

*Teri Gardner 6-5-23***APPLICATION FOR WSATC RECOGNITION OF AN APPRENTICESHIP PREPARATION PROGRAM**

Recognized Apprenticeship Preparation Programs are education and training programs which maintain formal articulation agreement(s) with one or more registered apprenticeship program sponsors. The purpose of the recognized preparation programs is to prepare participants for successful entry into registered apprenticeship programs. Preparatory programs are designed to increase the participation of underrepresented populations in registered apprenticeship. (WSATC Policy 2012-03 Sec. I B).

An apprenticeship preparation program may apply for recognition or continuing recognition from the WSATC. The WSATC may grant initial recognition for a period of up to 18 months, and continuing recognition for a period of up to three years. To apply for initial recognition, programs must have participants enrolled in training at the time of application, and provide individualized demographic data for the first/ current cohort of participants. (WSATC Policy 2012-03 Sec. III).

SECTION 1: CONTACT INFORMATION AND PROGRAM SUMMARY**Name of Apprenticeship Preparation Program:**

Regional Apprenticeship Pathways (RAP)

Name of parent organization/organization that will administer the program:

Marysville School District (No. 25)

Contact Information:**Individual Authorized to Represent the Program***Name:* Anne Carnell*Organization:* Marysville School District*Title:* RAP Director*Phone:* 360 965 0035*Email:* anne_carnell@msd25.org*Mailing Address:* 5611 108th Street NE Marysville, WA 98270*Physical Address:* 5611 108th Street NE Marysville, WA 98270

Point of Contact for Outreach and Enrollment

Name: Anne Carnell

Organization: Marysville School District

Title: RAP Director

Phone: 360 965 0035

Email: anne_carnell@msd25.org

Mailing Address: 5611 108th Street NE Marysville, WA 98270

Physical Address: 5611 108th Street NE Marysville, WA 98270

Primary User of Apprentice Registration and Tracking System (ARTS) Portal

Name: Amanda Knapp

Organization: Marysville School District

Title: Office Manager

Phone: 360 965 2160

Email: amanda_knapp@msd25.org

Mailing Address: 5611 108th Street NE Marysville, WA 98270

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Summary of Preparatory Program

Please briefly summarize the following in three pages or less within Appendix A.

1. *Describe the organization that will be operating the preparatory training. If this is an existing organization, briefly describe its history and mission, and why apprenticeship preparation is a good fit.*
2. *Describe how the program will be funded. If the program's start-up is grant funded, describe your sustainability plan once the grant ends.*
3. *Describe the primary needs you have identified in your service area the program will address.*
4. *Describe the target populations and geographical area.*
5. *Describe the program. Please include the following:*
 - a. *The structure of preparatory program including the anticipated number of participants/cohorts per year and approximate duration of the program;*
 - b. *How the program will be staffed (i.e., instructors, administration, etc);*

- c. Participant support/resources during program; and*
 - d. Apprenticeship navigation and articulation plan.*

- 6. Describe the program outcomes. Please include the following if applicable.*
 - a. Successful completion (required)*
 - b. Industry recognized certificate(s)/certification(s)*
 - c. Educational credit*
 - d. Target articulation rate (required)*

- 7. Please provide additional details, if any, you would like to share about your program (i.e. positives outcomes other than registered apprenticeship articulation, etc.)*

SECTION 2: PROGRAM PARTICIPANTS AND OUTCOMES - (WSATC Policy 2012-03 Sec. II B)

A minimum apprenticeship articulation goal, which shall be at least 15% of graduates. Articulation shall be measured at six months following the date program participants graduate, with the following exceptions:

- a. Programs serving actively enrolled K-12 participants may request articulation be measured at 12 months following the date of apprenticeship preparation program graduation; OR*
- b. Programs serving currently incarcerated individuals may request articulation be measured at 18 months following the date of apprenticeship preparation program graduation.*

The anticipated number of participants who will enroll in the preparatory program annually.

The specific requirements to complete the program (i.e., attendance, grades, test scores, skill demonstrations, certificate attainment, etc.).

The specific apprenticeship, industries and/or occupations program graduates will be prepared to enter.

Please respond in full to the questions below regarding your program's participants and outcomes.

1. Occupations Trained: *Please describe the specific apprenticeship, industries and/or occupations program graduates will be prepared to enter:*

RAP students gain hands-on experience in many trades, some of which include: ironwork, plumbing & pipefitting, sprinkler fitting, carpentry, electrical, welding, sheet metal, masonry, and laborers.

2. Target Articulation Rate: *Approximately what percentage of program graduates do you expect to enter into a registered apprenticeship following completion of your program?*

15% per L & I requirement

3. Target Participant Population and Successful Articulation Timeframe: *Please select the option which best characterizes your program participant successful articulation timeframe. Please describe.*

6 Months

12 Months (program serving actively enrolled K-12 participants)

18 Months (program serving currently incarcerated individuals)

RAP serves high school seniors and Everett Community College students. RAP follows the Marysville School District calendar and serves students from the first day of school to the last day of school. The articulation timeframe that best aligns with RAP graduates is 12 months as not all graduating seniors are 18 at the time of graduation.

4. *How many participants do you anticipate enrolling in each cohort and how many cohorts per year?*

RAP anticipates enrolling 30 students each year with one cohort per year.

5. *Please describe the requirements to complete the program (i.e., attendance, grades, test scores, skill demonstrations, certificate attainment, etc.).*

Graduates earning a grade of B or better are considered by union partners for a guaranteed interview or preferred placement and receive a RAP Completion certificate and recommendation letter from the RAP instructor. Graduates earning a grade of C or D earn high school credit and receive instruction on how to apply to unions but are ineligible for the benefits as outlined in the MOU agreements. Graduates must have consistent and regular attendance, and class grade is a compilation of test scores, skill demonstrations, and coursework to meet the requirements of certificate attainment. Students must attend regularly and consistently both at their high school and in RAP, actively participate and complete all assignments with high quality, and meet all requirements in order to maintain good standing and enrollment in the program.

SECTION 3: ARTICULATIONS AND PARTNERSHIPS - (WSATC Policy 2012-03 Sec. II E, Sec. I E)

Apprenticeship preparation programs training participants for a specific occupation must provide at least one articulation agreement at the time of application. Preparatory programs training individuals in multiple occupations must provide a minimum of two articulation agreements at the time of application. Articulation agreements must contain the following components:

The names of the organizations entering into the agreement (Apprenticeship Preparation Program and Registered Apprenticeship Program).

The specific apprenticeship program and occupation(s) that the apprenticeship prep program graduates will be prepared to enter.

One or more of the following considerations for graduates of the prep program:

- a. A preferred entry clause;*
- b. An advanced standing or credit clause;*
- c. Additional point(s) awarded in the application/interview process; or*
- d. Guaranteed interview with registered apprenticeship program.*

Be executed or renewed no more than three months prior to the date of application.

Please select the option which best characterizes your program.

Registered Apprenticeship Program specific pre-apprenticeship *(goal is preparation of apprentices for one specific registered apprenticeship)*

General apprenticeship preparation program *(goal is preparation and support to succeed in a variety of apprenticeships)*

Please complete the chart below with the requested information for each registered apprenticeship with which your program has a formal articulation agreement. A copy of each articulation agreement must be attached to this application. A Memorandum of Agreement/Understanding, a formal contract, or a signed letter of commitment are acceptable forms of articulation agreements.

Apprentice-ship Program Name	Articulating Occupation(s)	Articulation Type <i>(select all that apply)</i>			
		Preferred Entry	Advanced Standing or Credit	Additional Points on Application/Interview	Guaranteed Interview
Cement Masons and Plasterers' training center of Washington	Cement Mason & Plasterers	x	x		
Greater WA Pipe Trades JATC	Plumber, pipefitter				x

Please list any other organizations, if any, which have endorsed your program or otherwise partnered with you to develop or administer this program.

Program or Organization Name	Role(s) <i>(eg, training provider, Advisory Board member, industry consultant, supportive services provider, etc.)</i>
Everett Community College	Provides the Instructional Tech, OSHA instructor, and Employment Readiness Facilitator.

SECTION 4: CURRICULUM - (WSATC Policy 2012-03 Sec. II C)

Curriculum should be developed in consultation with apprenticeship partners and subject matter experts to ensure it aligns with current industry standards and prepares graduates to meet or exceed the minimum qualifications for entry into an apprenticeship. At a minimum, the curriculum must include the following elements:

Industry/occupation specific safety training and education;

Employability skill development;

Industry/trade specific skills and knowledge; and

Course hours.

In one to two paragraphs, please provide a brief summary of the programs curriculum describing the total number of hours, topics covered, method of delivery, etc.

Seniors can take RAP1 or RAP1 and RAP2. RAP 1 uses Core Plus Construction Intro (180 hours), Core Plus Construction Foundations (180 hours), and Core Plus Construction 201 (180 hours). RAP2 uses the Core Plus Construction Curriculum (540 hours). Topics covered in RAP1 include Introduction to Construction Science, Career Exploration, Personal Success in the Construction Industry, Working as a Team, Safety- Standard Operating Procedures, Tools & Equipment Identification and Safe Usage, Construction Measurement and Basic Layout Principles, Introduction to Print Reading, Construction Materials & Fasteners, Project Planning & Scheduling, Project Close Out, Portfolio & Certificate Review, Construction Drawings and Print Reading, Planning and Scheduling, Estimating, Construction Materials & Fasteners, Applied Physics, Basic Foundations- Concrete and Reinforcements, Basic Framing- Walls & Roofs, Project Close Out, Portfolio & Certificate Review, Prints and Drawings, Planning, and Scheduling, Estimating, Materials, Applied Physics, Foundations- Concrete and Reinforcements, Floor systems, Rigging, Framing- Walls & Ceilings, and, Roof- framing and cladding. Topics covered in RAP2 included Workplace Behavior and Safety, Hand, Power, and Woodworking Machine Tools, Site Layout (Skilled Trades Math), Building Material, Print Reading (Skilled Trades Math), Basic Framing, Drywall and Wood Finishing, Moisture and Thermal Protection, Doors, and Windows, Stairs, Residential Electrical, Concrete Footing Form Construction, Scaffolding, Rigging and Workplace Safety, and, Skilled Trades Career Exploration. This curriculum has been submitted to and approved by the Office of Superintendent of Public

Instruction. The method of delivery is in-person instruction facilitated by an industry professional with a CTE teaching certificate in the classroom and hands-on shop setting.

Please respond in full to the questions below.

1. *Please describe your program's working relationship with one or more registered apprenticeship programs in the development of elements such as curriculum, class activities, evaluation methods, and teaching techniques.*

The Core Plus Curriculum is an industry-recognized curriculum developed by the General Contractors of WA in partnership with the Office of Superintendent of Public Instruction. The RAP teaching staff participates in monthly professional development hosted by Core Plus, focusing on teaching techniques and industry updates. Union partners come in regularly to engage in lesson planning and delivery, including Northwest Carpenters Institute, International Brotherhood of Electrical Workers Local 89, Laborers' International Union of North America Local 292, United Association Local 699 Sprinkler Fitters, United Association Local 26 Plumbing & Pipefitters, and Everett Community College.

2. *Please identify the program's instructor(s) and provide a brief summary of their qualifications.*

Logan McKay; B.A. working on Master's degree in teaching at Eastern WA University.

Everett Community College Employment Readiness Facilitator - Employed by Everett Community College to run their career center and employment outreach program.

Everett Community College OSHA instructor - Certificated Everett Community College Welding instructor and certified OSHA Safety instructor.

3. *What, if any, post-secondary credit do program participants receive?*

Students completing two years of RAP and earning a final grade of B or better will be awarded College Credits in Manufacturing Employment Readiness MFG T 102 (5) and MFG T 100 (12) through Everett Community College.

Please complete Appendix B – Curriculum Outline.

SECTION 5: PARTICIPANT RECRUITMENT AND RETENTION - (WSATC Policy 2012-03 Sec. II D)

Preparatory program recruitment and retention plans must contain the following elements:

The target demographics of the population their enrollees will be drawn from; and

The specific tools and activities used to recruit and retain participants, with an emphasis on recruitment of underrepresented populations.

Please respond to the following questions regarding your programs recruiting and retention plans.

- 1. Please describe the general demographics of the intended program participants (i.e., age, gender, race/ethnicity, geographic area, etc.). Is the program limited to a specific population (i.e., students at a particular high school, veterans, WIOA-eligible, etc.)? If so, explain:*

RAP aims to increase the economic mobility for under-served populations and close the construction skills gap in Snohomish County by developing a strong apprenticeship pipeline from high school to a college credential and career in the trades. The program currently operates at Marysville Pilchuck High School in the Marysville School District. The target population includes seniors (12th grade) from school districts of Stanwood, Granite Falls, Arlington, Sultan, Monroe, Lake Stevens, Everett, and Marysville. Other target school districts include Darrington, Lakewood, Mukilteo, and Snohomish.

