HB19-1294
Transfer Apprenticeship Credit To College Credit

December 23, 2019
TO: Representatives Benavidez, Representative Jaquez Lewis, Senator Story and the 72nd Colorado General Assembly

In 2019, the Colorado General Assembly charged the Colorado Community College System (CCCS) to convene a working group to determine the most effective and appropriate way to facilitate the transfer of earned construction industry Registered Apprenticeship program credit to college credit through the passage of HB19-1294 “Transfer Apprenticeship Credit to College Credit.”

Since that time, CCCS has worked with industry leaders (union and non-union), state agencies, K-12 school districts, and institutions of higher education to identify opportunities in the state of Colorado that will allow individuals completing Registered Apprenticeships (RA) in construction occupational pathways to academic coursework and credential attainment.

The CCCS has a long-standing history of collaborating with business and industry to inform curriculum and enhance the student experience for meaningful career opportunities. The CCCS is comprised of 13 community colleges in the state with over 40 locations which have forged over 300 business and community partnerships. In this spirit, we realize that there are opportunities in construction that have been highlighted through the convening and data collection process required by HB19-1294 that have resulted in specific strategies that CCCS will be pursing as tangible outcomes.

CCCS Strategies:

- Develop localized industry intelligence reports for Colorado’s Key Industries and explore automated program-level data for internal and external stakeholders.
- Launch an initiative to study and analyze CCCS structure and articulations for non-credit offerings.
- Launch an initiative to include course level indicators for work-based learning credit bearing courses.
- In the spirit of containing costs, support efforts like, the “College Credit for Work Experience” draft bill from the Making Higher Education Attainable Interim Study Committee as long as College costs are adequately addressed in the prior learning assessment.
- Explore deploying a “center of excellence model” along the Denver Metro or I-25 corridor for a coordinated and specialized response to shared industry needs.
CCCS Short-Term Objectives:

- Work to align secondary and postsecondary Career and Technical Education (CTE), and where appropriate, launch new postsecondary construction programs.
- Convene partners to analyze the credit progression, attainment barriers, and gaps in construction Registered Apprenticeship programs, and develop a CCCS System-wide articulation agreement with area technical colleges and, where appropriate, four-year universities.
- Increase the use of Prior Learning Assessment (PLA) among the CCCS colleges to crosswalk pre-apprenticeship and apprenticeship, Department of Regulatory Agencies licensing, and military experiences relevant to construction fields.
- Support cross walks for industry-recognized curriculum (i.e. HBI PACT Core, NCCER) with secondary standards and postsecondary course learning outcomes for academic credit.

In addition to the CCCS strategies, the report includes statewide findings and recommendations as a result of business and education data collection and convenings. We have appreciated the opportunity to address concerns around the ability of students to move from Registered Apprenticeships into the formal academic setting.

If there are any questions about the report, please do not hesitate to reach out.

Sincerely,

Joseph Garcia
Chancellor
Colorado Community College System
Executive Summary

HB19-1294 concerns “a requirement that the chief administrative officer of the Colorado Community College System (CCCS) create a working group to determine the best manner in which to facilitate the transfer of earned construction industry Registered Apprenticeship program credit to college credit” resulting in this report to the legislature.

Key questions specified in the legislation and addressed through the approximately six-month project include:

- How does Registered Apprenticeship (RA) coursework align with academic credit and progress toward a degree?
- How are work-based learning opportunities in construction explained to students and job seekers?
- Where are academic programs currently offered/not-offered? Why? Why not?
- What are the barriers, gaps, and opportunities for alignment raised by stakeholders? What recommendations follow?

In order to address the above and make actionable recommendations, it was essential to build an understanding of the construction landscape from the industry, associations (union and non-union), and education perspectives. This report summarizes the current state of the industry, education and training programs, and work-based learning initiatives, and culminates with aggregated stakeholder feedback and recommendations.

From the large amount of valuable feedback emerged a series of findings and recommendations that leverage existing work and provide opportunities to amplify collaborative efforts to ensure Colorado has a strong talent pipeline for construction-related industry.

