Collin College
Construction Think Tank
March 30, 2017
Summary

OPENING STATEMENT
Thanks to all who participated in the construction technology think tank and to those interested in a potential new program at Collin College. The following summary will hopefully capture themes, identify opportunities and provide guidance for Collin College to move forward with high school CTE partnerships and program development. Comments or items for additional exploration are in italics.

LABOR MARKET:
There was widespread agreement that the industry is currently facing critical shortages. Adding to this is the fact that many retirements are expected in the next few years. Some expressed concern about finding future managers for various trades and some trades anticipate greater pressure as immigration laws become stricter.

Twenty to twenty-five job titles were listed by think tank participants as being difficult to fill and in which demand was expected to remain high. They fell into two broad categories:

- Management/Supervisory Positions:
    - Superintendents, supervisors, construction managers, assistant project managers and project managers
    - Cost estimator was also mentioned several times
- Trades:
    - Plumbers, electricians, and mason were listed most often
    - Framers, carpenters, industrial carpenters and HVAC positions were also identified

Comment: There appears to be opportunity for Collin and their CTE partners in both categories. Additionally, given the projected void in management voiced by some in the trades, there may be an opportunity for a program that provides skilled trades people with business/management training.

EMPLOYEE RECRUITMENT:
Depending on the specific job, employees are recruited directly from high school, trade schools, colleges and universities. Multiple strategies are utilized to reach each group. In addition, employers used a variety of online resources and word of mouth to fill positions.

High school students have multiple job opportunities and a high school diploma may not be required for employment in unskilled labor positions. Employers are looking for students with mechanical aptitude, an interest in the field and a clean criminal record/background.

Several mentioned that they recruited from other similar companies and while this allows employers to hire people with a proven work history, fewer new people are brought into the industry.

Think tank participants also recruited from multiple colleges and universities in Texas and nationally. Texas A&M and Texas Tech were mentioned most frequently, but Purdue, OSU, OU, University of Louisiana-Monroe and UNT were also favored.

Internships as a source of recruitment was also discussed. Paid internships are used to give the student an opportunity for real-world, hands-on experience that most felt was essential. It also gives the employer an opportunity to evaluate the students, but more importantly in this job market, it gives the business an opportunity to sell their particular company and attract top candidates.

> *Comment: Given the large number of companies recruiting from Texas A&M University and the fact that Collin already has robust articulation programs and partnerships with A&M and other universities, efforts should be made to develop a well-defined articulation agreement early in this process for students interested in pursuing a baccalaureate degree.*

GENERAL SKILLS NEEDED

By design, the first think tank was focused on providing direction for Collin College in defining the types of certificates and degrees that might be viable. It was not focused on specific skill sets needed; however significant input was collected on skills in which employers found their current workers to be deficient. In order of frequency mentioned these include:

- A broad range of soft skills such as communication, management and people skills
- General work ethic to include having a sense of urgency and wanting a career – not just a job
- Basic leadership skills in recognition of a move away from top-down management and the need for teamwork and collaboration
- Additionally, deficiencies were mentioned in blueprint reading, understanding contract language, scheduling, project management software, computational skills and digital literacy
- The need to be bilingual was mentioned several times

> *Comment: Methods of instruction designed to develop collaboration, communication and other soft skills should be incorporated. Given the need for a bilingual workforce, Collin College may want to consider some type of assessment testing in this area and possibly providing intensive instruction in Spanish (or English) designed to address deficiencies.*

SOFTWARE TOOLS USED

Multiple software packages are used and IT is a key component in all aspects of the construction industry. The comment that seemed to provide direction for Collin College was "just pick one and teach it." Employees are expected to have some knowledge of and experience in:

- Project management programs such as P6, Prolog, BuilderPro, or MS Project
- Collaboration and workflow programs such as BlueBeam, Timberline/Sage, AutoDesk 360
- Computer aided drafting and 3D modeling programs such as AutoCAD, BIM (building information modeling)
- Microsoft Office tools
- Also mentioned were scheduling, estimating and surveying software

> *Comment: Given the need for employees to have skills in a variety of software packages, the facility should incorporate computer classrooms and provide ways to utilize IPad, IPhone and various applications in the technical center.*

