskilled workers.

The survey asked the respondents to state whether or not they offered incentives to new hourly worker hires. More respondents offered incentives for new skilled worker hires than unskilled worker hires (Table 4-7). This reflects the overwhelming need for skilled workers as over 50% of the respondents experienced a significant shortage (Figure 4-2).

When asked about the number of new worker hires, respondents indicated that one to 700 hourly workers were hired per year (Table 4-8). The typical respondent hired 32 workers (median) each year.

Salary Employee Recruitment

A series of questions were asked about salary employee. When asked about their experiences with recruiting and hiring salary employees, over 40% of the respondents stated that superintendents, project managers, and estimators were “very difficult to hire” and about 50% of the respondents described accountants and purchasing agents as “not difficult to hire” (Figure 4-11). Over 50% of the respondents experienced some difficulty in hiring assistant project managers (APM) and project engineers (PE).

Nearly 30% of the respondents stated their efforts in recruiting salary employees by word of mouth proved to be “very successful” (Figure 4-12). Over 40% of the respondents gave additional recruitment strategies, in the “other” category that were “very successful.” Those strategies regarded as “very successful” by respondents included using headhunters and recruiters. In terms of recruiters, not all respondents experienced the same success, with respondents expressing a range of experience from “no success” to “little/some success.” Some success had been experienced with internally promoting and using current contacts. One respondent used an internal employee referral bonus.

The different recruiting techniques had varying levels of success for different salary employee positions. The experience of respondents in hiring salary employees, specifically superintendents, assistant project managers/project engineers, project managers, and estimators had been similar with a normal distribution exhibiting that most respondents found “some success” in making quality hires for those positions (Figure 4-13).

When the data was analyzed further, it was discovered that subcontractors and general contractors had different experiences in hiring quality salary employees. This is attributable to the differing needs to hire salary employees by subcontractors and general contractors. When comparing Figure 4-13a and Figure 4-13b, general contractors exhibited a greater amount of

success of hiring in all positions (over 30%) than subcontractors (over 10%). Subcontractors experienced an increasing amount of success in hiring estimators while contractors found “some success.”

Most respondents stated that they employed the techniques of offering hiring incentives to salary employees with more incentives being offered to project managers than estimators (Table 4-9). Since nearly 50% of respondents found hiring project managers as very difficult (Figure 4-11), offering incentives may have a direct relationship with the success of hiring quality project managers as shown in Figure 4-13.

Respondents revealed hiring a range of zero to 2,000 salary employees in the past three years with the median number being ten employees (Table 4-10). One respondent represented a new company, resulting in a large number of new salary employees being hired in the past three years.

Company Retention

The final section of the survey inquired about the retention of employees. Results were divided into two subsections, hourly workers and salary employees, as has been typical of the presentation of other results of the survey.

Hourly Worker Retention

The experiences varied considerably among the respondents regarding worker retention. Respondents indicated that up to 90% of the hourly workers quit their jobs within the first six months of hire. Additionally, up to 65% of the workers were laid off within the first six months of hire (Table 4-11). Based on these figures, more hourly workers quit within the first six month than are laid off. Thus, there appears to be a greater reluctance to lay off workers. This may be attributable to how respondents have shown a general difficulty in hiring hourly workers, as expressed in Figure 4-8.

Respondents were asked to describe the level of compensation of hourly workers. The responses were given on a scale ranging from “not competitive” to “very competitive.” Nearly 40% of the respondents stated they offered “above average” pay to their hourly workers (Figure 4-14). No respondents stated offering a level of pay that was “below average” or “not competitive” and most respondents stated they considered the hourly wages being paid as being either “above average” or “very competitive.” Further research into a relationship between the competitive nature of the pay for hourly workers and respondent’s experience with the turnover of hourly workers revealed no direct correlation.

Respondents were asked to state their general opinions about the construction industry pay for hourly workers. More than 60% of the respondents stated that they did not believe hourly workers were underpaid (Figure 4-15). Thus, it appears that all firms represented among the respondents pay with average wages or that the pay level is higher than average. When commenting on the pay of construction workers in the industry, over one-third considered construction workers as being underpaid.

Salary Employee Retention

The survey inquired about the company retention practices for salary employees. Since turnover of salary employees does not occur as frequently as that of hourly employees, respondents were asked to reveal how many of their company’s salary employees had been working with the company for more than three years (questions about hourly workers pertained to the first six months of employment). Respondents gave a range of one to 100% of the salary workers had been with the company for the past three years (Table 4-12). One company could not fully respond to this question since the company had been in business for only one year. Regardless, there is not a large difference between the mean and median values expressed by

respondents. This response shows that most salary employees tend to remain employed by the same firm.

Company Size

The data were analyzed to determine if there was a difference between companies who had annual revenues at or above \$100 million (referred to as larger firms) and those with annual revenues at or below \$50 million (referred to as smaller firms). Specifically, the data were examined concerning company labor shortage experience, promoting the construction industry, and recruitment of hourly workers.

Of all the respondents, 66.7% of the general contractors and 33.3% of the subcontractors reported annual revenues of \$100 million or more. Respondents who reported annual revenues of \$50 million or less consisted of 36.4% of the general contractors and 68.2% of the subcontractors.

Comparing the larger firms with the smaller firms revealed that a greater shortage of labor was experienced by larger firms, though over half of both groups reported experiencing a labor shortage. The shortage of employees extends to the salary employees as well. Specifically, 83.3% of the respondents in the larger firm group and 72.7% of those in the smaller firms were experiencing a shortage of assistant project managers/ project engineers. This was the only salary employee position in which there was a difference between the experiences of the two groups.

In terms of demographics of the labor force, all of the larger firm respondents felt that demographics were changing. Differences in responses between larger firms and smaller firms were evident with 80% of the larger firms stating that there were more Hispanic workers and 50% expressing that more women were now working in the industry. Of the smaller firms, 55% stated there were more Hispanic workers and 2.3% stated there were more women.

Company promotion of the construction industry by the responding firms was related to company size. The larger firms exhibited a greater frequency of using online ads and schools, while smaller firms utilized newspapers more than larger firms.

Larger firms and smaller firms had different experiences with hiring unskilled and skilled workers. When hiring unskilled workers, 81.8% of larger firms and 32.6% of smaller firms experienced some difficulty. The larger firms experienced some difficulty with hiring skilled workers (72.7%) and 27.3% indicated it was very difficult. Some of the smaller firms (34.1%) had some difficulty hiring skilled workers but 61% stated it was very difficult to hire skilled workers.

Recruitment efforts of hourly workers yielded different levels of success for larger firms and smaller firms. In those efforts where there was a large difference between experiences by larger firms and smaller firms, larger firms responded in greater percentages. Only in recruiting hourly workers through newspapers did smaller firms have greater success than large firms. Larger firms expressed hiring with more success with unions, apprenticeship programs, company websites and word of mouth than smaller firms.

Success in recruiting quality hourly workers revealed that larger firms had more success than smaller firms. In recruiting unskilled workers, 90% of the larger firms and 74.6% of the smaller firms had some success or were very successful. Larger companies had more success hiring quality skilled workers (90.9%) than did smaller firms (62.5%).