Industry and Labor Market Overview

Construction is a key industry in Colorado, comprising 6.7% of all jobs in the state, with over 20,000 entities and 182,531 total employees. Immediate demand for workers at all levels is strong (1,611 job openings in October), with continued projected growth. Particularly, the industry is projected to grow by over 50,000 employees in the next ten years at an annual growth rate of 2.57% (Source: Colorado Dept. of Labor, Labor Market Information), a statistic that does not account for anticipated retirements.

Industry employment distribution is largely concentrated in the Denver-Aurora Metropolitan Statistical Area (MSA) (102,179 employees, or 56%), and along the Interstate 25 corridor (I-25). There are a significant number of Top Jobs as identified in The Colorado Talent Pipeline Report (jobs paying a living wage for both an individual and family) in construction, with an average hourly wage of $29.68 and a weekly wage of $1,187. Construction laborers, electricians, carpenters, supervisors, and plumbers/pipefitters/seamfitters are the top five occupations in terms of estimated employment (Source: Colorado Dept. of Labor, Labor Market Information).

From an industry perspective, the 2019 Sage-AGC of America Outlook Survey, released at the beginning of the year, included results from 74 contractors listing Colorado as their primary state (out of 1,312 total respondents nationwide). Highlights include:
• Q4. We are having a hard time filling some or all salaried and hourly craft positions (CO 85%, US 78%).
• Q5. Over the next 12 months it will become harder to hire hourly craft or salaried personnel (CO 24%, US 26%); it will continue to be hard to hire hourly craft or salaried personnel (CO 45%, US 42%).
• Q6. Did your firm increase pay or benefits for salaried or hourly craft personnel in 2018 because of difficulty filling positions?
  o Our firm increased base pay rates (CO 57%, US 59%).
  o Our firm provided incentives/bonuses (CO 30%, US 29%).
  o Our firm increased our portion of benefit contributions and/or improved employee benefits (CO 23%, US 21%).
• Q7. If your firm is experiencing staffing challenges, how would you describe the impact on your projects?
  o Costs have been higher than we anticipated (CO 32%, US 33%); we have put higher prices into our bids or contracts (CO 38%, US 37%).
  o Projects have taken longer than we anticipated (CO 47%, US 34%); we have put longer completion times into our bids or contracts (CO 28%, US 18%)” (Source: Associated General Contractors of America and Sage Construction and Real Estate).

Education and Training Programs

There are established education and training programs in construction provided through a large variety of offerings and structures including the following:

• CTE programs in high schools and postsecondary institutions;
• certificate programs and Related Instruction (RTI) for RAs at area technical colleges (e.g. Emily Griffith Technical College provides RTI for 12 RAs in construction-related occupations);
• non-credit customized training and credit-bearing certificate and degree programs through community colleges;
• bachelor’s and master’s degrees through colleges and universities;
• Training provided by union-based Joint Apprenticeship and Training Committees (JATCs);
• training provided by non-union training centers (i.e. Construction Industry Training Council of Colorado (CITC));
• shorter-term training programs and boot camps led by intermediaries and industry associations (i.e. Construction Careers Now and Colorado Homebuilding Academy); and
• industry-directed training through companies’ in-house training (i.e. RK University).

Instruction varies from formal education to programs exposing participants to construction fields to related instruction connected to RA to ongoing professional development and compliance-related trainings.

While the diversity in program structures offers many different paths for individuals to receive necessary training, it creates potential gaps as systems are not fully connected, nor are curricula inherently stackable. For example, a student completing a high school CTE program may not have a clear pathway into postsecondary education or an RA. Similarly, an apprentice receiving training in a union or non-union training center may or may not also receive a postsecondary certificate or degree upon RA completion. Finally, an individual completing an associate’s degree with professional experience in a skilled trade may or may not easily transfer into a construction management pathway at a four-year institution.
Work-Based Learning Initiatives

Conversations with industry indicated businesses and associations (union and non-union) are considering both short-term labor shortages and long-term workforce planning strategies, the outcome of which was a preference for including high school internships through pre-apprenticeships and RAs when considering work-based learning (WBL) strategies to address workforce challenges.

