

THESIS

ENTERING CONSTRUCTION PROFESSIONALS: SURVEY OF WORK VALUES  
AND CAREER EXPECTATIONS

Submitted by

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## ABSTRACT

### ENTERING CONSTRUCTION PROFESSIONALS: SURVEY OF WORK VALUES AND CAREER EXPECTATIONS

The discussion of human resources is a broad and complex one, especially in an industry as diverse as construction which employs unskilled and skilled crafts workers, clerical and professional staff, as well as a variety of construction professionals. With an understanding that employers must develop more effective ways of rewarding and developing their workforces to compete for new hires and retain their current personnel, the goal of this research is to give those construction organizations focused on strategic human resource management a better understanding of the individuals currently entering the workforce.

The general research design of this study was a comparative and associational research approach or a non-experimental approach. In this particular case, this research design was appropriate as the study was centered on defining work values and career expectations of soon-to-be Construction Management graduates as related to their personal characteristics. As such, the intention of the survey employed was twofold. One aspect was to gain a personal profile of these individuals and an assessment of what values these entering construction professionals hold. The second piece was to examine this descriptive data and seek an understanding into any relationships which may exist

among the personal characteristics of entering construction professionals and their stated life, behavioral, and work values.

From this sample some general trends of this population were found. A review of the mean rankings of life and behavioral values shows the values associated as self-centered ranked highest of all values while social-centered were lowest. Instrumental values of moral-focused and competence-focused ranked between these two terminal values and were nearly identical. The work values associated with status and independence ranked above those associated with competence and growth and comfort and security.

Those in the construction industry must recognize that the graduates of today are different than those of past generations and that what it takes to hire and retain these individuals is different than the strategies employed even a decade ago. Likewise, for the first time in American history, companies are challenged with managing four generations of employees at once, each with different values, expectations, and attitudes. For the industry to continue to grow and prosper, the leaders of tomorrow must be recruited and trained today and companies must identify a leadership succession plan, placing renewed emphasis on strategic human resource management.

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## **CHAPTER 1**

### **INTRODUCTION**

The construction industry is characterized by change and uncertainty. A rapidly changing economic environment, changing customer demands, and ever-increasing product-market competition has become the norm for most organizations (Becker & Gerhart, 1996). The rate of change in construction organizations is increasing with forces from external environments (e.g., demographic, economic, legal and regulatory, political, social, and technological) posing an unprecedented amount of threat to the productivity and competitiveness of construction organizations (Maloney, 1997). To compete in an ever-changing, increasingly-demanding economic environment, companies must continually improve their performance by reducing costs, innovating products and processes, and improving quality, productivity, and speed to market. Firms can sustain a competitive advantage “only by creating value in a way that is rare and difficult for competitors to imitate” (Becker & Gerhart, 1996, p. 781).

With this disruption of external environments, companies must develop internal human resource management strategies which are flexible and inclusive of individuals with varying skill sets for this competitive advantage (Baird & Meshoulam, 1988). In developing these strategies, companies must address issues such as the organization’s strategic vision and its view of human resources (Maloney, 1997). Human resources, both as labor and a business function, can have a significant effect on firm performance. Research has shown that an effective human resources system can positively affect a firm’s market value by \$15,000-\$45,000 per employee. For a new firm, human resources

can affect the probability of survival by as much as 22 percent (Becker & Gerhart, 1996). Unfortunately, human resource management in construction has typically been an emergent rather than a strategic or deliberate process which has resulted in the infrequent use of comprehensive workforce management strategies in the industry (Brandenburg, Haas, & Byrom, 2006).

According to the U.S. Department of Labor, the construction industry, with 7.2 million wage and salary jobs and 1.8 million self-employed and unpaid family workers in 2008, was one of the Nation's largest industries (Bureau of Labor Statistics, 2010). Then the Great Recession came and the construction industry was especially affected by the credit crisis and recession. Still, the number of wage and salary jobs in the construction industry is expected to grow 19 percent through the year 2018, compared with the 11 percent projected for all industries combined (Bureau of Labor Statistics, 2010).

Implications of this extend beyond a skilled labor shortage to a skilled leader shortage. The generations that have built the construction industry, Matures and Baby Boomers, have and/or are entering retirement. Their replacements, those who will lead the construction industry into the next 100 years, hold starkly different values. Generation Xers are not only about half the size of the Baby Boomer workforce but many have left corporate America in favor of more entrepreneurial career paths. The newest generation entering the job market, known as Generation Y, while bringing a population skyrocket nearly that of the Baby Boomer generation, also holds unique characteristics which are affecting human resource strategies of those organizations seeking to hire them (Kyles, 2005; Wahl, 2004).

For the first time in American history, corporations are challenged with managing four generations of employees at once, each with different values, expectations, and

attitudes. The old models of who works and what they work for are steadily changing (Kyles, 2005). For the industry to continue to grow and prosper, the leaders of tomorrow must be recruited and trained today (Construction News, 2004). Likewise, companies must identify a leadership succession plan, placing renewed emphasis on training and development (Wahl, 2004).

### **Statement of the Problem**

A first factor to consider in understanding the shortage of workers is the construction industry's problem with image which makes individuals reluctant or uninterested in the industry. This problem is compounded by a general lack of knowledge and information about the industry, the career opportunities available within, and required qualifications (Fielden, Davidson, Gale, & Davey, 2000). Over a decade ago, Swoboda and Cieslik (1996) published a study of high school students' perceptions toward the construction industry and whether or not they would have an interest in construction as a career. Responding to a questionnaire, 61 percent of students said they would not consider a career in construction; 39 percent said that they would or might. Reasons for excluding construction as a career included, in order, "not interested", "work conditions", "did not know enough about it", and "low pay". Other responses like "construction is hard labor", "boring", "I'm a girl", "I like 'thinking' jobs", and "I don't want to be dirty all the time" showed the attitudes of this age group toward the construction industry (Swoboda & Cieslik, 1996).

Eight years later, Tarmac Construction Ltd. in Great Britain, conducted a similar study of young people on the appeal of construction as a career option. The research began by asking young people, aged 16 to 24 years across the UK, about their planned career path. The findings: only two percent would choose a job in the construction

industry. Factors such as poor working conditions, lack of job satisfaction, unsociable or inflexible hours, low pay, and job insecurity were cited (Mann, 2004). Another study by the Construction Industry Training Board provides some explanation for this with its findings that parents, teachers, and school children believed that jobs in the construction industry were limited to bricklaying, joinery, painting, and decorating (Fielden et al., 2000).

The perspective isn't better among those in the construction industry. Bob FitzGerald, President of the Mechanical Contractors Association of America, stated, "The perception on the part of the general public needs to be improved, as does the perception within our own constituency." He continued, "We do not see many of our journeymen encouraging their children to come into the trades" (as cited in Contractor's Business Management Report, 2003, p. 6). Part of this problem is construction's poor safety record--the worst of all industries, along with mining. Another part of the problem is the structure of the industry, where, for instance, most craft workers are not cross-trained or given incentives to improve or add skills (Contractor's Business Management Report, 2001). "If mistreating labor on construction and low pay was a felony, I think that most of us would be on death row today," said Frank Yancey, a consultant and recently retired senior vice president with Kellogg Brown & Root (as cited in Contractor's Business Management Report, 2001, p. 13).

A second factor, and perhaps the underlying cause of the worker shortage, is the traditional view the construction industry holds of human resource management. Human resource management (HRM) is defined as "anything from supervision, incentives and profit sharing to machine-paced production, methods of training and employee selection" (Baldamus, 1961, as cited in Townley, 1993, p. 518). The traditional view of HRM is

that it is a department within an organization responsible for tasks such as employment, employee relations, training and development, equal employment opportunity, and so on (Baird & Meshoulam, 1988). The goals of HRM are to minimize costs to the organization while maximizing any potential source of efficiency gain (i.e., reduce labor costs by getting more efficiency out of fewer employees) (Becker & Gerhart, 1996).

The construction industry has historically adopted reactive approaches to dealing with its staffing needs, resulting in the prevalence of ‘hard’ HRM approaches and reliance on performance improvement models long since discarded by other industries (Druker, White, Hegewisch, & Mayne, 1996). In this ‘hard’ approach, the main emphasis of HRM is on strategic business objectives (e.g., the cost of labor should be minimized and used as flexibly as possible). Likewise, HRM is viewed like any other factor of production, rather than as a critical component in achieving a competitive advantage (Druker et al., 1996).

The counter to this ‘hard’ approach is a ‘soft’ approach, or the view that an organization’s employees are its greatest asset and key to organizational success. This approach, known as strategic human resource management, “is concerned with the translation of strategy into organizational action through organizational structure and design, resource planning and the management of strategic change” (Johnson & Scholes, 1999, as cited in Price & Newson, 2003, p. 185). Such strategic assets are “the set of difficult to trade and imitate, scarce, appropriable, and specialized resources and capabilities that bestow the firm’s competitive advantage” (Amit & Shoemaker, 1993, p. 36).

In this view, strategic HRM is a shared responsibility of human resource professionals and senior managers who are tasked with ensuring that only the best people

are selected in the hiring process, that they are given high quality and appropriate training and development, and that they are suitably rewarded to reflect their value (Druker et al., 1996). Understanding the work values and career expectations of potential and current employees is a critical piece of strategic human resource management.

### **Purpose Statement**

The discussion of human resources is a broad and complex one, especially in an industry as diverse as construction which employs unskilled and skilled crafts workers, clerical and professional staff, and a variety of construction professionals. With an understanding that employers must develop more effective ways of rewarding and developing their workforces to compete for new hires and retain their current personnel, the goal of this research was to give those construction organizations focused on strategic HRM a better understanding of those individuals currently entering the construction workforce. This research included both the personal and demographic characteristics of the population as well as an identification of their work values and career expectations. With a greater understanding of values, construction organizations can better develop a strategic HRM plan.

This research focused on individuals anticipating entry into the construction industry as construction professionals within the timeframe of December 2006 to May 2008. As such, the purpose of this study was twofold. One aspect was to gain a personal profile of these individuals and an assessment of what values these entering construction professionals hold. The second piece was to examine this descriptive data and seek an understanding into any relationships which may exist among the personal characteristics of entering construction professionals and their stated values. Personal characteristics

were divided into demographic, family of origin, social, personal, experience, and career interests. Values included life, behavioral, and work values.

### **Research Questions**

Focused on Junior, Senior, and Second Bachelors students who intended to graduate with a Bachelor of Science degree in Construction Management between December 2006 and May 2008, five broad research questions guided this study:

1. Who are entering construction professionals?
2. What are the life and behavioral values of entering construction professionals?
3. What are the work values of entering construction professionals?
4. What is the relationship among personal characteristics and the life and behavioral values of entering construction professionals?
5. What is the relationship among personal characteristics and the work values of entering construction professionals?

### **Definition of Terms**

*Construction Professional:* Includes titles such as manager (e.g., project, design, purchasing, plans), engineer (e.g., project, office, field, cost, scheduling), estimator, business development officer, contract administrator, and superintendent. These include positions responsible for the support of construction projects or construction organizations through procurement, scheduling, cost estimating and accounting, engineering design, construction administration, document control, field supervision, safety management, and so on (Gibson et al., 2003). This does not include labor, trade, apprenticeship, foreman, clerical, human resources, or sales and marketing positions.

*Values:* Values are core beliefs that individuals experience as standards that guide how they “should” function. Individuals experience their values in terms of

“oughts” that identify both the processes and objectives to be pursued (Brown, 2002). Values develop so that individuals can meet their needs in socially acceptable ways, becoming crystallized when individuals can identify them and tell how they influence their behavior (Rokeach, 1973). Values are the major factor in motivation because they form the basis for attributing worth to situations and objects (Feather, 1992; Rokeach, 1973).

*Work Values:* A work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). They are the values that individuals believe should be satisfied as a result of their participation in the work role and lead them to set directional goals (Brown, 2002). Elizur (1984) distinguished two facets of work values: a) modality of the work outcome; i.e., whether it is instrumental (obtains a desired end such as pay for performance), cognitive (a belief system regarding appropriate behavior such as achievement), or affective (such as enjoyment of application); and b) performance contingency; i.e., whether the outcome is contingent upon performance or upon membership in the organization.

### **Delimitations**

A purposive sampling frame was used within this study from an accessible population presumably representative or typical of the larger population of entering construction professionals. All participants in the study met the following criteria:

- Junior, Senior, or Second Bachelors class-level within a Bachelors of Science in Construction Management program;
- Self-report as intending to graduate with this degree between December 2006 and May 2008; and



- Current enrollment in the largest American Council of Construction Education (ACCE) accredited program in the United States.

The University chosen holds the largest Construction Management program in the country, graduating over 200 students annually. With its sheer size, the graduates from this program are having an impact on the construction industry and the firms competing for new graduate hires. The delimitation to survey upper-classmen intending to graduate in the near future was a purposeful attempt to increase the validity of the study by surveying individuals who are near graduation and who should (we hope!) be thinking about what they want and expect in their chosen career.

### **Limitations**

Prior studies in the area of work values and career expectations make note that an important consideration in any investigation in this area take into the account the joint influence of personal and situational variables on occupational choice, satisfaction, and success (Brown, 2002; Meyer, Irving, & Allen, 1998; Sagie, Elizur, & Koslowsky, 1996). As such, it is difficult to distinguish direct effects of personal and demographic variables on values; rather these variables are an interrelated part of an individual, wholly influencing their values. Likewise, values are personal in nature and, therefore, the measurement of values relies on the awareness of the participant. It is possible that not all participants were fully aware of their values, that they took the time to analyze each value independently, or that they evaluated their own values honestly.

Another limitation of this study it that it captures the personal and demographic characteristics and held values of soon-to-be construction management graduates at one point-in-time. All participants were currently residing within the same area of the country and it is presumed that many/most are from the same region of the country.

Based upon demographic trends within the Construction Management program and those of other national construction programs, it was assumed that the population would have similar demographic traits such as gender, age, and race as well as similar career interests.

### **Overview of Study**

The general research design of this study was a comparative and associational research approach or a non-experimental approach. Studies that use the comparative approach “examine the *presumed* effect of an attribute independent variable” (Gliner & Morgan, 2000, p. 68; italics in original). In this particular case, this research design was appropriate as the study was centered on defining work values and career expectations of soon-to-be Construction Management graduates as related to their personal characteristics. Such information is valuable as there are not similar studies focused on the values and expectations of current or upcoming construction management professionals. A similar quantitative research design has been used by other researchers conducting related studies (Allen & Meyer, 1990; Cooper, Arkkelin, & Tiebert, 1994; Duff & Cotgrove, 1982; Fletcher & Williams, 1996; Heinzman, 2004; Jones, 2005; Lazarova, 2004; Meyer et al., 1998; Somers & Birnbaum, 2000).

### **Theoretical Framework**

Guided by Brown (2002), the major underlying assumption of this research was that work values, in concert with other life role values (e.g., family, spirituality), are the primary variables which influence the career-choice making process, the job chosen, and the resulting satisfaction with and success in this chosen career. His work, and that of others, provided a theoretical model which served as the framework for this study (Brown, 2002; Brown & Crace, 1996; Sagie et al., 1996). From this research it was noted

that a variety of personal characteristics such as age, gender, race, familial responsibilities, work experience, and career interests all have an influence on the values one holds. Similarly, it is the whole of these values (rather than each as an individual function) which influence career expectations and other life role decisions.

### **Overview of the Chapters**

Following this introduction, the specific components of the study are presented in Chapters 2 through 5. Chapter 2 provides a review of the literature. Chapter 3 contains the methodology and procedures utilized in the study. Chapter 4 presents the data collected and analysis of findings, and Chapter 5 includes the study's summary, conclusions, and recommendations for future research. Materials relevant to the data collection and analysis are included in the Appendices.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

The purpose of this research was to give those construction organizations focused on strategic human resource management a better understanding of the individuals entering the workforce. As such, an understanding of human resource management is an important first place to start. A theoretical discussion of the role of life, behavioral, and work values as related to occupational choice, satisfaction, and success follows. Within this context, implications of the demographic and generational trends within the workforce and the construction industry are included. Finally, recommendations are made for the recruitment and retention of top people within the construction industry.

#### **Traditional View of Human Resource Management**

Human capital relates to the human resources people bring to the firm (Wright, Dunford, & Snell, 2001). This includes the education, experiences, and skills an individual brings to an employer that helps in getting their work done (Boxall & Steeneveld, 1999). Traditional human capital theory research has focused on employees' human capital and its effects on earnings (Becker, 1980). Human resource management (HRM) has concentrated on the practices that ensure that employers' human capital (i.e., employees' knowledge, skills, and abilities) increases productivity and contributes positively to business outcomes (i.e., revenue) (Becker & Gerhart, 1996; Huselid, Jackson, & Schuler, 1997).

The aim of traditional HRM practices is to make the business organization more orderly and integrated, maximizing any potential source of efficiency gain, while

minimizing costs. Very seldom are HRM decisions considered a source of value creation (Becker & Gerhart, 1996). From this perspective, HRM is the “black box of production”, where organizational inputs (i.e., employees) are selected, appraised, trained, developed, and compensated to deliver the required output of labor (Townley, 1993, p. 518).

Human resource management in construction has typically been an emergent rather than a strategic or deliberate process which has resulted in the infrequent use of comprehensive workforce management strategies in the industry (Brandenburg et al., 2006). As such, the construction industry has historically adopted reactive approaches to dealing with its staffing needs, resulting in the prevalence of ‘hard’ HRM approaches where employees are viewed like any other factor of production, rather than as a critical component in achieving a competitive advantage (Druker et al., 1996). Examples of this ‘hard’ approach are:

- 28% of HR managers occupy a board position in construction firms compared with 54% in other private sector companies (Druker et al., 1996).
- 17% of large construction companies have formal management development policies (Mphake, 1989).
- 75% of construction companies have no career development policy to allow employees to compare personal career needs with those of the organization (Young, 1988, as cited in Dainty, Bagilhole, & Neale, 2000).

The counter to this ‘hard’ approach is a ‘soft’ approach, or the view that an organization’s employees are its greatest asset and key to organizational success. Recent theoretical work in business strategy has given a boost to the prominence of human resources in generating a sustained competitive advantage (Becker & Gerhart, 1996). Employees, as individuals, add value to an organization through creativity, commitment,

and skills. While the more traditionally-viewed sources of competitive advantage (e.g., natural resources, technology, economies of scale) are increasingly easy to imitate, human resources are not and, therefore, are becoming viewed as an especially important source of sustained competitive advantage (Lado & Wilson, 1994; Pfeffer, 1994).

### **Strategic Human Resource Management**

Strategic involvement has been identified as a key distinction between traditional HRM and the new HRM (Storey, 1992). While traditional HRM is short-term and piecemeal in its approach, strategic HRM offers a longer-term solution for complex problems, directed by key decision makers, towards the achievement of competitive advantage (Druker et al., 1996; Miller, 1989). Strategic HRM is “concerned with the translation of strategy into organizational action through organizational structure and design, resource planning and the management of strategic change” (Johnson & Scholes, 1999, as cited in Price & Newson, 2003, p. 185). Storey (1992) sees HRM as customer oriented, integrated in approach, centralized on the corporate plan, and rapid and responsive in decision making.

The concept of HRM as a strategic asset has implications for both the characteristics and the effects of such a system (Becker & Gerhart, 1996). Lado and Wilson (1994) see strategic HRM as a resource-based view which “suggests that human resource systems can contribute to the sustained competitive advantage through facilitating the development of competencies that are firm specific, produce complex social relationships, are embedded in a firm’s history and culture, and generate tacit organizational knowledge” (p. 699). The HRM function is unique because both the outputs of the system (i.e., employee behaviors) and the system itself are potential sources of competence (Taylor, Beechler, & Napier, 1996).

Many contend that strategic HRM must incorporate both an external fit (i.e., grow with the organization, changing and developing to meet its needs) (Davis, 1981; Miles & Cameron, 1982) and an internal fit (i.e., components of HRM must compliment and support each other) (Baird & Meshoulam, 1984; Baird, Meshoulam, & DeGive, 1983; Galbraith & Nathanson, 1978). To do so, HRM is both the construction and the production of knowledge within an organization (Townley, 1993).

Human resource management's effectiveness depends upon its fit with the organization's stage of development. Nadler and Tushman (1980) define this *fit* as "the degree to which the needs, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component" (p. 40). As the organization grows and develops, HR programs, practices, and procedures must change and develop to meet its needs. Milliman, Von Glinow, and Nathan (1991) define this ability as flexibility or "the capacity of HRM to facilitate the organization's ability to adapt effectively and in a timely manner to changing or diverse demands from either its environment or from within the firm itself" (p. 325).

Baird and Meshoulam (1988) define a series of five stages an organization proceeds through, each becoming more complex, and each building on the previous stage. These stages are:

*Stage I: Initiation.* In a new organization, management's attention is focused on a limited range of basic HRM concerns such as salary administration, hiring, and terminations. Most HRM activities are handled by line managers who have administrative staff support and who focus on establishing basic recruiting and compensation programs.

*Stage II: Functional growth.* This stage is characterized by technical specialization, dynamic growth, expanded markets, and added formality in structure. With this, a formal personnel department is established with capabilities in the basic sub-functions of HR activities; however, line managers are still responsible for building their own budgets and must compete with others in the company for resources.

*Stage III: Controlled growth.* This stage is characterized by professional management, scarce resources, new acquisitions, and diversified product lines or markets. Here, the focus is on productivity and cost effectiveness and the cost of newly proposed programs and added specializations must be justified. Specialized activities are added only if a clear return on investment can be shown.

*Stage IV: Functional integration.* This stage is characterized by diversification, divisions, project management, and integration within functions. At this stage, under growing pressure to decentralize and focus on strategic issues, management focuses on the interdependence among specialized activities. In response, HR managers are concerned with coordinating and integrating sub-functions, such as training, compensation, and recruiting. The emphasis is on reducing duplication and coordinating interdependencies. Integrative programs such as productivity improvement, succession planning, and performance management emerge.

*Stage V: Strategic integration.* This top-level stage is characterized by team action, full integration of functional areas, strategic management, highly developed monitoring capabilities, and an ability to adjust to the environment. At this stage, HRM is recognized as everyone's job. Managers realize the importance of human resources in positioning the organization for the future and human resource implications are considered before major business decisions are made. Sophisticated analytical



techniques are used to ask “what if” questions and clear criteria are available for measuring success.

Similarly, Baird and Meshoulam (1988) identify six strategic components of HRM which must fit with and support each other. These components, focused on internal fit within the organization, are:

*Management awareness:* Ranges from a focus on administrative needs, such as hiring and firing, to a full integration of HR considerations in all management decision making.