- 2. Please describe the tools and activities which will be utilized to recruit students, and describe how underrepresented populations will be encouraged to enroll in the program.*

Direct enrollment outreach to superintendents of ten regional school districts has been productive. Each expressed an interest in apprenticeship trades education not found within their districts and supported fulfilling their allocation of seats in the program. Additional direct outreach to academic counselors and students happens in spring and again before fall class registration opens. RAP hosts a Girls Build each year, which has demonstrated a positive return on investment going from zero girls our first year to an average of 15 now. The ten school districts include Arlington, Darrington, Everett, Granite Falls, Lakewood, Lake Stevens, Monroe, Marysville, Stanwood/Camano, and Sultan. Additional program information can be found on the MSD RAP website. Marketing materials and program applications will be

included in students' home district class registration packets to help students and their families make informed decisions about participation. The Marysville School District RAP web page (<https://www.msd25.org/page/rap>) also provides links to the online application, frequently asked questions, and program descriptors and leverages the use of video testimonials to convey the RAP story. All marketing materials target diverse student demographics and ethnicities and aim to enroll students reflective of the sending school districts served by RAP. Flyers and student recruitment marketing materials were handed out in person at the following community events: Disability Awareness Month Student & Family Resource Fair, Advancement Via Individual Determination Family Night, I Have a Dream Multicultural Festival, Latino Family Information Night, Marysville Pilchuck High School Open House, and Marysville Middle School Career Day.

- 3. Please describe the tools, processes, and resources your program will utilize to retain participants through graduation.*

Staff participates in annual equity training, safe schools, Diversity & Inclusion, anti-bullying, Student satisfaction survey, and regular meetings with sending school district staff related to individual student progress and needs.

- 4. Please describe the services that will be provided to graduates and current participants to assist in their successful application and articulation into registered apprenticeship programs.*

The Employment Facilitator assists students in preparing their portfolio, organizing mock interviews with trade or unions of interest, creating their resumes, developing soft skills, and applying to unions, and is available to students post-graduation as they await entry into the union.

SECTION 6: ADMINISTRATIVE REQUIREMENTS - (WSATC Policy 2012-03 Sec. II A)

Recognized Apprenticeship preparation programs shall commit to reporting the following information to L&I via the Apprenticeship Registration Tracking System (ARTS) system on a semi-annual basis, unless granted an exception by the WSATC:*

New participant demographics

- a. First and Last Names*
- b. Birth Date*
- c. Gender*
- d. Race/ Ethnicity*
- e. Veteran Status*
- f. Social Security Number**

Outcome measures (Individual-level Information)

- a. Participant graduation(s)/ completions*
- b. Participant withdrawals*
- c. Graduates who have entered into Registered Apprenticeship*

Please describe the tools and processes your program will utilize to successfully meet the administrative requirements listed above.

Appendix C will be reported on a semi-annual basis by the RAP program Director. Appendix C includes the participant demographic outlined in Section 6. RAP staff will utilize Skyward to obtain class rosters and student demographic information that is provided to the RAP Director on a continual basis.

Please complete Appendix C – Administrative Requirements Spreadsheet.

SECTION 7: APPENDICES

Please complete and submit appendices with the application packet as separate files. Appendices include the following:

Appendix A – Program Summary

Appendix B – Curriculum Outline

Appendix C – Administrative Requirements Spreadsheet

Appendix D – Articulation Agreement(s)

**Submitted by program as individual documents*

SUBMISSION INSTRUCTIONS

Applications are due no later than 45 days prior to the scheduled quarterly meeting of the Washington State Apprenticeship and Training Council. It is strongly recommended that you submit your application 2 weeks prior to the deadline for pre-review, to ensure that your application is complete. Contact Rio Frame for questions or assistance.

Please submit your completed application via email to:

*Rio Frame, Management Analyst
Dept. of Labor & Industries, Apprenticeship Section
Rio.Frame@Lni.wa.gov
509-426-0985*

APPENDIX A – PROGRAM SUMMARY

Please briefly summarize the preparatory program according to the requirements listed in Section 1 “Summary of Preparatory Program” in three pages or less.

Marysville School District, in partnership with Everett Community College (EvCC), provides operational support for Regional Apprenticeship Pathways (RAP). RAP is an existing program that was originally a pilot program funded by the legislature. RAP’s mission is that “RAP engages, inspires, and prepares each student to achieve high standards through rich and relevant educational experiences in building and construction trades.” RAP has been in operation since 2019 and is now going into our 5th year, having demonstrated success in meeting legislative requirements to achieve proof of concept and increases in funding over time. RAP is a good fit as it serves as a model for other RAP-like programs that will be funded by the legislature and established in the state in the future.

Mike Sells, Representative, 38th Legislative District, championed support for RAP in 2019, effectively securing \$1.5 million in the biennial budget. An additional \$200,000 from Snohomish County for building renovation was secured by Nate Nehring, District 1 Council Member. Sound Transit awarded Everett Community College \$150,000 to help provide RAP with the equipment, tools, and materials needed to launch the program. RAP is funded by the legislature at one million dollars per year. Marysville School District serves as the fiscal agent and operates the program at Marysville Pilchuck High School.

According to Workforce Snohomish, projected growth is strong for carpenters (20%), electricians (38%), and construction laborers (25%) over the next decade - an increase of 2200 construction jobs in Snohomish County alone. However, the average age of a construction apprentice is in the high 20s, representing a "lost decade of productivity" for many young people after high school. Consequently, there is a compelling need for the development of a clear and seamless education pathway to a career as an apprentice - one that is designed to work for students by aligning and coordinating the efforts and contributions of labor, industry, K-12, higher education, community-based organizations, and government.

RAP aims to increase the economic mobility for under-served populations and close the gap in construction skills within Snohomish County by developing a strong apprenticeship pipeline from high school to a college credential and career in the trades. The program currently operates at Marysville Pilchuck High School in the Marysville School District, serving 30 students in 2022-2023. The target population includes seniors (12th grade) from school districts of Arlington, Darrington, Everett, Granite Falls, Lakewood, Lake Stevens, Marysville, Stanwood/Camano, Monroe, and Sultan. Direct enrollment outreach of ten regional school districts has been productive. Each district has an interest in apprenticeship trades education not found within their districts and supports fulfilling their allocation of seats in the program. All ten currently hold an MOU agreement with RAP and the Marysville School District. Additional direct outreach to academic counselors and students is planned annually each fall. Target populations include students that identify construction on their high school and beyond plans as well as outreach efforts to underrepresented populations in the construction industry.

RAP offers a two-year pathway, one cohort each year consisting of two classes - RAP 1 for first-year students and RAP 2 for second-year students. The curriculum is OSPI's Core Plus Construction Curriculum. A total of 14 education units are identified for RAP 1 and also for RAP 2 in the Core Plus Construction Frameworks from OSPI. This curriculum has been submitted to and approved by the Office of Superintendent of Public Instruction. RAP 1 students earn the following high school credits: 1 CTE, 1 3rd year Math, 1 Lab Science. RAP 2 students earn the following high school credits: 1 CTE, 1 English, 1 P.E. Students will split their time between schools, spending half the day at their home high school and half the day at RAP. Students will complete 540 hours of dual credit instruction by attending a two-and-one-half-hour class session per day. Students will earn a high school diploma, an Everett Community College Employment Readiness certificate, an OSHA 10 (RAP 1) or OSHA 30 (RAP 2) industry certification, First Aid CPR/Automated External Defibrillator (AED) certification, and have preferred consideration to an apprenticeship program.

RAP is taught by industry professionals. The Marysville School District provides one full-time Director, one full-time Office Manager, and one full-time teacher. One part-time teacher for the 2023-24 school year will be added to meet the needs of growth in the program. Everett Community College provides one full-time Instructional Technician, one part-time Employment Facilitator, and one part-time OSHA instructor.

Marysville school district, in partnership with Everett Community College, is helping students connect with jobs. Employment and career coaches are available to help students through career readiness workshops, resume writing, mock interviews, and workplace site visits. Everett Community College is a leader in partnering with industry employers who seek a ready and excited workforce. To date, members from Iron-Workers Local 86, Laborers' International Union of North America Local 292, Western Washington Sheet Metal JATC, Washington State Cement Mason & Plasterers Local 528, International Brotherhood of Electrical Workers Local 89, and Northwest Carpenters Institute have conducted RAP program workshops and have reviewed apprenticeship entrance requirements with RAP students. We look forward to our continued work with our trade partners and actively seek new trade partners to place students into meaningful apprenticeships.

Seniors work with Everett Community College's Employment Readiness Facilitator to learn about the many career options in the construction industry. They attend field trips, hear guest speakers, and engage in hands-on learning alongside trade partners inside the RAP shop. Career exploration and then targeting skill set development are all part of the students' apprenticeship navigation and articulation plan. Students apply for scholarships and apply to the top 3 unions of their choice with the support of the instructor. Everett Community College's Employment Readiness Facilitator and the RAP Office manager keep records of which unions graduates apply to and provide ongoing support in the coming years as applicants seek entry into a union. Snohomish County Labor Council also awards two RAP-specific scholarships to RAP seniors graduating with a B or better that get into a registered apprenticeship post-high school.

Upon successful completion of the RAP program and required testing, students may earn certifications in Core Plus Construction, First Aid CPR/AED, Manufacturing Employment Readiness, and OSHA 10 (RAP 1) or 30). Students earning a final grade of B or better will be awarded College Credits in Manufacturing Employment Readiness MFG T 102, and MFG T 100.

Content includes a survey of mechanical concepts, precision measurement, blueprint reading, quality assurance, workforce skills/communication, ergonomics, lean manufacturing, and sustainable business practices. Upon successful completion of RAP by meeting all requirements and achieving a grade of B or better, students may be eligible for preferred placement in or an interview with a partner union apprenticeship. Students must attend regularly and consistently both at their high school and in RAP, actively participate and complete all assignments with high quality, and meet all requirements in order to maintain good standing and enrollment in the program.

Goal: 15% as required by L & I

APPENDIX B – CURRICULUM OUTLINE

Please use the format below for the program’s curriculum outline. Identify all curriculum elements and provide primary learning objectives that apply to each course.

Please copy and paste the format below to add additional course sections and/or primary learning objectives as needed.

RAP 1 Core Plus Construction - Introduction to Construction (180 hours)

1. Unit 1: Introduction to Construction Science (5 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Be able to differentiate among types of commercial construction including office, retail, and institutional construction (municipal and public buildings)
- Understand the distinctions between nonresidential and residential structures in terms of structure formation, building design and materials
- Understand building codes as they govern specific structural types
- Explain the critical function of construction management including cost management, schedule, budget, prints/drawings, quality, safety, compliance, communications and technology.
- Understand roles and responsibilities of various craftspeople
- Demonstrate a general understanding of the specific knowledge skills and abilities required for different skilled trades
- Recognize basic engineering and architectural principles in structures
- Identify components of building systems needed to complete a construction project
- Describe the fundamental components in the anatomy of a building.
- Understand the phases of construction and why they are sequenced as they are.

2. Unit 2: Construction Career Exploration – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Complete, discuss, and analyze the results of personality, career interest, and aptitude assessments
- Research construction career opportunities using O*net Online and create an index of the knowledge, skills, and abilities required for various positions of personal interest
- Develop and analyze tables, charts, and graphs related to career interests and make oral presentation regarding the career pathway of interest
- Identify how performance on assessments such as the ACT®, SAT®, ASVAB®, COMPASS® and ACCUPLACER® impact personal academic and career goals.
- Determine academic/training or certification requirements for transition from high school to post-secondary training program or career.
- Apply knowledge gained from individual assessment to a set of goals and a career plan
- Prepare a personal budget reflecting desired lifestyle and compare and contrast at least three careers of interest in regard to salary expectations and education/training costs.
- Prepare a program of study for at least one career of interest
- Develop strategies to make an effective transition from school to career
- Create a personal career portfolio including academic, certification and technical-skill requirement, career opportunities, expected wages, skills and aptitude necessary and the impact of technology on careers of personal interest.