Table 4-1. Business Sectors Represented by Respondents

Business sector	Percent of respondents
Commercial	80.6%
High rise	43.1%
Government	37.5%
Industrial	34.7%
Multifamily residential	26.4%
Single family residential	23.6%
Other	12.5%

Table 4-2. Business Sectors Represented by Respondents

Business classification	Percent of total
Subcontractor	56.9%
General contractor	41.7%
Specialty contractor	23.6%
Construction management	18.1%
Other	6.9%
Design/build	5.6%

Table 4-3. Annual Revenue by Respondent

Type of firm	Total	Mean	Median	Minimum	Maximum
Subcontractor	37	\$ 60.5 million	\$15 million	\$1.2 million	\$720 million
General contractor	26	\$484.4 million	\$39 million	\$3.0 million	Over \$8 billion
All respondents	63	\$238.7 million	\$30 million	\$1.2 million	Over \$8 billion

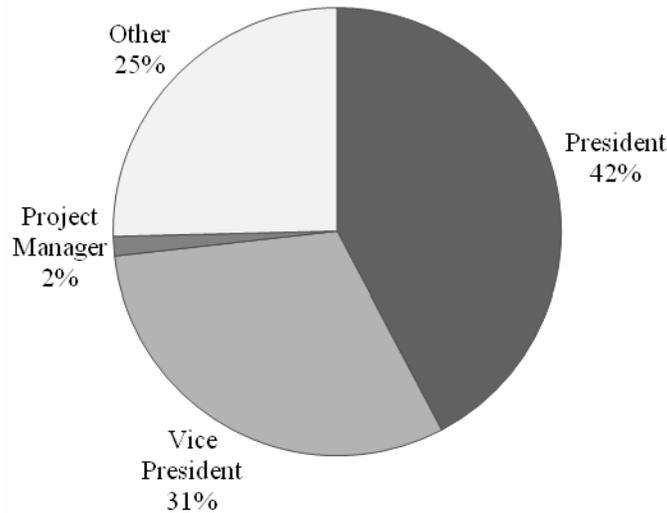


Figure 4-1. Company Position of Respondent.

Table 4-4. Respondent Company's Total Hourly Workers

Type of firm	Count	Mean	Median	Minimum	Maximum
Subcontractors	41	292 workers	100 workers	10 workers	5,000 workers
General contractors	30	152 workers	20 workers	0 workers	1,500 workers
All respondents	71	216 workers	60 workers	0 workers	5,000 workers

Table 4-5. Respondent Company's Total Salary Employees

Type of firm	Count	Mean	Median	Minimum	Maximum
Subcontractor	41	76 employees	23 employees	0 employees	1,500 employees
General contractor	30	278 employees	20 employees	2 employees	6,000 employees
All respondents	72	162 employees	23 employees	0 employees	6,000 employees

Table 4-6. Age Range of Hourly Workers of Respondent

Age range	Count	Mean	Median	Minimum	Maximum
Youngest	68	20.6 years	20 years	17 years	33 years
Oldest	68	60.5 years	60 years	35 years	83 years

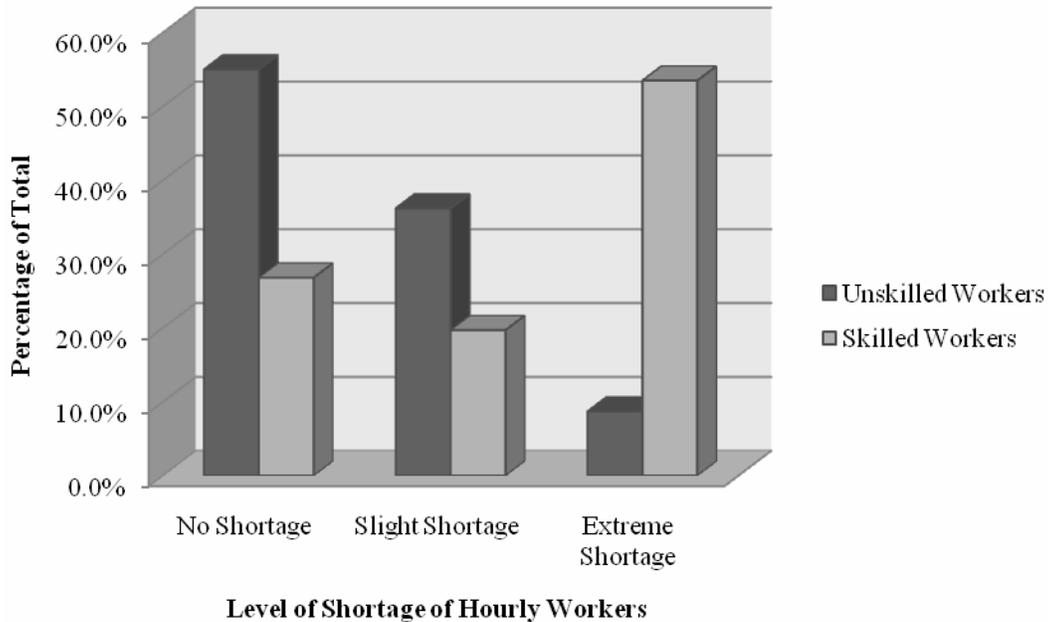


Figure 4-2. Respondent Experience of Hourly Worker Shortage.

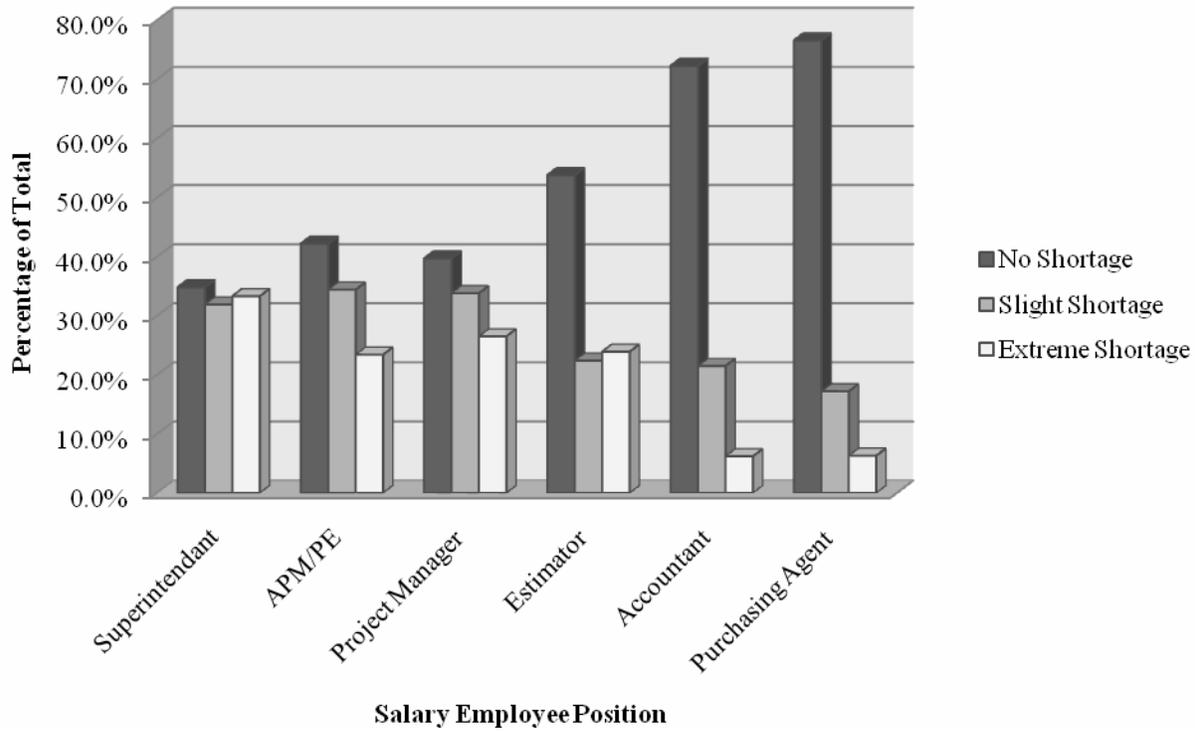


Figure 4-3. Respondent Experience with Salary Employee Shortage.