*Management of the function:* Includes the structure of the HR function, and the planning, allocation, and control of its resources. The structure may vary from very loose or nonexistent to matrixed and decentralized.

*Portfolio of programs:* Ranges from simple salary administration and recordkeeping programs to very complex and sophisticated flexible compensation, environmental scanning, and long-range planning programs.

*Personnel skills:* Personnel professionals need appropriate skills. Basic programs and simple information systems require basic skills. The addition of complex programs and growth in size requires more advanced, differentiated, and specialized skills.

*Information technology:* Information tools range from manual recordkeeping to sophisticated distribution systems with modeling capabilities. Information technologies range from the absence of formal analytical tools to advanced forecasting and simulation based on statistical tools.

*Awareness of the environment:* In the initial stage, because of pressures involved in start-up, management does not systematically assess and react to the environment. At Stage V, management is very aware of the internal environment and the external

environment and their impact. They remain flexible and adjust to opportunities and risks that arise.

The premise of this matrix is that the practice of HRM (i.e., components) must fit the organization's business needs (i.e., stages) and that HRM professionals must develop the ability to recognize the organization's stage of development and the causes of transition from one stage to another (Baird & Meshoulam, 1988). Prior research in this area (see Baird & Meshoulam, 1988) suggests a series of events, which often increase the complexity of an organization's structure, push it through the stages. For example, a growth in organization size creates the complexity that causes an organization to shift from Stage I to Stage II. Differentiation of the subunits and the need to control and focus continued growth move the organization into Stage III. Decentralization, diversification, and the need for formal integration push the organization into Stage IV, while the pressures of a dynamic, complex environment force adaptability and the transition to Stage V. The construction industry is full of complex organizations undergoing rapid change, with diversified product offerings, that are decentralized and large enough to include many specialized units. These organizations need help from HRM found in either Stages IV or V; yet, relatively few have implemented a strategic HRM plan or have hired HR professionals capable of its implementation.

### **Value of Strategic HRM**

Koch and McGrath (1996) took this concept of strategic HRM and tested the competitive advantage it brings to organizations in the area of labor productivity by "creating superior 'human capital' resources" (p. 336) These human resources are the "know-how and skills of individuals working in the organization" and strategic HRM is based upon the belief that HR strategies such as: a) the accurate projection of human

capital needs; b) the identification of individuals best suited to meet organizational objectives; and c) the development of employees will positively impact workforce performance (p. 336).

In this framework, an accurate projection of human capital needs occurs because there is an investment made at the highest levels to analyze the organization's personnel needs under changing conditions and then a reaction made by developing activities necessary to satisfying these needs. Planning includes: a) a clear understanding of what specific characteristics are being sought in applicants; b) an identification of future hiring needs to create a kind of lead time; and c) formal, regular evaluation of recruitment and selection practices (Koch & McGrath, 1996).

A good first step in the identification and hiring of suitable applicants is accomplished through investments in hiring and casting a wide net to seek out a greater number of potential applicants. The more an organization spends up front in time and cost to understand the labor market and recruiting sources, the better the pool of applicants. A second mechanism for reducing uncertainty in the hiring process is to complete an intensive search of applicants through the use of selection and screening tests. These tests seek to identify both candidates with desirable qualities (potential hire) and unearth those with undesirable characteristics (reject). Finally and unfortunately often neglected, investment in employee development is a critical aspect of strategic HRM. This is a strategy through which the organization actually realizes the potential of its people. Koch and McGrath (1996) focus on two means of employee development: a) company-sponsored employee training; and b) promotion-from-within to fill vacancies. The combination of these strategies allows organizations to better retain their employees, thereby benefiting long-term from their knowledge and skill.

The link between investment in human capital and an organization's success (i.e., profitability) is most apparent in service organizations (Phillips, 2005). A construction firm is the truest form of a service organization. On a typical construction project, a general contractor is providing a service to an owner and there are many, many partners, subcontractors and suppliers which are, in turn, making this possible by providing a service to the general contractor. As Phillips (2005) states, "The impact of employee satisfaction, loyalty and productivity is linked to customer satisfaction and growth of customer loyalty" (p. 61). If I am the CEO/Owner of the general contracting firm, I know that my ability to service the owner is not only dependent upon my employees' satisfaction, loyalty and productivity, but to the employees of the subcontractors and partners working on the project. Therefore, I would place great value on investing in human capital, as I understand the service-profit chain to be:

- Customer loyalty drives profitability and growth;
- Customer satisfaction drives customer loyalty;
- Value drives customer satisfaction;
- Employee productivity drives value;
- Employee loyalty drives productivity;
- Employee satisfaction drives loyalty;
- Internal quality drives employee satisfaction; and
- Leadership underlies the chain's success. (Phillips, 2005, pp. 61-62)

Such an understanding, and focus in actions, will have a significant impact on an organization's ability to best serve the owner, thereby increasing profitability. Many studies have confirmed this, with one in 1999 showing that a significant improvement in 30 key HR practices was associated with as much as a 30 percent increase in value. Another found that portfolio firms making unusually large investments in employee education and training outperformed the S&P 500 by a factor of two (113 percent vs. 55 percent) (as cited in Phillips, 2005). Even among small businesses, HRM development

and utilization has been found to be most effective when the human capital of employees was high. In one such study, human capital and HR development and utilization explained 17 percent of variance in employment growth (which is a conservative measure of business growth) (Rauch, Frese, & Utsch, 2005).

### **Implementing Strategic HRM**

There are a few main areas where organizations can focus their efforts in implementing strategic HRM policies within their organizations. Generally speaking, these areas are: a) realizing the context of HRM within the organization; b) looking at personnel policies related to performance management, promotional policies, training provisions, and resource policies; and c) creating leadership and succession plans.

Fletcher and Williams (1996) define critical elements as:

- The development of a mission statement and business plan and the enhancement of communications within the organization so that employees are not only aware of the objectives and the business plan but can also contribute to their formulation;
- The clarification of individual responsibilities and accountabilities (through job descriptions, clear role definitions, etc.) leading to the defining and measurement of individual performance;
- The implementation of appropriate reward strategies (often some form of performance-related pay) and development of staff;
- The process being owned and driven by line management (and not the HR department or one or two directors); and
- An emphasis placed on shared corporate goals and values (pp. 169-170)

Dainty et al. (2000), interviewed more than 80 construction managers and professional staff regarding the compatibility (or incompatibility) of their employers' human resource development policies and their own career expectations. Included in the next few pages are quotes from the Dainty et al. (2000) study from individuals in their 20s and 30s regarding these human resource issues. What emerged from this study is what others have found: as construction companies have undergone significant organizational change in recent decades, the responsibility for human resource development and management has often been fragmented and unresponsive with employees becoming disillusioned by their employers' failure to meet their expectations.

One central feature of this disconnect is a result of the current context of HRM within many organizations. In large construction companies, the trend has been to place a greater operational dependence on each division as an individual unit (e.g., the Rocky Mountain region) responsible for maintaining its own staff. Inevitably, this has reduced the involvement and influence of HR departments. Symptoms of this lack of direct involvement from a central office have been the decentralization of personnel and training and considerable variability in job titles and career paths. An effect is often confusion as to opportunities available for promotion (Dainty et al., 2000). Two individuals in the Dainty et al. (2000, p. 173) study stated:

*Since joining the company I have had very little contact with the personnel and training department. I was hired by my line manager and my director...I think that most people view their division as the company for which they work and not the wider organization. – Site engineer, 27 years*

*I find that one of the biggest problems of working for this company is not knowing where you fit in, sure of who you are responsible to, and who is responsible to you. Yes, you have a function to perform, but it is unclear as to where you can go from there. – Quantity surveyor, 31 years*

Another area of strategic HRM is performance management. Formalized performance management systems are used by many companies to reward achievement and manage staff development. In these companies, line managers assess subordinates' performance and suggest appropriate training and development provisions to meet their needs. However, the subjective nature of these performance measurement systems can be troublesome to employees. Likewise, many organizations lack a formal mechanism to look at people performance as a whole. They are unable to identify strengths or shortcomings within their staff as a whole, which would allow for more informed decision making. Two individuals in Dainty et al. (2000, pp. 173-174) remarked:

*So much hinges on your performance appraisal, not just in terms of your score, but in terms of what project you get allocated to next or what training course you get in. It doesn't seem right to base all of that on one person's assessment of your capabilities, because what you get depends on who does your assessment. – Assistant quantity surveyor, 27 years*

*I think that most people see performance appraisals as a total waste of time and just ignore it, but the problem is that it doesn't allow the organization to look carefully enough at its staff development needs and how it can bring through the managers it has. It would rather react and bring in when the work demands it. – Senior quantity surveyor, 36 years*

Strength of a larger, multi-divisional organization should be the increased promotional opportunities available within the organization. Not all companies, however, are taking advantage of this advantage. For instance, many companies promote within their divisions, but are often unwilling to promote “star” employees intra-organizationally. While this is understandable to a degree, it has the effect of ingraining divisional subcultures and work practices and is a detriment to retention. Similarly, the skills and knowledge required for promotion are often hazy for employees. As with performance appraisals, promotions have become a subjective process in organizations or one based on necessity rather than objective evaluation. Another indication of

promotional policy incoherence includes frequent changes in job titles and shifts in career structures which is confusing and frustrating for employees. Related remarks in Dainty et al. (2000, p. 174) included:

*I feel that I have earned a promotion now up to a senior commercial role. The problem is that there aren't any of these opportunities available within my division, and so the only promotion I could go for would be to move into mainstream project management...surely I would be better taking the skills and knowledge that I have developed here and use it in another part of my company rather than stay in my division because my boss doesn't want to lose me. – Project quantity surveyor, 35 years*

*In four years I worked for three divisions and was called a sub-agent, a senior engineer, a section engineer, an engineer, and a graduate engineer and all were effectively the same job. Not once in that period was I actually promoted... Sometimes it's hard to establish what you are and where you fit in at the junior levels. – Project manager, 39 years*

Another area of disillusionment is often in the promise of advanced employee training. Finding time to send people to training and development opportunities can be a challenge for any company. As such, often these opportunities are provided more on an informal ad hoc basis. Yet, there is no question that workers of today want and seek out training and career development opportunities as these are perceived as an investment in him/herself by the company. Unfortunately, for many, the following is true:

*When I joined the company they really sold the training to me, but since I have been here I have only been sent on one safety course, which all staff have to go on anyway. None of my requests have been answered and I've been left to pick up what I can from my colleagues on site. But that's the nature of the industry, as when workloads are down, staff development is the first thing to go...if they train me up on a range of new systems and techniques, I will become very attractive to other employers and they know that. I think that in some respects they like you to specialize in their own systems, and to stick to a single function. It's a way of retaining people, restricting your role and your wider development. – Construction manager, 33 years (Dainty et al., 2000, p. 174)*

Travel is a necessity of construction. However, it can be a major challenge for employees and their families. As a matter of fact, traveling and working away from



home is noted as one of the most significant factors mitigating against long-term retention of employees as they struggle to reconcile work and personal commitments. This is especially problematic for female employees (Dainty et al., 2000; Moore, 2006). Times are different than they were 20-30 years ago. The average employee has a spouse who often is also a college graduate with a career and moving every 1-5 years may not be feasible. While it is not always possible to keep employees near their homes and families, it is important that rationale behind staff deployment be clearly explained with the perception of fairness. As one individual remarked:

*When I was originally placed in a division I said that I didn't mind where I went, and I ended up being placed in the national division. I was happy because I knew that people saw it as the engine room of the company, but I wasn't really aware at the time just how far apart they worked...the problem comes when you want to settle down, buy a house, get married, that kind of thing. I have asked several times to be placed near my home, or at least in the same half of the country but it seems to have no effect. I can't understand it; the company has projects all over the country and so you would assume that they could offer some kind of stability. – Assistant quantity surveyor, 29 years (Dainty et al., 2000, p. 175)*

Finally, strategic HRM must include a plan for leadership development within the organization. Cohn, Khurana, and Reeves (2005) identify components of such a plan:

*Develop a vision:* Launch a formal, high-level succession-planning conference for senior executives by corporate HR and outside experts; outline the leadership process and then how to cascade it through the company.

*Create leadership development programs:* Once identified, focus on filling the holes in the company's talent portfolio.

*Hold both HR and business units accountable:* Let HR create tools of a balanced leadership development system for the entire company and facilitate their use, but require the business units to own the leadership development activities.

*Focus on the individual:* Tackle the issue of “How do we balance the need to nurture future leaders and maintain our focus on short-term operations and profit goals?”

*Assure alignment with strategic vision:* Make sure that your leadership development program is aligned with your strategic vision, reinforces your company’s brand, and has support from your employees.

### **Relationship of Values and Career Choice and Development**

Career choice and development theories are explanations of how the contexts in which people live interact with their individual traits, personality characteristics, and self-perceptions to influence their career development and decision making. All theories of career choice and development are rooted in one of two philosophical positions--logical positivism or social constructionism (Brown & Associates, 2002). The most common of these, logical positivism, takes the view that scientific knowledge is “the paragon of rationality”; that it must be based on neutral observation that is free of the interests, values, purposes, and psychological schemata of individuals (Howe, 2003, p. 35). The other position, social constructionism, has steadily gained more recognition in the past 25 years and is now firmly established in the field of career development theory (Brown & Associates, 2002; Young & Collin, 2004).

Social constructionism calls for a more narrative approach, seeking a holistic view of career which accounts for time and space (Cohen, Duberley, & Mallon, 2004). In such an approach, observation cannot be neutral in the sense of excluding interests, values, purposes, and psychological schemata. Rather, any investigation must aim for an interpretive understanding of one’s place in the social world (Brown & Associates, 2002; Howe, 2003). This social world is made real (constructed) through an individual’s social processes and interaction and, as regards careers, is part of the form or structure that an

individual temporarily inhabits, constraining or enabling his or her journey through life (Cohen et al., 2004; Young & Collin, 2004). Social constructionism is rooted in the tenet that “people actively construct their own reality; they are not simply passive recipients of it” (Brown & Associates, 2002, p. 13) and is concerned with how an individual’s world is endowed with meaning, and how these meanings are reproduced, negotiated, and transformed through social practice (Cohen et al., 2004).

Theories about career choice and development date to the turn of the twentieth century with Frank Parsons’ 1909 book, *Choosing a Vocation*. Parsons (1909) believed that if people actively engage in choosing their own career path, rather than allowing chance to find their vocation, they will be more satisfied with their careers, thereby decreasing employers’ costs and increasing their own efficiency as an employee. Simply put, these trait-and-factors theories have their roots in Parsons’ tripartite model where one’s choice of career centers upon three broad factors:

A clear understanding of yourself, your attitudes, abilities, interests, ambitions, resources, limitations, and knowledge of their causes; a knowledge of the requirements, conditions of success, advantages and disadvantages, compensations, opportunities, and prospects in different lines of work; and true reasoning on the relations of these two groups of facts (Parsons, 1909, p. 5).

Since, many theories have emerged on the subject, most rooted in logical positivism or the “philosophical position asserting that foundations in the form of logical proofs and empirical bases can be built” (Brown & Associates, 2002, p. 12). This rather simple idea of matching person to job is the cornerstone of the dominant person-environment fit (P-E) career development model (e.g., Holland’s theory of personality and vocational choices (1985) and Dawis and Lofquist’s work adjustment theory (1984)) (Brown & Associates, 2002). Both theories posit that the degree of congruence between personality and the demands of an occupational environment determine occupational

success, satisfaction, and tenure (Hackett & Lent, 1992). The P-E fit theories are concerned with the *content* of career choices, that is, *which* occupation is chosen (Hackett, 1995; italics in original).

Arguing that these trait-and-factor theories do not provide adequate guidance for persons other than white, middle-class males, Osipow (1966) and others since have sought career choice and development theories which focus more on process and less on outcome of career choice (Farmer & Associates, 1997). For example, many claim that this relationship of intellect to obtained educational and occupational levels holds reasonably well for men, but not for women or ethnic or cultural minorities (Betz, 1994; Brooks, 1990; Cheatham, 1990; Isaacson & Brown, 2000; Leong, 1995; Osipow & Littlejohn, 1995).

In the new process paradigm, developmental and social learning theories dominate (Hackett, 1985). These theories focus more on the process than the outcome of career choice, positing that people will be most successful and satisfied in careers that utilize their individual abilities, talents, and interests. In his developmental theory, Super (1990) describes the tasks individuals negotiate, as a series of stages, in the course of career decision making and development. The social learning perspective of career development also emphasizes the process of career decision making, not through a framework of stages, but through learned interests, values, beliefs, and skills (Hackett, 1985).

Specifically, the *what* studied in the social constructionist approach encourages researchers to question conventional definitions of career (i.e., our assumptions about what constitutes viable career paths and notions of acceptable career behavior) (Cohen et al., 2004; Young & Collins, 2004). It highlights the importance of historical and cultural

context in framing career thinking and action (i.e., the interaction between individuals and their social worlds). Social constructionism also leads researchers to question the effects of power and ideology in career sense-making and action (i.e., why certain careers are seen as legitimate and valued while others are not) (Cohen et al., 2004).

Likewise, social constructionism affects *how* we approach career research. Researchers from this epistemology seek approaches to career research that explain the socially and culturally embedded nature of career, facilitating a greater understanding between individual agency and social context. Methods are sought which bring contradictions and struggles over meaning to the surface, and awareness of the researcher's own frames of meaning or bias are critical to the research process (Cohen et al., 2004). Social constructionism is asking "a new set of questions--often evaluative, political, and pragmatic--regarding the choices one makes" (Gergen, 2001, as cited in Young & Collin, 2004, p. 375).

Considerable evidence supports the belief that values influence career and other life role decisions (Dawis & Lofquist, 1984; Judge & Bretz, 1992; Knoop, 1991; Ravlin & Meglino, 1987). As such, Brown (2002) posits a theory of career choice and development focused on the role of work values and cultural values as related to occupational choice, satisfaction, and success. He chose values as the cornerstone of his theory for, as he states, "Work values have been identified as critical variables in the career development process" (Brown, 2002, p. 467; see also Fouad, 1995; Super & Sverko, 1995). The major underlying assumption of Brown's (2002) theory, he says, "is that cultural and work values are the primary variables that influence the occupational choice-making process, the occupation chosen, and the resulting satisfaction with and

success in the occupation chosen” (p. 470). With this he recognizes that other life-role values also influence many aspects of the career development process.

According to Brown (2002), the basic assumptions of this theory are:

- Many occupational choices (perhaps most) are uninformed, being the result of chance or external variables and circumstances that have little to do with the nature of occupations or individuals’ self-evaluation;
- An informed occupational decision is one in which individuals engage in a conscientious process of exploring their personal characteristics, the rewards that may accrue if various occupations are chosen, and the environmental variables that may influence the outcomes of their decisions. The result of this process is the formulation of expectations about the outcomes of the choices being considered;
- The values system, which is made up of the cultural and work values of individuals, is the primary basis of perception, cognition, and affect;
- The assignment of positive and negative properties to occupations is done primarily on the basis of an individual’s values;
- All decisions regarding occupations are under conditions of uncertainty because decision makers do not have access to complete information about their abilities, external conditions that may influence the outcome of their decisions, or the outcomes that will actually accrue as a result of particular occupational decisions; and
- Most existing theories of occupational choice are based on a white, Eurocentric perspective and thus have limited utility for many minorities.

It is widely understood that values and outcomes expectations are cognitive structures that have behavioral and affective dimensions (Rokeach, 1973). Values are core beliefs that individuals experience as standards that guide how they “should” function. Individuals experience their values in terms of “oughts” that identify both the processes and objectives to be pursued (Brown, 2002). Values develop so that individuals can meet their needs in socially acceptable way, becoming crystallized when individuals can identify them and tell how they influence their behavior (Rokeach, 1973). Values are the major factor in motivation because they form the basis for attributing worth to situations and objects (Feather, 1992; Rokeach, 1973).

Such personal and cultural values include beliefs regarding:

- Human nature (human beings are good, bad, or neither);
- Person-nature relationships (nature dominates people; people dominate nature; living in harmony with nature is important);
- Time orientation (past, past-future, present, or circular (circular is oriented to changes that recur in nature as opposed to time as measured by watches and calendars));
- Activity (being (spontaneous self-expression is important); being-in-becoming (controlled self-expression is important); doing (action-oriented self-expression is important));
- Self-control (it is either highly or moderately important to control one’s thoughts and emotions); and
- Social relationships (individual (the individual is most important to the social unit); collective (it is important to put the group’s concerns ahead of the concerns of the individual) (Brown, 2002, pp. 469-470).

Work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). They are the values that individuals believe should be satisfied as a result of their participation in the work role and lead them to set directional goals (Brown, 2002). Elizur (1984) distinguished two facets of work values: a) modality of the work outcome; i.e., whether it is instrumental (obtains a desired end such as pay for performance), cognitive (a belief system regarding appropriate behavior such as achievement), or affective (such as enjoyment of application), and b) performance contingency; i.e., whether the outcome is contingent upon performance or upon membership in the organization. Financial prosperity, altruism, achievement, and responsibility are examples of work values (Brown, 2002).

A value system contains all the values held by an individual, including his/her personal and cultural values and work values. These cultural values are acquired by society; however, there can be considerable variation in the values of subgroups based upon opportunities and social interaction (Brown & Crace, 1996; Sagie et al., 1996). In addition to work values, individuals develop other values that they expect to be satisfied in life roles other than work (Brown & Crace, 1996). A number of contextual variables have been found to influence both the decision-making process and the career chosen.

These include:

- Age (Barling & Kelloway, 1999; Corley, 1999; Jurkiewicz, 2000; Kyles, 2005; Loughlin & Barling, 2001; Wahl, 2004; Zemke, Raines, & Filipczak, 2000);
- Aptitudes (Blau & Duncan, 1967; Dawis & Lofquist, 1984; Jencks, Crouse, & Mueser, 1983; Phillips & Imhoff, 1997);



- Discrimination (Leong & Serifica, 1995; Melamed, 1995; Robinson & Ginter, 1999);
- Family or group influence (Johnson, Swartz, & Martin, 1995; Keller, Bouchard, Arvey, Segal, & Dawis, 1992; Leong & Serifica, 1995; Zemke et al., 2000);
- Gender (Brenner, Blazini, & Greenhaus, 1988; Brown, 1995; Cooper, Arkkelin, & Tiebert, 1994; Gottfredson, 1996; Melamed, 1995);
- Ethnicity and race (Brenner et al., 1988; Jones, 2005; Leong, 1991; Leong & Tata, 1990; Vondracek, Shimizu, Schulenberg, Hostetler, & Sakayanagi, 1990);
- Political socialization (Duff & Cotgrove, 1982);
- Self-efficacy (Betz & Hackett, 1981; Lent, Brown, & Hackett, 1996; Lent & Hackett, 1987); and
- Socioeconomic status (Hotchkiss & Borow, 1996; Sinha, 1990).

