



**COLLEGES PREPARE
FUTURE
CONSTRUCTION
MANAGERS
FOR PROMISING CAREERS**

Opportunities Abound

BY KIM HESTER

As engineers and architects try to keep up with global competition to design the most innovative structures, demand for skilled construction managers is surging, and employers are seizing students faster than they can graduate. Construction management-bound college students are finding universities increasingly are attuned to the challenges of industry advancements. Higher education programs around the nation are collaborating with industry leaders and accreditation agencies to develop specialized curriculums to prepare students for successful careers.

While construction management has existed as a profession for many years, colleges have not always offered the specialized degrees available today. Construction and building science degrees have evolved slowly during the past 70 years based on a combination of factors, including the homecoming of World War II soldiers in need

of housing, as well as a philosophical shift in engineering education.

The "Summary of the Report on Evaluation of Engineering Education," published in a 1955 issue of the *Journal of Engineering Education*, called for an increase in the application of scientific principles to engineering curriculums, resulting in the eventual removal of management-focused courses. To compensate for the management skills gap, many universities began offering alternatives to traditional engineering degrees, either within existing engineering and architecture departments or within new departments.

Since their makeshift beginning in the 1940s, construction management degree programs have become highly sophisticated. Not only are the programs of better quality, but also of increasing quantity.

The U.S. Department of Labor's (DOL) 2008–2009 *Occupational Outlook Handbook* reported approximately 105 undergraduate programs exist nationwide in construction science, building science and construction engineering, as well as about 60 graduate programs in construction management or construction science. On average, that's approximately two undergraduate and one graduate program for every state.

Of the 165 construction-related undergraduate and graduate degree programs,

68 are certified by the American Council for Construction Education (ACCE). Accreditation criteria include a curriculum that continually adapts to requirements and advancements in construction, such as social, economic and technological developments, and contributions from related fields, such as engineering.

To ensure Texas A&M University's curriculum was in line with industry needs and ACCE accreditation requirements, Dr. Yilmaz H. Karasulu, undergraduate coordinator and assistant professor to the department of construction science, helped conduct interviews with four industry focus groups to learn which topics comprise a comprehensive construction science curriculum. Karasulu and his colleague, Dr. Richard Burt, associate department head and associate professor, determined the most important course topics related to business and construction management. Texas A&M combined the focus group input with its own requirements and the specific elements needed for ACCE accreditation to develop its current curriculum.

NEED EXCEEDS SUPPLY

Because demand for construction managers currently exceeds supply, a concerted effort to prepare students for careers in construction management is crucial to sustaining

For Construction Grads

Many students have multiple job offers upon graduation.

industry productivity. With the long-term increase in the number of construction projects, a decrease in labor supply has become a formidable problem.

According to the DOL's *Occupational Outlook Handbook*, the construction labor supply is dwindling due to an aging management workforce, transfers out of the field and the lack of a work environment appealing to prospective employees. Construction employers must focus on attracting and retaining younger generations to

keep pace with current and future industry demands.

Fortunately, many college graduates are choosing to pursue careers in construction management. The DOL reports a faster than average construction employment growth rate, with job opportunities exceeding the number of qualified candidates. For candidates that do qualify, many rewarding job opportunities exist. Generally, graduates of construction science programs take on roles in project management, estimating

and scheduling, and quickly achieve increasing levels of responsibility. Many students have multiple job offers upon graduation.

In addition to abundant job opportunities, starting salaries for building science graduates are promising. A National Association of Colleges and Employers survey found that recent graduates with a bachelor's degree in construction science or construction management attained average starting salaries of \$46,930 per year. Furthermore, a May 2006 DOL publication

on the annual salaries of construction managers of varying seniority found that the middle 50 percent earned between \$56,090 and \$98,350. The median income was \$73,700, with the highest paid 10 percent making more than \$135,780 and the lowest paid 10 percent making less than \$43,210.

Employers also are benefiting from the changing climate in building science education. Degreed professionals possess the skills needed to handle the complexities inherent in today's projects, such as accelerated schedules, increasing reliance on project management and scheduling software, globalization of project operations, and new laws governing labor, materials and the environment. Construction industry employers understand these complexities require fine-tuned management skills. Many prefer to hire construction science graduates rather than train inexperienced employees.

FOCUS ON MANAGEMENT PRINCIPLES

How do engineering degrees compare to construction science degrees when it comes

to preparing students for jobs in construction? A white paper published by a strategy committee at the Construction Industry Institute (CII) concludes that the need for project management knowledge transfer to engineering students is increasing. While civil engineering degrees provide some courses in project management, the report indicates current project management coursework in other disciplines, such as electrical, chemical and mechanical engineering, is too limited.

Many firms are requiring new hires to complete internal project management training to compensate for this deficiency. From an employer's perspective, it can save time and money to hire employees who possess project management skills from the outset.

For building science students, often a larger percentage of coursework is focused on management principles. Many universities have increased the number of courses offered in business and management due to changing curriculum standards. Capstone courses can further students' management skills by providing

hands-on experience in real-life construction projects. For instance, at some universities like Texas A&M, students work with local industry mentors to complete various phases of a project, such as preparing a bid proposal.

In addition, including more project management coursework in college can have a positive impact on the jobsite. A CII study acknowledged that including more management courses in engineering curricula would greatly benefit on-the-job performance by improving the time and cost effectiveness of design efforts, internal company processes and capital facilities projects.

As construction companies try to keep pace with building demand, they should feel confident that universities are working to equip the next generation of construction managers with the skills necessary to meet future project needs.

Kim Hester is a commercial consultant with Interface Consulting International, Inc., Houston. For more information, call (713) 626-2525 or email kehester@interface-consulting.com.