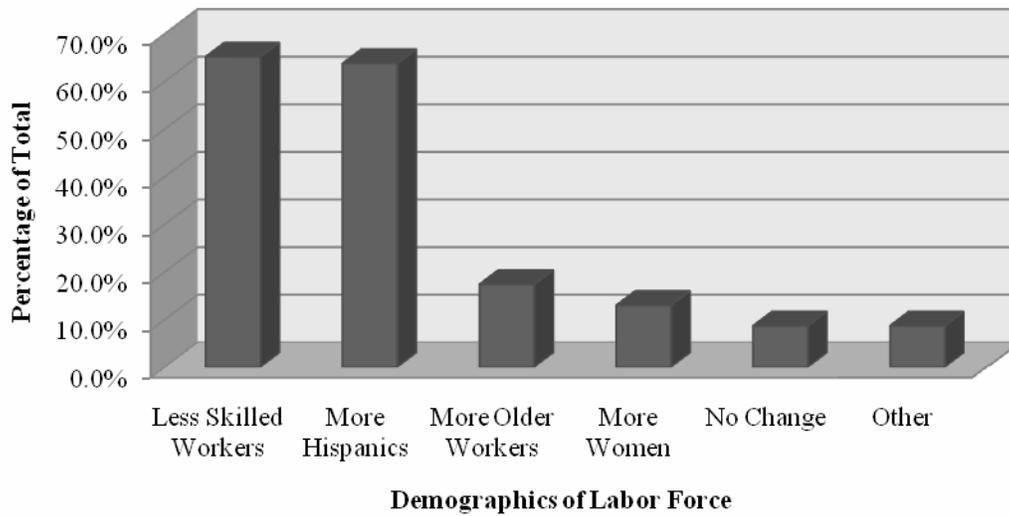


Figure 4-4. Respondent's Experience with Changes in Workforce Demographics.

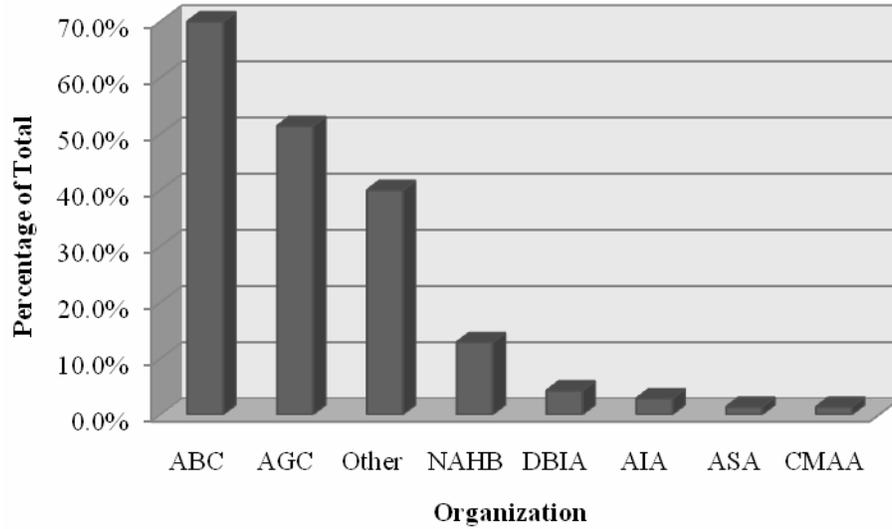


Figure 4-5. Respondent's Company Memberships.

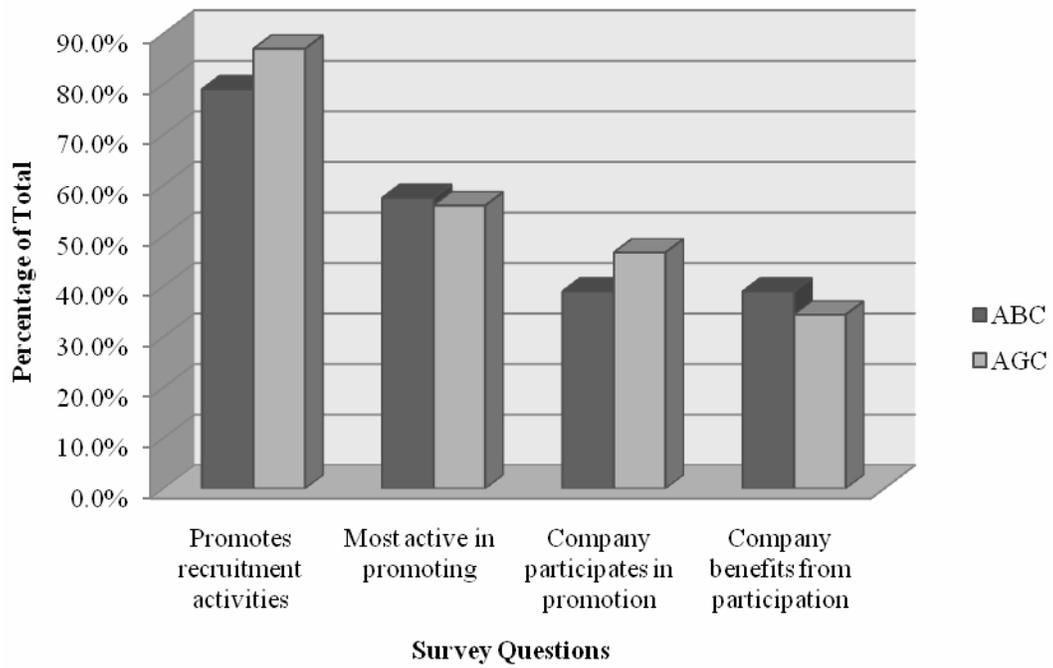


Figure 4-6. Company Membership Experience with Recruitment.

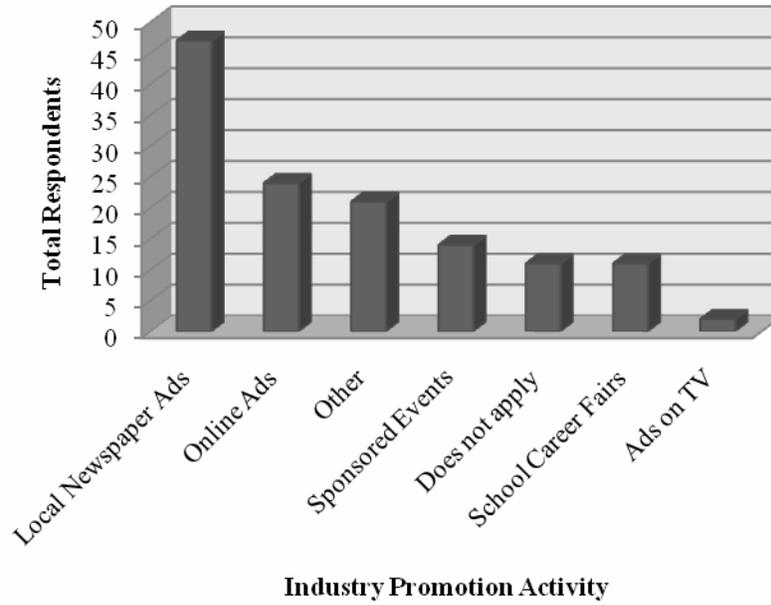


Figure 4-7. Respondent Promotion Efforts of Construction Careers.

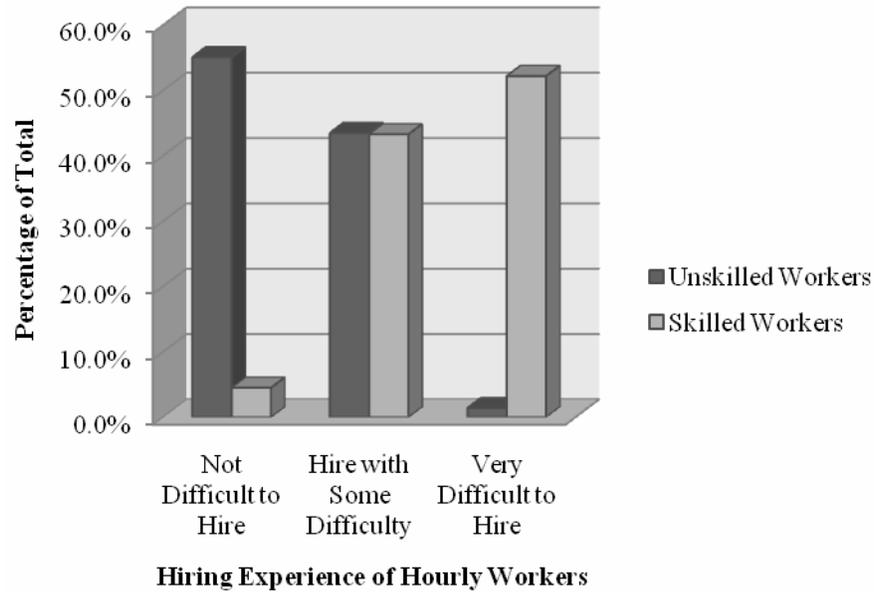


Figure 4-8. Respondent Hiring Experiences of Hourly Employees.