There continues to be a strong culture and support for United States Department of Labor (USDOL) Registered Apprenticeships in construction in Colorado, which remain heavily focused in the skilled trades area. Of the roughly 6,200 RAs in Colorado, 60% of active apprentices are in construction occupation programs. Of the 487 RA occupations in Colorado, 107, or 22% of them are in construction (Source: Colorado Department of Labor and Employment, Work-Based Learning Unit, from data pulled from USDOL RAPIDS system). In addition to RAs, there are youth apprenticeships available to in- and out-of-school youth through programs like the Colorado Homebuilding Academy.

Shorter-term pre-apprenticeship and training programs help build interest in the industry by recruiting and preparing potential talent. Examples include the Construction Skills Bootcamp and Basics in Concrete programs through the Colorado Homebuilding Academy, and the Construction Careers Now program led by the AGC with CITC and Emily Griffith Technical College (EGTC) as key partners. These programs offer two to eight-week non-credit introductions to careers in construction, while the Construction Management program partnership with the Colorado Homebuilding Academy and Community College of Aurora (CCA) offers a two-semester, credit-based bridge into superintendent and estimating pathways.

Internships are established in certain occupations, with undergraduate internship programs at a number of companies. High school internship and pre-apprenticeship opportunities are growing, with Careers in Construction (CIC) being an example. CIC leverages the Home Builders Institute (HBI) program resulting in a Department of Labor recognized Pre-Apprenticeship Certified Training (PACT) being an example of a program to help train high school students to meet industry demand for talent.

Gathering accurate data on current WBL opportunities is challenging since there is no coordinated source of information, limited access to data, and data sharing between agencies is not institutionalized. Furthermore, segmented data proves challenging when working to publicize opportunities to learners and jobseekers. While a strong state-approved WBL lexicon exists in Colorado, and many websites and resources for communicating opportunities (examples include MyColoradoJourney and CareersInColorado), accurately publicizing information in a centralized way remains an opportunity.

Stakeholder Engagement

There is a tremendous amount of interest and effort in workforce development surrounding the construction industry, with industry and education convening via multiple forums — industry associations, labor organizations, sector partnerships, and CTE advisory boards. While there is some overlap, industry participation often varies by subsector (commercial, residential, or civil), and there is not a statewide multi-stakeholder conversation, at present.
CCCS engaged a broad group of stakeholders within the six-month project cycle, starting by interviewing a sample of subject matter experts (SMEs) representing industry leaders, association members, a union training center, technical colleges, community colleges, and state agencies (See Appendix A for list). To be responsive, project scope was adjusted to accommodate SME feedback, including the following: industry indicated a strong preference for a survey in lieu of in-person convenings to gather input. As a result, CCCS promoted the project at several key industry convenings and contracted with Joining Vision and Action (JVA) Consulting for survey design and analysis. Industry champions promoted the survey with peers, which resulted in 50 completed surveys and a 58-page report (See Appendix B for JVA summary of findings).

Community and technical college leaders and construction discipline faculty were engaged through conversations at the annual CCCS Faculty 2:2 Conference as well as at a Vice President of Academic Affairs Council meeting.

While education and training programs exist statewide, it was most realistic, and most reflective of the concentration of industry, to convene stakeholders within the Denver-Aurora MSA. As a result, a ‘full pipeline’ conversation was held November 7th bringing together 37 attendees from 24 different organizations for an interactive conversation about construction pathways.

Overall, a strong representative sample of stakeholders was engaged. However, there are always opportunities for further engagement including the following: direct feedback from apprentices, small businesses, and industry outside of the I-25 corridor; a deep dive with education and training stakeholders outside of Denver Metro area; and JATC participation in education and training conversations.