In some instances, these factors constrain both the occupational choice-making process and the choices made. In other instances, these factors have the opposite effect and make the process easier and expand the number of occupational options (Brown, 2002). The result of this role interaction is life satisfaction, which differs from the sum of the family, job, leisure, and other roles satisfaction indices taken separately (Brown & Crace, 1996). Judge and Bretz (1992) reported that individuals were more likely to choose jobs that had similar value contents to their own value orientation. Likewise, others have observed that firms may utilize the congruence between the personal work values of recruiters and candidates as a selection tool (Adkins, Russel, & Werbel, 1994).

## **Construction's Labor Shortage**

According to the U.S. Department of Labor, the construction industry, with 7.2 million wage and salary jobs and 1.8 million self-employed and unpaid family workers in 2008, was one of the Nation's largest industries (Bureau of Labor Statistics, 2010). Just a few years earlier, it was projected that the industry would need to add more than one million engineers, construction project managers, and skilled crafts persons by 2012 to meet the demand for workers (Wagner, 2005). This was a 15 percent increase in the number of wage and salaried positions (compared with the 16 percent increase projected for all Department of Labor industries combined) (Bureau of Labor Statistics, 2005a).

A study by the Construction Industry Institute (CII) indicated that 75 percent of contractors were experiencing a skilled labor shortage and the U.S. Department of Labor's Bureau of Labor Statistics estimated that the construction industry would need to attract 240,000 workers each year to replace those leaving the workforce or retiring, while still allowing for industry growth (as cited in Lamb, 2004). The National Association of Home Builders was cited as saying the construction industry should be adding about 225,000 workers per year to offset attrition and retirements to meet labor demands but had fallen about 65,000 to 80,000 workers short of this goal in the United States (Challenger, 2003). Similarly, another CII study found that project management hires increased by 17 percent between 1990 and 2000, but the need was for an additional increase of 63 percent between 2000 and 2005 (Gibson et al., 2003).

Then the Great Recession came and the construction industry has been especially affected by the credit crisis and recession. Housing prices have fallen and home foreclosures have risen sharply, particularly in overbuilt areas of the country. New housing construction, while still ongoing, has dropped significantly. Retailers are

refraining from building new stores and State and local governments are reducing spending. Still, the number of wage and salary jobs in the construction industry is expected to grow 19 percent through the year 2018, compared with the 11 percent projected for all industries combined (Bureau of Labor Statistics, 2010). Nearly all construction trades are projected to experience some growth. Employment of construction managers is expected to grow as a result of the increasing complexity of construction work that needs to be managed, including the need to deal with the proliferation of laws dealing with building construction, worker safety, and environmental issues (Bureau of Labor Statistics, 2010).

While the challenges of hiring and retaining professional and managerial workers are somewhat different than those of employing skilled crafts workers, all put the construction industry in a vulnerable position. A wide variety of factors have been shown to influence the industry's labor crisis with the most significant including: workforce demographics; limited recruitment pool; poor industry image; and inadequate retention efforts as related to both professional and skilled crafts workers (Dainty, Bagilhole, Ansari, & Jackson, 2004; Gibson et al., 2003; Schleifer, 2002).

“The construction industry does not have a good track record in terms of equal opportunities,” Dainty et al. writes (2004, p. 76). Underrepresentation of women and ethnic minorities, individual and institutional discriminatory practices, overt and covert sexism and racism, inflexible working structures, and an unhelpful environment for the reconciliation of work and family commitments have all been cited as barriers to the career development of women (Dainty et al., 2004). Likewise, the job of a construction project manager is significantly more stressful than that of managers in other industries (Sommerville & Langford, 1994; Sutherland & Davidson, 1993). Much of this stress is

due to the competitive and conflictive nature of the industry (Dainty et al., 2000), as well as the demands to complete a project on time, to a desired quality, and within budget to a wide range of often conflicting stakeholder objectives (Sutherland & Davidson, 1993).

Specifically, causes of stress have been identified as long working hours; insufficient leisure time; paperwork; insufficient family time; travel; poor communication; staff shortages; and imbalances of power and responsibility (Sutherland & Davidson, 1993). Haynes and Love (2004) found workload to be the greatest “high pressure” stressor for a sample of 100 male construction managers, with long hours and insufficient time spent in family/home environments not far behind. Loosemore and Waters (2004) conducted a similar survey of 131 construction professionals (84 men and 47 women) and found that the greatest sources of stress for both men and women related to the pressurized and confrontational nature of the industry; the high levels of responsibility given to individuals; and the diverse, fragmented, and transient nature of the workforce. Factors measured as greater causes of stress for women than men included opportunities for personal development; rates of pay; keeping up with new ideas; business travel; the accumulative effects of minor tasks; and factors not under their control (Loosemore & Waters, 2004).

### **Demographic and Generational Trends**

As stated, a significant factor in the shortage of skilled workers stems from the pool of employees and job applicants upon which the construction industry has traditionally focused its recruiting efforts. According to a report by the Hudson Institute, *Work Force 2000: Work and Workers for the 21<sup>st</sup> Century*, in the years between 1988 and 2000, only 15 percent of new entrants into the U.S. labor force were native-born white males. At the same time, white women made up 42 percent of new entrants with the

remaining 43 percent from native non-white and immigrant populations (Nixon & West, 2002).

Despite these trends, the construction industry continues to predominately employ native-born white males. Narrowly behind manufacturing and mining, construction is the most segmented labor market with a significant overrepresentation of men (Charles & Grusky, 2004). Less than nine percent of the construction industry is female (Wraige, 2003), of which 2.4 percent work in the trades (Bureau of Labor Statistics, 2005b). Of the nine percent females working in construction, the large majority are employed in principally clerical, secretarial, personal and protective serves. Additionally, 43 percent of these women are employed part-time (Fielden et al., 2000).

Some of the cause for this segregation relates to the structure of opportunity within our American culture. Society not only holds different expectations (i.e., traditional gender norms) for girls and boys, women and men, but it also perpetuates inequality through institutionalized discrimination. Institutionalized discrimination can occur from occupational segregation and ensuing lower wages (Beeghley, 2000) or when there are limited numbers of women in a work setting (i.e., Kanter's "tokenism"). Sex segregation of occupations (e.g., managers, engineers, clerical positions) and industries (e.g., construction) has been and remains a defining element of the American occupational structure with women concentrated in low-paying, female-dominated positions and industries (Jacobs, 2001).

The level of labor force sex segregation, slowly but steadily, declined in the 1970s and 1980s, but has remained relatively unchanged since the 1990s. In 1997, 54 percent of employed women would have had to change occupations in order to be distributed in the same manner as men (U.S. Census Population Survey, 1997, as cited in Jacobs,

2001). Likewise, there is significant segregation among industries, with construction among the most segregated (Bureau of Labor Statistics, 2005c). Such segregation has accounted for over a third of the wage gap between men and women (Jacobs, 2001; Schiller, 2004).

A popular explanation for these job and pay disparities is the lesser involvement of women in the labor force perpetuating their segregation in lower paying, less professional occupations (Schiller, 2004). Causes for this lesser involvement are traditional gender norms which include beliefs that women should focus their energy on family obligations (Beeghley, 2000). As a result, many women within the paid workforce either start their careers after having children or interrupt their careers for that purpose (Schiller, 2004). Others do not work for pay or are employed part-time to care for their families. This interruption and instability within the paid labor market translates into lost job experience and thus less human capital development (Schiller, 2004). Women are more inclined to put their family ahead of their career as shown in McIlwee and Robinson's (1992) study in which nearly 68 percent of the female engineers claimed that they would only be able to accept a promotion that required them to move if their spouse was sure of obtaining a satisfactory job. By contrast, 70 percent of the male engineers reported that they would move to accept a promotion regardless of their spouse's job status.

Another explanation is that women choose different occupations than men because they are socialized to prefer different types of work (i.e., girls play with dolls and learn to take care of others, becoming elementary school teachers and nurses, while boys play with trucks and building blocks, becoming equipment operators and engineers) (Jacobs, 2001). In this view, sex role socialization plays a crucial role in reflecting

occupational segregation and inequality in the workplace. Not all researchers agree with this thesis, however, as it assumes that an individual's career aspirations are stable throughout time and change is only possible with a new generation taught more androgynous beliefs and behaviors (Jacobs, 2001).

Instead, many see the blocking of women's opportunities in the professions and management as a product of discrimination or the "glass ceiling" phenomenon (Hesse-Biber & Carter, 2005; Schiller, 2004; Schneer & Reitman, 1995). The policies and practices of an organization (or sometimes as a collective industry) often encourage sex segregation and depressed wages. As part of an organization's culture, deeply ingrained traditional assumptions about the roles of men and women are gender stereotypes that influence employers' decisions and behaviors in a variety of ways--from hiring and evaluation to promotion practices and policies. More visible representations of culture are found in mission statements, official documents, written policies and procedures, or artifacts (Hesse-Biber & Carter, 2005).

In construction, the male dominated culture is persuasive--messages of sex segregation are seen in current employment practices (e.g., women fill receptionist or office manager positions, while men construct and run the company); titles (e.g., craftsman or foreman); speech patterns (e.g., "looking for a young guy to fill this position"); "old-boys network" and formal organizational activities; and through a multitude of other messages. Sexual harassment (either by pressure for sexual contact or by intimidation and the creation of a hostile environment) can be a real threat for some women (Beeghley, 2000). Even when attention is given to breaking down the male dominated culture of an organization, residual components remain.

The construction industry's entrenched recruitment patterns and hostile work environment are another impediment to the hiring of women (Dainty et al., 2004; Fielden et al., 2000; Mann, 2004; Post, 2003; Whittock, 2000). Women are frequently deterred from applying for jobs within the construction industry by informal recruitment procedures, exclusive networks, advertisements and brochures displaying images reflecting masculine values and interests, unstructured interviews, discriminatory selection criteria, sexist attitudes, and a competitive and adversarial culture (Dainty et al., 2004; Fielden et al., 2000). Likewise, many of the women who have entered the industry have faced discrimination, harassment, isolation, and an environment perpetuating underachievement and stratification (Dainty et al., 2004; Fielden et al., 2000; Post, 2003). This has been markedly visible in the trades where, as Schleifer (2002) states, "Female participation in construction trades has been vigorously, sometimes violently, resisted" (p. 101).

A 2003 study, applying a new Equal Employment Opportunity (EEO) Index, to six industries (i.e., manufacturing; mining and construction; transportation, communication, and utilities; retail and wholesale trade; service; and finance, insurance, and real estate), found the mining/construction industry to be the most inhospitable climate for women (Graham & Hotchkiss, 2003). On three of the five components of the index (i.e., equal pay; occupational segregation; glass ceiling; hiring; and related discrimination), mining/construction (MC) scored quite poorly. MC was the worst performing industry in terms of gender-related occupational segregation with almost 70 percent of workers needing to change jobs to equalize the occupational distribution of men and women. MC did not perform well in the glass ceiling component, with 75 percent of women at levels below that of managerial and professional, relative to the



market norm of 59 percent. Finally, in the discrimination component, MC performed at approximately one standard deviation less than the norm (Graham & Hotchkiss, 2003). All of this indicates that the construction industry needs to change its labor practices to increase diversity and attract female workers.

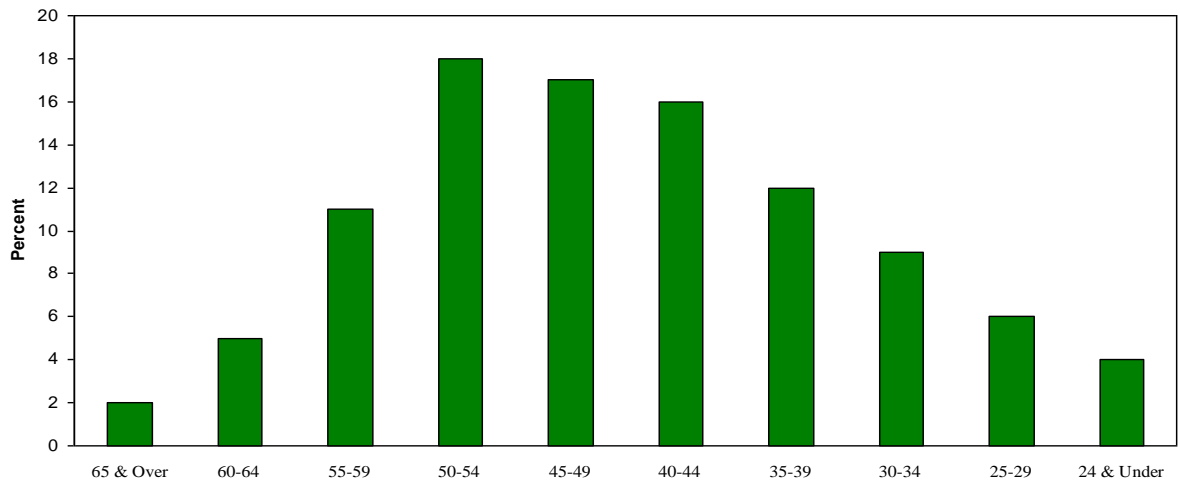
Another consequence of the male dominated culture is the apparent wedding of professional and managerial occupations to a particular view of success as based on a traditional male life cycle. This “sprint” model assumes early and intense devotion to career, with employees expected to devote countless hours in its pursuit. Women find, as they encounter the heavy demands of both work and family, their career paths veer off of the “sprint” model and they, not the organizational culture, are to blame. It is, therefore, concluded that women are less motivated and less committed to their jobs (Hesse-Biber & Carter, 2005). Even when women fit this model (i.e., less likely to be married or have children; work an equal amount of hours per week), they are paid 19 percent less than their male counterparts and hold positions inferior to those with equal education and training (Schneer & Reitman, 1995).

Finally, Kanter’s (1977) theory of tokenism looks at the types of people within groups (i.e., organizations and industries) as having a direct effect on the interactions between group members and on group members’ success. Kanter’s stance is that members of the group’s numerical minority are held to stricter standards of performance than the majority group members and, because they appear different, minority group members are not treated as individuals but according to the stereotypes surrounding their group (Rogers & Menaghan, 1991). Likewise, when a minority group is proportionately smaller, members of that group will experience declines in performance, self-esteem, and satisfaction (Sax, 1996). Many researchers agree that this sense of tokenism can have a

negative impact on a women's career (Hesse-Biber & Carter, 2005; Kanter, 1977; Rogers & Menaghan, 1991).

Similarly, while more minorities, largely Hispanic workers, are filling into the ranks of labor and crafts, these individuals are not always welcomed into the industry, particularly if there is a language barrier (Schleifer, 2002). Since 1994, the number of Hispanic hourly construction workers in the U.S. almost doubled from 9.2 to 17.4 percent of the total hourly paid construction workforce. These workers, however, are concentrated in laborer, carpenter, and painter occupations (22.9%, 14.8%, and 8.1% respectively) (Goodrum, 2004). As a whole, the industry is making little effort to address the language barrier (such as teaching English as a second language to Hispanic workers or Spanish to English speaking workers) (Schleifer, 2002). Similarly, the wages paid to Hispanic workers are both initially less and increase at a slower rate than their non-Hispanic counterparts (Goodrum, 2004).

In addition to gender and ethnic diversity, the construction industry's future will be impacted by the age of its workforce today. The same CII study stating that staffing levels needed to increase by 63 percent found that 69 percent of the professional workforce (i.e., individuals whose primary responsibility is the support of small or large capital construction projects) is 40 years or older (Gibson et al., 2003). As shown in Figure 2, the proportion of these construction professionals in each five-year age group decreases steadily from age 55 through entry level (those under age 25). Each cohort of employees under age 55 is followed by a smaller cohort.



*Figure 1.* Mean percentage of construction professional workforce in 5-year age cohorts (Gibson et al., 2003, p. 177).

As Gibson et al. (2003) state, “This profile of steadily shrinking cohorts presents an important challenge for a sample desiring a growth rate of 63 percent in the next five years” (p. 177). As the cohorts of individuals between 40 and 54 years of age (51 percent of today’s workforce) begin to retire, the industry will become in desperate need of workers. Likewise, if these workers are not hired in the next few years, these senior employees will be retired before they can share their knowledge and social networks with younger employees (Gibson et al., 2003).

Implications of this extend beyond a skilled labor shortage to a skilled leader shortage. The construction industry is losing those with the most experience and knowledge faster than it can provide for succession planning and certainly faster than it can fill the open positions with upcoming generations. Likewise, this trend signifies awareness of a multi-generational workforce which presents unique challenges and advantages for the construction industry.

The oldest generation in our workforce, born between 1900-1945, has been called the Matures, Veterans, or the Silent Generation. In their 60s plus, there are still 75

million of these individuals in the workforce. Currently, the construction industry has few of these individuals still involved in project engineering and management. This might be a problem as the characteristics of this group have been defined as loyal, consistent, and conforming. This generation has been characterized as having a belief in hard work, paying one's dues, conformity, and a long-term commitment to one employer. Values are based on respect for authority, integrity, and delayed gratification. This generation could be motivated by written recognition, awards, and public acknowledgements (Kyles, 2005).

The next generation represented, the Baby Boomers born between 1946-1964, includes those individuals who, with the Matures, have defined the construction industry in the last 100 years. This is the generation which has provided the structure of the industry, building its companies and businesses that hold enormous financial and political force in today's society. Eighty million strong, this generation is the backbone of the construction workforce and typifies the industry's image. Characterized as competitive, political, and hardworking, this is a generation which has been willing to work long hours for the good of the company, perseveres to complete a job and provide financially for themselves and their families, and can be rewarded through often external things such as advanced titles, increased wages, and special amenities and perks. This is a generation who often defined themselves through their jobs and equates work with self-worth (Kyles, 2005). Unfortunately, this generation is nearing retirement and the construction industry must now create a succession plan. The U.S. Census Bureau projected that an incredible 7,918 people would celebrate their 60<sup>th</sup> birthday each day in 2006. That works out to 2.89 million Matures and Baby Boomers getting ready to either retire or reduce their work schedules (as cited in Purdum, 2006, p. 16).

The generation available to replace the Baby Boomers in the workforce has been the Generation Xers born between 1965 and 1979. However, the concept of a Generation Xer and the hard-work values of the construction industry are rarely seen as synonymous. Much smaller, with only 46 million in the workforce (almost half the number of Baby Boomers still in the workforce), Generation Xers have been characterized as individualistic and disloyal, but very techno-literate. Individuals of this generation trust their own skills and seek out opportunities where they can be relatively autonomous. More than any other generation they seek, and demand, a career which allows for work-life balance (Kyles, 2005). Generation Xers are unwilling to sacrifice life and family for a career. They value leisure time, recreation, and family above career success, promotions, or transfers (Barnett, 2003). Having seen first-hand what work has done to their parents, this generation of employees, and the one to follow, is insisting on a better work-life balance (Galt, 2000). Some authors have pointed out that those of these generation have the 'work to live' versus the 'live to work' attitude of their parents (Maccoby, 1995; Zemke et al., 2000).

Different from their predecessors, this generation isn't motivated as much by external means such as money--rather they seek environments which allow them this balance. This is the generation that created telecommuting and flex-time. They are a generation focused on opportunity, efficiency, and creativity. This is the generation that also created the computer and technological world as we know it. They bring with them a new way of doing things (Kyles, 2005). Generation Xers demand interesting work and seek daily praise and recognition. As they are not willing to climb the corporate ladder as their parents did, they want to make a difference from day one. They expect training and corporate investment at a personal level (Barnett, 2003).

To further expand on this generation, a survey of Generation Xers identified the following priorities (Barnett, 2003):

- To have a loving family. 84%
- To enjoy life. 79%
- To obtain and share companionship with family and friends. 72%
- To establish a relationship with a significant other. 72%
- To have a variety of responsibilities. 22%
- To earn a great deal of money. 21%
- To become an influential leader. 16%
- To become well known. 6%

These are a significant shift in values from the generation prior and have implications for the firms trying to recruit and retain this generation as part of their workforce. As one Generation Xer stated,

*My generation's career goals are not necessarily to rise within the company or to make the most money as has been the goal of previous generations. Rather we have a goal to retire at a young age. Although we grew up living in expensive homes and riding in nice cars, most of my co-workers appear satisfied driving used cars and purchasing smaller homes. They take pride in the fact that they are making large contributions to their 401(k) plans. I see young professionals working long hours, but they do it with an ending point in mind rather than with hopes for a promotion. It is almost like we see our career as a band-aide and the quicker we pull it off, the less painful it will be. (Barnett, 2003, p. 9)*

The newest generation to enter the workforce, known as Nexters, Generation Y, Echo boomers, and/or Millennials, born between 1980 and 1999, is now entering the U.S. workforce and will be for the next few decades. This group brings a population skyrocket at 75 million in or entering the workforce, almost back to the numbers of the Baby Boomers and with this generation there is also a renewed emphasis on work. Characteristics of this group include being techno-literate as the generation before them, but more purposed in their work outlook. Growing up in the technological age, this group thrives on multi-tasking (Kyles, 2005). This is not the kind of individual who will sit in a cubical or office all day and work on a spreadsheet, nor are they the type that is

content doing the same thing day-after-day. This generation wants to have more fun on-the-job, yet expect their work to be meaningful (Blanchard & Blanchard, 2005).

Similar to the Generation Xers, motivation is less external (although there is greater emphasis among this group on monetary reward and career advancement). Rather, much of their sense of purpose is felt through catering to the greater good of society and a felt connection with their supervisors and colleagues (Kyles, 2005). Like their grandparents, Nexters express loyalty and strong value systems. In one survey, more than 90 percent of Nexter respondents said that helping others is more important than helping oneself. The survey also found that this generation is heading into the business world with ambition and entrepreneurial spirit. Six out of 10 college graduates plan to enter the workforce immediately. More than half think it is likely they will work for themselves someday. And, although family and relationships are important, Nexters differ from the generation prior in their expectation to sacrifice family time at some point to further their careers (Rottier, 2001).

### **Recruiting and Retaining Top People**

Ramlall (2004) provides a synthesis of employee motivation theories which the construction industry, among many others, can learn from and build into their strategic HRM planning. From these theories, seven critical factors were identified as impacting the development and implementation of employee retention programs. These critical factors are:

*Needs of the employee:* Employees have multiple needs based on their individual, family, and cultural values. In addition, these needs depend on the current and desired economic, political, and social status; career aspirations; the need to balance career,

family, education, community, religion, and other factors; and a general feeling of one's satisfaction with the current and desired states of being.