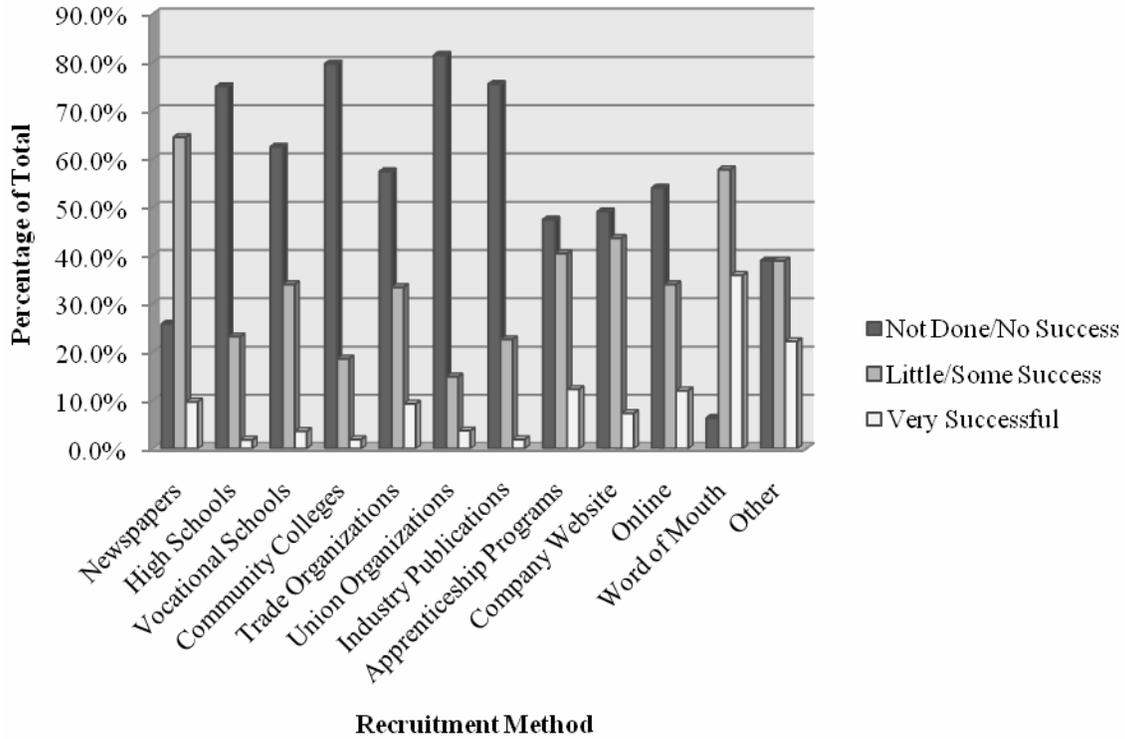


Figure 4-9. Respondent's Recruitment Efforts Level of Success in Hiring Hourly Workers.

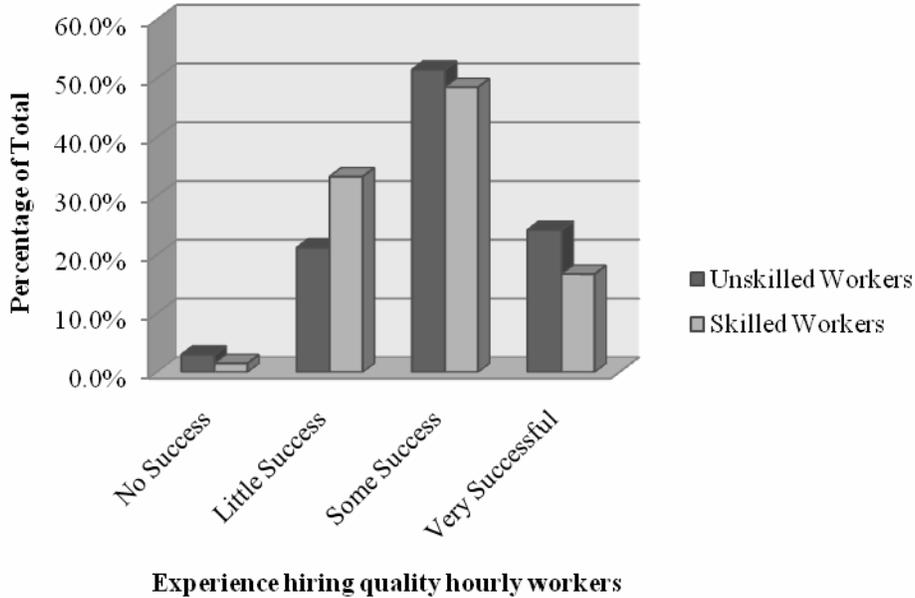


Figure 4-10. Respondent's Success in Hiring Quality Hourly Workers.

Table 4-7. Incentives Offered to Hourly Workers

Type of hourly worker	Response
Skilled (welders, electricians, etc)	65.7%
Unskilled (laborers)	44.8%

Table 4-8. New Hires of Hourly Workers per Year by Respondents

Type of firm	Count	Mean	Median	Minimum	Maximum
Subcontractors	38	98 workers	48 workers	5 workers	700 workers
General contractors	27	74 workers	20 workers	1 worker	700 workers
All respondents	65	77.2 workers	30.0 workers	1 worker	700 workers

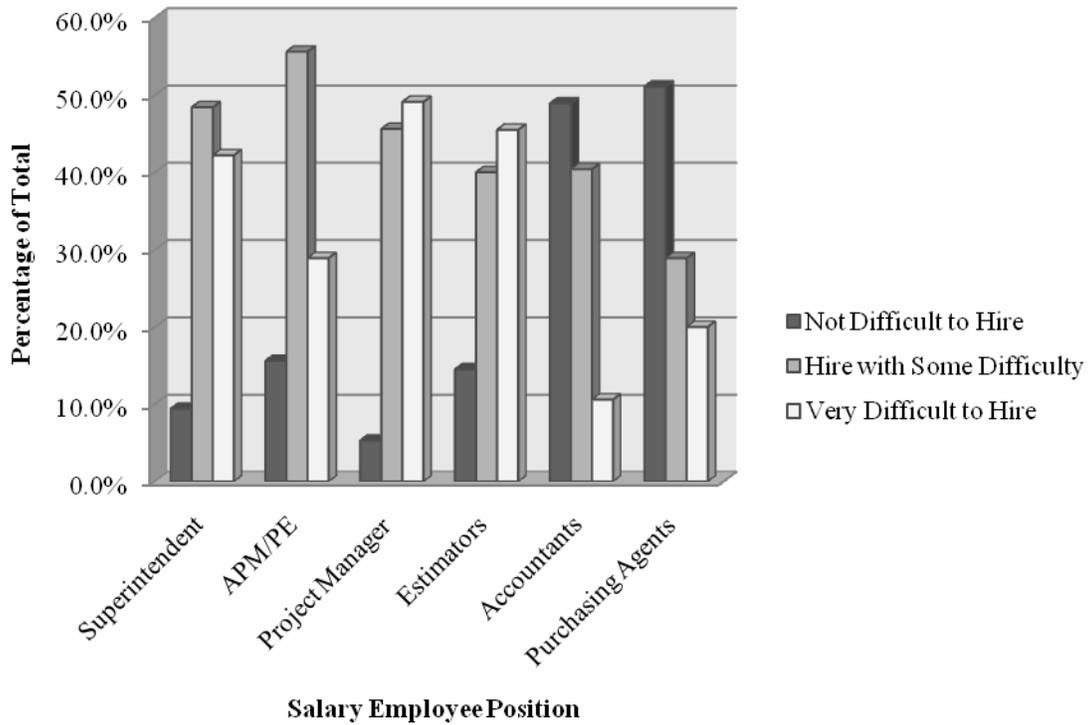


Figure 4-11. Respondent's Experiences with Hiring Salary Employees.