Findings and Recommendations
Project findings include the following categories of opportunities and recommendations:

- Marketing, Communications, Image, and Visibility
- Stakeholder Engagement
- Market Intelligence and Data Coordination
- Rules and Policies
- Work-Based Learning — Intelligence
- Work-Based Learning— Growth
- Industry-Led
- Curricular Alignment
- Funding Investments
Marketing, Communications, Image, and Visibility

Opportunity:
Expand existing investment in raising the industry’s profile; clarify work-based learning opportunities available to students and jobseekers.

Recommendations:
Continue and increase existing efforts:

- Help those interested learn about opportunities.
  - Integrate communications into existing career advising.
    - Leverage the Career Advising training project the Colorado Department of Education (CDE) & Colorado Workforce Development Council (CWDC) are project managing with the Colorado Education Initiative (CEI) to train 5,000 career navigators.
    - Provide current information to high school counselors and advisors.
    - Support programs like the High School Construction Connection led by the AGC and the Denver Metro Construction Sector Partnership.
    - Spotlight construction-related programming supported by the Career Development Incentive Program (CDIP) at CDE.
  - Update and include industry-informed career pathway and WBL opportunity information in MyColoradoJourney (MCJ) and CareersInColorado (CiC) websites.
  - Explore the opportunity to add WBL-specific information including pathways from RA (i.e. What’s the next step?) to CiC and MCJ.
  - Distinguish between ongoing training types in outreach; required (i.e. OSHA), technical skills-based, and professional skills development.

- Help those interested easily find work-based learning opportunities.
  - Support the creation of the apprenticeship directory CDLE is leading, including investing in future project integration into existing platforms; explore possibility of adding quality pre-apprenticeships to the directory.
  - Support Colorado Department of Higher Education (CDHE) efforts in documenting postsecondary WBL offerings.
  - Explore process and challenges for RA visibility on the Eligible Training Provider List (ETPL).
  - Explore investments in a ‘WBL marketplace’ similar to the model utilized by many Colorado Springs K-12 districts.

- Streamline how individuals and companies access supports and possible funding for WBL opportunities in construction [i.e. Workforce centers, Innovative Industries Internship Program, Career Development Incentive Program, Skill Advance Colorado job training grant program (funded by Colorado First and Existing Industries), WORK Act Grant funding].
- Develop aligned and clear communication materials from education and training to help build awareness among industry and help them communicate with apprentices about how to access education and training, and opportunities available to apprentices/working learners.
- Provide evidence of the value of credentials as demonstrations of skill attainment.
• Develop employer-facing communications to support and demystify the RA launch/sponsorship process.

**Stakeholder Engagement**

**Opportunity:**

Additional work is needed to engage all stakeholders that were not engaged in the six-month project period and survey response rates were low. Opportunities for additional engagement include:

- cross sub-sector industry conversations for both alignment and to prevent industry fatigue from individual stakeholder asks;
- conversations engaging industry and education/training simultaneously (building from the Metro Denver case study);
- smaller businesses, including those not members of larger industry associations;
- rural businesses;
- businesses and educators who are not already engaged in WBL efforts;
- current and former apprentices and interns; and
- special populations including but not limited to: Veterans; justice-involved individuals; women; and minority groups.

**Recommendations:**

- Expand the reach of Sector Partnerships in construction as a vehicle for coordinated regional conversations, including exploring if there is an opportunity to provide funding to facilitate a more rigorous statewide conversation.
- Leverage CTE Advisory Committee conversations.
- CDLE and CCCS act on specific industry requests received through the industry survey.

**Market Intelligence and Data Coordination**

**Opportunity:**

Data is segmented and incomplete, which creates challenges in producing insights on an entire industry across stakeholder groups.