*Work environment:* Employees want to work in an environment that is productive, respectful, provides a feeling of inclusiveness, and offers a friendly setting.

*Responsibilities:* Given that one feels competent to perform in a more challenging capacity and has previously demonstrated such competencies, an employee may feel a need to seek additional responsibilities and be rewarded in a fair and equitable manner.

*Supervision:* Managers and other leaders, more frequently than others, feel a need to teach, coach, and develop others. In addition, these individuals would seek to influence the organization's goals, objectives, and the strategies designed to achieve the mission of the organization.

*Fairness and equity:* Employees want to be treated and rewarded in a fair and equitable manner regardless of age, gender, ethnicity, disability, sexual orientation, geographic location, or other similarly defined category. With increased effort and higher performances, employees also expect to be rewarded more significantly than counterparts who provide output at or below the norm. The employee's effort and performance at a particular level is influenced by her/his individual goals and objectives which vary by individual. An outcome or reward that is perceived to be highly significant and important can result in a higher level of effort and performance by the individual employee.

*Effort:* Even though employees may exert higher levels of effort into a position based on a perceived significant reward, this could be a short-term success if the task itself does not challenge or provide satisfaction to the employee.



*Employees' development:* Employees prefer to function in environments that provide a challenge, offer new learning opportunities, significantly contribute to the organization's success, offer opportunities for advancement and personal development based upon success and demonstrated interest in a particular area (Ramlall, 2004, p. 58).

More and more individuals in the construction industry are recognizing these factors and the benefits strategic HRM can bring to their organizations and the construction industry as a whole. Many of them have been in the industry for 20-30 years and are beginning to think about retirement. They see the shortage of incoming qualified applicants to staff their construction projects, are feeling the implications of shrinking middle- and upper-management ranks, and are concerned as to what the future holds for their companies and the industry in which they have spent their lives. For the industry to continue to grow and prosper, the leaders of tomorrow must be recruited and trained today to fill the vacancies left by retiring business owners and managers (Construction News, 2004). Likewise, companies must identify a leadership succession plan, placing renewed emphasis on training and development, and establishing systems to document informal but valuable wisdom (Wahl, 2004).

In short, key challenges for the construction industry include: recruiting young talent; creating incentives for baby-boomers to stay beyond their retirement; and finding ways to pass critical knowledge from one generation to the next (Sowers & Woody, 2006). Those in the construction industry must recognize that the graduates of today are different than those of past generations and that what it takes to hire and retain these individuals is different than the strategies employed a decade ago. As Michael Creed, CEO of engineering firm McKim & Creed, Wilmington, NC, said, "We've finally realized we're in a people business. We can't get great people the same way we've been

doing it for the last 20 years” (as cited in Rubin, Powers, & Illia, 2006). Similarly, Loughlin and Barling (2001) remark of this challenge:

*The information age, intense global competition and the need to manage an increasingly diverse workforce are all placing new demands on leadership in organizations. Young people may be ideally placed to move into these positions given their comfort with the state-of-the-art technology and diversity. However, this will create unique challenges in organizations as young leaders are forced to cope with managing individuals older than themselves. Young women, in particular, will be in a double-bind in overcoming age- and gender-based stereotypes (p. 551).*

To boost recruitment and retention efforts, industry leaders should consider three factors as most critical: a) flexibility of company programs to give employees more decision-making power; b) provision of competitive compensation packages, both cash and non-cash rewards as well as long-term equity participation; and c) availability of career development opportunities for employees who have critical skills or who are close to retirement but have skills that must be passed to the next generation (Sowers & Woody, 2006).

In a ‘20 Reasons Why Employees Leave’ list from a survey of foundry workers, it is apparent that the issues surrounding recruitment and retention are personal in nature, rather than money driven (Curtis, 2000). As a matter of fact, pay is last on the list. In order of priority, this list includes:

1. No one asked them to stay (lack of personal “suasion”);
2. They feel isolated and “in the dark”;
3. They are unhappy with the mix of their job responsibilities;
4. Lifestyle of work and family conflicts;
5. Lack of resources or recognized support;
6. Feeling of lack of recognition;
7. Don’t identify with organization;
8. No personal ties to the team;
9. Don’t feel empowered, appreciated, or are “owners” of the organization;
10. No compelling vision of future;
11. No pride in products/company;
12. Lack of authority/control/autonomy;

13. Not enough “great” working conditions;
14. Work isn’t fun anymore;
15. Lack of equity;
16. No group pressure to stay;
17. Don’t feel appreciated or “important”;
18. No prospects for promotion;
19. Have a “bad” manager; and
20. Perception of low pay/benefits/rewards (p. 30).

What can the construction industry do to overcome these issues? A critical place to start is for top managers and owners to get to know their employees. Understand their aspirations, especially regarding career growth and promotion opportunities. Find out what is going on in their lives, what their needs are, and what their most pressing concerns are. Design a reward system to meet the values and expectations of each employee. Put more balance into the workplace. Promote a healthy work/life/family balance. Be fair and consistent when it comes to hours of work. Be flexible--this may mean restructuring to allow flex-time; four-day or nine-day rosters; encouraging telecommuting; allowing unpaid leave when requested; and supplying random/surprise bonuses, gifts, or vouchers. Sponsor wellness initiatives. Build a balanced team, taking peoples’ personality types into account. Develop leadership. Provide personal challenge and professional development. Create an environment where everyone has a voice and feels part of the team. Have fun at work. Have an orientation program for new employees that reveals an accurate picture of your company. Establish a buddy system or mentorship program for new people involving people who really care about integrating others into the culture of the company. Measure and benchmark your recruiting and retention efforts. And, finally, leaders within companies must ‘walk the talk’--leadership must be shown and not simply voiced (Baker, 2005; Blanchard & Blanchard, 2005; Currey, 2005; Curtis, 2000; Engineering News Record, 2005; Gaffney, 2005; Micera,

2006; Miodonski, 2004; Miodonski, 2005; Moore, 2006; Rosalie, 2005; Taylor, 2005).

Creating a work environment employees seek or wish to remain within requires contractors to have leadership and management skills. Characteristics of a great leader are a commitment to nurturing and developing people, follow-through on promises and, perhaps most importantly, vision and communication (Miodonski, 2004).

To build such a strategic HRM system, construction companies must understand the values and career expectations of their workforce. The least known about is the upcoming Generation Y. In the discussion to follow, this study starts to address these questions. With a greater understanding of values, construction organizations can better develop a strategic HRM plan.

## **CHAPTER 3**

### **METHODOLOGY**

This chapter addresses the research methods and procedures employed during the course of this study. Considerable evidence suggests that values influence career expectations and other life role decisions. Yet, values have not received the same attention from researchers in the area of career choice and development that interests have. As the construction industry struggles with issues related to recruiting and retention of entering construction professionals, the purpose of this research was to help shed light in this area. One aspect of the study was to identify what life and behavioral values and work values entering construction professionals have. The second aspect was to examine the relationships among the personal characteristics of entering construction professionals and their values.

#### **Research Design and Rationale**

The general research design of this study was a comparative and associational research approach, or a non-experimental approach. This study included both the comparative and descriptive approaches. Studies that use the comparative approach “examine the *presumed* effect of an attribute independent variable” (Gliner & Morgan, 2000, p. 68; italics in original). In this particular case, this research design was appropriate as the study is centered on defining work values and career expectations of soon-to-be Construction Management graduates as related to their personal characteristics. These personal characteristics were divided into demographic, family of origin, social, personal, experience, and career interests. Such information is valuable as

there are not similar studies focused on the values and expectations of current or upcoming construction management professionals.

### **Research Questions**

In order to accomplish the goals of this study, five broad with 12 sub-set research questions guided this study:

#### *Research Question 1*

Who are entering construction professionals?

#### *Research Question 2*

What are the life and behavioral values of entering construction professionals?

#### *Research Question 3*

What are the work values of entering construction professionals?

#### *Research Question 4*

What is the relationship among personal characteristics and the life and behavioral values of entering construction professionals?

- Demographic: Do values differ on characteristics of gender or race? Will students' age be associated with their values?
- Family of Origin: Do values differ on characteristics of socioeconomic status or "hometown" size?
- Current Status: Do values differ on marital status?
- Personal: Do values differ on political affiliation? Is there an association of values with spirituality?
- Experience: Do values differ by size of employer sought upon graduation? Is there an association of values with years of prior construction experience or years expected to be employed in the construction industry?

### *Research Question 5*

What is the relationship among personal characteristics and the work values of entering construction professionals?

- Demographic: Do values differ on characteristics of gender or race? Will students' age be associated with their values?
- Family of Origin: Do values differ on characteristics of socioeconomic status or "hometown" size?
- Current Status: Do values differ on marital status?
- Personal: Do values differ on political affiliation? Is there an association of values with spirituality?
- Experience: Do values differ by size of employer sought upon graduation? Is there an association of values with years of prior construction experience or years expected to be employed in the construction industry?

### **Participants and Site**

A purposive sampling frame was used within this study from an accessible population presumably representative or typical of the larger population of entering construction professionals. All participants in the study met the following criteria:

- Junior, Senior, or Second Bachelors class-level within a Bachelors of Science in Construction Management program;
- Self-report as intending to graduate with this degree between December 2006 and May 2008; and
- Current enrollment in the largest American Council of Construction Education (ACCE) accredited program in the United States.

Of the estimated 420 to 480 possible participants, a total of 328 individuals meeting this criteria were surveyed. While not specific criteria for inclusion, diversity among participants was sought so as to include as realistic a sample of the population of entering construction professionals as possible. Of the 320 responding, 71 (22%) identified themselves as December 2006 graduates, 52 (16%) as May or August 2007 graduates, 67 (21%) as December 2007 graduates, and 130 (41%) as May 2008 graduates. Ages of participants ranged from 19 to 57, with a mean age of 23 years. Nearly 81% (259) were single, 60 were married/engaged/cohabitating, and only 1 self-identified as separated/divorced. Of these, 95% (303) had no children, 9 had one child, and 8 had two children. No participants had more than two children. These dependents ranged in age from less than one year to 35 years. Not surprisingly, of the 322 responding, 91% (293) of the participants were male; 9% (29) identified themselves as female. Additionally, 306 (96.5%) of the 317 who responded categorized their race as Caucasian.

### **Limitations of Generalization**

While this research focused on soon-to-be construction professionals from the largest Construction Management program in the United States, a limitation is that all participants were from the same University and the survey itself was taken at one point-in-time. As such, the data collected from this research does not necessarily generalize to all soon-to-be construction professionals nor can the results be assumed to be constant for years to come. Still, this data provides a detailed description of the personal characteristics and an identification of the life and behavioral values and work values of a before unknown population of soon-to-be construction professionals.



## **Data Collection**

### ***Instrumentation***

There are many data collection and measurement processes called surveys. The survey used as part of this research was a self-administered, web-based survey having the characteristics identified by Fowler (1993) as:

- The purpose of the survey is to produce statistics – that is, quantitative or numerical descriptions of some aspect of the study population.
- The main way of collecting information is by asking people questions; their answers constitute the data to be analyzed.

There is no single method for data collection of surveys. Thomas (2004) suggests that “the mode of data collection might depend in part on what kind of access you have to the target audience as well as their access to, and level of comfort with, computers” (p. 14). As the target population of participants in this study was college-age students who have been shown to have a high interest and high comfort with computers and web-based programs, the decision was made to administer this survey as primarily web-based and only use a paper-based instrument if computers were unavailable.

“A survey is a system for collecting information”, says Fink (2003, p. 98). A carefully constructed questionnaire can provide information for many uses including: a) identifying needs (needs assessment); b) determining opinions, attitudes and beliefs; c) identifying interests; d) identifying feelings and perceptions; and e) describing behaviors (Thomas, 2004). In addition to collecting descriptive data of personal characteristics, the survey used in this research focused on determining opinions, attitudes and beliefs as well as the identification of feelings and perceptions.

Survey questions related to work values and career expectations were determined from a review of the literature in areas of career development and counseling and organizational research and diagnosis. Several survey instruments of related research were explored before two were finally chosen (Bretz & Judge, 1994; Mirels & Garrett, 1971; O'Reilly, Chatman, & Caldwell, 1991; Schwartz, 1994; VanDyne, Graham, & Dienesch, 1994; Williams & Anderson, 1991).

The chosen measures were Rokeach's (1973) Value Attainment scale and Manhardt's (1972) Work Values Inventory. Rokeach's scale was originally designed to assess the importance ranking that a person assigned to 18 terminal values and 18 instrumental values. As has been done with other applications in the 1990s, the response options were changed to a 7-point Likert scale (Agle, Mitchell, & Sonnenfeld, 1999; George & Jones, 1996; Hochwarter, Perrewé, Ferris, & Brymer, 1999). The second measure, a Work Values Inventory, was originally developed to assess the importance of 25 different job characteristics. Manhardt found that 21 of these characteristics grouped into three dimensions and, as Meyer, Irving, and Allen (1998) did in their study of work values and early work experiences on organizational commitment, it is these 21 characteristics which were included as part of this survey instrument.

As part of the 57 Likert-scale values questions included in the survey, seven key constructs were able to be measured. With the Value Attainment scale, life and behavior values are able to be categorized into four constructs. First, these values were separated into terminal or instrumental values. Terminal values describe desirable end states such as a comfortable life while instrumental values refer to modes of behavior. Terminal values can be further categorized as self-centered or society-centered while instrumental values can be categorized as moral-focused or competence-focused. Moral-focused

instrumental values include such modes of behavior as honesty or responsibility while competence-focused instrumental values refer to modes of behavior such as logic or self-control (Fields, 2002; Rokeach, 1973).

The final three constructs are a product of the Work Values Inventory in which the 21 values questions were grouped as: comfort and security; competence and growth; and status and independence. Comfort and security includes job characteristics such as having comfortable working conditions, job security, and a regular routine. Competence and growth includes job characteristics such as intellectual stimulation, continued development of skills, and a feeling of accomplishment. Status and independence includes job characteristics such as opportunities to earn a high income, supervision of other employees, and working on problems of importance to the organization (Fields, 2002; Manhardt, 1972).

Likewise, a series of guiding principles (Fowler, 1993) were kept in mind during the development of the survey instrument which included:

*Self-administered questionnaires should be self-explanatory. Instructions should be brief or unnecessary as they will not be read consistently.* While brief instructions precede each section of the survey, the survey sections and questions themselves were designed to be self-explanatory.

*Self-administered questionnaires should be restricted to closed answers.* Aside from a few “Other” options, questions on the survey were restricted to checking a box or numerical fill-in-the-blank.

*The question forms in a self-administered questionnaire should be few in number.* While Likert-scales vary from 7-point in one section to 5-point in another, all answer

options are restricted to checking a box or numerical fill-in-the-blank. Care was made to have as much as consistency as possible incorporated into the design.

*The questionnaire should be typed and laid out in a way that seems clear and uncluttered.* As a web-based survey, the instrument was laid out in three sections with each section renumbered from one. As a paper-based survey, careful attention was given to page layout and white space of the questionnaire. In total, there were 74 questions on the survey. A copy of the paper survey is included in Appendix B.

*Skip patterns should be kept to a minimum.* Only one question of the final section is a skip pattern and this instructs the participant, based upon response, to either skip to the next question or to the end of the survey.

*Provide redundant information to respondents.* In addition to the cover letter, each section of the instrument provided quick instructions for the participant to reference as they completed the survey.

### ***Measures***

The survey used in this study was a self-administered instrument requiring participants to respond to questions posed by checking or filling in a blank response. Sections one and two addressed four out five of the research questions. In descriptive form, these sections provided answers to the second and third research questions: (2) What are the life and behavioral values of entering construction professionals? and (3) What are the work values of entering construction professionals? Descriptive data from section three of the survey provided answers to the first research question: (1) Who are entering construction professionals? Coupled with the demographic data collected in section three of the survey, all of the data gathered was analyzed to answer the fourth and fifth research questions: (4) What is the relationship among personal characteristics and

the life and behavioral values of entering professionals? and (5) What is the relationship among personal characteristics and the work values of entering professionals?

### ***Validity and Reliability of Instrument***

Evaluation of the validity and reliability of a research instrument, in this case a written survey, is crucial to the overall quality of the study. Measurement validity is concerned “with establishing evidence for the use of a particular instrument in a particular setting” (Gliner & Morgan, 2000, p. 319). Four primary types of evidence for validity include: face validity, content validity, criterion validity, and construct validity. Gliner and Morgan (2000) suggest that only one type of evidence, no matter how strong, should not be considered sufficient for establishing validity. Instead, they assert, “different methods should be applied toward evaluation of the validity of a particular test or instrument” (p. 319). Face validity is the weakest form of evaluation as it measures the *appearance* of the instrument’s appropriateness to the purpose of the study. The researcher was able to make this evaluation of the survey instrument.

On the other hand, the evaluation of content validity refers to the actual content of the instrument. Specifically, one asks if the content of the instrument is representative of the concept one wants to measure (Gliner & Morgan, 2000). While there is no statistic that demonstrates content validity, there is a process for researchers to follow. First, the concept the researcher is attempting to measure must be defined. A second step is a literature search to gauge how the concept is represented in the larger context. Next, items are generated that might measure this concept in the form of questions. Finally, a panel of experts can be used to match these items to the concept. This process was followed in the course of this study as outlined in the following procedures section.

Criterion and construct validity are much more complicated forms of evaluation and not necessarily applicable or feasible with all instruments. Criterion validity refers to “validating the instrument against some form of external criterion” as either predictive evidence or concurrent evidence (Gliner & Morgan, 2000, p. 321). As this survey was primarily interested in measuring attitudes and perceptions, criterion validity is difficult to define and evaluate. Rather, attitudes and perceptions would be categorized as constructs or “hypothetical concepts that cannot be observed directly” (Gliner & Morgan, 2000, p. 322). The most complex type of measurement validity, construct validation is a process where the researcher conducts studies to attempt to demonstrate that the instrument is measuring the construct it proposes to measure. Construct validity can never actually be achieved; rather, it is “a continuing process of experimentation and modification leading to the refinement of the instrument that measures the construct” (Gliner & Morgan, 2000, p. 324).

Measurement reliability, rather than generalizability of the constructs, is an evaluation of an instrument’s consistency. Measuring reliability is different also in that one must express reliability of an instrument in numerical form, often as a correlation coefficient. There are numerous methods of assessing reliability which include: test-retest reliability, parallel forms reliability, internal consistency reliability, standard error of measurement, and inter-rater reliability (Gliner & Morgan, 2000).

An advantage of incorporating previously validated scales to measure the life and behavior and work values of this population is that, to some extent, the reliability and validity of the survey instrument has been tested. For instance, prior studies who have used Rokeach’s Value Attainment scale have found coefficient alpha values for terminal values using the same 7-point Likert response scale to have a range of .85 to .93 (George

& Jones, 1996; Hochwarter et al., 1999). In these same prior studies, attainment of terminal values was found to correlate positively with job satisfaction, job performance, and employee positive affectivity. Attainment of terminal values correlated negatively with turnover intentions and employee negative affectivity. In Meyer et al.'s (1998) modification of Manhardt's Work Values Inventory instrument, coefficient alpha values ranged from .63 to .72 for the construct of comfort and security, .65 to .80 for competence and growth, and .62 to .68 for status and independence. Likewise, the value placed on comfort and security correlated positively with the value placed on status and independence and continuance commitment. The value placed on competence and growth correlated positively with the value placed on status and independence, normative commitment, and affective commitment (Meyer et al., 1998).

### ***Procedures***

Fink (2003) defines a series of nine steps that will serve as a framework for this study. The procedures of this study are described within the context of these steps.

*Step One: Identifying the survey's objectives.* A review of the literature was completed in the areas of career development and counseling and organizational research and diagnosis. Guided by Brown (2002), the major underlying assumption of this research is that work values, in concert with other life role values (e.g., family, spirituality, etc.), are the primary variables which influence the career-choice making process, the job chosen, and the resulting satisfaction with and success in this chosen career. From the research it was noted that a variety of personal characteristics such as age, gender, race, familial responsibilities, work experience, and career interests all have an influence on the values one holds. Similarly, values influence career expectations and other life role decisions. As such, the survey had two objectives: a) identify the personal

characteristics of entering construction professional, and b) identify what values and career expectations they hold. This identification allowed for further examination of the relationships among these personal characteristics and measured values.

*Step Two: Designing the survey.* An initial design of the survey and identification of the population to be studied was done as part of step one. Step two involved pilot testing of the survey with a group of 24 Construction Management majors. In this first pilot test the focus was upon the values scales themselves. Four different scales were included, including the two ultimately chosen to be part of the survey instrument. This pilot test was given to this group of Construction Management students to determine the amount of time necessary to complete the survey as well as to gauge their responses to the survey items. From this pilot test, Rokeach's Value Attainment scale as a 7-point Likert scale and Manhardt's Work Values Inventory as a 5-point Likert scale were chosen to be part of this study's survey instrument. As short-phrased, Likert scale items, these instruments showed to be relatively easy for students to respond to quickly while, at the same time, also providing measurable differences in their constructs.

*Step Three: Preparing the survey instrument.* Following the initial pilot test and after review by survey instrument experts (i.e., thesis committee), a second pilot test was done of the entire survey with another group of students, this time under-classmen and non-majors. This version of the survey instrument was in "final" form, including just Rokeach's and Manhardt's scales as well as the identified demographic questions. Minor changes to the survey instrument were made following this pilot test.

*Step Four: Preparing documents for the Internal Review Board (IRB).* Revisions were also made to the cover letter as a result of feedback received from the thesis



committee and the second pilot test group of students. A copy of the H-100 form with necessary inclusions is included in Appendix A.

*Step Five: Pilot testing the instrument.* As stated, this step in Fink's (2003) framework was done as part of the initial survey design and preparation. The decision to do so was an attempt to reduce the time needed for survey instrument development while, at the same time, maintaining high standards to ensure as much reliability and validity as possible in the survey instrument.

*Step Six: Administering the survey.* An invitation to complete the survey was sent via University e-mail to all students currently enrolled in the Construction Management program as Juniors, Seniors, and Second Bachelors students. While it was known that not all students in these classes would meet the study criteria of graduating in the time frame of December 2006 to May 2008, there was not a way to sort students by intended graduation date as part of this University e-mail system. Rather, the criterion of graduation date was clearly included in both the e-mailed invitation as well as on the survey itself. Those students meeting the graduation date criterion were directed to a web address (Survey Monkey) where they were able to take the survey on-line. Two combination reminder and thank you e-mails were sent on the same University e-mail system to these same students at one week intervals following the original invitation.