3. Unit 3: Personal Success in the Construction Industry – 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Works efficiently and accurately
- Complete assignments and meet deadlines
- Respect the opinions, customs, and individual differences of others
- Interact respectfully with coworkers of different cultures, genders, and backgrounds
- Work cooperatively with others
- Resolve conflicts and differences to maintain a smooth workflow
- Integrity: Display accepted social and work behaviors.
- Apply ethical standards of the industry to workplace/jobsite conduct
- Treat others with honesty, fairness, and respect
- Demonstrate respect for property of customers, employer, and coworkers
- Take responsibility for accomplishing work goals within accepted timeframes
- Accept responsibility for one's decisions and actions
- Professionalism: Maintain a professional demeanor
- Take pride in one's work and the work of the group
- Demonstrate self-control by keeping emotions in check
- Accept criticism and deal calmly with stressful situations
- Demonstrate a willingness to work.
- Pursue work with energy, drive, and effort to accomplish tasks
- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals

4. Unit 4: Working as a Team – 10 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Respect the opinions, customs, and individual differences of others
- Interact respectfully with fellow human beings of different cultures, genders, and backgrounds
- Work cooperatively with others in the class
- Work cooperatively with others to complete work assignments.
- Understand the roles and responsibilities of the individual as part of a team and the hierarchy of individual positions in the construction industry
- Perform responsibly as a team member and assist other members of the work team
- Effectively communicate with all members of the group or team to achieve team goals
- Effectively resolve conflicts with co-workers to maintain a smooth workflow
- Learn from other team members
- Assist others who have less experience
- Listens to other ideas and be open to opinions and ideas that are different from your own
- Resolve conflicts and differences in a respectful manner to maintain a smooth workflow
- Apply ethical standards of the industry to workplace/jobsite conduct
- Treat others with honesty, fairness, and respect
- Demonstrate respect for the property of others
- Take responsibility for accomplishing work goals within accepted timeframes
- Accept responsibility for one's decisions and actions and recognize the affect your actions have on others
- Put the work first

5. Unit 5: SAFETY- Standard Operating Procedures – (10 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Recognize and understand what a Standard Operating Procedure is and how they are used in the construction industry as well as in CTE classes
- Learn how to research and interpret the current construction accident data
- Define personal protective equipment
- Identify and explain reasons for PPE
- Explain the purpose and organization of OSHA
- Perform Hazard identification, site inspections, and hazard communication particularly related to:
 - Focus Four Hazards
 - Fire hazards
- Explain the concept of Hazard mitigation and understand Standard Operating Procedures that address:
 - Safety Plans and Shop Safety
 - Proper use of PPE
 - Material handling, communication, and safety data sheets
 - Ergonomics
 - First aid and safety equipment
 - Drug-free workplace
 - Explain the meaning of the Focus Four hazards: fall, electrical, struck-by, caught-in/between
 - Define the critical role of safety with fall hazards
 - Define the critical role of safety with electrical hazards
 - Define the critical role of safety with struck-by hazards
 - Define the critical role of safety with caught-in/between hazards

6. Unit 6: Hand & Power Tools and Construction Equipment Identification and Safe Usage – 30 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- General Tool Safety:
 - Explain personal choices that reduce the risk of safety hazards.
 - Name and properly don personal protective equipment for the use of basic construction tools.
 - Identify common hazards associated with tool use.
 - Describe the importance of tool inspection and care in preventing injuries.
 - Discuss how the ergonomics of tools use prevents injuries.
- Hand Tools Identification and Application:
 - Identify key features and explain the application of each hand tool for particular tasks.
 - Demonstrate the safe operation of hand tools.
 - Perform competent operation of hand tools in their intended use.
 - Properly choose and consistently wear proper PPE for hand tool use.
 - Describe proper maintenance and care for each hand tool.
 - Operate hand tools in practice skill building activities
 - Perform a small-scale construction project or activity
- Hand Power Tools Identification and Applications:
 - Identify basic maintenance that should be done.
 - List proper techniques for loading and activating the nail gun
 - Describe and select the appropriate nail gun to accomplish a particular workplace task.
 - Distinguish between nail guns that are similar in appearance, stating the commonly used terms for each tool and normal routine application.
 - Explain basic techniques and proper use of nail guns.
 - List workplace tasks or functions that require a nail gun to accomplish the task.

- Describe and select the appropriate drill to accomplish a particular workplace task.
- Specify the features and major components.
- Operate hand tools in practice skill building activities
- Perform a small-scale construction project or activity individually and with teammates.
- Students will create “User’s Manuals” for three power tools.
- Stationary Equipment Identification and Applications:
 - Identify key features and explain the application of each piece of equipment.
 - Demonstrate the safe operation of the stationary equipment.
 - Perform competent operation of stationary tools in their intended use.
 - Properly choose and consistently wear proper PPE for equipment use.
 - Describe proper maintenance and care for each piece of stationary equipment.

7. Unit 7: Construction Measurement and Basic Layout Principles – 30 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Measuring
 - Use a standard rule, metric ruler, and measuring tape and read to the 1/16th inch to measure lengths
 - Choose the right mathematical method or formula to solve a problem
 - Add, subtract, divide, and multiply fractions
 - Add, subtract, divide, and multiply decimals
 - Convert fractions to decimals and decimals to fractions.
 - Convert decimals to feet and inches
 - Read gauges and measurement instruments accurately
 - Use and report measurements correctly

- Convert common units of measurement (e.g., from English to metric)
- Find level, plumb, and square
- Measure dimension Strings and Grids
- Calculate area, perimeter, surface area and volume
- Measuring Tools
 - Measuring tape
 - Framing square
 - Speed square
 - Simple combination square
 - Straight edges
 - Measuring wheel
 - Builder’s level
 - Surveying equipment
- Level and Plumb
 - Determine vertical plumb using measurement, builder levels, and laser levels
 - Determine horizontal level using measurement, builder levels, and laser levels
- Miscellaneous Measurements
 - Calculate crane radius calculations
 - Determine arcs of pipe bends for electrical conduit
 - Measure large scale dimensions and grades using string measure, laser level, surveying equipment.

8. Unit 8: Introduction to Print Reading – 30 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Construction Prints
 - Locate the Title Block on a drawing and identify the name, purpose of a drawing, and other fields depicted.

- Interpret geometric elements in a drawing.
- Identify the Alphabet of Lines.
- Identify types of views, including detail views, sectional views, auxiliary views, and be able to interpret cutting lines.
- Interpret common drawing symbols used in industry.
- Identify types of dimensioning: linear, progressive, typical, equally spaced, angles, arcs, cylinders, holes, size, location, baseline, and tabular.
- Recognize different types of construction prints/drawings.
- Explain the different sections in a set of drawings
- Describe the details, symbols, and nomenclature in each section
- Reading Print/Drawings
 - Identify lines, symbols, abbreviations, and nomenclature within prints
 - Explain the difference and significance between plan view and elevations
 - Explain scale and the mathematical concepts supporting it
 - Demonstrate correct interpretation of drawing/print information and specifications to the correct location on the plan.
 - Perform necessary mathematics to determine scale and measurements
 - Specifications
 - Components of the drawings: Title block, Border, Drawing area, Revision block, Legend
 - Orthographic and Isometric views
- Construction Specifications
 - Explain the purpose of specifications in construction projects
 - Describe how specifications and construction drawings are used together on construction projects
 - Elaborate on the purpose and function of the Construction Specifications Institute (CSI)
- Layout
 - Demonstrate how to layout the foundation of a project
 - Translate drawing information into operational plans

9. Unit 9: Construction Materials & Fasteners – 35 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Material Identification
 - Identify construction materials
 - List several common materials used in design and construction.
 - Define simple properties of materials, such as strength, flexibility, brittleness, hardness, etc.
 - Select suitable materials for making a particular object based on their properties.
 - Explain the advantages and disadvantages of common materials used in engineered structures.
 - Evaluate waste of resources/materials
 - Differentiate between compatible and incompatible substances
- Material Selection
 - Evaluate and select building materials and assemblies to meet project specifications (e.g., metals, woods, ceramics, concrete, rubber, plastics, polymers, composites, etc.)
 - Understand criteria used for material selection
- Material Use
 - Handle, install, position, move, and store materials properly
 - Demonstrate knowledge of various material finishing techniques
 - Understand appropriate transport methods of various construction materials
 - Use appropriate combinations of building materials and components
- Fastening Systems: General
 - Identify the components of a fastening system using nuts and bolts
 - Specify the materials and style from which bolts and nuts are made

- Distinguish between shear and tension types of stress/load
- List the four forces acting on installed bolts
- Permanent Fasteners
 - Discuss permanent fasteners and identify features of hex-drive and lockbolts
 - Explain the limitations of lockbolts, detailing how they are used to fasten materials together
 - Demonstrate normal procedures for installation of lockbolt fasteners
- Screws
 - Identify the different types of screws that are used in construction
 - Explain which screws to use in a specific application
 - Identify specific physical characteristics of screws
 - Explain the different installation methods
- Nails
 - Identify the different types of nails that are used in construction
 - Explain which nails to use in a specific application
 - Identify specific physical characteristics of nails
 - Identify the different sizes of nails and their meanings
 - Explain the different installation methods
- Adhesives
 - Identify the different types of adhesives that are used in construction
 - Indicate specific applications and the type of adhesives used
 - Provide a basic understanding of the physical make-up for the different adhesives
 - Explain the different techniques for applying adhesives.

10. Unit 10: Project Planning & Scheduling – 5 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Develop Project Budget
- Develop a work plan and timeline for completing a project
- Estimate material, labor and finishing costs
- Understand Materials Procurement, logistics, and Management
- Plan and Schedule
 - Explain key terms used in planning and scheduling
 - Identify the difference between a plan and a schedule
 - Identify different types of schedules we use in our daily routines
 - State how planning and scheduling helps keep us organized when changes are made in our routine
 - Identify the basic elements to include when creating a plan, and a schedule
 - Identify the relationship between available resources and requirements of a project
 - Discuss the importance of a schedule strategy.
- Creating a New Project Schedule
 - Define what is a project
 - State what is a project activity and what are activity relationships.
 - Explain the key steps to planning and scheduling a construction project.
 - Show how changing variables impact the schedule.
 - Demonstrate the basic functions of developing a schedule using MS Project
- Organizing a Project Schedule
 - Use MS Project to perform basic operations to alter and update project schedules including:
 - Calendars
 - Hierarchy
 - Formatting Columns
 - Work Breakdown Structure
- Formatting and Printing in MS Project
 - Demonstrate how to format and print a project schedule
 - Identify a schedule-critical path.
- Managing the Project Schedule
 - Create a baseline schedule
 - Anticipate obstacles to project completion and develop contingency plans to address them
 - Incorporate potential job disruptions into planning timelines
 - Adjust plan/schedules to respond to unexpected events and conditions
 - Demonstrate how to update schedules

- Explain the how to actualize the schedule
- Show how to document a delay and represent it in the project schedule
- Time Management
 - Estimate the time required to perform activities needed to accomplish a specific task
 - Develop a timeline for sequencing the activities of a project/job
 - Establish specific goals to accomplish work in a timely manner
 - Ensure that others receive needed materials in time
 - Stay on schedule

11. Unit 11: Project Closeout – 5 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Permits
- Inspection
- Closing out project

12. Unit 12: Portfolio and Student Certificate Review – 5 hours

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Communicate effectively and efficiently in a professional manner
- Use appropriate language and correct industry nomenclature
- Utilize a variety of technology to communicate ideas
- Display skills to work with others from a range of backgrounds.

- Respect the opinions, customs, and individual differences of others
- Interact respectfully with individuals of different cultures, genders, and backgrounds
- Work cooperatively with others in the class
- Resolve conflicts and differences to maintain a smooth workflow
- Treat others with honesty, fairness, and respect
- Take responsibility for accomplishing work goals within accepted time frames
- Accept responsibility for one's decisions and actions
- Take pride in one's work and the work of the group
- Demonstrate a willingness to work.
- Pursue work with energy, drive, and effort to accomplish tasks
- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals
- Display responsible behaviors in the work environment at all times
- Work accurately and quickly under pressure
- Complete assignments and meet deadlines
- Understand the importance of learning new information for both current and future problem solving and decision making.
- Participate in training opportunities
- Learn new skills related to the job
- Treat unexpected circumstances as opportunities to learn
- Accept help from supervisors and co-workers
- Seek out feedback from others to improve job performance
- Take charge of personal career development by identifying occupational interests, strengths, and opportunities
- Identify opportunities for career advancement and certification requirements

RAP 1 Core Plus Construction - Construction Foundations (180 hours)

1. Unit 1: Construction Career Exploration (5 hours)

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Complete, discuss, and analyze the results of personality, career interest, and aptitude assessments
- Research construction career opportunities using O*net Online and create an index of the knowledge, skills, and abilities required for various positions of personal interest
- Develop and analyze tables, charts, and graphs related to career interests and make oral presentation regarding the career pathway of interest
- Identify how performance on assessments such as the ACT®, SAT®, ASVAB®, COMPASS® and ACCUPLACER® impact personal academic and career goals.
- Determine academic/training or certification requirements for transition from high school to post-secondary training program or career.
- Apply knowledge gained from individual assessment to a set of goals and a career plan
- Prepare a personal budget reflecting desired lifestyle and compare and contrast at least three careers of interest in regard to salary expectations and education/training costs.
- Prepare a program of study for at least one career of interest
- Develop strategies to make an effective transition from school to career
- Create a personal career portfolio including academic, certification and technical-skill requirement, career opportunities, expected wages, skills and aptitude necessary and the impact of technology on careers of personal interest.