**Recommendations:**

- Study and map labor demand by occupation and location with WBL prevalence and education and training programs to identify possible growth opportunities; explore leveraging the Statewide geographic information system (GIS) tool for data visualization.
- Support ongoing efforts for a statewide longitudinal data system and data sharing agreements across stakeholders. (For context, see Education Commission of the States report 50-State Comparison: Statewide Longitudinal Data Systems)
- Support CDHE’s project to map WBL opportunities in postsecondary programs.
- Support statewide efforts in counting non-degree credentials, and explore opportunities for Prior Learning Assessment (PLA) connected to work-based learning experiences.
- Support CDLE’s project to create an apprenticeship directory for Colorado.
- Conduct further study to pinpoint the source of gaps and determine future resource allocation.
Rules and Policies

Opportunity:
Barriers affecting WBL participation exist.

Recommendations:
- Explore the potential implications of the procurement RA rules for industry and identify what supports are needed by industry (i.e. additional technical assistance in RA development from CDLE & USDOL).
- Eliminate barriers to expand RAs including, but not limited to, technical assistance to add new occupations, opportunities to engage small and rural employers, and cost modeling for related instruction.
- High School Equivalency (GED) prerequisite: Clarify information on eligibility requirements.
- 1:1 USDOL journeyworker ratio requirements for Denver Metro area (Journeyworker ratios for RA vs. DORA apprenticeships vary).
- Clarify workers’ compensation, insurance, and liability rules/requirements for minors; review the impact of the CDLE exemption granted permitting 17 year-old students who have completed the Careers In Construction curriculum to intern on job sites in summer 2020 for possible expansion.
- Clarify the distinction between Department of Regulatory Agencies (DORA)-affiliated apprenticeships and USDOL RAs.
- Explore if DORA-related materials (i.e. code books, tests) could be translated into multiple languages (Spanish, to start) to facilitate broader participation.

Work-Based Learning—Intelligence

Opportunity:
Minimal information exists about what WBL opportunities are occurring, including where there are promising practices, gaps, and opportunities for further learning.

Recommendations:
- In alignment with a Business Experiential-Learning Commission (BEL) Commission goal, further study age group participation in RA; if the average age of apprentices in construction is in the late 20s, research what happens between ages 18 and 28.
- Conduct follow-up conversations with industry to more specifically pinpoint:
  - current investment in WBL and
  - opportunities for efficiency in processes and paperwork.
- Share information with industry on which RAs are already approved and being offered possibly saving time in development and opening opportunity for partnerships.
  - Explore if this is possible via the apprenticeship directory CDLE is developing.
- Provide focused efforts with underrepresented populations to encourage higher participation rates.
Targeted outreach and recruitment, including possibly expanding pre-apprenticeship opportunities for women and other under-represented groups.

Identify potential targeted support services and resources, like child care and transportation, and embedding adult education into RAs to increase opportunities for individuals without a high school diploma.

**Work-Based Learning — Growth**

**Opportunity:**
Strong RAs exist, but overall WBL programming has not saturated the market relative to the industry’s workforce demand.

**Recommendations:**
- Study the feasibility and demand to expand current RAs into smaller, more rural communities and smaller businesses.
- Build on existing models for youth WBL programs and explore expansion opportunities (i.e. AGC High School Construction Connection & Careers In Construction (CIC) programs; Colorado Homebuilding Academy; Mile High Youth Corps; CareerWise Colorado).
- Explore supporting expanding PLA opportunities for WBL experiences through the "College Credit For Work Experience" bill.
- Address current gaps in stackability of K-12 offerings to RA and/or postsecondary programs.
  - Explore how to keep a high school junior who completes the CIC program and finishes a summer internship engaged during 12th grade.
  - Determine if hours accrued in K-12 WBL and pre-apprenticeship programs like CIC or the Colorado Homebuilding Academy could count toward RA On-the-Job Learning (OJL) hours.
- Explore cross-industry RA opportunities that align with market demand (In particular, information technology (IT), business intelligence, supply chain, BIM modeling, and advanced manufacturing).