Additionally, as it was believed that many students did not access their University e-mail accounts, faculty were contacted and granted permission for class time in a variety of Junior- and Senior-level courses within the Department. Time in these classes was used to administer the survey electronically in such instances where the students were already in a computer lab or in paper form if they were not. The results of these paper surveys were entered into the same database as the electronically collected results.

*Step Seven: Managing the data.* This step included the coding of responses and preparation of a codebook or dictionary of variables (Morgan, Leech, Gloeckner, & Barrett, 2004).

*Step Eight: Analyzing the data.* As all data collected are quantitative in nature, statistical analysis was the means of data analysis used. Descriptive statistics were used to answer the first three research questions. Inferential statistics were used to assess the relationships among variables and answer the final two research questions and their sub-questions. More detailed discussion of this data analysis will follow in Chapter 4.

*Step Nine: Reporting the data.* This step included the writing, editing, and revising of the entire report and its presentation. A more detailed description of the data and ensuing conclusions will follow in Chapters 4 and 5.

### ***Internal and External Validity of the Study***

Cook and Campbell (1979) define internal validity as “the approximate validity with which we can infer that a relationship is causal” (p. 37; as cited in Gliner & Morgan, 2000, p. 83). Gliner and Morgan (2000) have grouped Cook and Campbell’s threats to internal validity into two main types: equivalence of groups on participant characteristics (e.g., equivalence of the intervention and control groups) and control of (extraneous) experience or environmental variables. In this study, the research approach was primarily comparative, therefore, attention was paid to the equivalence of the groups. It is important in comparative studies to check for equivalency or how well matched groups are for demographic measures collected during the study (Gliner & Morgan, 2000). As there was not a control group with which to compare results, some of this determination of internal validity came with a comparison of results to similar studies.

Control of extraneous experience or environmental variables is a second group of threats to internal validity and includes two aspects: a) if extraneous variables or events affect one group more than another, or b) if something other than the independent variable is affecting the dependent variable for all groups. Interestingly, a piece of this study was trying to identify extraneous variables or events which may affect or influence one's work values and career expectations. Efforts were made to identify as many of these extraneous variables as possible and include them as part of the survey instrument. Attempts at controlling group equivalency and extraneous variables were made as it is understood that a good study should have moderate to high internal validity in both of these categories or one must be very cautious to say that the independent variables influenced, impacted, or caused the dependent variable to change (Gliner & Morgan, 2000).

As important as internal validity is external validity. Campbell and Stanley (1966) define external validity as follows: "External validity asks the question of generalizability: To what populations, settings, treatment variables, and measurement variables can this effect be generalized?" (p. 5; as cited in Gliner & Morgan, 2000, p. 158). Just as with internal validity, external validity is evaluated by two criteria and should also be rated as high or one must be cautious about generalizing the findings to other measures, populations, and settings. The first aspect of external validity is related to sampling design or how the sample studied was selected from the accessible population. The primary question which must be defined is "whether the actual final sample of participants is representative of the theoretical or target population" (Gliner & Morgan, 2000, p. 159). In this study an accessible population was sampled and, therefore, may not be representative of a larger, national population.

A second aspect of external validity is called ecological validity and has to do with whether the conditions, settings, times, testers, procedures, or combinations of these factors are representative of real life and can, therefore, be generalized to real life outcomes (Gliner & Morgan, 2000). A self-administered survey such as the one used in this study would have a rating of medium in this aspect as the setting is somewhat artificial in that the self-reported measures are not direct measures of actual behavior in a typical environment. Similarly, this study was specific to the single point-in-time. The procedures guiding distribution and completion of the survey, however, were as natural and representative as possible within the study's scope.

### **Data Analysis**

Various types of statistical analysis were utilized to answer the research questions. Descriptive statistics, those that allow for measures of central tendency and variability (Morgan et al., 2004), were used to describe the sample in terms of a variety of personal characteristics. These characteristics included: gender, age, race, hometown characterization, socioeconomic status of family of origin, current familial status, spirituality, political affiliation, amount of construction experience, and career interests. Descriptive statistics were also used to determine those value constructs deemed to be most important to the sample surveyed. Finally, inferential statistics were used to make inference about population values based upon sample data collected and analyzed. Difference inferential statistics will “lead to inferences about the differences (usually mean differences) between groups in the populations from which the samples were drawn” (Morgan et al., 2004, p. 80).

The dependent variables in this study were defined as seven values and work values constructs: terminal-self-centered; terminal-society-centered; instrumental-moral-

focused; instrumental-competence-focused; comfort and security; competence and growth; and status and independence. Each of these constructs was determined as a mean score of the individually measured values which were measured as normal/scale data (on a Likert scale) in which assumptions were not markedly violated. Multiple independent variables with multiple levels were also included in this study. The choice of basic or complex statistics used for analysis was determined by the related research question.

## **CHAPTER 4**

### **RESULTS**

With an understanding that employers must develop more effective ways of rewarding and developing their workforces to compete for new hires and retain their current personnel, the goal of this research was to provide an understanding into the individuals currently entering the construction industry. As such, the purpose was twofold. One aspect was to gain a personal profile of these individuals and an assessment of what values these entering construction professionals hold. The second piece was to examine this descriptive data and seek an understanding into any relationships which may exist among the personal characteristics of entering construction professionals and their stated values. Personal characteristics were divided into demographic, family of origin, social, personal, academic, and career interests. Values included life, behavioral, and work values.

All participants in the study met the following criteria:

- Junior, Senior, or Second Bachelors class-level within a Bachelors of Science in Construction Management program;
- Self-report as intending to graduate with this degree between December 2006 and May 2008 (see Table 1); and
- Current enrollment in the largest American Council of Construction Education (ACCE) accredited program in the United States.

Table 1

*Graduation Dates of Respondents (n=320)*

Graduation Date	Frequency	Percent
December 2006	71	22.2%
May or August 2007	52	16.3%
December 2007	67	20.9%
May 2008	130	40.6%

Additionally, five broad research questions guided this study:

1. Who are entering construction professionals?
2. What are the life and behavioral values of entering construction professionals?
3. What are the work values of entering construction professionals?
4. What is the relationship among personal characteristics and the life and behavioral values of entering construction professionals?
5. What is the relationship among personal characteristics and the work values of entering construction professionals?

As all data collected are quantitative in nature, statistical analysis was the means of data analysis used. Descriptive statistics were used to answer the first three research questions. Inferential statistics were used to assess the relationships among variables and answer the final two research questions and their sub-questions. The discussion to follow is the presentation of this data.

### **Characteristics of Entering Construction Professionals**

Having reviewed the literature related to demographics of those individuals currently within the construction industry, the expectation was that this study would have a similarly homogeneous sample of soon-to-be entering construction professionals.

Regarding characteristics of gender and race, this expectation held particularly true. Of 322 participants, 293 (91%) were male; 29 individuals (9%) of the population sampled

were female. Similarly, of 317 participants, 306 (96.5%) stated their race as Caucasian. The remaining 11 participants categorized themselves as Hispanic/Latino (6), Asian American (2), Pacific Islander (1), Native American (1) and other (1).

Based upon the delimitations of the study, as the participants were all college students, it was also expected that most would be single without children. This expectation, too, held with 259 (81%) of the 320 responding categorizing themselves as single. The remainder stated that they were married, engaged or cohabitating (60) or separated/divorced (1). Of the same 320 participants, 303 (95%) stated they had no dependents. Nine claimed one dependent and eight stated they had two children. There was no one with more than two children. Table 2 provides a summary of these shared characteristics.

Table 2

*Summary of Participants' Shared Demographic Characteristics*

Gender (n=322)	Frequency	Percent
Male	293	91.0%
Female	29	9.0%
Race (n=317)	Frequency	Percent
Caucasian	306	96.5%
Other	11	3.5%
Marital Status (n=320)	Frequency	Percent
Single	259	80.9%
Other	61	19.1%
Dependents (n=320)	Frequency	Percent
None	303	94.7%
1 or 2	17	5.3%

There was a bit more variation within some of the other demographic characteristics measured. For instance, the age of participants ranged from 19 to 57 (mean 23 years). For those with children, their children ranged in age from 1 to 35 years.



When asked about their “hometown”, just over half stated they grew up in a middle-income, suburban home. Asked about their current political affiliation, again just over half stated that they were Republican. Perhaps the most variation was found in their self-proclaimed degree of spirituality, this time with just under half classifying themselves as being “much” or “very much” spiritual in nature. Table 3 summarizes these more varied demographic characteristics.

Table 3

*Summary of Participants’ Varied Demographic Characteristics*

Age (n=320)	Frequency	Percent
Less than 20 years	1	0.3%
20-24 years	263	82.3%
20 years	(27)	(8.4%)
21 years	(68)	(21.3%)
22 years	(86)	(26.9%)
23 years	(54)	(16.9%)
24 years	(28)	(8.8%)
25-29 years	43	13.4%
30-39 years	10	3.1%
40-49 years	1	0.3%
More than 50 years	2	0.6%
<hr/>		
Hometown (n=322)	Frequency	Percent
Urban	54	16.8%
Suburban	175	54.3%
Agricultural/Rural	93	28.9%
<hr/>		
Socioeconomic Status of Family of Origin (n=322)	Frequency	Percent
Upper-middle class	112	34.8%
Middle class	174	54.0%
Lower-middle class	36	11.2%
<hr/>		
Political Affiliation (n=309)	Frequency	Percent
Republican	173	56.0%
Independent	66	21.4%
Democrat	51	16.5%
Other (responses included mostly Libertarian or Moderate)	19	6.1%

Spirituality (n=320)	Frequency	Percent
Not at all	38	11.9%
Minimally	44	13.8%
Moderately	94	29.3%
Much	98	30.6%
Very much	46	14.4%

A final characteristic measured was the amount of construction experience held by members of the group. This experience ranged from less than one year to over 36 years; however, the mean was 3.6 years. Table 4 provides a summary of this experience.

Table 4

*Current Construction Experience (n=317)*

Years of Construction Experience	Frequency	Percentage
Less than 1 year	64	20.2%
1-5 years	182	57.4%
6-10 years	64	20.3%
More than 10 years	7	2.1%

Whether based upon their own construction experience or other, unknown experiences, these participants provided insight into their career plans. When asked how many years they expected to work in the construction industry after graduation, three-quarters of them stated 20+ years. More than this many were planning employment in the private sector and, of these, most saw themselves either in commercial construction (32%) or working on the owner's side (30%). Over half were seeking employment immediately following graduation with a so-called "medium"-sized organization. More saw themselves field-bound as field engineers or assistant superintendents (37%) as they entered the profession, but ending up on the project management side as their careers progressed (44%). Table 5 provides the details as to these future plans.

Table 5

*Employment Plans Following Graduation*

Years of Employment (n=321)	Frequency	Percentage
Less than 1 year	1	0.3%
1-5 years	5	1.6%
6-10 years	20	6.2%
11-20 years	55	17.1%
More than 20 years	240	74.8%
Employment Sector (n=320)	Frequency	Percentage
Private sector construction industry	258	80.6%
Public sector or government construction	37	11.6%
Military service	7	2.2%
Non-profit or missionary work	2	0.6%
Other Non-construction related work	3	0.9%
Other (responses included mostly self-employment)	13	4.1%
Employer Type of Work (n=304)	Frequency	Percentage
Architect/engineer	6	2.0%
Construction manager/owner's rep	92	30.3%
Commercial builder	96	31.6%
Heavy/highway/civil builder	31	10.2%
Industrial builder	13	4.3%
Residential builder/developer	44	14.5%
Subcontractor	13	4.3%
Vendor/supplier	0	0.0%
Other (responses included mostly self-employment)	9	3.0%
Size of Employer (n=92)	Frequency	Percentage
Large	92	30.6%
Medium	176	58.5%
Small	33	11.0%
Position Post-Graduation (n=302)	Frequency	Percentage
Field engineer or assistant superintendent	112	37.1%
Office or project engineer	89	29.5%
Estimating or preconstruction	22	7.3%
Self-employed or partnership	19	6.3%
Unsure	45	14.9%
Other	15	5.0%

Career Path (n=303)	Frequency	Percentage
Superintendent	41	13.5%
Project management	132	43.6%
Estimating or preconstruction	16	5.3%
Self-employed or partnership	62	20.5%
Unsure	38	12.5%
Other	14	4.6%

### **Life and Behavioral Values of Entering Construction Professionals**

Understanding the demographic characteristics of entering construction professionals provides us merely a sketch into who they are and what motivates their behaviors and choices. An analysis into the values this group holds will provide a much more accurate picture into their motivations. Values are core beliefs that individuals experience as standards that guide how they “should” function. Individuals experience their values in terms of “oughts” that identify both the processes and objectives to be pursued (Brown, 2002). Values are the major factor in motivation because they form the basis for attributing worth to situations and objects (Feather, 1992; Rokeach, 1973).

To provide an understanding into values, participants were asked to rank on a 7-point Likert scale (1 = least important and 7 = most important) the importance a series of 36 different values hold in their life. This value attainment scale was originally developed by Rokeach (1973) and was designed to assess the importance an individual assigns to 18 terminal values and 18 instrumental values. Terminal values describe desirable end states such as a comfortable life and can be categorized as self-centered or society-centered. Instrumental values refer to modes of behavior and can be categorized as moral-focused or competence-focused (Fields, 2002; Rokeach, 1973).

Tables 6-9 provide an overview of participants’ rankings of the 18 terminal (self-centered and social-centered) and 18 instrumental (moral-focused and competence-

focused) values included in the survey. The mean scores of the terminal values ranged from a high of 6.53 to a low of 4.34 (range of 2.19) with the range of self-centered being 1.17 and the range of social-centered being 2.19. The mean scores of the instrumental values had a much smaller range (0.92) with a high of 6.27 and a low of 5.35. The range of moral-focused is 0.92 and competence-focused is 0.50.

Table 6

*Mean Rankings of Terminal Life and Behavioral Values – Self-Centered*

Terminal Values Self-Centered	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Happiness (contentedness)	1	7	6.41	0.780	324
True friendship (close companionship)	1	7	6.26	0.915	324
Freedom (independence, free choice)	2	7	6.25	0.877	327
An exciting life (a stimulating, active life)	1	7	6.14	0.923	325
A comfortable life (a prosperous life)	1	7	6.10	0.898	327
Self-respect (self-esteem)	3	7	6.06	0.837	325
Wisdom (a mature understanding of life)	1	7	6.03	1.009	327
Pleasure (an enjoyable, leisurely life)	1	7	6.02	0.943	327
Mature love (sexual and spiritual intimacy)	1	7	5.99	1.076	326
Inner harmony (freedom from inner conflict)	1	7	5.47	1.238	327
Saved (eternal life)	1	7	5.24	1.936	324

Table 7

*Mean Rankings of Terminal Life and Behavioral Values – Social-Centered*

Terminal Values Social Centered	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Family security (taking care of loved ones)	1	7	6.53	0.865	326
A sense of accomplishment (lasting contribution)	3	7	6.08	0.913	325
Equality (brotherhood, equal opportunity for all)	1	7	5.51	1.255	327
National security (protection from attack)	1	7	5.50	1.335	325
Social recognition (respect, admiration)	1	7	5.30	1.377	327
A world of beauty (beauty of nature and the arts)	2	7	4.80	1.478	325
A world at peace (free of war and conflict)	2	7	4.34	1.539	326

Table 8

*Mean Rankings of Instrumental Life and Behavioral Values – Moral-Focused*

Instrumental Values Moral Focused	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Honest (sincere, truthful)	3	7	6.27	0.853	323
Responsible (dependable, reliable)	1	7	6.16	0.877	326
Courageous (standing up for your beliefs)	3	7	6.06	0.858	327
Ambitious (hard-working, aspiring)	3	7	6.05	0.969	327
Polite (courteous, well-mannered)	1	7	5.70	1.108	326
Cheerful (lighthearted, joyful)	1	7	5.67	1.024	327
Loving (affectionate, tender)	1	7	5.64	1.124	326
Self-controlled (restrained, self-disciplined)	1	7	5.62	1.042	326
Broadminded (open-minded)	2	7	5.57	1.141	327
Helpful (working for the welfare of others)	1	7	5.55	1.087	327
Forgiving (willing to pardon others)	2	7	5.53	1.079	327
Obedient (dutiful, respectful)	1	7	5.45	1.120	327
Clean (neat, tidy)	1	7	5.35	1.142	325

Table 9

*Mean Rankings of Instrumental Life and Behavioral Values – Competence-Focused*

Instrumental Values Competence Focused	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Capable (competent, effective)	2	7	6.02	0.895	324
Independent (self-reliant, self-sufficient)	1	7	5.96	1.019	326
Logical (consistent, rational)	1	7	5.85	1.000	325
Intellectual (intelligent, reflective)	1	7	5.78	1.045	326
Imaginative (daring, creative)	1	7	5.52	1.145	327

**Work Values of Entering Construction Professionals**

A final necessary component in building this picture of those entering the construction industry as construction professionals is gaining an understanding of their work values. A work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). They are the values that individuals believe should be satisfied as a result of their participation in the work role and lead them to set directional goals (Brown, 2002).

Based upon Manhardt's (1972) Work Values Inventory participants were asked to rank 21 job characteristics on a scale of 1 (least important) to 5 (most important). As with Rokeach's (1973) scale, the 21 items included within Work Values Inventory can be grouped into separate constructs. In this instance, the values were broken into the constructs of comfort and security (5 items), competence and growth (9 items), and status and independence (7 items). Comfort and security includes job characteristics such as having comfortable working conditions, job security, and a regular routine. Competence and growth includes job characteristics such as intellectual stimulation, continued development of skills, and a feeling of accomplishment. Status and independence includes job characteristics such as opportunities to earn a high income, supervision of

other employees, and working on problems of importance to the organization (Fields, 2002; Manhardt, 1972).

Tables 10 through 12 summarize participants' ranking of work values in the three construct areas. Each set of job characteristics had fairly similar ranges of mean scores. Comfort and security had a span of 0.99 with a high of 4.46 and a low of 3.47. The nine items included in the competence and growth construct had mean scores ranging from 4.50 to 3.43 (range 1.07), while the range for job characteristics related to status and independence had highest mean scores and the smallest range (0.68) of all with a mean high of 4.54 and low of 3.86.

Table 10

*Mean Rankings of Work Values Relating to Comfort and Security*

Comfort and Security Job Characteristics	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Provides job security	1	5	4.46	0.750	320
Provides comfortable working conditions	1	5	4.19	0.865	321
Provides ample leisure time off the job	1	5	4.17	0.845	321
Has clear-cut rules and procedures to follow	1	5	3.50	1.014	320
Permits a regular routine in time and place of work	1	5	3.47	1.040	321



Table 11

*Mean Rankings of Work Values Relating to Competence and Growth*

Competence and Growth Job Characteristics	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Provides a feeling of accomplishment	2	5	4.50	0.634	318
Encourages continued development of knowledge and skills	1	5	4.31	0.709	320
Provides change and variety in duties and activities	1	5	4.25	0.731	320
Permits me to develop my own methods of doing the work	2	5	4.23	0.698	319
Is intellectually stimulating	1	5	4.20	0.782	321
Requires originality and creativity	1	5	4.10	0.788	321
Allows me to make a social contribution by the work I do	1	5	3.89	0.932	319
Requires meeting and speaking with many other people	1	5	3.73	1.032	320
Satisfies my cultural and aesthetic interests	1	5	3.43	1.013	321

Table 12

*Mean Rankings of Work Values Relating to Status and Independence*

Status and Independence Job Characteristics	Minimum Ranking	Maximum Ranking	<i>M</i>	<i>SD</i>	<i>N</i>
Provides the opportunity to earn a high income	1	5	4.54	0.703	319
Permits advancement to high administrative responsibility	1	5	4.30	0.821	320
Is respected by other people	1	5	4.27	0.827	318
Gives me the responsibility for taking risks	1	5	4.12	0.792	319
Requires working on problems of central importance to the organization	1	5	4.08	0.799	318
Permits working independently	1	5	3.88	0.931	319
Requires supervising others	1	5	3.86	0.920	319

**Relationship with Life and Behavioral Values**

Research question four asks a broad question of: “What is the relationship among personal characteristics and the life and behavioral values of entering construction professionals?” This broad question was then broken down into a series of sub-set

questions to test for between group differences and associations of individual constructs.

These sub-set questions include:

- *Demographic*: Do values differ on characteristics of gender or race? Will students' age be associated with their values?
- *Family of Origin*: Do values differ on characteristics of socioeconomic status or "hometown" size?
- *Current Status*: Do values differ on marital status?
- *Personal*: Do values differ on political affiliation? Is there an association of values with spirituality?
- *Experience*: Do values differ by size of employer sought upon graduation? Is there an association of values with years of prior construction experience or years expected to be employed in the construction industry?

***Difference of Gender, Race, and Marital Status (I.V.) with Life and Behavioral Values (D.V.)***

To see if there is a difference in the four constructs of life and behavioral values with gender (male and female), race (Caucasian and other), and marital status (single and other), an Independent Samples *t* test was performed. As Table 13 shows, a statistically significant difference was found in the construct of terminal-society-centered between males and females ( $p = .032$ ), with females reporting a higher mean score (67.29) than their male counterparts (66.33). The effect size *d* is approximately .14, which is smaller than typical and indicates little strength of relationship. Similarly, a statistically significant difference ( $p = .026$ ) was found in the construct of instrumental-moral-focused with females reporting a higher mean score (72.11) than their male counterparts (68.65).

Here, the effect size  $d$  is approximately .44, which is medium or typical. The other life and behavioral constructs were not found to be statistically significant by gender.

No life and behavioral constructs were found to be statistically significant by the race groups of Caucasian and other.

A statistically significant difference was found in the construct of instrumental-competence-focused between the marital groups of single and non-single (married/engaged/cohabitating/separated/divorced) ( $p = .033$ ). However, the effect size  $d$  is approximately 0.09, which is very small and shows almost no strength of the relationship. No other life and behavioral constructs were found to be statistically significant by marital status.

Table 13

*Comparison by Gender with Life and Behavioral Values*

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Terminal-Self-Centered					
Male (n = 280)	66.33	6.89			
Female (n = 28)	67.29	5.92			
			-2.488	313	.032
Terminal-Society-Centered					
Male (n = 287)	37.93	5.34			
Female (n = 28)	40.50	3.62			
			-2.230	311	.026
Instrumental-Moral-Focused					
Male (n = 285)	68.65	7.92			
Female (n = 28)	72.11	6.78			
			-1.910	313	.057
Instrumental-Competence-Focused					
Male (n = 286)	29.05	3.71			
Female (n = 29)	30.41	3.30			

***Difference of Childhood Socioeconomic Status, Hometown Size, Political Affiliation and Intended Employer (I.V.) with Life and Behavioral Values (D.V.)***

Using a one-way ANOVA, no statistical significant difference was found among the three levels of socioeconomic status on any of the life and behavioral values constructs. Similarly, no statistical significant difference was found with the one-way

ANOVA among the three levels of hometown size on any of the life and behavioral values constructs. These means were generally much more of a straight line with urban having the highest means, suburban mid-level, and rural lowest means. Only the construct of instrumental-moral-focused was highest by urban, mid-level, and lowest by suburban. Table 14 provides a summary of the one-way ANOVA descriptive statistics.