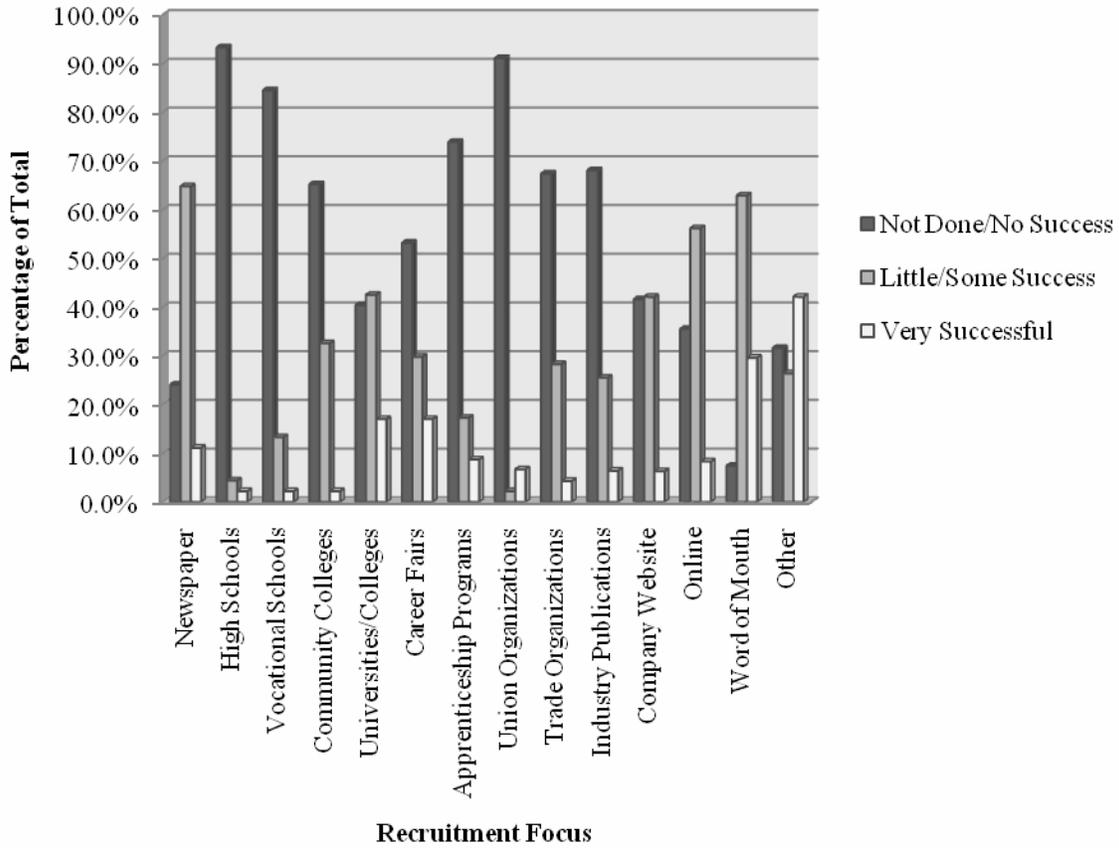


Figure 4-12. Respondent's Recruitment Efforts of Salary Employees.

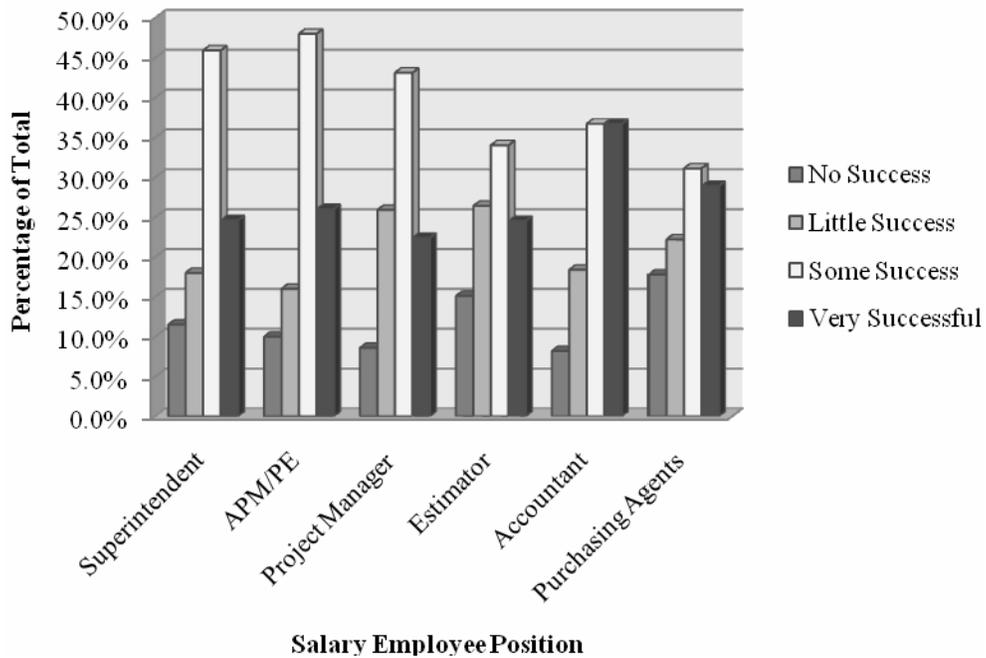


Figure 4-13. Respondent's Success in Hiring Quality Salary Employees.

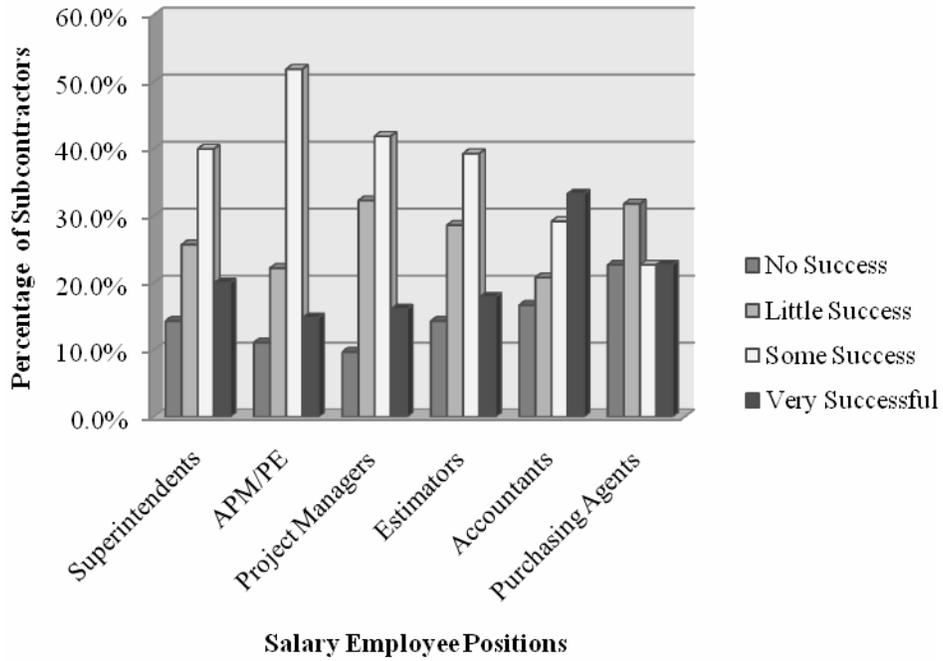


Figure 4-13a. Subcontractor Experience Hiring Quality Salary Employees.