2. Unit 2: Personal Success in the Construction Industry 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Works efficiently and accurately
- Complete assignments and meet deadlines
- Respect the opinions, customs, and individual differences of others
- Interact respectfully with coworkers of different cultures, genders, and backgrounds
- Work cooperatively with others
- Resolve conflicts and differences to maintain a smooth workflow
- Integrity: Display accepted social and work behaviors.
- Apply ethical standards of the industry to workplace/jobsite conduct
- Treat others with honesty, fairness, and respect
- Demonstrate respect for property of customers, employer, and coworkers
- Take responsibility for accomplishing work goals within accepted timeframes
- Accept responsibility for one's decisions and actions
- Professionalism: Maintain a professional demeanor
- Take pride in one's work and the work of the group
- Demonstrate self-control by keeping emotions in check
- Accept criticism and deal calmly with stressful situations
- Demonstrate a willingness to work.
- Pursue work with energy, drive, and effort to accomplish tasks
- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals

3. Unit 3: SAFETY- Standard Operating Procedures – 15 hours

Curriculum Elements:

- Industry/occupation specific safety training and education

- ☒ Employability skill development
- ☒ Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Recognize and understand what a Standard Operating Procedure is and how they are used in the construction industry as well as in CTE classes
- Learn how to research and interpret the current construction accident data
- Define personal protective equipment
- Identify and explain reasons for PPE
- Explain the purpose and organization of OSHA
- Perform Hazard identification, site inspections, and hazard communication particularly related to:
 - Focus Four Hazards
 - Fire hazards
- Explain the concept of Hazard mitigation and understand Standard Operating Procedures that address:
 - Safety Plans and Shop Safety
 - Proper use of PPE
 - Material handling, communication, and safety data sheets
 - Ergonomics
 - First aid and safety equipment
 - Drug-free workplace
- Explain the meaning of the Focus Four hazards: fall, electrical, struck-by, caught-in/between
 - Define the critical role of safety with fall hazards
 - Define the critical role of safety with electrical hazards
 - Define the critical role of safety with struck-by hazards
 - Define the critical role of safety with caught-in/between hazards

4. Unit 4: Hand & Power Tools and Construction Equipment Identification and Safe Usage – 15 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- General Tool Safety:
 - Explain personal choices that reduce the risk of safety hazards.
 - Name and properly don personal protective equipment for the use of basic construction tools.
 - Identify common hazards associated with tool use.
 - Describe the importance of tool inspection and care in preventing injuries.
 - Discuss how the ergonomics of tools use prevents injuries.
- Hand Tools Identification and Application:
 - Identify key features and explain the application of each hand tool for particular tasks.
 - Demonstrate the safe operation of hand tools.
 - Perform competent operation of hand tools in their intended use.
 - Properly choose and consistently wear proper PPE for hand tool use.
 - Describe proper maintenance and care for each hand tool
 - Operate hand tools in practice skill building activities
 - Perform a small-scale construction project or activity
- Hand Power Tools Identification and Applications:
 - Identify basic maintenance that should be done
 - List proper techniques for loading and activating the nail gun
 - Describe and select the appropriate nail gun to accomplish a particular workplace task
 - Distinguish between nail guns that are similar in appearance, stating the commonly used terms for each tool and normal routine application
 - Explain basic techniques and proper use of nail guns.
 - List workplace tasks or functions that require a nail gun to accomplish the task

- Describe and select the appropriate drill to accomplish a particular workplace task
- Specify the features and major components.
- Operate hand tools in practice skill building activities
- Perform a small-scale construction project or activity individually and with teammates
- Students will create “User’s Manuals” for three power tools.
- Stationary Equipment Identification and Applications:
 - Identify key features and explain the application of each piece of equipment
 - Demonstrate the safe operation of the stationary equipment.
- Perform competent operation of stationary tools in their intended use
- Properly choose and consistently wear proper PPE for equipment use.
- Describe proper maintenance and care for each piece of stationary equipment

5. Unit 5: Construction Measurement and Layout Principles – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Measuring
 - Use a standard rule, metric ruler, and measuring tape and read to the 1/16th inch to measure lengths
 - Choose the right mathematical method or formula to solve a problem
 - Add, subtract, divide, and multiply fractions
 - Add, subtract, divide, and multiply decimals
 - Convert fractions to decimals and decimals to fractions.
 - Convert decimals to feet and inches
 - Read gauges and measurement instruments accurately
 - Use and report measurements correctly
 - Convert common units of measurement (e.g., from English to metric)

- Find level, plumb, and square
- Measure dimension Strings and Grids
- Calculate area, perimeter, surface area and volume
- Measuring Tools
 - Measuring tape
 - Framing square
 - Speed square
 - Simple combination square
 - Straight edges
 - Measuring wheel
 - Builder's level
 - Surveying equipment
- Level and Plumb
 - Determine vertical plumb using measurement, builder levels, and laser levels
 - Determine horizontal level using measurement, builder levels, and laser levels
- Miscellaneous Measurements
 - Calculate crane radius calculations
 - Determine arcs of pipe bends for electrical conduit
 - Measure large scale dimensions and grades using string measure, laser level, surveying equipment

6. Unit 6: Construction Prints and Drawings – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Construction Prints
 - Locate the Title Block on a drawing and identify the name, purpose of a drawing, and other fields depicted
 - Interpret geometric elements in a drawing
 - Identify the Alphabet of Lines
 - Identify types of views, including detail views, sectional views, auxiliary views, and be able to interpret cutting lines
 - Interpret common drawing symbols used in industry

- Identify types of dimensioning: linear, progressive, typical, equally spaced, angles, arcs, cylinders, holes, size, location, baseline, and tabular
- Recognize different types of construction prints/drawings
- Explain the different sections in a set of drawings
- Describe the details, symbols, and nomenclature in each section
- Reading Print/Drawings
 - Identify lines, symbols, abbreviations, and nomenclature within prints
 - Explain the difference and significance between plan view and elevations
 - Explain scale and the mathematical concepts supporting it
 - Demonstrate correct interpretation of drawing/print information and specifications to the correct location on the plan.
 - Perform necessary mathematics to determine scale and measurements
 - Specifications
 - Components of the drawings: Title block, Border, Drawing area, Revision block, Legend
 - Orthographic and Isometric views
- Construction Specifications
 - Explain the purpose of specifications in construction projects
 - Describe how specifications and construction drawings are used together on construction projects
 - Elaborate on the purpose and function of the Construction Specifications Institute (CSI)
- Layout
 - Demonstrate how to layout the foundation of a project
 - Translate drawing information into operational plans

7. Unit 7: Project Planning & Scheduling -10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Develop Project Budget
 - Develop a work plan and timeline for completing multiple projects simultaneously
 - Estimate material, labor and finishing costs for each project
 - Understand Materials Procurement, logistics, and Management
- Plan and Schedule
 - Explain key terms used in planning and scheduling
 - Identify the difference between a plan and a schedule
 - Identify different types of schedules we use in our daily routines
 - State how planning and scheduling helps keep us organized when changes are made in our routine
 - Identify the basic elements to include when creating a plan, and a schedule
 - Identify the relationship between available resources and requirements of a project
 - Discuss the importance of a schedule strategy.
- Creating a New Project Schedule
 - Define what is a project
 - State what is a project activity and what are activity relationships.
 - Explain the key steps to planning and scheduling a construction project.
 - Show how changing variables impact the schedule.
 - Demonstrate the basic functions of developing a schedule using MS Project
- Organizing a Project Schedule
 - Use MS Project to perform basic operations to alter and update project schedules including:
 - Calendars
 - Hierarchy
 - Formatting Columns
 - Work Breakdown Structure
- Formatting and Printing in MS Project
 - Demonstrate how to format and print a project schedule
 - Identify a schedule critical path.
- Managing the Project Schedule

- Create a baseline schedule
- Anticipate obstacles to project completion and develop contingency plans to address them
- Incorporate potential job disruptions into planning timelines
- Adjust plan/schedules to respond to unexpected events and conditions
- Demonstrate how to update schedules
- Explain the how to actualize the schedule
- Show how to document a delay and represent it in the project schedule
- Time Management
 - Estimate the time required to perform activities needed to accomplish a specific task
 - Develop a timeline for sequencing the activities of a project/job
 - Establish specific goals to accomplish work in a timely manner
 - Ensure that others receive needed materials in time
 - Stay on schedule

8. Unit 8: Estimating – 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Explain the purpose and function of cost estimating in construction projects
- Describe the organization of the Construction Specification Institute Divisions and how they relate to estimating
- Demonstrate common estimating techniques including:
 - Square foot estimating
 - Materials/Material Take Off by CSI code
- Explain the basic considerations for estimating Earth work, concrete, steel, and wood
- Calculate labor costs and productivity rates

- Complete a project cost estimate with overhead and profit built in.
- Explain the importance of a risk analysis in preparing a cost estimate.

9. Unit 9: Construction Materials & Fasteners – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Material Identification
 - Identify construction materials
 - List several common materials used in design and construction.
 - Define simple properties of materials, such as strength, flexibility, brittleness, hardness, etc.
 - Select suitable materials for making a particular object based on their properties.
 - Explain the advantages and disadvantages of common materials used in engineered structures.
 - Evaluate waste of resources/materials
 - Differentiate between compatible and incompatible substances
- Material Selection
 - Evaluate and select building materials and assemblies to meet project specifications (e.g., metals, woods, ceramics, concrete, rubber, plastics, polymers, composites, etc.)
 - Understand criteria used for material selection
- Material Use
 - Handle, install, position, move, and store materials properly
 - Demonstrate knowledge of various material finishing techniques
 - Understand appropriate transport methods of various construction materials
 - Use appropriate combinations of building materials and components
- Fastening Systems: General

- Identify the components of a fastening system using nuts and bolts
- Specify the materials and style from which bolts and nuts are made
- Distinguish between sheer and tension types of stress/load
- List the four forces acting on installed bolts
- Permanent Fasteners
 - Discuss permanent fasteners and identify features of hex-drive and lockbolts
 - Explain the limitations of lockbolts, detailing how they are used to fasten materials together
 - Demonstrate normal procedures for installation of lockbolt fasteners
- Screws
 - Identify the different types of screws that are used in construction
 - Explain which screws to use in a specific application
 - Identify specific physical characteristics of screws
 - Explain the different installation methods
- Nails
 - Identify the different types of nails that are used in construction
 - Explain which nails to use in a specific application
 - Identify specific physical characteristics of nails
 - Identify the different sizes of nails and their meanings
 - Explain the different installation methods
- Adhesives
 - Identify the different types of adhesives that are used in construction
 - Indicate specific applications and the type of adhesives used
 - Provide a basic understanding of the physical make-up for the different adhesives
 - Explain the different techniques for applying adhesives.