Table 14

*Means and Standard Deviations Comparing Three Hometown Sizes with Life and Behavioral Values*

Hometown Size	Avg <i>n</i>	Terminal Self-Centered		Terminal Society-Centered		Instrumental Moral-Focused		Instrumental Competence-Focused	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Urban	53	66.98	7.51	38.45	5.49	75.39	10.15	29.54	3.58
Suburban	170	66.48	6.05	38.26	4.95	74.12	8.18	29.15	3.44
Rural	90	65.95	7.71	37.79	5.71	74.96	8.38	28.99	4.21
Total	313	66.42	6.80	38.16	5.26	74.57	8.57	29.17	3.69

Statistical significance, however, was found with the one-way ANOVA among the three levels of political affiliation on the life and behavioral value construct of terminal-society-centered,  $F(2,300) = 7.84, p < .000$ . Table 15 shows that the mean scores on this value construct are relatively similar for those with a declared political party (37.38 for Republican and 37.80 for Democrat), but is much higher (40.06) for those Unaffiliated from a political party. Table 16 provides a summary of the one-way ANOVA calculations. Post hoc Tukey HSD tests indicate that those who are Unaffiliated scored higher on the construct of terminal-social-centered than those declared as Republican or Democrat ( $p = <.05$ ).

Table 15

*Means and Standard Deviations Comparing Three Political Affiliations with Life and Behavioral Values*

Political Affiliation	Avg <i>n</i>	Terminal Self-Centered		Terminal Society-Centered		Instrumental Moral-Focused		Instrumental Competence-Focused	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Republican	168	66.39	6.87	37.38	5.28	74.63	8.26	28.88	3.78
Democrat	51	66.00	6.35	37.80	5.08	73.73	9.08	29.08	3.30
Unaffiliated	82	67.22	6.79	40.06	4.75	75.51	8.62	29.78	3.68
Total	301	66.54	6.76	38.18	5.22	74.72	8.54	29.16	3.69

Table 16

*One-Way Analysis of Variance Summary Table Comparing Political Affiliations on Constructs of Life and Behavioral Values*

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Terminal-Self-Centered					
Between groups	2	54.39	27.19	.59	.553
Within groups	293	13409.04	45.77		
Total	295	13463.43			
Terminal-Society-Centered					
Between groups	2	408.80	204.40	7.84	.000**
Within groups	300	7818.85	26.06		
Total	302	8227.65			
Instrumental-Moral-Focused					
Between groups	2	84.04	42.02	.68	.507
Within groups	297	18328.53	61.71		
Total	299	18412.57			
Instrumental-Competence Focused					
Between groups	2	45.56	22.78	1.68	.187
Within groups	299	4044.13	13.53		
Total	301	4089.69			

\* Significant at the 0.05 level

\*\* Significant at the 0.01 level

A final one-way ANOVA was done on intended size of future employer to test if there was any statistically significant difference of life and behavioral values. There was none shown and, much like childhood socioeconomic status there was variation of results among all constructs. Respondents with a propensity toward a medium-sized company were consistently lower on all of these values compared to those seeking larger or smaller companies; however, all means were within one point (on a 7-point scale) between the polar levels of company size on all value constructs.

***Association of Age, Spirituality, and Intended Years of Employment (I.V.) and Life and Behavioral Values (D.V.)***

Table 17 shows that two pairs of variables were significantly correlated. To investigate for a statistically significant association among age and the four constructs of life and behavioral values, a Pearson correlation was calculated (assumption of normality found). No statistical significance was found.

A Pearson correlation (assumption of normality found) was also calculated for amount of spirituality and the four constructs of life and behavioral values. A statistically significant association was found between spirituality and the value of terminal-self-centered,  $r(286) = .29, p < .001$ . Similarly, a correlation was found between spirituality and the value of instrumental-moral-focused,  $r(286) = .26, p < .001$ . Both of these correlations have a medium or typical effect size. This means that those who had a relatively high degree of spirituality were likely to identify with values of terminal-self-centered and instrumental-moral-focused.

A final Pearson correlation (assumption of normality found) was calculated for the variable of intended years of future employment in the construction industry with the four values constructs. As with age, no statistical significance was found.

Table 17

*Intercorrelations, Means, and Standard Deviations for Age, Spirituality, and Intended Years of Employment and Constructs of Life and Behavioral Values (N = 288)*

Variable	1	2	3	4	5	6	7	M	SD
1. Terminal-Self-Centered	--	.71	.83	.72	-.02	.29*	.07	66.52	6.80
2. Terminal-Society-Centered	--	--	.73	.58	-.02	.11	.06	38.13	5.31
3. Instrumental-Moral-Focused	--	--	--	.76	.04	.26*	.01	74.60	8.48
4. Instrumental-Competence-Focused	--	--	--	--	.04	.05	-.07	29.14	3.72
5. Age	--	--	--	--	--	.02	.02	22.99	3.23
6. Spirituality	--	--	--	--	--	--	-.02	3.22	1.19
7. Years of Employment	--	--	--	--	--	--	--	1.36	0.72

\*  $p < .001$

The most interesting finding in all of this analysis is the trend toward terminal-self-centered and instrumental-moral-focused life and behavioral values regardless of any prior or current personal characteristic. This translates to a value of a comfortable life for one's self as well as modes of behavior such as honesty and responsibility (Fields, 2002; Rokeach, 1973).

### **Relationship with Work Values**

Research question five ask the same broad question of relationship among personal characteristics, but this time in regards to the work values of entering construction professionals. Here, the intent was to determine any differences or associations in work values based upon a variety of personal characteristics. These sub-set questions include:

- *Demographic*: Do values differ on characteristics of gender or race? Will students' age be associated with their values?

- *Family of Origin*: Do values differ on characteristics of socioeconomic status or “hometown” size?
- *Current Status*: Do values differ on marital status?
- *Personal*: Do values differ on political affiliation? Is there an association of values with spirituality?
- *Experience*: Do values differ by size of employer sought upon graduation? Is there an association of values with years of prior construction experience or years expected to be employed in the construction industry?

***Difference of Gender, Race, and Marital Status (I.V.) with Work Values (D.V.)***

An Independent Samples *t* test was done to see if there were any differences in the three constructs of work values with gender (male and female), race (Caucasian and other), and marital status (single and other). None of the work value constructs of comfort and security, competence and growth, or status and independence were found to be statistically significant by gender, race, or marital status.

***Difference of Childhood Socioeconomic Status, Hometown Size, Political Affiliation and Intended Employer (I.V.) with Work Values (D.V.)***

An one-way ANOVA was done to see if there were any differences in the three constructs of work values with variables as varied as childhood socioeconomic status, hometown size, current political affiliation, and intended size of future employer. No statistical significance was found for any of these variables. The means of each, though, were varied by the noted variables. Table 18 provides a summary of the one-way ANOVA and descriptive statistics for socioeconomic status and hometown size while Table 19 provides these descriptive for political affiliation and size of intended employer.



Table 18

*Means and Standard Deviations Comparing Three Socioeconomic Status Groups and Hometown Sizes with Work Values*

Socioeconomic Status	Avg <i>n</i>	Comfort and Security		Competence and Growth		Status and Independence	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Upper-Middle	109	19.57	2.99	36.84	4.16	29.01	3.91
Middle	170	19.97	3.04	36.55	4.89	28.98	3.91
Lower-Middle	35	19.53	2.57	36.36	4.66	29.62	3.58
Total	314	19.78	2.97	36.63	4.61	29.06	3.87
<b>Hometown Size</b>							
Urban	53	20.63	2.86	37.04	5.23	28.87	4.07
Suburban	170	19.66	2.96	36.57	4.47	28.91	3.54
Rural	91	19.52	3.00	36.50	4.52	29.45	4.32
Total	314	19.78	2.97	36.63	4.61	29.06	3.87

Table 19

*Means and Standard Deviations Comparing Three Political Affiliations and Intended Employer Sizes with Work Values*

Political Affiliation	Avg <i>n</i>	Comfort and Security		Competence and Growth		Status and Independence	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Republican	169	19.73	2.99	36.46	4.52	29.11	4.00
Democrat	50	19.57	2.93	36.75	4.44	28.86	3.26
Unaffiliated	82	19.92	3.05	36.84	4.70	29.05	4.08
Total	301	19.75	2.99	36.61	4.54	29.05	3.90
<b>Intended Employer</b>							
Large	169	19.73	2.99	36.46	4.52	29.11	4.00
Medium	82	19.92	3.05	36.84	4.70	29.05	4.08
Small	50	19.57	2.93	36.75	4.44	28.86	3.26
Total	301	19.75	2.99	36.61	4.54	29.05	3.90

***Association of Age, Spirituality, and Intended Years of Employment (I.V.) and Work Values (D.V.)***

A Pearson correlation (assumption of normality found) was calculated for the variables of age, spirituality, and intended years of future employment with the three constructs work values. As Table 20 shows, degree of spirituality and the work value of competence and growth were significantly correlated,  $r(299) = .18, p = .002$ . This is a small to medium effect size.

Table 20

*Intercorrelations, Means, and Standard Deviations for Age, Spirituality, and Intended Years of Employment and Constructs of Work Values (N = 301)*

Variable	1	2	3	4	5	6	M	SD
1. Comfort and Security	--	.25	.33	-.00	.01	-.02	19.84	2.97
2. Competence and Growth	--	--	.60	-.06	.18**	.00	36.61	4.61
3. Status and Independence	--	--	--	-.03	.04	-.04	29.05	3.89
4. Age	--	--	--	--	.06	-.01	23.19	3.91
5. Spirituality	--	--	--	--	--	-.04	3.24	1.20
6. Years of Employment	--	--	--	--	--	--	1.35	0.70

\* Significant at the 0.05 level

\*\* Significant at the 0.01 level

As with life and behavioral values, the most interesting finding in the analysis of work values is the trend by all respondents toward an ordering of these work value constructs. Regardless of any prior or current personal characteristic, respondents placed an emphasis on the work values of competence and growth and status and independence over comfort and security. Generally, this means that job characteristics such as intellectual stimulation, continued development of skills, and a feeling of accomplishment are valued more so than those job characteristics of comfortable working conditions, supervising others, and a regular routine (Fields, 2002; Manhardt, 1972).

## **CHAPTER 5**

### **CONCLUSION**

The purpose of this research was to give those construction organizations focused on strategic human resource management (HRM) a better understanding of the individuals entering the workforce. Conducted in late 2006, this research focused on individuals anticipating entry into the construction industry as construction professionals within the timeframe of December 2006 to May 2008. As such, the intention of the survey was twofold. One aspect was to gain a personal profile of these individuals and an assessment of what values these entering construction professionals hold. The second piece was to examine this descriptive data and seek an understanding into any relationships which may exist among the personal characteristics of entering construction professionals and their stated values. Personal characteristics were divided into demographic, family of origin, social, personal, experience, and career interests. Values included life, behavioral, and work values.

Five broad research questions guided this study. These included:

1. Who are entering construction professionals?
2. What are the life and behavioral values of entering construction professionals?
3. What are the work values of entering construction professionals?
4. What is the relationship among personal characteristics and the life and behavioral values of entering construction professionals?
5. What is the relationship among personal characteristics and the work values of entering construction professionals?

## Overview of the Study

Guided by Brown (2002), the major underlying assumption of this research was that work values, in concert with other life role values (e.g., family, spirituality), are the primary variables which influence the career-choice making process, the job chosen, and the resulting satisfaction with and success in this chosen career. His work, and that of others, provided a theoretical model which served as the framework for this study (Brown, 2002; Brown & Crace, 1996; Sagie et al., 1996). From this research it was noted that a variety of personal characteristics such as age, gender, race, familial responsibilities, work experience, and career interests all have an influence on the values one holds. Similarly, it is the whole of these values (rather than each as an individual function) which influence career expectations and other life role decisions.

The general research design of this study was a comparative and associational research approach or a non-experimental approach. Studies that use the comparative approach “examine the presumed effect of an attribute independent variable” (Gliner & Morgan, 2000, p. 68; italics in original). In this particular case, this research design was appropriate as the study was centered on defining work values and career expectations of soon-to-be Construction Management graduates as related to their personal characteristics. Such information is valuable as there are not similar studies focused on the values and expectations of current or upcoming construction management professionals.

As all data collected in this study are quantitative in nature, statistical analysis was the means of data analysis used. Descriptive statistics were used to answer the first

three research questions. Inferential statistics were used to assess the relationships among variables and answer the final two research questions and their sub-questions.

### **Summary of Findings**

This research was interested in understanding the demographic characteristics of entering construction professionals so as to provide a glimpse into who they are and what motivates their behaviors and choices. Having reviewed the literature related to demographics of those individuals currently within the construction industry, the expectation was that this study would have a similarly homogeneous sample of soon-to-be entering construction professionals. Also, as all participants were currently attending the same university, a similarity of regional and cultural background was assumed for many of the participants.

These assumptions held generally true with 91% of study participants male, 96.5% stating their race as Caucasian, 81% categorizing themselves as single, and 95% without dependents. The age of participants ranged from 19 to 57 with a mean age of 23 years. Just over half (54%) stated they grew up in a middle-income, suburban home. Similarly, 56% stated that they were Republican. Forty-five percent classified themselves as being “much” or “very much” spiritual in nature. Finally, the amount of construction experience ranged from less than one year to over 36 years with a mean of 3.6 years. Much of this experience was in part-time, summer, and/or internship employment.

Whether based upon their own construction experience or other, unknown experiences, these participants provided insight into their career plans. When asked how many years they expected to work in the construction industry after graduation, three-

quarters of them stated 20+ years. More than this many were planning employment in the private sector and, of these, most saw themselves either in commercial construction (32%) or working on the owner's side (30%). Over half were seeking employment immediately following graduation with a so-called "medium"-sized organization. More saw themselves field-bound as field engineers or assistant superintendents (37%) as they entered the profession, but ending up on the project management side as their careers progressed (44%).

Understanding the demographic characteristics of entering construction professionals provides merely a sketch into who they are and what motivates their behaviors and choices. As such, values were assessed to provide a more accurate picture into their motivations. Values are core beliefs that individuals experience as standards that guide how they "should" function. Individuals experience their values in terms of "oughts" that identify both the processes and objectives to be pursued (Brown, 2002). Values are the major factor in motivation because they form the basis for attributing worth to situations and objects (Feather, 1992; Rokeach, 1973).

To provide an understanding into values, participants were asked to rank on a 7-point Likert scale (1 = least important and 7 = most important) the importance a series of 36 different values hold in their life. This value attainment scale was originally developed by Rokeach (1973) and was designed to assess the importance an individual assigns to 18 terminal values and 18 instrumental values. Terminal values describe desirable end states such as a comfortable life and can be categorized as self-centered or society-centered. Instrumental values refer to modes of behavior and can be categorized as moral-focused or competence-focused (Fields, 2002; Rokeach, 1973).

From this sample some general trends of this population can be found. A review of the mean rankings of life and behavioral values shows the broadest range in the terminal values of self-centered and social-centered. As a whole, the values associated as self-centered ranked highest of all values with an average of 0.86 while social-centered were lowest at 0.78. The mean scores of the terminal values ranged from a high of 6.53 to a low of 4.34 (range of 2.19) with the range of self-centered being 1.17 and the range of social-centered being 2.19.

Eight of the 11 self-centered values had mean scores above 6.0 with only wisdom a *SD* above 1.0. These included: happiness, true friendship, freedom, an exciting and comfortable life, self-respect, wisdom, and pleasure. As social-centered values, only family security and a sense of accomplishment had mean scores above 6.0 and *SD* below 1.0. Interestingly, the social-centered value of family security had the highest mean score of *any* life and behavioral value at 6.53 on a 7.0 scale.

Instrumental values of moral-focused and competence-focused ranked between the two terminal values and were nearly identical at 0.82 and 0.83, respectively. The mean scores of the instrumental values had a much smaller range (0.92) with a high of 6.27 and a low of 5.35. The range of moral-focused was 0.92 and competence-focused was 0.50.

The values of honesty, responsibility, courage, and ambition were the only four of 13 moral-focused values with mean scores above 6.0 and *SD* below 1.0. The only competence-focused value with these means and *SD* was capable. Table 21 provides a summary of the five highest and lowest ranked life and behavioral values across all value categories.

Table 21

*Five Highest and Lowest Ranking Life and Behavioral Values*

Highest Life and Behavioral Values	<i>M</i>	<i>SD</i>
Family Security (taking care of loved ones)	6.53	0.87
Happiness (contentedness)	6.41	0.78
Honest (sincere, truthful)	6.27	0.85
True friendship (close companionship)	6.26	0.92
Freedom (independence, free choice)	6.25	0.88
Lowest Life and Behavioral Values	<i>M</i>	<i>SD</i>
Clean (neat, tidy)	5.35	1.14
Social recognition (respect, admiration)	5.30	1.38
Saved (eternal life)	5.24	1.94
A world of beauty (beauty of nature and the arts)	4.80	1.48
A world at peace (free of war and conflict)	4.34	1.54

A final necessary component in building this picture of those entering the construction industry as construction professionals was gaining an understanding of their work values. A work value can be defined as the importance individuals give to a certain outcome obtained within the work context (Elizur, 1984). They are the values that individuals believe should be satisfied as a result of their participation in the work role and lead them to set directional goals (Brown, 2002).

Based upon Manhardt's (1972) Work Values Inventory participants were asked to rank 21 job characteristics on a scale of 1 (least important) to 5 (most important). As with Rokeach's (1973) scale, the 21 items included within Work Values Inventory can be grouped into separate constructs. In this instance, the values were broken into the constructs of comfort and security, competence and growth, and status and independence.

The work values associated with status and independence averaged 0.83 and ranked above those associated with competence and growth (0.81) and comfort and security (0.79). Each set of job characteristics had fairly similar ranges of mean scores.



Constructs of status and independence had highest mean scores and *SD* all below 1.0. Five of the seven characteristics had mean scores above 4.0 with *SD* below 0.9, including: provides the opportunity to earn a high income, permits advancement to high administrative responsibility, is respected by other people, gives me the responsibility for taking risks, and requires working on problems of central importance to the organization. Interestingly, only the values of working independently and supervising others scored a mean below 4.0.

Competence and growth values also had the majority of constructs with mean scores above 4.0 and *SD* less than 0.8. These included: provides a feeling of accomplishment, encourages continued development of knowledge and skills, provides change and variety in duties and activities, permits me to develop my own methods of doing the work, is intellectually stimulating, and requires originality and creativity.

With the lowest average score, comfort and security had a clear break in its five constructs. The values of provides job security, comfortable working conditions, and ample leisure time off the job all had mean scores above 4.0 with *SD* less than 0.9. Constructs of has clear-cut rules and procedures to follow and permits a regular routine in time and place of work had much lower mean scores (3.50 and 3.47, respectively) with *SD* just above 1.0.

Of interest, each of these work value groupings had a single work value that ranked well above others in the group. In the same order as the overall rankings, these work values included on a 5.0 scale: provides the opportunity to earn a high income (4.54), provides a feeling of accomplishment (4.50), and provides job security (4.46).

Table 22

*Five Highest and Lowest Ranking Work Values*

Highest Work Values	<i>M</i>	<i>SD</i>
Provides the opportunity to earn a high income	5.54	0.70
Provides a feeling of accomplishment	4.50	0.63
Provides job security	4.46	0.75
Encourages continued development of knowledge and skills	4.31	0.71
Permits advancement to high administrative responsibility	4.30	0.82
Lowest Work Values	<i>M</i>	<i>SD</i>
Requires supervising others	3.86	0.92
Requires meeting and speaking with many other people	3.73	1.03
Has clear-cut rules and procedures to follow	3.50	1.01
Permits a regular routine in time and place of work	3.47	1.04
Satisfies my cultural and aesthetic interests	3.43	1.01

Few statistically significant relationships were found among the personal characteristics and values of entering construction professionals. Trends held toward the overall value scores regardless of any prior or current personal characteristic.

### **Suggestions for Further Research**

This research was conducted during the height of an economic boom in which students in construction management and related degree programs often had multiple offers, signing bonuses, and construction firms seemingly competing to hire them upon graduation. Five years later, coming out of the worst economic times since the Great Depression of the 1930s, it would be very interesting to conduct the same survey of work values and career expectations on a similar group of students. Those students graduating today began their education just as the construction industry was experiencing a severe retraction of revenues, backlog, and needed employees. Would this new economic and

employment situation have an effect on work values and career expectations or do rooted personal characteristics have a greater influence?

Another suggestion for future research would be to conduct this same survey in different regions of the country, perhaps in Construction Management programs with more varied demographic characteristics. This would be the only way to truly test if personal characteristics influence work values and career expectations. This same would be true of students in international university programs.

### **Conclusions**

The construction industry is full of complex organizations undergoing rapid change, with diversified product offerings, that are decentralized and large enough to include many specialized units. It is also one of the Nation's largest industries with, in 2008, 7.2 million wage and salary jobs and 1.8 million self-employed and unpaid family workers and an expected growth of 19 percent through the year 2018 (Bureau of Labor Statistics, 2010). Currently, the construction industry, specifically those in professional and managerial roles, is comprised mostly of white males age 40 years or older (Gibson et al., 2003). As native-born white males comprised only 15 percent of new entrants into the U.S. labor force between 1988 and 2000 (Nixon & West, 2002) and as this population begins to retire, the construction industry will become in desperate need of workers.

In short, key challenges for the construction industry include: recruiting young talent; creating incentives for baby-boomers to stay beyond their retirement; and finding ways to pass critical knowledge from one generation to the next (Sowers & Woody, 2006). Those in the construction industry must recognize that the graduates of today are different than those of past generations and that what it takes to hire and retain these

individuals is different than the strategies employed a decade ago. For the industry to continue to grow and prosper, the leaders of tomorrow must be recruited and trained today to fill the vacancies left by those retiring (Construction News, 2004). Likewise, companies must identify a leadership succession plan, placing renewed emphasis on training and development, and establishing systems to document informal but valuable wisdom (Wahl, 2004).