**Industry-Led**

**Opportunity:**
Strengthen and create a shared data set on competencies, investments, and incentives.

**Recommendations:**
- Industry collaborates across all subsectors to identify shared competencies to help inform program development/updating.
- Work with industry to solidify, clarify, and communicate growth and professional development career ladders and incentives for employees completing RA programs and earning academic credentials.
- Further study and document the investments industry is making in WBL programs relative to the true cost and return on investment of programs.
Curricular Alignment

Opportunity:
- There are multiple vehicles for how and where WBL programs are delivered. There is some alignment and transparency, but not uniformity which prevents a clear understanding about updating or developing program offerings.
- Students and working learners cannot easily move between systems, stack credentials, or count experience.

Recommendations:
- Competency alignment is the common denominator for being able to map WBL curriculum and academic courses. Identify areas where this has already been done and explore more widespread alignment which would facilitate all other alignment strategies.
  - Explore if tools like Calibrate can be used to align job profiles and curriculum.
- With increased access to WBL data, map program availability relative to workforce demand and WBL prevalence by postsecondary service area, taking into account key possible barriers to expansion.
  - Distance to colleges posing challenges for transportation and timing.
  - Learning skilled trades, in particular, requires hands-on learning so online instruction is not practical in many instances.
- Document non-credit training offerings.
- Hone curriculum to meet industry needs for both technical and professional skillsets.
  - A number of common curricula were cited as being used. Determine how to crosswalk and potentially stack curriculum with approved standards and course learning outcomes.
- Examine construction management roles in both the skilled trades and pre-construction/professional pathways.
  - Consider additional focus on the small business owner (i.e. ‘Two people and a truck’), foreman, and superintendent roles within the skilled trades pathway.
  - Explore if there is a pathway from a skilled trade into construction management roles/programs in the pre-construction/professional pathway.
    - More specifically, map how credits would transfer between a 2- and 4-year institution (block transfer vs. course-level transfer).
- Expand Concurrent Enrollment (CE) options in construction courses.
  - Document where this is occurring already with success.
  - Address CE teacher credentialing as a barrier, including possibly accessing the ‘silver tsunami’ in construction by building a pathway to engaging/preparing/credentialing them as instructors.
  - Industry vs. educator pay disparity is a challenge in recruiting instructors. Explore existing program in Colorado Springs to provide additional stipends for possible expansion.
- Clarify PLA guidelines to streamline credit accumulation.
  - Map how a pre-apprenticeship certificate of completion and a USDOL RA certificate of completion map to PLA.
Explore if there is a way to leverage industry-recognized credentials in construction to facilitate PLA.

Learn more about International Brotherhood of Electrical Workers (IBEW) credentialed curriculum as a possible case study for efficient PLA transfer.

Crosswalk military skillsets with construction coursework.

Provide suggested guidance to employers on prior learning and on-the-job learning hours to embed in an RA.

- Explore the possibility of developing statewide articulation agreements from area technical colleges.
- Explore an opportunity for a Degree with Designation (DWD) and/or Statewide Transfer & Articulation Agreement (STAA) in technical disciplines.
- Explore how to award credit for WBL on-the-job learning experiences in a coordinated way across education levels.
- Provide suggested guidance for employers/sponsors on related instruction providers, stackable credentials, and PLA with RA (i.e. Create an employer handbook “all you need to know about related instruction”).

**Funding Investments**

**Opportunity:**
There are several existing structures to support WBL in construction programs but insufficient supports to get to scale.

**Recommendations:**
Financially incentivize WBL in construction by:

- Adding funds to the **Career Development Incentive Program** to facilitate funding for construction internships (already built into the program but not funded to date)
- Expanding the **Innovative Industries Internship Program** (which currently includes construction as one of the eight key industries) as a way to further incentivize internship development
- Building from the idea that programming is happening in pockets; fund innovation grants and establish a community of practice similar to those for CE and Open Educational Resources (OER) to incentivize program development and scaling
Appendices