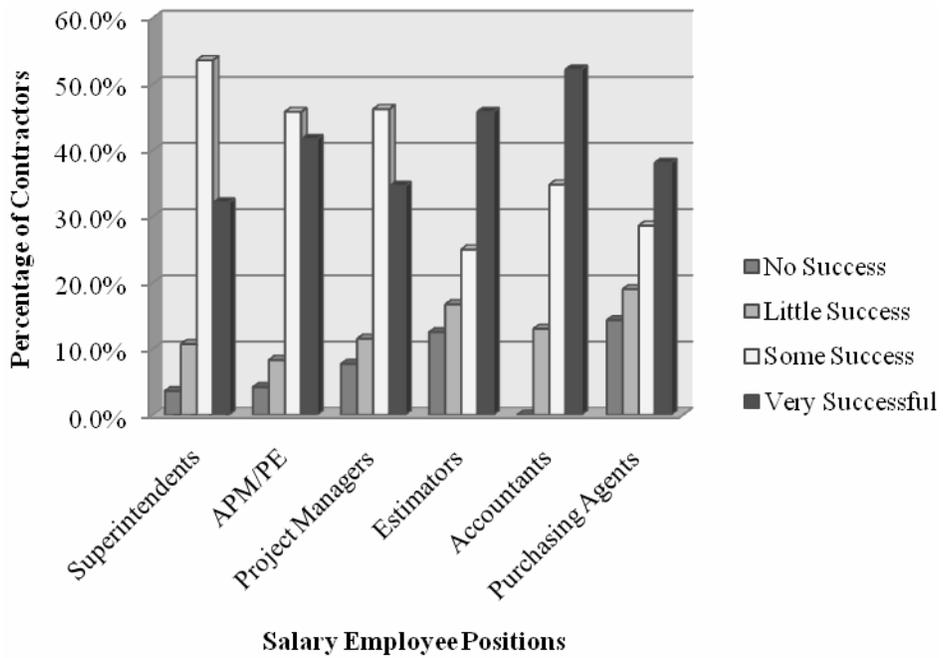


Figure 4-13b. General Contractor Experience Hiring Salary Employees.

Table 4-9. Respondent's Experiences with Hiring Salary Employees

Salary employee position	Response
Project manager	74.6%
Assistant project manager/ project engineer	72.9%
Superintendent	69.2%
Estimator	66.7%

Table 4-10. Salary Employees Hired in the Past Three Years by Respondents

Type of firm	Mean	Median	Minimum	Maximum
Subcontractor	19.2 employees	8 employees	0 employees	150 employees
General contractor	93.4 employees	7.5 employees	0 employees	2,000 employees
All respondents	58.3 employees	10 employees	0 employees	2,000 employees

Table 4-11. Percentage of Hourly Worker Turnover within First Six Months of Hire

Situation	Mean	Median	Minimum	Maximum
Hourly workers who quit	25.9%	20.0%	0.0%	90.0%
Hourly workers laid off	13.4%	5.0%	0.0%	65.0%

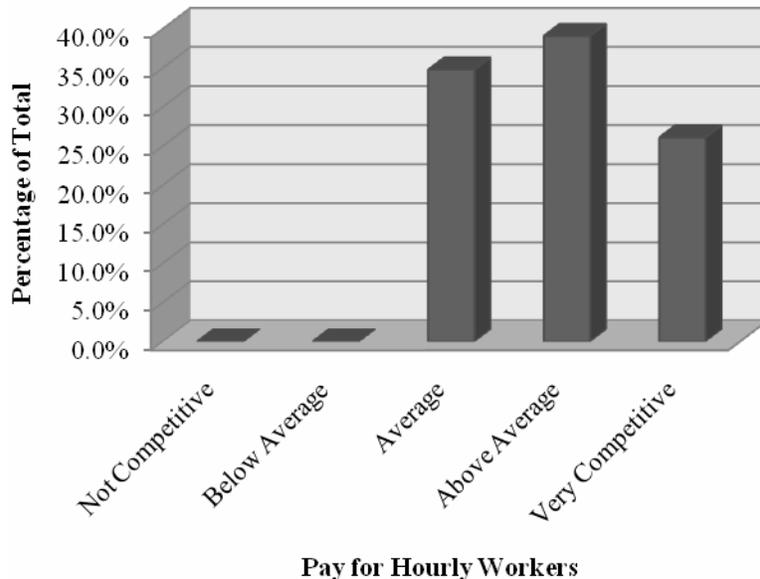


Figure 4-14. Respondent Pay Range for Hourly Workers.

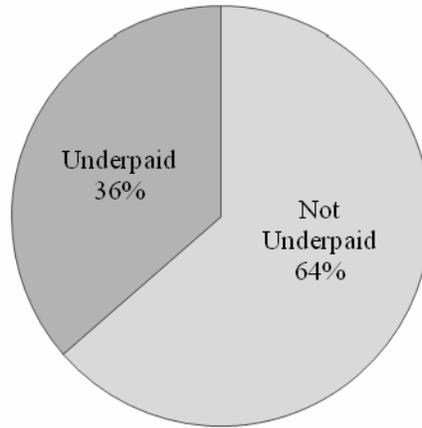


Figure 4-15. Respondent's Opinion of Hourly Worker Pay.

Table 4-12. Percentage of Salary Employees Retained Over Three Years

Type of firm	Mean	Median	Minimum	Maximum
Subcontractor	74.0%	80.0%	1.0%	100.0%
General contractor	70.4%	75.0%	1.0%	100.0%
All responses	71.4%	80.0%	1.0%	100.0%

CHAPTER 5 CONCLUSIONS

The research has reaffirmed what is already evident – there is a labor shortage and the construction industry is having trouble with recruiting and retaining the workforce specifically with skilled workers. Research results show that many companies are not putting forth a significant effort to remedy this situation. There is an extreme shortage and this problem is getting worse, as there are now less skilled workers than five years ago. Companies continue to utilize the familiar recruitment avenues of newspaper ads and word of mouth. These approaches have limitations in terms of whom the companies target as potential hires. Newspaper ads are short and do not provide the opportunity for positive promotion of the industry. Word of mouth simply spreads at the will of the current workers who may or may not communicate the positives which the industry as a whole needs to exhibit. Most construction workers would not let their children pursue a skilled trade for a career path, so the effectiveness of word of mouth in building up an already drastically strained workforce is low. Many respondents did not feel that offering incentives would help attract more skilled workers.

Workers with considerable experience have seen how the industry has changed its attitude towards the skilled worker and they do not promote careers in construction as a viable option. Younger workers realize that construction is not the career choice that will give them the life they want to lead.

It is a widespread dilemma, and it can only be solved at through the active participation with companies, trade organizations and associations, and educational leaders. In the research, it was found that every respondent whose company was a member of the ABC and directly participated in the ABCs recruitment programs benefited. This was not the same for those respondents who companies were members of the AGC. This shows that trade organizations and

associations can learn from each other and improve the methods of recruitment. Combining this with active participation with local high schools and vocational programs could create the young workforce the industry needs to meet demands.

Some respondents stated that their companies had programs that were aimed at bringing awareness of the construction industry to the area youth. Companies are participating in high school outreach and coop programs. One company has a “toolbox” set that were given to elementary and middle school students at career days to create awareness while the children are young.

Still, much of the industry is inwardly focused and companies only focus on their immediate needs for workers and do not acknowledge the needs of their industry. It is up to the larger companies to utilize their resources and to join with trade and industry organizations and associations to start a recruitment campaign that refocuses the current opinion of the construction industry. The research has verified that company high turnover rates of hourly workers may be contributed to retention practices. This justifies the need to change the way the industry looks at retention particularly in how workers are paid and what is included. Employers need to realize that their workers need health care options and performance incentives. The industry has to refocus and realize that the workers are the key to its success.

CHAPTER 6 RECOMMENDATIONS

The labor shortage problem can be solved, but it will not be easy. Through this research, one can see that the means and methods in recruitment need to be reevaluated and possibly reinvented. This is a different time and the needs of workers in the industry have changed and they have more demands and expectations for their careers and employers.