Implications of these challenges extend beyond a skilled labor shortage to a skilled leader shortage. The construction industry is losing those with the most experience and knowledge faster than it can provide for succession planning and certainly faster than it can fill open positions. Likewise, these trends signify awareness of a multi-generational workforce which presents its own set of challenges for the construction industry. As such, leaders in the construction industry must recognize these factors and the benefits strategic human resource management can bring to their organizations and the construction industry as a whole.

Human resource management in construction has not historically been a strategic or deliberate process which has resulted in the infrequent use of comprehensive workforce management strategies in the industry (Brandenburg et al., 2006). As such, the construction industry has adopted reactive approaches to dealing with its staffing needs, resulting in the prevalence of 'hard' HRM approaches where employees are viewed like any other factor of production, rather than as a critical component in achieving a competitive advantage (Druker et al., 1996).

Strategic HRM is different in that it offers a longer-term solution for complex problems, directed by key decision makers, towards the achievement of competitive

advantage (Druker et al., 1996; Miller, 1989). Strategic HRM is “concerned with the translation of strategy into organizational action through organizational structure and design, resource planning and the management of strategic change” (Johnson & Scholes, 1999, as cited in Price & Newson, 2003, p. 185). Such an understanding, and focus in actions, will have a significant impact on an organization’s ability to best serve the owner, thereby increasing profitability.

The link between investment in human capital and an organization’s success (i.e., profitability) is most apparent in service organizations (Phillips, 2005). A construction firm is the truest form of a service organization. On a typical construction project, a general contractor is providing a service to an owner and there are many, many subcontractors and suppliers which are, in turn, making this possible by providing a service to the general contractor. As Phillips (2005) states, “The impact of employee satisfaction, loyalty and productivity is linked to customer satisfaction and growth of customer loyalty” (p. 61).

### **Recommendations**

Strategic HRM is based upon the belief that human resource strategies such as: a) the accurate projection of human capital needs; b) the identification of individuals best suited to meet organizational objectives; and c) the development of employees will positively impact workforce performance (Koch & McGrath, 1996, p. 336). In this framework, an accurate projection of human capital needs occurs because there is an investment made at the highest levels to analyze the organization’s personnel needs under changing conditions and then a reaction made by developing activities necessary to satisfying these needs. Planning includes: a) a clear understanding of what specific

characteristics are being sought in applicants; b) an identification of future hiring needs to create a kind of lead time; and c) formal, regular evaluation of recruitment and selection practices (Koch & McGrath, 1996).

This planning is a critical factor in boosting recruitment and retention efforts. As such, industry leaders should consider three factors as most critical: a) flexibility of company programs to give employees more decision-making power; b) provision of competitive compensation packages, both cash and non-cash rewards as well as long-term equity participation; and c) availability of career development opportunities for employees who have critical skills or who are close to retirement but have skills that must be passed to the next generation (Sowers & Woody, 2006).

A good first step in the identification and hiring of suitable applicants is accomplished through investments in hiring and casting a wide net to seek out a greater number of potential applicants. The more an organization spends up front in time and cost to understand the labor market and recruiting sources, the better the pool of applicants. A second mechanism for reducing uncertainty in the hiring process is to complete an intensive search of applicants through the use of purposive selection and screening. Finally and unfortunately often neglected, investment in employee development is a critical aspect of strategic HRM. This is a strategy through which the organization actually realizes the potential of its people. Koch and McGrath (1996) focus on two means of employee development: a) company-sponsored employee training and b) promotion-from-within to fill vacancies. The combination of these strategies allows organizations to better retain their employees, thereby benefiting long-term from their knowledge and skill.

There are a few main areas where organizations can focus their efforts in implementing strategic HRM policies within their organizations. Generally speaking, these areas are: a) realizing the context of HRM within the organization; b) looking at personnel policies related to performance management, promotional policies, training provisions, and resource policies; and c) creating leadership and succession plans.

Fletcher and Williams (1996) define critical elements as:

- The development of a mission statement and business plan and the enhancement of communications within the organization so that employees are not only aware of the objectives and the business plan but can also contribute to their formulation;
- The clarification of individual responsibilities and accountabilities (through job descriptions, clear role definitions, etc.) leading to the defining and measurement of individual performance;
- The implementation of appropriate reward strategies (often some form of performance-related pay) and development of staff;
- The process being owned and driven by line management (and not the HR department or one or two directors); and
- An emphasis placed on shared corporate goals and values (pp. 169-170).

This study and much of the literature and research prior to it have shown us that for the construction industry to meet the personnel demands of the future its leaders must recognize today that their most valuable asset is skilled people. Implementing strategic HRM is an absolute necessity and understanding the work values and career expectations of potential and current employees is a critical piece of strategic HRM.

There are many strategic actions that those in the construction industry can take to gain this competitive advantage. Designing a leadership succession plan and placing renewed emphasis on training and development is a good start, as are recruitment and apprenticeship programs. Employers must know what employees (or future employees) want, and this is not one size fits all. Flexibility in career development and compensation improves retention (e.g., some employees want pay raises, others want better benefits, and some just want more vacation time). Creating an environment where employees can feel involved, contributing to the success of the company is important. Giving workers responsibility, accountability, growth opportunity, technology, involvement in decisions, and pay on performance are all key ways to attract and retain skilled individuals (Hedley, 2001; Wahl, 2004). What it comes down to is the construction industry must learn to value its people above all else, for without the people there can be no industry.

A critical place to start is for top managers and owners to get to know their employees. Understand their aspirations, especially regarding career growth and promotion opportunities. Find out what is going on in their lives, what their needs are, and what their most pressing concerns are. Design a reward system to meet the values and expectations of each employee. Put more balance into the workplace. Promote a healthy work/life/family balance. Be fair and consistent when it comes to hours of work. Be as flexible as possible--this could include flex-time, four- or nine-day rosters, telecommuting, allowing unpaid leave when requested, and supplying random/surprise bonuses, gifts, or vouchers. Sponsor wellness initiatives. Build a balanced team, taking peoples' personality types into account. Develop leadership. Provide personal challenge and professional development. Create an environment where everyone has a voice and



feels part of the team. Have fun at work. Have an orientation program for new employees that reveals an accurate picture of your company. Establish a buddy system or mentorship program for new people involving people who really care about integrating others into the culture of the company. Measure and benchmark your recruiting and retention efforts. And, finally, leaders within companies must ‘walk the talk’--leadership must be shown and not simply voiced (Baker, 2005; Blanchard & Blanchard, 2005; Currey, 2005; Curtis, 2000; Engineering News Record, 2005; Gaffney, 2005; Micera, 2006; Miodonski, 2004; Miodonski, 2005; Moore, 2006; Rosalie, 2005; Taylor, 2005). Creating a work environment employees seek or wish to remain within requires contractors to have leadership and management skills. Characteristics of a great leader are a commitment to nurturing and developing people, follow-through on promises and, perhaps most importantly, vision and communication (Miodonski, 2004).

## REFERENCES

- Adkins, C. L., Russel, C. J., & Werbel, J. D. (1994). Judgments of fit in the selection process: The role of work value congruence. *Personnel Psychology, 47*, 605-623.
- Agle, B. R., Mitchell, R. K., & Sonnenfeld, J. A. (1999). Who matters to CEOs? An investigation of stakeholder attributes and salience, corporate performance, and CEO values. *Academy of Management Journal, 42*(5), 507-525.
- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.
- Amit, R., & Shoemaker, J. H. (1993). Strategic assets and organizational rents. *Strategic Management Journal, 14*(1), 33-46.
- Baird, L., & Meshoulam, I. (1984). Strategic human resource management: Implications for training human resource professionals. *Training and Development Journal, 38*(1), 76-78.
- Baird, L., & Meshoulam, I. (1988). Managing two fits of strategic human resource management. *The Academy of Management Journal, 13*(1), 116-128.
- Baird, L., Meshoulam, I., & DeGive, G. (1983). Meshing human resources planning with strategic business planning: A model approach. *Personnel, 60*(5), 14-25.
- Baker, G. (2005). Keeping your keepers. *NZ Business, 19*(9), 8.
- Barnett, R. (2003). Bridging the Boomers and Gen X's values gap. *Manage Online, 1*(4), 9-11.
- Barling, J., & Kelloway, E. K. (Eds.). (1999). *Young workers: Varieties of experiences*. Washington, DC: American Psychological Association.
- Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *The Academy of Management Journal, 39*(4), 779-801.
- Becker, G. S. (1980). *Human capital: A theoretical and empirical analysis, with special reference to education*. Chicago, IL: The University of Chicago Press.

- Beeghly, L. (2000). *The structure of social stratification in the United States* (3<sup>rd</sup> ed.). Needham Heights, MA: Allyn & Bacon.
- Betz, N. E. (1994). Basic issues and concepts in career counseling for women. In W. B. Walsh, & S. H. Osipow (Eds.), *Career counseling for women* (pp. 1-41). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Betz, N. E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology, 28*(5), 399-410.
- Blanchard, K., & Blanchard, M. (2005). Retain key talent. *Leadership Excellence, 22*(7), 7.
- Blau, P. M., & Duncan, O. D. (1967). *The American occupational structure*. New York: John Wiley & Sons.
- Boxall, P., & Steeneveld, M. (1999). Human resource strategy and competitive advantage: A longitudinal study of engineering consultancies. *Journal of Management Studies, 36*(4), 443-463.
- Brandenburg, S. G., Haas, C. T., & Byrom, K. (2006). Strategic Management of Human Resources in Construction. *Journal of Management in Engineering, 22*(2), 89-96.
- Brenner, O. C., Blazini, A. P., & Greenhaus, J. H. (1988). An examination of race and sex differences in managerial work values. *Journal of Vocational Behavior, 32*, 336-344.
- Bretz, R. D., Jr., & Judge, T. A. (1994). Person-organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of Vocational Behavior, 44*, 32-54.
- Brooks, L. (1990). Recent developments in theory building. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development: Applying contemporary theories to practice* (2<sup>nd</sup> ed., pp. 364-394). San Francisco, CA: Jossey-Bass.
- Brown, D. (2002). The role of work values and cultural values in occupational choice, satisfaction, and success: A theoretical statement. In Brown, D., & Associates (Eds.), *Career choice and development* (4<sup>th</sup> ed., pp. 465-509). San Francisco, CA: Jossey-Bass.
- Brown, D., & Associates. (Eds.). (2002). *Career choice and development* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.
- Brown, D., & Crace, R. K. (1996). Values in life role choices and outcomes: A conceptual model. *Career Development Quarterly, 44*(3), 211-223.

- Bureau of Labor Statistics (2005a). *Employment projections: Construction*. Retrieved April 15, 2005 from <http://stats.bls.gov/oco/cg/cgs003.htm>.
- Bureau of Labor Statistics (2005b). *Table 10. Employed persons by major occupation and sex, 2002 annual averages*. Retrieved April 15, 2005 from <http://stats.bls.gov.cps/wlf-tables10.pdf>.
- Bureau of Labor Statistics (2005c). *Table 11. Employed persons by detailed occupation and sex, 2002 annual averages*. Retrieved April 15, 2005 from <http://stats.bls.gov.cps/wlf-tables11.pdf>.
- Bureau of Labor Statistics (2010). *Career guide to industries, 2010-11 edition: Construction*. Retrieved January 23, 2011 from <http://www.bls.gov/oco/cg/cgs003/htm>.
- Challenger, J. A. (2003, July). Solving the looming labor crisis. *USA Today Magazine*, 132(2698), 28-30.
- Charles, M., & Grusky, D. B. (2004). *Occupational ghettos: The worldwide segregation of women and men*. Stanford, CA: Stanford University Press.
- Cheatham, H. E. (1990). Africentricity and the career development of African Americans. *The Career Development Quarterly*, 38, 334-346.
- Cohen, L., Duberley, J., & Mallon, M. (2004). Social constructionism in the study of career: Accessing the parts that other approaches cannot reach. *Journal of Vocational Behavior*, 64(3), 407-422.
- Cohn, J. M., Khurana, R., & Reeves, L. (2005). Growing talent as if your business depended on it. *Harvard Business Review*, 83(10), 62-70.
- Contractor's Business Management Report. (2001). *Training and career paths can solve labor shortages*. 10, 1/13-15.
- Contractor's Business Management Report. (2003). *How to combat labor shortages with better training and recruiting*. 1, 6-7.
- Construction News. (2004). *The sky's the limit for women in mechanical contracting*. 71(24), 10-12.
- Cooper, S. E., Arkkelin, D. L., & Tiebert, M. J. (1994). Work-relationship values and gender role differences in relation to career-marriage aspirations. *Journal of Counseling and Development*, 73, 63-68.
- Corley, T. (1999). Becoming an employer of choice for Generation X: The elements of the deal. *Journal of Career Planning and Employment*, 59(4), 21-26.

- Curry, S. (2005). Retention getters. *Incentive*, 179(4), 14-19.
- Curtis, C. E. (2000). The race for higher retention rate. *Foundry Management and Technology*, 128(10), 28-30.
- Dainty, A. R. J., Bagilhole, B. M., Ansari, K. H., & Jackson, J. (2004). Creating equality in the construction industry: An agenda for change for women and ethnic minorities. *Journal of Construction Research*, 5 (1), 75-86.
- Dainty, A. R. J., Bagilhole, B. M., & Neale, R. H. (2000). The compatibility of construction companies' human resource development policies with employee career expectations. *Engineering, Construction and Architectural Management*, 7(2), 169-178.
- Davis, S. (1981). Relating human resources management to business strategy [Summary]. *Proceedings of the Human Resources Policy Institute*, 3-5.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis, MN: University of Minnesota Press.
- Druker, J., White, G., Hegewisch, A., & Mayne, L. (1996). Between hard and soft HRM: Human resources management in the construction industry. *Construction Management and Economics*, 14(5), 405-416.
- Duff, A., & Cotgrove, S. (1982). Social values and the choice of careers in industry. *Journal of Occupational Psychology*, 55, 97-107.
- Elizur, D. (1984). Facets of work values: A structural analysis of work outcomes. *Journal of Applied Psychology*, 69, 379-389.
- Engineering News Record. (2005, April). *The industry's future lies in building brainpower*. 254(14), 52.
- Farmer, H. S., & Associates. (Eds.). (1997). *Diversity and women's career development: From adolescence to adulthood*. Thousand Oaks, CA: Sage Publications.
- Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues*, 48, 109-124.
- Fielden, S. L., Davidson, M. J., Gale, A. W., & Davey, C. L. (2000). Women in construction: The untapped resource. *Construction Management and Economics*, 18, 113-121.
- Fields, D. L. (2002). *Taking the measure of work: A guide to validated scales for organizational research and diagnosis*. Thousand Oaks, CA: Sage Publications.

- Fink, A. (2003). *The survey handbook* (2<sup>nd</sup> Ed.). Thousand Oaks, CA: Sage Publications.
- Fletcher, C., & Williams, R. (1996). Performance management, job satisfaction and organizational commitment. *British Journal of Management*, 7, 169-179.
- Fouad, N. A. (1995). Career behavior of Hispanics: Assessment and intervention. In F. T. L. Leong (Ed.), *Career development and vocational behavior of racial and ethnic minorities* (pp. 165-192). Mahwah, NJ: Lawrence Erlbaum Associates.
- Fowler, Jr., F. J. (1993). *Survey research methods* (2<sup>nd</sup> Ed.). Newbury Park, CA: Sage Publications.
- Gaffney, S. (2005). Career development as a retention and succession and development tool. *Journal for Quality and Participation*, 28(3), 7-10.
- Galbraith, J., & Nathanson, D. A. (1978). *Strategy implementation: The role of structure and process*. St. Paul, MN: West.
- Galt, V. (2000, December 15). Young workers want better than 'boomer parents' had, dean says. *The Globe and Mail*, B15.
- George, J. M., & Jones, G. R. (1996). The experience of work and turnover intentions: Interactive effects of value attainment, job satisfaction, and positive mood. *Journal of Applied Psychology*, 81, 318-325.
- Gliner, J. A., & Morgan, G. A. (2000). *Research methods in applied settings: An integrated approach to design and analysis*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gibson, G. E., Davis-Blake, A., Dickson, K. E., & Mentel, B. (2003). Workforce demographics among project engineering professionals – crisis ahead? *Journal of Management in Engineering*, 19(4), 173-182.
- Goodrum, P. M. (2004). Hispanic and non-Hispanic wage differentials: Implications for United States construction industry. *Journal of Construction Engineering and Management*, 130(4), 552-559.
- Gottfredson, L. S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown, & L. Brooks (Eds.), *Career choice and development* (3<sup>rd</sup> ed., pp. 179-232). San Francisco, CA: Jossey-Bass.
- Graham, M. E., & Hotchkiss, J. (2003, July). *Which industries are the best employers for women? An application of a new equal employment opportunity index*. Retrieved May 2, 2005, from <http://frbatlanta.org>.

- Hackett, G. (1985). Role of mathematics self-efficacy in the choice of math-related majors of college women and men: A path analysis. *Journal of Counseling Psychology, 32*, 47-56.
- Hackett, G., & Lent, R. W. (1992). Theoretical advances and current inquiry in career psychology. In S. D. Brown, & R. W. Lent (Eds.), *Handbook of counseling psychology* (2<sup>nd</sup> ed., pp. 419-452). New York: John Wiley & Sons.
- Haynes, N. S., & Love, P. E. D. (2004). Psychological adjustment and coping among construction project managers. *Construction Management and Economics, 22*, 129-140.
- Hedley, G. (2001). What labor shortage? *Constructioneer, 55*(14), 10.
- Heinzman, J., Jr. (2004). The relationship of age, tenure and job satisfaction to organizational commitment: A study of two mid-western firms. (Doctoral dissertation, Nova Southeastern University, 2004). *Dissertation Abstracts International – B 65/09*. (UMI No. 3144702)
- Hesse-Biber, S. N., & Carter, G. L. (2005). *Working women in America: Split dreams*. (2<sup>nd</sup> ed.). New York: Oxford University Press.
- Hochwarter, W. A., Perrewé, P. L., Ferris, G. R., & Brymer, R. A. (1999). Job satisfaction and performance: The moderating effects of value attainment and affective disposition. *Journal of Vocational Behavior, 54*, 296-313.
- Holland, J. L. (1985). *Making vocational choices* (2<sup>nd</sup> ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Hotchkiss, L., & Borow, H. (1996). Sociological perspectives on work and career development. In D. Brown, L. Brooks., & Associates, *Career choice and development* (3<sup>rd</sup> ed., pp. 281-336). San Francisco, CA: Jossey-Bass.
- Howe, K. R. (2003). *Closing methodological divides: Toward democratic educational research*. Norwell, MA: Kluwer Academic Publishers.
- Huselid, M. A., Jackson, S. E., & Schuler, R. S. (1997). Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal, 40*(1), 171-188.
- Isaacson, L. E., & Brown, D. (2000). *Career information, career counseling, and career development* (7<sup>th</sup> ed.). Boston, MA: Allyn & Bacon.
- Jacobs, J. A. (2001). Evolving patterns of sex segregation. In I. Berg, & A. L. Kalleberg (Eds.), *Sourcebook of labor markets: Evolving structures and processes* (pp. 535-550). New York: Kluwer Academic/Plenum Publishers.

- Jencks, C., Crouse, J., & Mueser, P. (1983). The Wisconsin model of status attainment: A national replication with improved measures of ability and aspiration. *Sociology of Education*, 56, 3-19.
- Johnson, M. J., Swartz, J. L., & Martin, W. E., Jr. (1995). Application of psychological theories for career development for Native Americans. In F. T. L. Leong (Ed.), *Career development and vocational behavior of racial and ethnic minorities* (pp. 103-136). Mahwah, NJ: Lawrence Erlbaum Associates.
- Jones, R. J. (2005). Social identity and relational demography in the workplace: A quantitative investigation of ethnicity, social support, and organizational commitment. (Doctoral dissertation, The George Washington University, 2005). *Dissertation Abstracts International – A 66/01*. (UMI No. 3161587)
- Judge, T. A., & Bretz, R. D., Jr. (1992). Effects of work values on job choice decisions. *Journal of Applied Psychology*, 77, 261-271.
- Jurkiewicz, C. L. (2000). Generation X and the public employee. *Public Personnel Management*, 29(1), 55-74.
- Kanter, R. M. (1977). Some effects of proportions of group life: Shewed sex ratios and responses to token women. *American Journal of Sociology*, 82, 965-990.
- Keller, L. M., Bouchard, T. J., Jr., Arvey, R. D., Segal, N. L., & Dawis, R. V. (1992). Work values: Genetic and environmental influences. *Journal of Applied Psychology*, 77, 79-88.
- Knoop, R. (1991). Achievement of work values and participative decision-making. *Psychological Reports*, 68, 775-781.
- Koch, M. J., & McGrath, R. G. (1996). Improving labor productivity: Human resource management policies do matter. *Strategic Management Journal*, 17(5), 335-354.
- Kyles, D. (2005). Managing your multigenerational workforce. *Strategic Finance*, 87(6), 53-55.
- Lado, A. A., & Wilson, M. C. (1994). Human resource systems and sustained competitive advantage: A competency-based perspective. *Academy of Management Review*, 19, 699-727.
- Lamb, S. (2004). Who will be the builders of tomorrow? *Contractor Magazine*, 51(5), 22.



- Lazarova, M. B. (2004). The role of organizational career development programs, work/life balance programs, and commitment to career and personal life for retention of professional employees. (Doctoral dissertation, Rutgers, The State University of New Jersey, 2004). *Dissertation Abstracts International – A 64/12*. (UMI No. 3117615)
- Lent, R. W., Brown, S. D., & Hackett, G. (1996). Career development from a social cognitive perspective. In D. Brown, L. Brooks, & Associates. *Career choice and development* (3<sup>rd</sup> ed., pp. 373-422). San Francisco, CA: Jossey-Bass.
- Lent, R. W., & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. *Journal of Vocational Behavior*, 30, 347-382.
- Leong, F. T. L. (1991). Career development attributes and occupational values of Asian-American and White high school students. *The Career Development Quarterly*, 39, 221-230.
- Leong, F. T. L. (Ed.). (1995). *Career development and vocational behavior of ethnic minorities*. Mahway, NJ: Lawrence Erlbaum Associates.
- Leong, F. T. L., & Serifica, F. C. (1995). Career development with Asian-Americans. In F. T. L. Leong (Ed.), *Career development and vocational behavior of racial and ethnic minorities* (pp. 67-102). Mahwah, NJ: Lawrence Erlbaum Associates.
- Leong, F. T. L., & Tata, S. P. (1990). Sex and acculturation in the vocational behavior of Chinese-American children. *Journal of Counseling Psychology*, 37, 208-212.
- Loosemore, M., & Waters, T. (2004). Gender differences in occupational stress among professionals in the construction industry. *Journal of Management in Engineering*, 20(3), 126-132.
- Loughlin, C., & Barling, J. (2001). Young workers' work values, attitudes, and behaviors. *Journal of Occupational and Organizational Psychology*, 74, 543-558.
- Maccoby, M. (1995). *Why work? Motivating the new workforce*. Alexandria, VA: Miles River Press.
- Maloney, W. F. (1997). Strategic planning for human resource management in construction. *Journal of Management in Engineering*, 13(3), 49-56.
- Manhardt, P. J. (1972). Job orientation of male and female college graduates in business. *Personnel Psychology*, 25, 361-368.
- Mann, W. (2004). Image crisis. *Contract Journal*, 425(6497), 22-25.