10. Unit 10: Applied Physics – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Matter and Mass
 - Define physics
 - Explain the relationship between matter and mass, and name the three states of matter
 - Define weight and gravity, and how weight relates to mass
 - Solve for weight, mass and gravity using the given formula(s) and using appropriate units.
 - Define density and solve for density, mass, volume using the given formula(s) and using appropriate units
 - Define Specific Gravity and calculate a Specific Gravity ratio given density or weight of an object
 - Explain how density is dependent on temperature and pressure
 - Define energy and name the two types of energy in objects.
- Force, Work and Power
 - Define force, work and power
 - Apply the appropriate English and Metric units to force, work and power
 - Describe the force of friction
 - Apply torque and identify its units
 - Convert between Horsepower and watts
- Simple Machines, Stress and Motion
 - Define machines and identify simple machines
 - Distinguish between different types of levers and inclined planes
 - Define mechanical advantage and calculate it using force/distance variables
 - Solve for mechanical work using effort and resistance variables
 - Define stress and its effects; define motion

- Distinguish between speed and velocity; explain how they are related to acceleration

11. Unit 11: Basic Foundations – 20 hours

Curriculum Elements:

- ☒ Industry/occupation specific safety training and education
- ☒ Employability skill development
- ☒ Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with foundations and concrete
- Identify various kinds of footings (continuous, spread, stepped, pier block, grade beam) and determine their purpose
- Identify various kinds of foundations including, continuous slab-at-grade, stem wall / footing design, CMU block and ICF systems
- String out foundation using industry standard layout methods
- Utilize builder's level or laser level to determine finish elevations for footings walls and piers
- Estimate materials required to build footing and/or stem wall forms.
- Build form system/s and stake/fasten to finish position
- Identify types and quantities of reinforcement bars (rebar) and welded-wire fabric (WWF) required
- Identify types of steel reinforcement bar supports and purposes for their uses
- Identify proper size and tensile strengths for steel reinforcing bar (rebar)
- Estimate materials required to build footing and/or stem wall forms
- Identify the purpose for pocket blocks, anchor bolts and seismic hold-downs
- Identify various types of masonry tools and determine their uses
- Discuss and identify characteristics of concrete
- Identify types and sizes of concrete aggregates
- Identify types of concrete admixtures and determine their uses
- Identify special types of concrete and determine their uses
- Identify concrete curing methods
- Explore concrete testing methods
- Estimate concrete volume needed to fill forms

- Discuss and identify methods for placing/pouring concrete
- Discuss the need for inspections of forms prior to placement of concrete
- Mix concrete and/or grout to specific requirements
- Demonstrate proper methods for finishing concrete
- Demonstrate methods for proper use of concrete/masonry tools
- Clean and store masonry/concrete tools
- Strip/remove, clean, and properly store form boards
- Identify types of concrete structures that require the construction of edge forms (slab on grade, parking lots, driveways, sidewalks)
- Explore heavy commercial foundation construction designs, forming methods and placement

12. Unit 12: Basic Framing – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with wall and ceiling systems
- Identify the components in a wall and ceiling
- Layout the components in a wall and ceiling
- Describe and execute the correct procedure for assembling and erecting a wall
- Describe the common materials and methods used for installing sheathing on walls
- Delineate between different methods used for engineering of walls.
- Determine length of plates based on plans
- Layout plates according to specifications on plans
- Cut and assemble framing members for wood frame walls
- Demonstrate the ability square, sheath, and to plumb & line walls
- Estimate the amount of material needed to frame a wall and ceiling assemblies
- Describe the correct procedure for laying out a ceiling
- Identify sheer wall requirements and procedures used in specified locations

- Explain the benefits of SIP (Structural Integrated Panels)
- Identify framing techniques that meet thermal performance (Advanced Framing)
- Evaluate walls and ceilings for quality: layout, square, flush, level, gaps, and correct nailing schedule
- Perform pick-up framing procedures required by code (backing and fire blocking)
- Estimate the materials required to frame walls and ceilings

13. Unit 13 Project Closeout – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Permits
- Inspection
- Closing out project

14. Portfolio and Student Certificate Review – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Communicate effectively and efficiently in a professional manner
- Use appropriate language and correct industry nomenclature
- Utilize a variety of technology to communicate ideas
- Display skills to work with others from a range of backgrounds.
- Respect the opinions, customs, and individual differences of others
- Interact respectfully with individuals of different cultures, genders, and backgrounds

- Work cooperatively with others in the class
- Resolve conflicts and differences to maintain a smooth workflow
- Treat others with honesty, fairness, and respect
- Take responsibility for accomplishing work goals within accepted time frames
- Accept responsibility for one's decisions and actions
- Take pride in one's work and the work of the group
- Demonstrate a willingness to work
- Pursue work with energy, drive, and effort to accomplish tasks
- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals
- Display responsible behaviors in the work environment at all times
- Work accurately and quickly under pressure
- Complete assignments and meet deadlines
- Understand the importance of learning new information for both current and future problem solving and decision making.
- Participate in training opportunities
- Learn new skills related to the job
- Treat unexpected circumstances as opportunities to learn
- Accept help from supervisors and co-workers
- Seek out feedback from others to improve job performance
- Take charge of personal career development by identifying occupational interests, strengths, and opportunities
- Identify opportunities for career advancement and certification requirements

RAP 1 Core Plus Construction - Construction (180 hours)

1. Unit 1: Personal Success in the Construction Industry – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Works efficiently and accurately
- Complete assignments and meet deadlines
- Respect the opinions, customs, and individual differences of others
- Interact respectfully with coworkers of different cultures, genders, and backgrounds
- Work cooperatively with others
- Resolve conflicts and differences to maintain a smooth workflow
- Integrity: Display accepted social and work behaviors.
- Apply ethical standards of the industry to workplace/jobsite conduct
- Treat others with honesty, fairness, and respect
- Demonstrate respect for property of customers, employer, and coworkers
- Take responsibility for accomplishing work goals within accepted timeframes
- Accept responsibility for one's decisions and actions
- Professionalism: Maintain a professional demeanor
- Take pride in one's work and the work of the group
- Demonstrate self-control by keeping emotions in check
- Accept criticism and deal calmly with stressful situations
- Demonstrate a willingness to work.
- Pursue work with energy, drive, and effort to accomplish tasks
- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals

2. Unit 2: SAFETY- Tools, Equipment & Standard Operating Procedures – 15 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Recognize and understand what a Standard Operating Procedure is and how they are used in the construction industry as well as in CTE classes
- Learn how to research and interpret the current construction accident data
- Define personal protective equipment
- Identify and explain reasons for PPE
- Explain the purpose and organization of OSHA
- Perform Hazard identification, site inspections, and hazard communication particularly related to:
 - Focus Four Hazards
 - Fire hazards
- Explain the concept of Hazard mitigation and understand Standard Operating Procedures that address:
 - Safety Plans and Shop Safety
 - Proper use of PPE
 - Material handling, communication, and safety data sheets
 - Ergonomics
 - First aid and safety equipment
 - Drug-free workplace
- General Tool Safety:
 - Explain personal choices that reduce the risk of safety hazards
 - Name and properly don personal protective equipment for the use of basic construction tools
 - Identify common hazards associated with tool use
 - Describe the importance of tool inspection and care in preventing injuries
 - Discuss how the ergonomics of tools use prevents injuries
- Hand Tools Identification and Application:
 - Identify key features and explain the application of each hand tool for particular tasks
 - Demonstrate the safe operation of hand tools

- Perform competent operation of hand tools in their intended use
- Properly choose and consistently wear proper PPE for hand tool use
- Describe proper maintenance and care for each hand tool
- Operate hand tools in practice skill building activities
- Perform a small-scale construction project or activity
- Hand Power Tools Identification and Applications:
 - Identify basic maintenance that should be done
 - List proper techniques for loading and activating the nail gun
 - Describe and select the appropriate nail gun to accomplish a particular workplace task
 - Distinguish between nail guns that are similar in appearance, stating the commonly used terms for each tool and normal routine application
 - Explain basic techniques and proper use of nail guns
 - List workplace tasks or functions that require a nail gun to accomplish the task
 - Describe and select the appropriate drill to accomplish a particular workplace task
 - Specify the features and major components
 - Operate hand tools in practice skill building activities
 - Perform a small-scale construction project or activity individually and with teammates
 - Students will create “User’s Manuals” for three power tools
- Stationary Equipment Identification and Applications:
 - Identify key features and explain the application of each piece of equipment
 - Demonstrate the safe operation of the stationary equipment
 - Perform competent operation of stationary tools in their intended use
 - Properly choose and consistently wear proper PPE for equipment use
 - Describe proper maintenance and care for each piece of stationary equipment

3. Unit 3: Construction Measurement and Layout Principles – 15 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Measuring
 - Use a standard rule, metric ruler, and measuring tape and read to the 1/16th inch to measure lengths
 - Choose the right mathematical method or formula to solve a problem
 - Add, subtract, divide, and multiply fractions
 - Add, subtract, divide, and multiply decimals
 - Convert fractions to decimals and decimals to fractions.
 - Convert decimals to feet and inches
 - Read gauges and measurement instruments accurately
 - Use and report measurements correctly
 - Convert common units of measurement (e.g., from English to metric)
 - Find level, plumb, and square
 - Measure dimension Strings and Grids
 - Calculate area, perimeter, surface area and volume
- Measuring Tools
 - Measuring tape
 - Framing square
 - Speed square
 - Simple combination square
 - Straight edges
 - Measuring wheel
 - Builder's level
 - Surveying equipment
- Level and Plumb
 - Determine vertical plumb using measurement, builder levels, and laser levels
 - Determine horizontal level using measurement, builder levels, and laser levels
- Miscellaneous Measurements
 - Calculate crane radius calculations

- Determine arcs of pipe bends for electrical conduit
- Measure large scale dimensions and grades using string measure, laser level, surveying equipment.

4. Unit 4: Construction Prints and Drawings – 15 hours

Curriculum Elements:

- ☒ Industry/occupation specific safety training and education
- ☒ Employability skill development
- ☒ Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Construction Prints
 - Locate the Title Block on a drawing and identify the name, purpose of a drawing, and other fields depicted.
 - Interpret geometric elements in a drawing.
 - Identify the Alphabet of Lines.
 - Identify types of views, including detail views, sectional views, auxiliary views, and be able to interpret cutting lines.
 - Interpret common drawing symbols used in industry.
 - Identify types of dimensioning: linear, progressive, typical, equally spaced, angles, arcs, cylinders, holes, size, location, baseline, and tabular.
 - Recognize different types of construction prints/drawings.
 - Explain the different sections in a set of drawings
 - Describe the details, symbols, and nomenclature in each section
- Reading Print/Drawings
 - Identify lines, symbols, abbreviations, and nomenclature within prints
 - Explain the difference and significance between plan view and elevations
 - Explain scale and the mathematical concepts supporting it
 - Demonstrate correct interpretation of drawing/print information and specifications to the correct location on the plan.
 - Perform necessary mathematics to determine scale and measurements
 - Specifications
 - Components of the drawings: Title block, Border, Drawing area, Revision block, Legend

- Orthographic and Isometric views
- Construction Specifications
 - Explain the purpose of specifications in construction projects
 - Describe how specifications and construction drawings are used together on construction projects
 - Elaborate on the purpose and function of the Construction Specifications Institute (CSI)
- Layout
 - Demonstrate how to layout the foundation of a project
 - Translate drawing information into operational plans

5. Unit 5: Project Planning & Scheduling – 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Develop Project Budget
- Develop a work plan and timeline for completing multiple projects simultaneously
- Estimate material, labor and finishing costs for each project
- Understand Materials Procurement, logistics, and Management
- Plan and Schedule
 - Explain key terms used in planning and scheduling
 - Identify the difference between a plan and a schedule
 - Identify different types of schedules we use in our daily routines
 - State how planning and scheduling helps keep us organized when changes are made in our routine
 - Identify the basic elements to include when creating a plan, and a schedule
 - Identify the relationship between available resources and requirements of a project
 - Discuss the importance of a schedule strategy.
- Creating a New Project Schedule
 - Define what is a project
 - State what is a project activity and what are activity relationships.

- Explain the key steps to planning and scheduling a construction project.
- Show how changing variables impact the schedule.
- Demonstrate the basic functions of developing a schedule using MS Project
- Organizing a Project Schedule
 - Use MS Project to perform basic operations to alter and update project schedules including:
 - Calendars
 - Hierarchy
 - Formatting Columns
 - Work Breakdown Structure
- Formatting and Printing in MS Project
 - Demonstrate how to format and print a project schedule
 - Identify a schedule critical path.
- Managing the Project Schedule
 - Create a baseline schedule
 - Anticipate obstacles to project completion and develop contingency plans to address them
 - Incorporate potential job disruptions into planning timelines
 - Adjust plan/schedules to respond to unexpected events and conditions
 - Demonstrate how to update schedules
 - Explain the how to actualize the schedule
 - Show how to document a delay and represent it in the project schedule
- Time Management
 - Estimate the time required to perform activities needed to accomplish a specific task
 - Develop a timeline for sequencing the activities of a project/job
 - Establish specific goals to accomplish work in a timely manner
 - Ensure that others receive needed materials in time
 - Stay on schedule

6. Unit 6: Estimating – 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Explain the purpose and function of cost estimating in construction projects
- Describe the organization of the Construction Specification Institute Divisions and how they relate to estimating
- Demonstrate common estimating techniques including:
 - Square foot estimating
 - Materials/Material Take Off by CSI code
- Explain the basic considerations for estimating Earth work, concrete, steel, and wood
- Calculate labor costs and productivity rates
- Complete a project cost estimate with overhead and profit built in
- Explain the importance of a risk analysis in preparing a cost estimate

7. Unit 7: Construction Materials & Fasteners – 10 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Material Identification
 - Identify construction materials and differentiate between materials specific to the three primary construction sectors
 - Define simple properties of materials, such as strength, flexibility, brittleness, hardness, etc.
 - Select suitable materials for making a particular object based on their properties.