Recommendations to the Industry

On the company level, it is important to evaluate how the worker is viewed. Once a company has established the importance of its employees, particularly the hourly workers, an approach can be devised on how to recruit workers. The company must also assess what it will offer in training and worker benefits. Retention is more about making sure each employee receives a paycheck every week, and various mechanisms must be explored that will help to keep the employees on payroll.

For companies that are not able to develop a system of recruitment and training, joining the efforts of industry and trade organizations is a viable solution to be given serious consideration. The reach of a organization goes beyond that of the individual company by utilizing resources that have endless possibilities. The American Builders and Contractors (ABC) has many programs in recruitment and training which have resulted in success by bringing more workers into the industry. Unfortunately, the ABC cannot do this alone. Ultimate success will require the active participation and assistance from other organizations and companies.

The youths of this county are the key individuals for building up the construction workforce. The industry needs a fresh group of motivated and talented individuals who can learn and implement the new technologies and techniques that are occurring in construction today. These individuals require good pay, fair hours, health coverage, safe workplaces, quality

training, opportunities for advancement, performance-based recognition through bonuses and perks similar to those offered to employees in managerial positions.

By joining with local schools and pushing for the creation of programs that prepare individuals for a trade, the industry can tackle the need for younger workers. Schools in disadvantaged areas could incorporate programs that expose students to the various construction trades. With active participation and input from industry leaders, the programs can successfully train and recruit these students and give them a great opportunity in life. To be successful, there has to be more than just the promise of a job and paycheck.

The industry needs to change the current image of a construction worker. The negative view is an incorrect one, but may seem valid due to the composition of the current workforce due to the impact of the shortage. This image can be changed, and it will have to be done through means of promotion and advertisement. For example, a career as a dentist was for many years viewed as a very demanding career leading to suicide. This was attributed to taboos about having to looking at so many mouths a day. In the last two years, a enormous surge in applicants to dental schools has changed the landscape of how schools conduct admissions procedures. This can also occur for construction. One day, the industry could experience a surge in the interest in the skilled trades, but this is a goal that is far in the future.

Recommendations to Researchers

Further research can be done concerning the labor shortage, particularly with company recruitment, training, and retention. This research intended to review and evaluate company recruitment and retention plans, but unfortunately companies were unwilling to provide these documents. Review of such documents could shed light on what specific actions are being implemented by companies, and how improvements can be made to increase the success of hiring individuals for the industry.

Research into the recruitment methods utilized by construction companies and a further analysis of their effectiveness could give insight on how greater success might be achieved in hiring quality workers. This research identified the methods companies are utilizing in recruiting workers and established what level of success, if any, the methods exhibited. Further study could uncover some unknown issues that are possibly deterring the industry's ability to recruit sufficient numbers.

An evaluation of how construction's image can be changed and finding effective means of communicating a positive message could help increase the labor force. In the July 17, 2006 issue of Engineering News Record, an article titled "Growing Work Force Crisis Requires An All-Out Blitz" suggested creating a recruitment campaign similar to the one that took place during World War II when the U.S. War Department launched the "Rosie the Riveter" campaign which allowed women to work in factories and other non-traditional jobs while the men were serving in the military. What is important about that campaign is that the barriers once keeping women from working in such arenas were forever eliminated. A similar type of campaign combined with the programs of industry and trade organizations has much potential. Research into effective means of accomplishing this would be beneficial.

Programs in high schools and vocational schools could be evaluated to determine what is successful in current programs regarding the education of new construction workers in various trades. Through research and evaluation, other schools could adopt and implement such programs that train individuals who are not college bound in the construction trades.

Ultimately, considerable research has been conducted to define the worker shortage problem and what is happening right now to try to remedy the situation. More research needs to

be done that gives the industry solutions to implement. Through research and active participation from industry leaders, the problem of the labor shortage can be solved.

APPENDIX A
INTERNATIONAL REVIEW BOARD SURVEY APPROVAL LETTER

UF Institutional Review Board
UNIVERSITY of FLORIDA

PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: November 9, 2006

TO: Staci Bartlett
304 Rinker Hall
Campus

FROM: Ira S. Fischler, Chair *ISFdl*
University of Florida
Institutional Review Board

SUBJECT: Approval of Protocol #2006-U-0977

TITLE: South Florida Workforce Shortage: Finding Success in Recruitment and Retention

SPONSOR: None

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants, and based on 45 CFR 46.117(c), authorizes you to administer the informed consent process as specified in the protocol.

If you wish to make any changes to this protocol, *including the need to increase the number of participants authorized*, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

If you have not completed this protocol by **November 2, 2007**, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl

APPENDIX B
SURVEY COVER LETTER

Cover Letter for Recruitment & Retention Survey

November 1, 2006

To: Upper Management

Subject: Successful Recruitment and Retention Practices of South Florida Construction Companies

We, the M. E. Rinker, Sr. School of Building Construction at the University of Florida, are conducting a study to explore current successful practices in recruitment and retention of construction companies in South Florida. The focus of the study is to assess practices the industry is currently implementing to address the current workforce shortage in construction. When possible, information is sought regarding documented recruitment and retention plans. Specific information is also sought on recruiting hourly workers and salary employees.

The survey questionnaire contains a variety of questions related to the current workforce shortage, recruitment efforts, and retention. Many of the questions can be answered by simply checking the applicable answers. There are no direct benefits or risks associated with participating in this study and the survey can be completed in about ten minutes. Naturally, you do not have to answer questions you do not wish to answer. Your participation is voluntary and you may withdraw your consent at anytime without penalty.

The results of this study will be compiled and a summary report will be prepared. As a token of our appreciation for participating in the study, we will provide a copy of the summary report to you at no charge. Should you have any questions please feel free to call me at the telephone number provided below or contact me at the email address shown below.

Responses provided by specific firms will be kept strictly confidential to the extent provided by law. Research data will be summarized so that the identity of individual participants will be concealed. You have my sincere thanks for participating in this valuable study.

Yours truly,

Staci Bartlett

Graduate Student, M.E. Rinker School of Building Construction at the University of Florida
Phone: (352) 262-0974 Fax: (352) 392-4537 Email: stacibartlett@gmail.com

P.S. For information about participant rights, please contact the University of Florida Institutional Review Board at (352) 392-0433 or Email: IRB2@ufl.edu.

Approved by University of Florida Institutional Review Board 02 Protocol # <u>2006-U-977</u> For Use Through <u>11-02-2007</u>
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APPENDIX C SURVEY

The Company

Which of the following business sectors best describe company projects? (√ all that apply)

- Commercial Industrial High-rise Government
 Residential: Single-Family Residential: Multi-Family Other: _____

What is the business classification of the company? (√ all that apply)

- General Contractor Specialty Contractor Construction Management
 Subcontractor Design/Build Other: _____

What is the approximate annual revenue of the company? \$ _____ Million

What is the position of the person filling out this survey? (Please √ one):

- President Vice President Senior Project Manager
 Project Manager Other: _____

How many hourly field workers does the company normally have on payroll? _____ Workers

How many salary employees does the company currently employ? _____ Employees

What is the current age range of the company's field workers? Youngest _____ Oldest _____

Labor Shortage

Is the company currently experiencing a shortage of labor? Yes No

If yes, how serious is the shortage for the following hourly workers? (√ all that apply)

- Unskilled Workers (laborers)* None Slight Extreme
Skilled Workers (welders, electricians, etc) None Slight Extreme

Is the company experiencing a shortage of personnel for managerial and supervisory positions?

- Yes No

If yes, how serious is the shortage for the following positions? (√ all that apply):

- Superintendents* None Slight Extreme
Asst. Project Managers/ Project Engineers None Slight Extreme
Project Managers None Slight Extreme
Estimators None Slight Extreme
Accountants None Slight Extreme
Purchasing Agents None Slight Extreme

How have the demographics of the industry workforce changed in the past 5 years? (√ all that apply)

- No Change More Hispanics More Older Workers More Women
 Less Skilled Workers Other: _____

Company Recruitment

Is the company a member of any of the following trade associations or industry organizations?