EDUCATION, LICENSURE, CERTIFICATION:

Multiple licensing agencies, organizations identifying industry standards, and professional associations were mentioned and will require further research by Collin College. Among those shared were:

- NCCER, National Center for Construction Education and Research
- ABC, Association of Builders and Contractors
- NATE, North American Trade Excellence conducting competency testing
- Texas Board of Plumbing Examiners
- Licensed Electrician
- Code Certifications
- ACTE, Association for Career and Technical Education
- OSHA, Occupational Safety and Health Administration
- IECC, International Energy Conservation Code
- HERS, a certified home energy rating (requires RESNET training)
- LEED, Leadership in Energy and Environmental Design
- NGBS, National Green Building Standard

INTERNSHIPS, APPRENTICESHIPS:

Apprenticeships are required in trades such as plumbing, and will require additional research to determine how Collin should proceed. Plumbers participating in the think tank were interested in exploring the possibility of awarding apprenticeship hour credit for time spent in an academic program.

> *Comment: Conversely, Collin might want to explore how college credit could be awarded for the experiential apprenticeship requirement.*

Internships are offered by many businesses although this may be dependent upon the size of the employer. Interns generally need to be 18 years old due to insurance and safety concerns. However, there may be opportunities for job shadowing or office internships for 16 year olds.

Internship programs are generally with 4 year universities and are seen as a good way to recruit top students who can be hired upon graduation. Most are summer programs although some employers also have fall and/or spring internships.

> *Comment: Internships provide a critical opportunity for field experience. The Collin program will need to balance classroom experiences with practical applications. Multiple internship, apprenticeship and other experiential learning opportunities should be created and coordinated through the college program.*

FACILITY:

Think tank participants indicated the need for space conducive to project based learning, mock labs, virtual reality, and technology. There is a need for a collaborative, hands-on environment that allows for interactive and simulated learning. This would require flexible, open space with high ceilings. A holistic work environment in which practical skills in structures and MEP could be integrated with instruction on contracts, scheduling, estimating, etc. would be ideal.

Potential models Collin might want to consider were CEF at Northlake College, Texas A&M, Alamo Community College, TSTC and a training program at Walker Engineering.

> *Comment: Collin cannot just teach the skill – the college will need to teach students why this skill is needed and how it impacts other aspects of the project.*

SCHEDULING:
It seems that almost any scheduling option (day/night, weekends, intensive, etc.) might be viable and will depend on whether or not the students are working. This area will require more refinement.

STUDENT RECRUITMENT:
There was a great deal of discussion about student recruitment as participants recognized misconceptions people have about careers in construction. Many companies are already engaged in outreach efforts, making presentations to middle and high school students and their parents. Emphasis should be placed on the high wages to be earned and advancement opportunities available in construction fields. Another selling point for high school students is the fact that they are almost guaranteed a job and can be hired out of high school or with a college degree.

Comment: On more of a brainstorming note, the following ideas were captured or are included for consideration:

- *Host a construction summer camp for middle school students to learn about multiple aspects of the profession. This builds on the idea of "maker spaces" that are already found in K-12 and at Collin College.*
- *Have a "signing day" for students going into construction programs during which they are celebrated and awarded a scholarship or offered a part-time, paid internship while they are in school*
- *Somehow build on the popularity of such HGTV shows as Love it or List it, Fixer Upper with Chip and Joanna Gaines of Waco, or Discovery Channel's Dirty Jobs with Mike Rowe.*
- *Find ways to make this program "selective" so that there will be a waitlist of students wanting to get into the CTE program in the high school*
- *Tell success stories and promote the entrepreneurial opportunities for students who might want to start their own business*
- *Develop short internships that are more than job shadowing or company tours in an effort to give students an opportunity to really experience the job*
- *Find ways to emphasize the high tech aspect of the profession*

PARTNERSHIPS:
Collin College appreciates all who have provided input to date. As the college moves forward, your guidance will be needed on the curriculum, the facilities, and many other matters that are critical for success. As one of your colleagues stated in an email message – "LET'S DO THIS!"