- Explain the advantages and disadvantages of common materials used in engineered structures.
- Evaluate waste of resources/materials
- Differentiate between compatible and incompatible substances
- Material Selection
 - Evaluate and select building materials and assemblies to meet project specifications (e.g., metals, woods, ceramics, concrete, rubber, plastics, polymers, composites, etc.)
 - Understand criteria used for material selection
- Material Use
 - Handle, install, position, move, and store materials properly
 - Demonstrate knowledge of various material finishing techniques
 - Understand appropriate transport methods of various construction materials
 - Use appropriate combinations of building materials and components
- Fastening Systems: General
 - Identify the components of a fastening system using nuts and bolts
 - Specify the materials and style from which bolts and nuts are made
 - Distinguish between sheer and tension types of stress/load
 - List the four forces acting on installed bolts
- Permanent Fasteners
 - Discuss permanent fasteners and identify features of hex-drive and lockbolts
 - Explain the limitations of lockbolts, detailing how they are used to fasten materials together
 - Demonstrate normal procedures for installation of lockbolt fasteners
- Screws
 - Identify the different types of screws that are used in construction
 - Explain which screws to use in a specific application
 - Identify specific physical characteristics of screws
 - Explain the different installation methods
- Nails
 - Identify the different types of nails that are used in construction
 - Explain which nails to use in a specific application
 - Identify specific physical characteristics of nails
 - Identify the different sizes of nails and their meanings
 - Explain the different installation methods

- Adhesives
 - Identify the different types of adhesives that are used in construction
 - Indicate specific applications and the type of adhesives used
 - Provide a basic understanding of the physical make-up for the different adhesives
 - Explain the different techniques for applying adhesives.

8. Unit 8: Applied Physics – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Matter and Mass
 - Define physics
 - Explain the relationship between matter and mass and name the three states of matter
 - Define weight and gravity, and how weight relates to mass
 - Solve for weight, mass and gravity using the given formula(s) and using appropriate units
 - Define density and solve for density, mass, volume using the given formula(s) and using appropriate units
 - Define Specific Gravity and calculate a Specific Gravity ratio given density or weight of an object
 - Explain how density is dependent on temperature and pressure
 - Define energy and name the two types of energy in objects
- Force, Work and Power
 - Define force, work and power
 - Apply the appropriate English and Metric units to force, work and power
 - Describe the force of friction
 - Apply torque and identify its units
 - Convert between Horsepower and watts
 - Simple Machines, Stress and Motion
 - Define machines and identify simple machines

- Distinguish between different types of levers and inclined planes
- Define mechanical advantage and calculate it using force/distance variables
- Solve for mechanical work using effort and resistance variables
- Define stress and its effects; define motion
- Distinguish between speed and velocity; explain how they are related to acceleration
- Heat and Pressure
 - Define heat, its relation to kinetic energy, and its units in both English and Metric
 - List and describe forms of energy which can be converted to heat
 - Explain how heat is transferred and list three methods of heat transfer
 - Define Thermal Efficiency
 - Define Specific Heat and solve for Thermal Expansion
 - Define pressure, list different pressure gauges, and practice solving for psi
- Gas Laws and Fluid Mechanics
 - Define gas laws, and use them to solve for pressure, temperature or volume
 - Identify the various components of air
 - Explain how density is dependent on temperature and pressure

9. Unit 9: Foundations- Concrete and Reinforcements – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with foundations and concrete
- Identify various kinds of footings (continuous, spread, stepped, pier block, grade beam) and determine their purpose
- Identify various kinds of foundations including, continuous slab-at-grade, stem wall / footing design, CMU block and ICF systems
- String out foundation using industry standard layout methods

- Utilize builder's level or laser level to determine finish elevations for footings walls and piers
- Estimate materials required to build footing and/or stem wall forms
- Build form system/s and stake/fasten to finish position
- Identify types and quantities of reinforcement bars (rebar) and welded-wire fabric (WWF) required
- Identify types of steel reinforcement bar supports and purposes for their uses
- Identify proper size and tensile strengths for steel reinforcing bar (rebar)
- Estimate materials required to build footing and/or stem wall forms
- Identify the purpose for pocket blocks, anchor bolts and seismic hold-downs
- Identify various types of masonry tools and determine their uses
- Discuss and identify characteristics of concrete
- Identify types and sizes of concrete aggregates
- Identify types of concrete admixtures and determine their uses
- Identify special types of concrete and determine their uses
- Identify concrete curing methods
- Explore concrete testing methods
- Estimate concrete volume needed to fill forms
- Discuss and identify methods for placing/pouring concrete
- Discuss the need for inspections of forms prior to placement of concrete
- Mix concrete and/or grout to specific requirements
- Demonstrate proper methods for finishing concrete
- Demonstrate methods for proper use of concrete/masonry tools
- Clean and store masonry/concrete tools
- Strip/remove, clean, and properly store form boards
- Identify types of concrete structures that require the construction of edge forms (slab on grade, parking lots, driveways, sidewalks)
- Explore heavy commercial foundation construction designs, forming methods and placement

10. Unit 10: Floor Systems – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with floor systems
- Identify different types of floor systems
- Identify the various framing members and determine their purpose
- Read and understand drawings and specifications to determine floor system requirement
- Determine various methods and requirements to fasten floor systems to foundations
- Select the proper girder/beam size given specific floor load and span data
- Explore industry standards and code requirements related to deflection and loading of floor systems
- Select the proper joist size given specific floor load and span data
- List, recognize, and install different types of bridging
- List and recognize different types of sub-flooring materials
- Explain the purposes and types of underlayment needed for specific finish floor materials
- Identify fasteners used for floor framing systems
- Lay-out and construct a floor system using conventional lumber and methods/tools
- Evaluate floor system for quality: accurate joist layout, square, flush, level, gaps, and correct nailing schedule
- Perform pick-up framing operations required prior to wall layout and framing
- Estimate the amount of materials needed to frame a floor assembly

11. Unit 11: Rigging – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Lift Planning
 - Refer to the ANSI/ASME standards that are observed regarding lifting and moving loads
 - List, explain and answer the four questions that must be asked before planning a lift or move
 - Determine whether a proposed load movement would be classified as a critical lift, pre-engineered lift, or ordinary lift
 - State the four major steps in planning a move, including two elements of what to look for in each step
 - Apply elements of an ordinary lift plan to an actual lift
 - Describe basic rigging safety practices
- Calculating Load
 - Measure and determine the volume of a load
 - Convert measurements expressed in different units into common units
 - Calculate the weight of a load
 - Determine the Center of Gravity(C/G) for a symmetrical load
 - Determine the Center of Gravity (C/G) for an asymmetric load
 - Determine the parameters of sling stress or sling angle factors
- Rigging Hardware
 - Identify types of rigging, describe their features, and explain uses & inspection criteria
 - Differentiate in detail between three examples of steel rigging and three examples of synthetic rigging
 - Select and inspect rigging for an actual load lift and movement
 - Explain basic hitch configurations and connections
- Cranes
 - Distinguish between the various types of cranes, hoists and lifting devices encountered at a work sites
 - Conduct a pre-operational crane or hoist inspection
- Rig a load for lift and movement

- Signaling
- Perform hand signals to direct the load movement

12. Unit 12: Framing- Walls and Ceilings – 20 hours

Curriculum Elements:

- ☒ Industry/occupation specific safety training and education
- ☒ Employability skill development
- ☒ Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with wall and ceiling systems
- Identify the components in a wall and ceiling
- Layout the components in a wall and ceiling
- Describe and execute the correct procedure for assembling and erecting a wall
- Describe the common materials and methods used for installing sheathing on walls
- Delineate between different methods used for engineering of walls
- Determine length of plates based on plans
- Layout plates according to specifications on plans
- Cut and assemble framing members for wood frame walls
- Demonstrate the ability square, sheath, and to plumb & line walls
- Estimate the amount of material needed to frame a wall and ceiling assemblies
- Describe the correct procedure for laying out a ceiling
- Identify sheer wall requirements and procedures used in specified locations
- Explain the benefits of SIP (Structural Integrated Panels)
- Identify framing techniques that meet thermal performance (Advanced Framing)
- Evaluate walls and ceilings for quality: layout, square, flush, level, gaps, and correct nailing schedule
- Perform pick-up framing procedures required by code (backing and fire blocking)
- Estimate the materials required to frame walls and ceilings

13. Unit 13: Roof- Framing and Cladding – 20 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Utilize terminology associated with roof framing
- Identify worker responsibilities and hazards when working at heights
- Adhere to a fall protection plan
- Demonstrate knowledge of various roof styles (gable, hip, shed, mansard, etc.)
- Describe intersecting roof systems and dormers
- Describe flat (no pitch) roof systems
- Identify roof framing members
- Identify the various types of trusses used in roof framing
- Identify the various types of rafters used in roof framing
- Demonstrate methods used to calculate the length of, layout of, and cut of rafters
- Identify various types of sheathing used in roof construction
- Measure/layout top plates for rafters
- Identify truss structural members
- Describe the forces and loads associated with roof truss systems
- Describe the differences between roof truss systems and stick frame (conventional) methods
- Use terminology for steel
- Install bird blocks
- Estimate materials for roof framing and sheathing
- Evaluate roof system construction for quality: layout, square, flush, level, gaps, and correct nailing schedule
- Install roof sheathing
- Estimate materials for roof framing and sheathing
- Evaluate roof system construction for quality: layout, square, flush, level, gaps, and correct nailing schedule
- Perform roof framing pick-up operations required before finish roofing is installed

14. Unit 14: Project Closeout – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Permits
- Inspection
- Closing out project

Unit 15: Portfolio and Student Certificate Review – 5 hours

Curriculum Elements:

- Industry/occupation specific safety training and education
- Employability skill development
- Industry/trade specific skills and knowledge

a. Primary Learning Objective

- Communicate effectively and efficiently in a professional manner
- Use appropriate language and correct industry nomenclature
- Utilize a variety of technology to communicate ideas
- Display skills to work with others from a range of backgrounds.
- Respect the opinions, customs, and individual differences of others
- Interact respectfully with individuals of different cultures, genders, and backgrounds
- Work cooperatively with others in the class
- Resolve conflicts and differences to maintain a smooth workflow
- Treat others with honesty, fairness, and respect
- Take responsibility for accomplishing work goals within accepted time frames
- Accept responsibility for one's decisions and actions
- Take pride in one's work and the work of the group
- Demonstrate a willingness to work
- Pursue work with energy, drive, and effort to accomplish tasks

- Persist at a task or problem despite interruptions, obstacles, or setbacks
- Work independently and perform effectively even with little or no supervision
- Demonstrate the ability to change from one task to another
- Take initiative to seek out new responsibilities
- Establish and maintain challenging, but realistic work goals
- Display responsible behaviors in the work environment at all times
- Work accurately and quickly under pressure
- Complete assignments and meet deadlines
- Understand the importance of learning new information for both current and future problem solving and decision making
- Participate in training opportunities
- Learn new skills related to the job
- Treat unexpected circumstances as opportunities to learn
- Accept help from supervisors and co-workers
- Seek out feedback from others to improve job performance
- Take charge of personal career development by identifying occupational interests, strengths, and opportunities
- Identify opportunities for career advancement and certification requirements

RAP2 Core Plus Construction (540 hours)

1. Unit 1: Workplace Behavior and Safety (25 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective:

- Students will prepare questions regarding safety and welfare to ask on-site visit and to guest industry speakers.
- Students will locate, interpret, and apply MSDS (SOS) information when asked by instructor, e.g., a site evaluation/inspection as occurs in industry.
- Students will demonstrate safety knowledge daily through proper utilization of safety tools of the trade.
- Students will build portfolio of learning including reflections, pictures, media, certificates, physical fitness progress.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit. (11.A.1, 11.A.2, 11.A.3, 11.A.4)
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees. (4.A.1, 2.C.1, 9.A.1, 9.A.2)
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site.

2. Unit 2: Hand, Power and Woodworking Machine Tools (25 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will demonstrate their knowledge of hand tools by performing hands-on demonstrations of the proper use of each tool.
- Students will demonstrate their knowledge of power tools by performing hands-on demonstrations of the proper use of each tool.

- Students will pass a written assessment of power tool knowledge and pass it with an 80% or higher.
- Students will pass tool safety tests for each power tool.
- Demonstrate safety usage of power tool one on one with the instructor.
- Students will build toolbox.
- Students will continue to build portfolio of learning including reflections, pictures, media, certificates, physical fitness progress.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit.
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees.
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site.
- Students will create classroom/lab tool use expectations reflective of safety procedures and organizational procedures. Students will create a plan for a sawhorse, argue for the plan's stability and safety, and build final product.