(Check all that apply):

- AGC ABC ASA NAHB CMAA DBIA AIA
- Other(s): _____

Do any of these organizations promote activities to recruit workers for the industry? Yes No

If yes, which organization is most active? _____

Does the company directly participate in any of these recruitment activities? Yes No

Has the company directly benefited from these recruitment activities? Yes No

Does the company promote or publicize employment opportunities in construction? (√ all that apply)

- Does not apply Sponsor Events Monster.com (Online Ads) Ads in local paper
- High School & Middle School Career Fairs Ads on TV Other: _____

Hourly Worker Recruitment

What is the experience of the company in hiring the following hourly workers? (√ all that apply)

Unskilled Workers (laborers)

- Not difficult to hire Hire with some difficulty Very difficult to hire

Skilled Workers (welders, electricians, etc.)

- Not difficult to hire Hire with some difficulty Very difficult to hire

If the company does recruit any of the above hourly employees, please answer the following:

When recruiting hourly workers, where does the company focus its efforts and how successful are they?

- Newspapers* Not done No Success Little Some Very Successful
- High Schools* Not done No Success Little Some Very Successful
- Vocational Schools* Not done No Success Little Some Very Successful
- Community Colleges* Not done No Success Little Some Very Successful
- Trade Organizations* Not done No Success Little Some Very Successful
- Union Organizations* Not done No Success Little Some Very Successful
- Industry Publications* Not done No Success Little Some Very Successful
- Apprenticeship Programs* Not done No Success Little Some Very Successful
- Company Website* Not done No Success Little Some Very Successful
- Online (Internet)* Not done No Success Little Some Very Successful
- Word of Mouth* Not done No Success Little Some Very Successful
- Other: _____* Not done No Success Little Some Very Successful

How would you rate the company's overall recruitment efforts in obtaining quality hourly workers?

Unskilled Workers (laborers): No Success Little Some Very Successful

Skilled Workers (welders, electricians, etc.): No Success Little Some Very Successful

When recruiting hourly workers, does the company offer incentives for employment?

Unskilled Workers (laborers) Yes No

Skilled Workers (welders, electricians, etc.) Yes No

How many hourly employees does the company hire each year? _____ Workers

Salary Employee Recruitment

What is the experience of the company in hiring the following salary employees? (✓ all that apply)

- | | | | |
|--------------------------|--|--|---|
| <i>Superintendents</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |
| <i>APMs/PEs*</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |
| <i>Project Managers</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |
| <i>Estimators</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |
| <i>Accountants</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |
| <i>Purchasing Agents</i> | <input type="checkbox"/> Not difficult to hire | <input type="checkbox"/> Hire with some difficulty | <input type="checkbox"/> Very difficult to hire |

*APMs: Assistant Project Managers; PEs: Project Engineers

If the company does recruit any of the above salary employees, please answer the following:

When recruiting salary employees, where does the company focus its efforts and how successful are they?

- | | | | | | |
|--------------------------------|-----------------------------------|-------------------------------------|---------------------------------|-------------------------------|--|
| <i>Newspapers</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>High Schools</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Vocational Schools</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Community Colleges</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Universities/Colleges</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Career Fairs</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Apprenticeship Programs</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Union Organizations</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Trade Organizations</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Industry Publications</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Company Website</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Online (Internet)</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Word of Mouth</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Other: _____</i> | <input type="checkbox"/> Not done | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |

How successful are the company's recruitment efforts in obtaining quality salary employees?

- | | | | | |
|---|-------------------------------------|---------------------------------|-------------------------------|--|
| <i>Superintendents</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Asst. Project Managers/Project Engineers</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Project Managers</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Estimators</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Accountants</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |
| <i>Purchasing Agents</i> | <input type="checkbox"/> No Success | <input type="checkbox"/> Little | <input type="checkbox"/> Some | <input type="checkbox"/> Very Successful |

When recruiting salary employees, does the company offer incentives for employment?

- | | | |
|---|------------------------------|-----------------------------|
| <i>Superintendents</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| <i>Assistant Project Managers/Project Engineers</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| <i>Project Managers</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| <i>Estimators</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

How many new salary employees has the company hired within the past three years? _____ Employees

Company Retention Practices

Hourly Workers

How many hourly workers quit within the first six months of being hired? _____ %

How many hourly workers are laid off within the first six months of being hired? _____ %

How competitive is the pay for hourly workers?

Not competitive Below Average Average Above Average Very Competitive

In general, do you feel that workers in the construction industry are under-paid? Yes No

Salary Employees

What percent of salary employees have been with the company for over three years? _____ %

Thank you for taking the time to fill out this survey.

Does the company have a written recruitment and/or retention plan? If so, I would greatly appreciate the company providing copies with the survey responses for use in this study. Note that all information will remain anonymous.

Thank you,

Staci Bartlett
352-262-0974

(Optional) Please provide the following information if you would like to receive a copy of the research results.

Contact Name: _____

Contact Mailing Address: _____

Contact Number: _____

LIST OF REFERENCES

- Borcherding, J.D. (1972). *An Exploratory Study of Attitudes That Affect Human Resources In Building and Industrial Construction*. California: Stanford University.
- Brown, Jr., B.H. Markus, A.M. (1988). *Recruitment Training and Employment of Construction Craftsmen in Florida: Impediments and Recommendations*. Gainesville, Florida: School of Building Construction. University of Florida.
- Business Roundtable (BRT) (1983). More construction for the money. *Construction Industry Cost Effectiveness Project, Summary Rep*. The Business Roundtable, Houston.
- Center to Protect Workers' Rights (CPWR) (2006). *The Construction Chart Book, Third Edition: Section 15*. Retrieved March 21, 2007, from http://www.cpwr.com/pdfs/pubs/chartbook_02/page%2015.pdf
- Construction Users Roundtable (CURT) (2001). CURT work force development survey results. *The Construction User Roundtable*. Cincinnati.
- Garrity, K. (March 8, 1999). No easy solution to construction labor shortage. *Seattle Daily Journal of Commerce*. Retrieved September 6, 2006, from <http://www.djc.com/special/construct99/10050580.html>
- Pappas, M.P. (2004). *An Assessment of Implementation Requirements for the Tier II Construction Workforce Strategy*. Austin, Texas: University of Texas.
- Poole PhD, K.E. Salem PhD, P.L. White PhD, M. McNamara, S. Allardyce, J. ACCRA. (2005). *A Workforce Needs Assessment of the Arizona Construction Trades Industry*. Arizona: Arizona Department of Commerce.
- Srour, I.M., Haas, C.T., Morton, D.P. (2006). Linear Programming Approach to Optimize Strategic Investment in the Construction Workforce. *Journal of Construction Engineering and Management*. 132, 1158-1166.
- Tucker, R.L., Haas, C.T., Glover, R.T., Alemany, C., Carey, L.A., Rodriguez, A., Shields, D. (1999). Key workforce challenges facing the American construction industry: An interim assessment. *Rep. No. 3, Center for Construction Industry Studies*. University of Texas at Austin. Austin, Texas.

BIOGRAPHICAL SKETCH

Staci Fawn Bartlett was born on June 18, 1982 in Manhattan, New York, to John and Francene Bartlett. She has two siblings, a brother and a sister. At the age of 7, she lost her mother to suicide, and at the age of 11, she lost her father to cancer. She was adopted by Raymond and Ruby Johnson shortly after her father's death.

Staci graduated from Coconut Creek High School in 2001 and was in the top 10 of her class of over 500 students. She was accepted into the University of Florida and started attending in the summer of 2001. She initially majored in interior design, but soon changed her focus of study to architecture in order to not limit her education and employment opportunities. Staci completed her Bachelor of Design with a major in architecture in May of 2005.

Staci decided to pursue a master's degree in building construction prior to completing her study in architecture due to her lack of knowledge of the practicalities in constructing a building. Staci graduated in May 2007 and works for a construction management company in South Florida.