- McIlwee, J., & Robinson, G. (1992). Women in engineering: Gender, power, and workplace culture. Albany, NY: *State University of New York Press*.
- Melamed, T. (1995). Career success: The moderating effects of gender. *Journal of Vocational Behavior*, 47, 295-314.
- Meyer, J. P., Irving, P. G., & Allen, N. J. (1998). Examination of the combined effects of work values and early work experiences on organizational commitment. *Journal of Organizational Behavior*, 19, 29-52.
- Micera, R. (2006). A top 10 checklist to retain and recruit staff. *Accounting Today*, 20(1), 8.
- Miles, R. H., & Cameron, K. S. (1982). Coffin nails and corporate strategies. *Englewood Hills, NJ: Prentice-Hall*.
- Miller, P. (1989). Strategic HRM: What it is and what it isn't. *Personnel Management*, 21(2), 46-50.
- Milliman, J. M., Von Glinow, M. A., & Nathan, M. (1991). Organizational life cycles and strategic international human resource management in multinational companies: Implications for congruence theory. *Academy of Management Review*, 16, 318-339.
- Miodonski, B. (2004). Retaining good employees starts at the top. *Contractor Magazine*, 51(10), 7/20.
- Miodonski, B. (2005). Re-recruit your best employees to retain them. *Contractor Magazine*, 52(9), 12.
- Mirels, H. L., & Garrett, J. B. (1971). The Protestant ethic as personality variable. *Journal of Consulting and Clinical Psychology*, 36, 40-44.
- Moore, J. D. (2006). Women in construction management: Creating a theory of career choice and development. Unpublished doctoral dissertation, *Colorado State University, Fort Collins CO*.
- Morgan, G. A., Leech, N. L., Gloeckner, G. W., & Barrett, K. C. (2004). SPSS for introductory statistics: Use and interpretation (2nd ed.). *Mahway, NJ: Lawrence Erlbaum Associates*.
- Mphake, J. (1989). Management development in construction. *Management Education and Development*, 18(2), 223-243.
- Nadler, D., & Tushman, M. (1980). A model for diagnosing organizational behavior. *Organizational Dynamics*, 9(2), 35-51.

- Nixon, J. C., & West, J. F. (2002, Summer). America addresses work force diversity. *Business Forum*, 4(6).
- O'Reilly, C. A., III, Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, 34(3), 487-516.
- Osipow, S. H. (1966). Theories of career development. New York: Allyn & Bacon.
- Osipow, S. H., & Littlejohn, E. M. (1995). Toward a multicultural theory of career development: Prospects and dilemmas. In F. T. L. Leong (Ed.), *Career development and vocational behavior of ethnic and racial minorities* (pp. 251-262). Mahwah, NJ: Lawrence Erlbaum Associates.
- Parsons, F. (1909). Choosing a vocation. Cambridge, MA: The Riverside Press.
- Pfeffer, J. J. (1994). Competitive advantage through people. Boston, MA: Harvard Business School Press.
- Phillips, J. J. (2005). The value of human capital: Macro-level research. *Chief Learning Officer*, 4(10), 60-62.
- Phillips, S. D., & Imhoff, A. R. (1997). Women and career development: A decade of research. *Annual Review of Psychology*, 48, 31-60.
- Post, N. M. (2003, October). In support of women. *Engineering News Record*, 251(14), 28-32.
- Price, A. D. F., & Newsom, E. (2003). Strategic management: Consideration of paradoxes, processes, and associated concepts as applied to construction. *Journal of Management in Engineering*, 19(4), 183-192.
- Purdum, T. (2006). Retaining knowledge and expertise. *Industry Week*, 255(5), 16-17.
- Ramlall, S. (2004). A review of employee motivation theories and their implications for employee retention within organizations. *Journal of American Academy of Business*, 5(1/2), 52-63.
- Rauch, A., Frese, M., & Utsch, A. (2005). Effects of human capital and long-term human resources development and the utilization of employment growth of small-scale businesses: A causal analysis. *Entrepreneurship: Theory and Practice*, 29(6), 681-698.
- Ravlin, E. C., & Meglino, B. M. (1987). Effects of values on perception and decision-making: A study of alternative work values measures. *Journal of Applied Psychology*, 77, 666-673.

- Robinson, T. L., & Ginter, E. J. (Eds.). (1999). Racism: Healing its effects [special issue]. *Journal of Counseling & Development, 76*(3).
- Rogers, S. J., & Menaghan, E. G. (1991). Women's persistence in undergraduate majors: The effects of gender-disproportionate representation. *Gender & Society, 5*(4), 549-564.
- Rokeach, M. (1973). The nature of human values. *New York: Free Press.*
- Rosalie, J. (2005). Reward for value: Six steps to increasing your company's "people value". *Benefits and Compensation Digest, 42*(7), 28-33.
- Rottier, A. (2001). Gen 2001: Loyalty and values. *Workforce, 80*(10), 23.
- Rubin, D. K., Powers, M. B., & Illia, T. (2006, May). Replacing workers who walk now is a bigger drain on the bottom line. *Engineering News Record, 256*(18), 26-29.
- Sagie, A., Elizur, D., & Koslowsky, M. (1996). Work values: A theoretical overview and a model for their effects. *Journal of Organizational Behavior, 17*, 503-514.
- Sax, L. J. (1996). The dynamics of "tokenism": How college students are affected by the proportion of women in their major. *Research in Higher Education, 37*(4), 389-425.
- Schiller, B. R. (2004). The economics of poverty and discrimination (9th ed.). Upper Saddle River, NJ: *Pearson Education.*
- Schleifer, T. C. (2002). Degenerating image of the construction industry. *Practical periodical on structural design and construction, 7*(3), 99-102.
- Schneer, J. A., & Reitman, F. (1995). The impact of gender as managerial careers unfold. *Journal of Vocational Behavior, 47*, 290-315.
- Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*, 19-45.
- Sinha, D. (1990). Interventions for development out of poverty. In R. W. Brislin (Ed.), *Applied cross-cultural psychology* (pp. 77-97). *Newbury Park, CA: Sage Publications.*
- Somers, M., & Birnbaum, D. (2000). Exploring the relationship between commitment profiles and work attitudes, employee withdrawal, and job performance. *Public Personnel Management, 29*(3), 353-364.

- Sommerville, J., & Langford, V. (1994). Multivariate influences on the people side of projects: Stress and conflict. *International Journal of Project Management*, 12, 234-243.
- Sowers, J., & Woody, S. (2006). A game plan for retaining talent. *Electric Perspectives*, 31(1), 46-52.
- Storey, J. (1992). Developments in the management of human resources. Oxford, UK: *Blackwell Publishers*.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (2nd ed., pp. 197-261). *San Francisco, CA: Jossey-Bass*.
- Super, D. E., & Sverko, B. (Eds.). (1995). Life roles, values, and careers: International findings of the work importance study. *San Francisco, CA: Jossey-Bass*.
- Sutherland, V., & Davidson, M. J. (1993). Using a stress audit: The construction site manager experience in the UK. *Work and Stress*, 7, 273-286.
- Swoboda, L. B., & Cieslik, T. (1996). Selecting the construction industry as a career – an analysis. *ASC Proceedings of the 32nd Annual Conference*, 175-194.
- Taylor, C. (2005). Life in the balance. *Incentive*, 179(1), 16-19.
- Taylor, S., Beechler, S., & Napier, N. (1996). Toward an integrative model of strategic international human resource management. *The Academy of Management Review*, 21(4), 959-985.
- Thomas, S. J. (2004). Using web and paper questionnaires for data-based decision making: From design to interpretation of the results. *Thousands Oaks, CA: Corwin Press*.
- Townley, B. (1993). Foucault, power/knowledge, and its relevance for human resource management. *The Academy of Management Review*, 18(3), 518-545.
- Van Dyne, L., Graham, J. W., & Dienesch, R. M. (1994). Organizational citizenship behavior: Construct redefinition, measurement, and validation. *Academy of Management Journal*, 37, 765-802.
- Vondracek, F. W., Shimizu, K., Schulenberg, J., Hostetler, M., & Sakayanagi, T. (1990). A comparison between American and Japanese students' work values. *Journal of Vocational Behavior*, 36, 274-286.
- Wagner, C. G. (2005). Hot industries with hot jobs. *The Futurist*, 39(3), 12.

- Wahl, A. (2004). Leaders wanted. *Canadian Business*, 7(5), 30-35.
- Whitlock, M. (2000). *Feminising the masculine? Women in non-traditional employment*. Brookfield, VA: Ashgate Publishing.
- Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management*, 17(3), 601-617.
- Wraige, H. (2003, April). Girl power. *Professional Engineering*, 16(7), 53.
- Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of Management*, 27, 701-721.
- Young, R. A., & Collin, A. (2004). Introduction: Constructivism and social constructionism in the career field. *Journal of Vocational Behavior*, 64(3), 373-388.
- Zemke, R., Raines, C., & Filipczak, B. (2000). *Generations at work: Managing the clash of Veterans, Boomers, Xers, and Nexters in your workplace*. Washington, DC: American Management Association.

## APPENDIX A

### HUMAN SUBJECTS APPROVAL



Office of Regulatory Compliance  
Office of Vice President for Research  
Fort Collins, CO 80523-2011  
(970) 491-1553  
FAX: (970) 491-2293

### Notice of Approval for Human Research

**Principal Investigator:** Angela Guggemos, 224C Guggenheim Hall, 1584  
**Co-Principal Investigator:** Jennifer D. Moore, 113A Guggenheim Hall  
**Title:** Entering Construction Professionals: Survey of Work Values and Career Expectation  
**Protocol #:** 06-266H      **Funding Source:** N/A  
**Number of Participants/Records:** 500 participants  
**Committee Action:** **Approval Date:** October 30, 2006      **Expires:** October 23, 2007  
**HRC Administrator:** Janell Meldrum *J. Meldrum*

#### **Consent Process:**

Because of the nature of this research, it will not be necessary to obtain a signed consent form. However, all subjects must receive a copy of the approved electronic cover letter. The requirement of documentation of a consent form is waived under § \_\_.117(c)(2).

#### **Investigator Responsibilities:**

- It is the PI's responsibility to obtain consent from all subjects.
- It is the responsibility of the PI to immediately inform the Committee of any serious complications, unexpected risks, or injuries resulting from this research.
- It is also the PI's responsibility to notify the Committee of any changes in experimental design, participant population, consent procedures or documents. This can be done with a memo describing the changes and submitting any altered documents.
- Students serving as Co-Principal Investigators must obtain PI approval for any changes prior to submitting the proposed changes to the HRC for review and approval.
- The PI is ultimately responsible for the conduct of the project.
- A status report of this project will be required within a 12-month period from the date of review. Renewal is the PI's responsibility, but as a courtesy, a reminder will be sent approximately two months before the protocol expires. The PI will be asked to report on the numbers of subjects who have participated this year and project-to-date, problems encountered, and provide a verifying copy of the consent form or cover letter used. The necessary continuation form (H-101) is available from the RCO web page [www.research.colostate.edu/rcoweb/](http://www.research.colostate.edu/rcoweb/).
- Upon completion of the project, an H-101 should be submitted as a close-out report.
- If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice. This approval is issued under Colorado State University's OHRP Federal Wide Assurance 00000647.
- **Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.**

Please direct any questions about the Committee's action on this project to me for routing to the Committee. Additional information is available from the Regulatory Compliance web site at <http://www.research.colostate.edu/rcoweb/>.

attachment

Date of Correspondence: October 30, 2006

**APPENDIX B**

**SURVEY INSTRUMENT**

**Entering Construction Professionals:  
Survey of Work Values and Career Expectations**

Please complete this survey if you intend to graduate with a Bachelor of Science degree in Construction Management between December 2006 and May 2008. If you do not meet these criteria, please exit the survey now. Thank you.

**SECTION 1: VALUE ATTAINMENT**

Please rank the values listed below each on a scale of 1 to 7 as to the importance you hold in your life. There is no right or wrong answer—please answer as honestly as possible.

*1 = least important .....7 = most important*

	1	2	3	4	5	6	7
1. A comfortable life (a prosperous life).....							
2. An exciting life (a stimulating, active life).....							
3. A sense of accomplishment (lasting contribution)							
4. A world at peace (free of war and conflict).....							
5. A world of beauty (beauty of nature and the arts).							
6. Ambitious (hard-working, aspiring).....							
7. Broadminded (open-minded).....							
8. Capable (competent, effective).....							
9. Cheerful (lighthearted, joyful).....							
10. Clean (neat, tidy).....							
11. Courageous (standing up for your beliefs).....							
12. Equality (brotherhood, equal opportunity for all).							
13. Family security (taking care of loved ones).....							
14. Forgiving (willing to pardon others).....							
15. Freedom (independence, free choice).....							
16. Happiness (contentedness).....							
17. Helpful (working for the welfare of others).....							
18. Honest (sincere, truthful).....							
19. Imaginative (daring, creative).....							
20. Independent (self-reliant, self-sufficient).....							
21. Inner harmony (freedom from inner conflict).....							
22. Intellectual (intelligent, reflective).....							
23. Logical (consistent, rational).....							
24. Loving (affectionate, tender).....							
25. Mature love (sexual and spiritual intimacy).....							
26. National security (protection from attack).....							
27. Obedient (dutiful, respectful).....							



28. Pleasure (an enjoyable, leisurely life).....							
29. Polite (courteous, well-mannered).....							
30. Responsible (dependable, reliable).....							
31. Saved (eternal life).....							
32. Self-controlled (restrained, self-disciplined).....							
33. Self-respect (self-esteem).....							
34. Social recognition (respect, admiration).....							
35. True friendship (close companionship).....							
36. Wisdom (a mature understanding of life).....							

**SECTION 2: WORK VALUES INVENTORY**

Please rank the job characteristics listed below each on a scale of 1 to 5 as to the expectation you have of each in your future career. Again, there is no right or wrong answer—please answer as honestly as possible.

*1 = least important .....5 = most important*

1      2      3      4      5

1. Permits a regular routine in time and place of work .....					
2. Provides job security.....					
3. Has clear-cut rules and procedures to follow.....					
4. Provides ample leisure time off the job.....					
5. Provides comfortable working conditions.....					
6. Requires meeting and speaking with many other people.....					
7. Is intellectually stimulating.....					
8. Requires originality and creativity.....					
9. Allows me to make a social contribution by the work I do.....					
10. Satisfies my cultural and aesthetic interests.....					
11. Encourages continued development of knowledge and skills..					
12. Permits me to develop my own methods of doing the work...					
13. Provides a feeling of accomplishment.....					
14. Provides change and variety in duties and activities.....					
15. Permits advancement to high administrative responsibility....					
16. Provides the opportunity to earn a high income.....					
17. Requires supervising others.....					
18. Is respected by other people.....					
19. Requires working on problems of central importance to the organization.....					
20. Permits working independently.....					
21. Gives me the responsibility for taking risks.....					

### SECTION 3: DEMOGRAPHICS

As the final piece of this survey, please answer the following demographic questions to help us better understand the population of entering construction professionals. Thank you.

1. When is your anticipated graduation date?

- December 2006
- May or August 2007
- December 2007
- May 2008

2. What is your gender?

- Male
- Female

3. What is your age?

4. What is your race?

- |                          |                         |                          |                  |
|--------------------------|-------------------------|--------------------------|------------------|
| <input type="checkbox"/> | Caucasian               | <input type="checkbox"/> | Asian American   |
| <input type="checkbox"/> | African American        | <input type="checkbox"/> | Pacific Islander |
| <input type="checkbox"/> | Spanish/Hispanic/Latino | <input type="checkbox"/> | Native American  |
| <input type="checkbox"/> | Other                   | <input type="text"/>     |                  |

5. How would you characterize your “hometown”(i.e., the location you lived the majority of your childhood)?

- Urban
- Suburban
- Agricultural/Rural

6. What do you recall the socioeconomic status of your family to be while growing up?

- Upper-middle class
- Middle class
- Lower-middle class

7. What is your current marital status?

- Single
- Separated/Divorced
- Married/Engaged/Cohabiting

8. How many dependents live with you (e.g., children)?
- a. If applicable, what is the age of the youngest or only?
- b. If applicable, what is the age of the oldest?
9. On a scale of 1 to 5 (1 = not at all; 5 = very much), how spiritual are you?
- 1    2    3    4    5
- 

10. What is your political affiliation?

- Democrat
- Independent
- Republican
- Other, please list

11. How much construction experience do you currently have?

- Years (write number)
- Months (write number)

12. How many years do you expect to be employed in the construction industry in your lifetime?

- 20+ years
- 11-20 years
- 6-10 years
- 1-5 years
- 0 (zero)

13. What are your employment plans immediately post-graduation ?

- Private Sector Construction Industry (continue to next question)
- Public Sector or Government Construction (continue to next question)
- Military Service (skip to end)
- Non-Profit or Missionary Work (skip to end)
- Other Non-Construction Related Employment (skip to end)
- Other, please list  (skip to end)

14. Which category best describes the type of work you are seeking immediately post-graduation?

<input type="checkbox"/>	Architect/Engineer	<input type="checkbox"/>	Industrial Builder
<input type="checkbox"/>	Construction Mgr./Owner's Rep	<input type="checkbox"/>	Residential Builder/Developer
<input type="checkbox"/>	Commercial Builder	<input type="checkbox"/>	Subcontractor
<input type="checkbox"/>	Heavy/Highway/Civil Builder	<input type="checkbox"/>	Vendor/Supplier
<input type="checkbox"/>	Other, please list	<input type="text"/>	

15. What size organization are you seeking to work for immediately post-graduation?

<input type="checkbox"/>	Large
<input type="checkbox"/>	Medium
<input type="checkbox"/>	Small

16. What type of position are you seeking immediately post-graduation?

<input type="checkbox"/>	Field Engineer or Asst. Superintendent	
<input type="checkbox"/>	Office or Project Engineer	
<input type="checkbox"/>	Estimating or Preconstruction	
<input type="checkbox"/>	Self-Employed or Partnership	
<input type="checkbox"/>	Unsure	
<input type="checkbox"/>	Other, please list	<input type="text"/>

17. What career path are you seeking?

<input type="checkbox"/>	Superintendent	
<input type="checkbox"/>	Project Management	
<input type="checkbox"/>	Estimating or Preconstruction	
<input type="checkbox"/>	Self-Employed or Partnership	
<input type="checkbox"/>	Unsure	
<input type="checkbox"/>	Other, please list	<input type="text"/>

Thank you for completing this survey!

**APPENDIX C**  
**COVER LETTER**

Dear CM Student,

What do you want and expect out of your career? As a student in the Construction Management program, I am sure that you are well aware of the career opportunities available in this extensive and diverse industry. The greater challenge may be finding your way into a part of the industry and with a company where you fit and can best reach your goals. Understanding your work values and career expectations is an important piece to a successful job search. Likewise, you are entering an industry which is struggling to gain an understanding of what drives today's graduate (you!) as the future of the construction industry. We ask for your assistance in helping to answer some of these questions!

If you intend to graduate between December 2006 and May 2008, we invite you to complete a survey entitled Entering Construction Professional: Survey of Work Values and Career Expectations designed to identify what life and behavior values and work values you hold as a soon-to-be construction graduate. Please go to [www.surveymonkey.com](http://www.surveymonkey.com) to access the survey which should take about 5-10 minutes to complete. While greatly appreciated, your participation in this study is strictly voluntary. We ask that you complete the survey by December XX, 2006. Your responses will be anonymous and results will not be released in any individually identifiable form. There are no known risks in participating in this study nor is there any direct benefit.

If you have questions about this survey or this research, please contact Jeni Moore at (970) 491-4610 or by e-mail at [moore@cahs.colostate.edu](mailto:moore@cahs.colostate.edu). If you have any questions about your rights as a volunteer in this research, contact Janell Meldrem, Human Research Administrator, at (970) 491-1655. Thank you for your participation!

Best regards,

Jennifer Moore, Ph.D.  
Coordinator, Phelps Placement Program

## APPENDIX D

### REMINDER SCRIPTS

Script for first reminder/thank you sent by e-mail one week after initial invitation.

Dear CM Student,

A link to a survey seeking to investigate your work values was sent via your RamMail e-mail account last week. If you intend to graduate between December 2006 and May 2008 please take about 5-10 minutes and complete this survey. We hope that doing so will not only help you better define your work values and career expectations as you enter the job search process, but also provide critical information to the construction industry as to what you, as the future of the construction industry, are seeking in your career.

If you have already completed and returned the survey please accept my sincere thanks. If not, I am making an appeal for your participation. The due date to complete the survey is December XX, 2006. The link to the survey is [www.surveymonkey.com](http://www.surveymonkey.com). If you have any problems accessing the survey, please contact me at (970) 491-4610 or [moore@cahs.colostate.edu](mailto:moore@cahs.colostate.edu).

Thank you so much for your participation in this study!  
Jennifer D. Moore, Ph.D.  
Coordinator, Phelps Placement Office

Script for second (and final) reminder/thank you sent by e-mail one week following first reminder/thank you.

#### REMINDER

By now you have hopefully received a link to a survey seeking to investigate your work values sent via your RamMail e-mail account. If you intend to graduate between December 2006 and May 2008 please take about 5-10 minutes and complete this survey. We hope that doing so will not only help you better define your work values and career expectations as you enter the job search process, but also provide critical information to the construction industry as to what you, as the future of the construction industry, are seeking in your career.

If you have already completed and returned the survey please accept my sincere thanks. If not, I am making one last appeal for your participation. The due date to complete the survey is December XX, 2006. The link to the survey is [www.surveymonkey.com](http://www.surveymonkey.com). If you have any problems accessing the survey, please contact me at (970) 491-4610 or [moore@cahs.colostate.edu](mailto:moore@cahs.colostate.edu).

Thank you so much for your participation in this study!  
Jennifer D. Moore, Ph.D.  
Coordinator, Phelps Placement Office