3. Unit 3: Site Layout (Skilled Trades Math) (35 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will learn the principles, equipment, and methods used to perform the site layout task of distance measurement and differential leveling.
- Student will demonstrate layout responsibilities of surveyors, field engineers, and carpenters; understanding and using site/plot drawings; and methods used for on-site communication.
- Students will continue to build portfolio of learning including reflections, pictures, media, certificates, physical fitness progress.
- Students learn and demonstrate how to shoot grade.
- Students create a story pole.
- Students use a laser level to shoot grade for footing on a house.
- Students chalk and square different shapes.
- Set-up string lines and batter boards for a foundation using 3-4-5 triangle.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit.

- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees.
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site.

4. Unit 4: Building Material (75 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will identify and describe the sources and uses of various softwoods and hardwoods, explains the grading systems for lumber and plywood, and discuss the composition and uses of various engineered sheet materials and laminated lumber products.
- Students will identify and describe the many kinds of fasteners and adhesives used with wood and masonry.
- Students will identify characteristics of responsible forest management and environmentally sustainable practices in the trades.
- Students will continue to build portfolio of learning, including reflections, pictures, media, certificates, and physical fitness progress.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit.
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees.
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site.

5. Unit 5: Print Reading (Skilled Trades Math) (45 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will interpret blueprints and use drawing dimensions.

- Read the title block
- Read the revision block
- Read the notes and legend
- Determine the view
- Establish the scale
- Inspect grid system
- Locate doors and windows
- Draw a scale model of the house with tools, exits, safety and equipment.
- Pass NCC ER end-of-chapter exam with 80% or higher. Orthographic, isometric projections worksheet.
- One point, two-point perspective assignment. Engineering three view drawing exercise.
- Students will continue to build portfolio of learning including reflections, pictures, media, certificates, physical fitness progress.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit.
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees.
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site.

6. Unit 6: Basic Framing, Drywall and Wood Finishing (66 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Identify the components of a wall and ceiling layout.
- Describe the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and firestops.
- Describe the correct procedure for assembling and erecting an exterior wall.
- Describe the common materials and methods used for installing sheathing on walls.

Basic Framing:

- Layout assembles, erect, and brace exterior walls for a frame building.
- Describe wall framing techniques used in masonry construction.
- Explain the use of metal studs in wall framing.

- Describe the correct procedure for laying out a ceiling.
- Cut and install ceiling joists on a wood frame building.
- Estimate the materials required to frame walls and ceilings.
- Explain the benefits of SIP (Structural Integrated Panels).
- Identify framing techniques that meet thermal performance.
- Explain OVE (Optimal Value Engineered) framing techniques.
- Wall Members Horizontal and Vertical (Terminology, Structural Purpose, Uses, Material Estimation, Assembly).
- Types of Walls, Bearing, Non-Bearing Interior Partitions and Exterior (Structural and Non-Structural Purposes).
- Plate Layout (Abbreviations and Techniques).
- Wall Assembly (Tools and Techniques for Attachment of Wall Parts).
- Squaring, Bracing, and Erection of Wood Framed Walls (Tools and Techniques).
- Plumb and Line, and Temporary Bracing (Tools Techniques).
- Sheathing (Types and Purposes, and Installation Techniques).
- Steel Wall Framing (Terminology, Uses, and Installation Techniques).
- Blueprint Reading and Wall Layout (Interpret Information from Plans to Chalked Lines on Sub-floor).
- Balloon Framing (Terminology and Techniques).
- Sheer Walls (Purpose, Attachment Systems and Techniques).

Flooring:

- The students will use the construction drawings to plan the framing and to reference the placement of the floor framing components.
- The simulated foundation walls will be checked for square, the sill plate will be anchored to the foundation walls, and a built-up wood beam will be installed with a supporting wood post.
- The sill plate and wood beam will be laid out to accept the floor joists and a floor opening.
- The floor opening will be installed with trimmers, headers, tail joists, and metal hardware.
- The floor joists are overlapped at the wood beam and attached to rim joists as well as to the wood beam.
- Bridging is installed between the floor joists and the joists are covered with sheathing to complete the floor framing installation.

Drywall & Wood Finishing:

- Wall and Ceiling GWB (Material and Fastener Specifications, Terminologies, Safety, Tools, Installation Methods and Techniques).
- Wall and Ceiling Finish GWB (Material Uses, Terminologies, Tools, Methods and Techniques).
- Final GWB Treatments; Textures and Paint (Terminology, Material Types, Tools, Installation Methods and Techniques, Safety MSDS / PPE).
- Wall and Ceiling Treatments; Plywood, Hardboard, T&G, Laminate, Tile, and Acoustic Tile (Types, Terminologies, Methods).

- Doors and Hardware (Types, Terminologies, and Installation Techniques).
- Cabinet and Countertop Installation (Types, Terminologies, and Installation Techniques).
- Interior Trim and Moldings (Types, Applications, Terminologies, and Installation Techniques).
- Finish Flooring (Types, Applications, Terminologies, Installation Techniques).
- Decipher Blue Prints; Finish schedules, Detail Plans, Elevations and Section Views (Terminologies, Methods).
- Students will research the history and use of drywall over the years
- Students will research other forms of wall board and structural wall substances currently used and previously used.
- Students will be given an 'engineering challenge' to come up with: eco-friendly, economic, etc., types of drywall.
- Students will develop a layout and build a model. Students will use correct vocabulary while presenting design to the class (CRT 1-2).
- Students will reason effectively, make judgements and decisions and produce results to show their ability build a wall with a door, window, and basic framing structure then they will complete the drywall and trim on the structure.

Basic Framing:

- Identify and describe the function of each part of a wall frame
- Determine the length of wall studs, cripple studs, bottom & top plates, headers and sills
- Measure, cut, and construct a wall section to 16" and 24" on center
- Erect and temporarily brace a wall section plumb and straight
- Layout & erect stair stringers
- Layout & erect a common rafter pair

Finishing Wood:

- Understands the purpose and techniques for sanding and chamfering wood

Flooring:

- Explain how a foundation plan and floor plan are used to construct a wood floor frame
- Identify the components in a wood floor frame
- Lay out and install a sill plate
- Install posts and beams
- Lay out and install a wood floor frame
- Install cross bridging and blocking
- Install subfloor sheathing

Drywall:

- Describe the Drywall Finisher trade.
- Use trade terminology.

- Locate and interpret appropriate codes, regulations, and standards that apply to drywall work.
- Describe the proper storage of materials
- Describe how mold develops
- Describe procedures to follow when mold is detected
- Inspect and prepare walls for taping
- Install drywall
- Properly tape for the job
- Select, prepare, handle and apply filling compounds 17.11 inspect and prepare walls for taping
- Describe and apply finishing practices
- Finish drywall

7. Unit 7: Moisture and Thermal Protection (10 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- The student will learn how to apply house wrap and flashing to help make the structure moisture-resistant.
- They will also learn the different types of weather protection used in residential construction prior to installing doors and windows and any other type of penetrations through exterior walls of the structure.
- Students will work in pairs or teams with an assigned a foreman, who will be responsible for group evaluations on a daily basis.
- Group members are responsible for daily foremen evaluations.
- These groups will work to complete a moisture/ thermal protection plan of installation as determined from architectural plans.
- Each group will be responsible for installing a small portion of the moisture and thermal protection on a demonstration stand.
- At the end of each day, students will communicate clearly and solve problems when there is a team debrief with the instructor on the group performance and daily expectations.

8. Unit 8: Doors and Window (15 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development

Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Identify different types and styles of doors and windows
- The student will size a door, determine the hand of a door, and understand the difference between interior and exterior doors
- The student will identify the different types of windows and their components
- Students will read and understand door and window schedules
- Install a pre-hung exterior door and a window
- Students will work in pairs or teams with an assigned a foreman, who will be responsible for group evaluations on a daily basis.
- Group members are responsible for daily foremen evaluations.
- Following a blueprint, students will order the proper size and number of doors and windows for a residential project.
- Each group will be responsible for installing a door and window demonstration stand.
- At the end of each day, students will communicate clearly and solve problems when there is a team debrief with the instructor on the group performance and daily expectations.

9. Unit 9: Stairs (15 hours)

Curriculum Elements:

Industry/occupation-specific safety training and education

Employability skill development

Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Identify the components that make up a stair and the tools required to lay out, cut, and install stairs
- Use math to calculate all the dimensions and number of risers and treads required
- Stringers cut and installed per plan
- Install treads on the stringers
- Each student will use systems thinking, make judgments, decisions while drawing and planning for the installation for a set of stairs
- Each student will solve problem by install a 3 step stairs system with a partner

10. Unit 10: Residential Electrical (60 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will research the history of electricity
- Students will reason effectively, make judgements and decisions and produce results to show their ability to wire a wall mockup and pass an electrical systems general knowledge exam.
- Students will research the basic electrical concepts as they apply to residential and commercial
- Students will learn to identify various electrical items and their uses in a home (i.e., outlets, switches, etc.) noting how many of each type is in a typical home
 - Students will compare data with table teams and discuss outcomes - sharing overall outcomes with class
 - Students will then be asked to do a quick comparison of electrical sources found in and around the classroom and lab setting
- Students will be given an 'engineering challenge' to create a simple electrical device using a copper wire and AA battery to show electrical current via motion
 - Students will work in teams to create the project
 - Teams will be timed and will report outcomes to class

11. Unit 11: Concrete Footing Form Construction (35 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will learn and understand the complexities and differences, including uses, of concrete versus cement.
- Students will research the history of concrete and its many uses over time
- Students will research the industrial versus residential applications connected to concrete (noting similarities and differences)

- Students will be provided an 'engineering challenge' to think of various potential improvements or alternatives to using concrete in both residential and commercial applications
- Students will reason effectively, make judgments and decisions and produce results to show their ability to construct in teams the proper shape, forms, and pouring technique needed to make a concrete footing

12. Unit 12: Scaffolding (45 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will create classroom/lab tool use expectations reflective of safety procedures and organizational procedures to create a plan for erecting and dismantling scaffolding to meet a specific need.
- Students will research the history of scaffolding and its use/impact on the building trades over the years
- Students will create various miniature forms of scaffolding using random materials as assigned by the instructor
 - Durability tests will be run to establish which team has constructed the strongest, most stable scaffolding form, noting materials and engineering techniques used
 - The winning team's scaffolding will be on display for trades partners to view and critique
- Using the historical references noted from previous work, students will be provided with a 're-engineering challenge' to consider: new materials: eco-friendly, stronger, lighter, etc., that may be used for scaffolding in the future

13. Unit 13: Rigging and Workplace Safety (25 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Students will prepare questions regarding safety and welfare to ask on site visit and to guest industry speakers.
- Students will locate, interpret, and apply MSDS (SOS) information when asked by instructor, e.g., a site evaluation/inspection as occurs in industry.
- Students will demonstrate safety knowledge daily through proper utilization of safety tools of the trade.
- Students will create posters and 1–2 minute safety videos to be presented to current students and shared with future apprenticeship students
- Students will create a video explaining how ropes, chains, hoists, loaders, and cranes are used to move material and equipment from one location to another on a job site.
- Students will demonstrate knowledge of American National Standards Institute (ANSI) hand signals.
- Students will continue to build portfolio of learning including reflections, pictures, media, certificates, and physical fitness progress.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees
- Students will participate in career-connected learning through a visit to an associated trades pre-apprenticeship, apprenticeship or community college as well as a visit to a job site

14. Unit 14: Skilled Trades Career Exploration (30 hours)

Curriculum Elements:

- Industry/occupation-specific safety training and education
- Employability skill development
- Industry/trade-specific skills and knowledge

a. Primary Learning Objective

- Student will participate in Interview Process that requires: Planning and Organizing, Work Ethic and initiative, Flex and adaptability
- Students will be prepared in work attire each day with: Boots, Gloves, Safety Glasses, Pen and Pencil
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees
- Students will present to instructor and class their current career aspirations and the path to achieving the aspiration

- Students will create a High School and Beyond Plan. Using career research tools, students will prepare a presentation covering their personal interests, aptitudes, and abilities and cross reference potential career pathways that appeal to them. The report should include an assessment of personal strengths for success in that particular field and an educational/work plan to achieve a position in the field.
- Students will research and evaluate skilled trades careers. Their evaluation will include education needed, potential for employment, range of wages and benefits, working conditions, specialized skills and/or certifications required. The presentation must include a first-hand account of someone in the field.
- Students will visit a trades pre-apprenticeship, apprenticeship, or post-secondary training facility. Research positions open within the trade visited. Compare/contrast their descriptions, duties, and expectations.
- Students will rotate leading class in physical agility activities that reflect the expectations of the trade studied in the unit
- Students will listen to and reflect on the skills guest speakers from the trades and industry expect from employees