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<th>Appendix A: Stakeholder Engagement Summary</th>
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<td><strong>Representative Sample of SMEs</strong></td>
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<td>- Subject Matter Expert (SME) interviews spanning industry, education, JATC, and state agencies to build awareness, buy-in, and help frame future engagement</td>
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<td><strong>Industry</strong></td>
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<td>- Presentations: Denver Metro Construction Sector Partnership; AGC Breakfast with the Board; and CWDC Council</td>
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<td>- Industry-facing survey completed by 50 individuals representing union and non-union industry professionals</td>
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<td><strong>Education and Training</strong></td>
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<td>- CCCS 2:2 faculty conference cross-discipline conversation &amp; survey</td>
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<td>- CCCS Vice President of Academic Affairs meeting</td>
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<td>- Denver Metro ‘full pipeline’ conversation; 87 invitees, 37 participants, and 24 organizations represented including:</td>
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<tr>
<td>- K-12 districts: Adams-12 5-Star Schools, Denver Public Schools, Jeffco Public Schools, Westminster Public Schools</td>
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<td>- Area technical colleges: Emily Griffith Technical College &amp; Pickens Technical College</td>
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<td>- Community colleges: Arapahoe Community College, Community College of Aurora, Community College of Denver, Red Rocks Community College; CCCS</td>
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<td>- 4-year universities: CU Denver, CSU-Pueblo, University of Denver</td>
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<td>- Training providers: Construction Industry Training Council of Colorado (CITC), Colorado Homebuilding Academy</td>
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<td>- Community-based organizations: Adams County Education Consortium (ACEC), Building Workforce Solutions, L3C, CareerWise Colorado, Denver Education Attainment Network (DEAN)</td>
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<td>- State agencies: CDHE, CDLE, CWDC, Denver Economic Development &amp; Opportunity (DEDO)</td>
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Appendix B: JVA Consulting Industry-Facing Survey Conclusions

Research Takeaways and Recommendations

Summary of Takeaways

Key findings were drawn from the themes that came up during collection of data as follows:

- When asked about how challenging each apprenticeship area was to fill, results tended to **avoid the extremes** of not at all challenging and very challenging. Whether this was a factor of the small sample size or some other factor related to the sample is difficult to tell. While this most aptly applies to the challenging of filling apprenticeship areas, it was noticeable in other question responses as well.

- Electrical was the **most common apprenticeship area** or occupation offered, with 40% of respondents indicating as much. This was followed by carpentry, with 29% of respondents indicating it was offered.

- A large number of respondents (22) mentioned they are **not interested in offering any additional occupation** that is not currently being offered.

- Although just under half of respondents (49%) indicated they anticipated **hiring the same number of apprentices or interns** in the coming year as they did this year, more respondents (30%) anticipate hiring fewer apprentices or interns than anticipate hiring more apprentices or interns (21%).

- Respondents whose organization or company currently has registered RA programs were moderately to very **familiar with RA training** content and academic programs and credit, while respondents whose organization does not have registered RA programs were much less familiar with them.

- The cost of recruiting and training participants was overall rated as a **challenge less frequently** than finding and recruiting participants, availability of a journeyman to mentor and initial needed skills from interns.

- Large organizations with 500+ employees tended to find the **initial skills apprentices bring** to be a **less frequent challenge** than did organizations that were smaller.

- Results indicate that **no trade area or occupation** of apprenticeships was more **difficult to fill** than any others.

- Outside of responses from the union JATCs, **internal company training**, **independent training center and JATC** were the **most common responses** for who in respondents’ company or organization provides the related training and instruction.
Among the top-mentioned **best practices** for companies or organizations participating in apprenticeship programs were to provide sufficient training and guidance to, and communication with, students/apprentices, as well as to have organizational buy-in and commitment for these kinds of programs.

Effective **recruitment strategies** for work-based learning programs among underrepresented groups include direct outreach and visibility, as well as through local partners.

Partnerships with other agencies or educational institutions, and apprenticeship wages, were the most common ways respondents’ companies or organizations **invest in apprenticeships**. Meanwhile, delivering the related training and instruction directly, and dedicated staff to manage the registered apprenticeship program, were the least common ways respondents’ companies or organizations invested in apprenticeships.

In general, partnerships with academic institutions are perceived to have been successful with helping **find, draw and retain talent**, as well as creating pathways to degrees for students/interns or apprentices.

**Reduced labor costs** was rated lowest for how respondents’ companies or organizations saw a return on investment in apprenticeship programs.

However, the **union JATCs stakeholder group** tended to rate a **reduction in labor costs as a greater return on investment** in their apprenticeship programs than did the other stakeholder groups.

Respondents rated **both professional skills and technical skills as very important** for employees and prospective employees.

**Completing a registered apprenticeship program** was the **most common way** for employees and prospective employees to **demonstrate proficiency in skills**. Additionally, demonstrated proficiency or mastery of technical skills was mentioned as the top indicator that an employee is ready for a job promotion.

Registered apprenticeship programs appeared to be the **most prevalent and most valued** of the methods for skills demonstration for respondents.

Overall, there was a **low reliance on academic institutions**. When asked to rank the way employees and potential employees demonstrate skills, degrees from universities, degrees from community colleges and academic certificates were the least preferred.

Among the top-mentioned **areas of opportunity** to increase likelihood of participation in apprenticeships and/or internships were improved overall processes, ability for credits to count toward a degree, and increased awareness of the programs.

**Implications**

JVA is pleased to make recommendations based on the feedback received that may help inform decision-making to address legislative requirements:
**Continue to support and grow registered apprenticeship programs.** These programs were overall the most prevalent and most valued of the methods for skills demonstration. Completion of a registered apprenticeship program is a top indicator for companies and businesses in demonstrating prospective employees’ proficiency on the job. In turn, proven skills proficiency serves as an indicator for job promotion readiness, which supports apprentices in their career growth and development. Additionally, technical and professional skill development were among the top items survey respondents rated in terms of return on investment, providing confirmation that these kinds of programs are beneficial for both apprentices and employers.

**Support an increased ability and seamlessness for apprentices, interns or students to obtain academic credits through work-based learning programs.** This was a frequently mentioned area of opportunity that could increase organizations or businesses’ likelihood to participate in apprenticeships and/or internships.

**Continue to work on and leverage publicity opportunities and local partnerships and events to increase visibility.** Direct outreach and visibility through events where there is a large concentration of students, as well as direct connection with local partners, are among the top-mentioned recruitment strategies. Additionally, survey respondents rated difficulties with recruiting talent as the top challenge in participating in work-based learning programs. Added visibility seems, therefore, to be a key barrier that may be mitigated through more focused efforts and investment.

**Maintain rigor around technical proficiency expectations while emphasizing the need for and importance of soft and leadership skills among apprentices.** While technical proficiency rose to the top of the list as the most important indicator for job promotion, soft skills such as communication and positive attitude, as well as skills around management and leadership, were frequently called out as necessary to help employees grow in companies and move further in their careers.

**Consider strategies to increase effective communication and improved engagement with industry partners.** Lack of engagement with this survey within stakeholder groups and across the industry may point to an overall lack of engagement and/or ineffective communication strategies. Moreover, feedback around areas of opportunity regarding reduced paperwork, streamlined processes and communication, and improved awareness confirms a need for enhanced partnerships.

**Address requests for support per survey responses.** Respondents were asked a check-all-that-apply question where they could select ways in which they could be followed up with. A total of 25 respondents indicated they would like a follow-up call. The most frequently selected follow-up was inclusion in the Colorado apprenticeship directory (Figure 31). Respondents were also given the opportunity for any other items they would like to be followed up about. One participant indicated they would like to talk about college credits for apprentices.

**Conclusion**

This assessment provides CCCS with data and information to help identify areas of opportunity to address changes and requirements indicated by the legislation. It also paints a picture of current perceptions regarding work-based learning programs in the construction industry. JVA applauds the excellent work CCCS does to incorporate the voices of construction industry partners in an effort to seize areas of opportunity based on their input.