RF
Teri Gardner 6-5-23

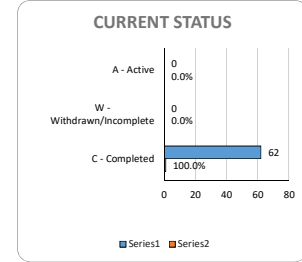
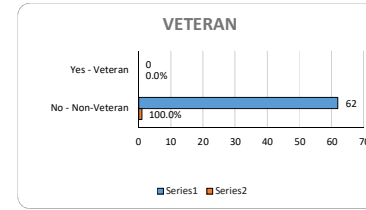
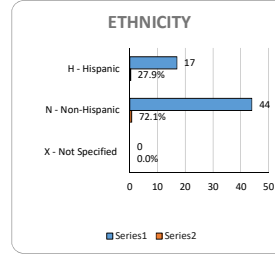
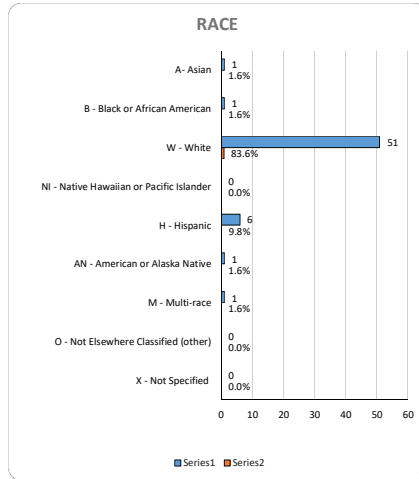
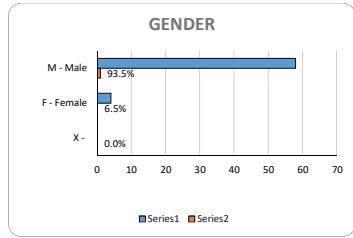
Preparatory Program Name: Regional Apprenticeship Pathways	Total Number of Participants: 63	Washington State Department of Labor & Industries
Reporting Period, Earliest Date: 9/1/2019	Total Participant Graduates: 62	
Reporting Period, Latest Date: 6/30/2022	Total Withdrawals/Incomplete: 0	
Total Grad's Articulated into Reg' Apprenticeship: 5		

**Please refer to the instructions tab for information on how to properly complete this document.*

Participant Information - Total of Cohorts										Registered Apprenticeship Articulation Information			
Last	First	Birth	Gender	Race	Ethnicity	Veteran	Cohort	Current	Graduation	Registered	Occupation	Date of	Apprentice
63	63	62	63	62	62	63	63	63	63	5	5	5	5

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Articulation Rate
7.94%



Teri Gardner 6-5-23

**Memorandum of Understanding
Between
Marysville School District
And Regional Apprenticeship
Pathways Center Trades Partner:
CEMENT MASONS &
PLASTERERS TRAINING
CENTERS OF WASHINGTON**

This is an agreement by and between the Marysville School District and the Regional Apprenticeship Pathways (RAP) Center Trades Partner, **CEMENT MASONS & PLASTERERS TRAINING CENTERS OF WASHINGTON**, who shall herein be referred to as the RAP Center Trades Partner.

The RAP Center is operated by the Marysville School District. This agreement is made to provide RAP Center graduates the opportunity to interview with the RAP Center Trades Partner, **CEMENT MASONS & PLASTERERS TRAINING CENTERS OF WASHINGTON**, after completing the RAP pre-apprenticeship program delivered through a collaborative partnership between the Marysville School District, Everett Community College (EvCC), and RAP Trades Partners. It is the intent of this cooperative effort to provide RAP students from sending high schools in Snohomish County and EvCC students with a training program designed to deliver industry-specific coursework directly tied to apprenticeship competencies to enhance apprenticeship completion and employment opportunities. RAP students will also be eligible to earn credits toward the completion of a high school diploma from their home school district, college credit(s), and credential(s) from EvCC, where applicable.

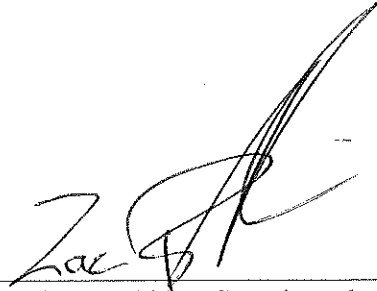
NOW, THEREFORE, it is agreed by and between the Marysville School District and the RAP Center Trades Partner as follows:

1. RAP Center Trades Partner agrees to provide ongoing, consistent representation on the RAP Center Program Advisory Committee. This committee includes representatives from the RAP Trades Partners, industry, school districts, EvCC, and government representation. All parties will collaborate in the students' skill and knowledge development and career exploration opportunities. In addition, all parties will advertise the RAP Center to industry partners, the community, and other stakeholders.
2. One or more of the following considerations for graduates of the prep program:
 - a) A Preferred Entry clause
 - b) An Advanced Standing or Credit clause
 - c) Additional points awarded in the application/interview process
 - d) Guaranteed interview with Registered Apprenticeship Program. An interview with the RAP Center Trades Partner shall be granted through this agreement. An interview means that RAP Center graduates who, because of the quality of preparation at the RAP Center, meeting the criteria identified below in Section 5, will receive an interview.

4. The courses articulated for an interview and credit are outlined below.
5. Requirements for consideration by the **CEMENT MASONS & PLASTERERS TRAINING CENTERS OF WASHINGTON** include:
 - a. RAP Center program will appear on the student's transcript.
 - b. Demonstration of acquired skills via testing and skills assessments as required by the RAP Center Trades Partner.
 - c. Graduates must demonstrate proficiency in industry specific math fundamentals, including algebra, fractions, decimals, and other industry related mathematical skills as required by the RAP Center Trades Partner.
6. RAP graduates applying for an interview shall submit to the RAP Center Trades Partner:
 - i. Core Plus certificate (documenting 80% of course competencies met or exceeded)
 - ii. A copy of their high school diploma
 - iii. A letter of recommendation from the RAP program instructor and/or oversight administrator
 - iv. Additional certifications may include: OSHA, First Aid/CPR/AED, EvCC's AMTEC Manufacturing Pre-Employment Certificate, Career Connections
7. Current RAP Pre-Apprenticeship Units of Study include:
 - Unit 1: Introduction to Construction
 - Unit 2: Materials Science
 - Unit 3: Construction Tools
 - Unit 4: Construction Safety
 - Unit 5: Construction Measurement
 - Unit 6: Introduction to Drawings, Print Reading, and Layout
 - Unit 7: Construction Math
 - Unit 8: Applied Physics
 - Unit 9: Construction Rigging
 - Unit 10: Hydraulics
 - Unit 11: Fasteners
 - Unit 12: Electricity in Construction
 - Unit 13: Company Organization and Operations
 - Unit 14: Planning and Scheduling
 - Unit 15: Estimating
 - Unit 16: Capstone Project
8. All parties agree to evaluate this agreement every five years in the context of student benefits, program alignment, and effectiveness.
9. This agreement shall begin in alignment with the dates of the Marysville School District calendar year of the year in which it is signed.
10. The RAP Center referrals will demonstrate retention within the program, contribute to the diversity needs of Snohomish County, Washington State, and the trades industry by referring qualified candidates from non-traditional and underrepresented populations.

11. This agreement is subject to change or cancelation by any party with written notice to the RAP Center administration. Written notice of change or cancelation of the partnership must occur no later than 90 days prior to the start of the next calendar school year. Notice outside of the aforementioned window will be viewed as a breach of the agreement.

The undersigned parties accept and approve THIS AGREEMENT



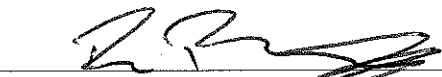
Zachary Robbins, Superintendent
Marysville School District #25

5.23.23
Date



Anne Carnell, Director of Regional Apprenticeship Pathways
Marysville School District #25

5-22-23
Date



Ryan Beatty, Director of College and Career Readiness
Marysville School District #25

5.23.23
Date



Justin Palachuk, Business Agent
CEMENT MASONS & PLASTERERS TRAINING CENTERS OF WASHINGTON

5.22.2023
Date

Marysville School District No. 25
4220 80th Street NE – Marysville, WA 98270
360-965-0026
Engage. Inspire. Prepare.

Teri Gardner 6-5-23

Memorandum of Understanding
Between
Marysville School District
And
Regional Apprenticeship Pathways Center Trades Partner:
Greater Western Washington Pipe Trades Apprenticeship Committee

This is an agreement, by and between the Marysville School District and the Regional Apprenticeship Pathways (RAP) Center Trades Partner Greater Western Washington Pipe Trades Apprenticeship Committee, who shall herein be referred to as the RAP Center Trades Partner.

The RAP Center is operated by the Marysville School District. This agreement is made to grant successful RAP Center graduates an interview with the RAP Center Trades Partner after completing a pre-apprenticeship program delivered through a collaborative partnership between the Marysville School District, Everett Community College (EvCC), and RAP Trades Partners. It is the intent of this cooperative effort to provide RAP students from sending high schools in Snohomish County, and EvCC students, with a training program designed to deliver industry-specific course work directly tied to apprenticeship competencies to enhance apprenticeship completion and employment opportunities. RAP students will also be eligible to earn credits toward the completion of a high school diploma from their home school district, college credit(s) and credential(s) from EvCC where applicable.

NOW, THEREFORE, it is agreed by and between the Marysville School District and the RAP Center Trades Partner as follows:

1. RAP Center Trades Partner agrees to provide ongoing, consistent representation on the RAP Center Program Advisory Committee. This committee includes representatives from the RAP Trades Partners, industry, school districts, EvCC, and government representation. All parties will collaborate in the students' skill and knowledge development and career exploration opportunities. In addition, all parties will advertise the RAP Center to industry partners, the community, and other stakeholders.
2. An interview with the RAP Center Trades Partner may be granted through this agreement. An interview with the RAP Center Trades Partner means that RAP Center graduates who, because of the quality of preparation at the RAP Center, meeting the criteria identified below in Section 2, may be granted an interview with the RAP Center Trades Partner. An interview with the RAP Center Trades Partner does

not constitute a guarantee of admission for any student into the trades apprenticeships. The granting of an interview with the RAP Center Trades Partner is contingent upon the joint cooperation of the RAP Center and RAP Center Trades Partner's Apprenticeship.

3. An interview with the RAP Center Trades Partner will be contingent on the current employment needs of the specific industry directly tied to the apprenticeship of interest.
4. The courses articulated and credit are outlined below. Requirements for an opportunity to interview include:
 - a. RAP Center program will appear on the student's transcript.
 - b. An interview may be granted to students who meet or exceed standard on 80% of the Core Plus course competencies as approved by the Office of the Superintendent of Public Instruction.
 - c. Demonstration of acquired skills via testing and skills assessments as required by the RAP Center Trades Partner.
 - d. Students must demonstrate proficiency in basic math fundamentals, specifically fractions and decimals as required by the RAP Center Trades Partner.
 - e. RAP graduates applying for the opportunity to interview will submit to the RAP Center Trades Partner:
 - i. A copy of their Core Plus certificate (documenting 80% of course competencies met or exceeded)
 - ii. A copy of their high school diploma
 - iii. A letter of recommendation from the RAP program instructor and/or oversight administrator
 - iv. A copy of their OSHA certification
 - v. A copy of their First Aid/CPR/AED certificate
5. Current RAP Pre-Apprenticeship Units of Study include:
 - Unit 1: Introduction to Construction
 - Unit 2: Materials Science
 - Unit 3: Construction Tools
 - Unit 4: Construction Safety
 - Unit 5: Construction Measurement
 - Unit 6: Introduction to Drawings, Print Reading, and Layout
 - Unit 7: Construction Math and Estimation
 - Unit 8: Applied Physics
 - Unit 9: Construction Rigging
 - Unit 10: Foundations
 - Unit 11: Floor Systems, Roof framing and cladding, Fasteners
 - Unit 12: Electricity and Plumbing
 - Unit 13: Company Organization and Operations
 - Unit 14: Planning, Scheduling, and Project Closeout
 - Unit 15: Portfolio Review
 - Unit 16: Capstone Project

6. All parties agree to evaluate this agreement every five years in the context of student benefits, program alignment, and effectiveness.
7. This agreement shall begin in alignment with the dates of the Marysville School District calendar year of the year in which it is signed.
8. The RAP Center referrals will demonstrate retention within the program, contribute to the diversity needs of Snohomish County, Washington State, and the trades industry by referring qualified candidates from non-traditional and underrepresented populations.
9. This agreement is subject to change or cancellation by any party with written notice to the RAP Center administration. Written notice of change or cancellation of the partnership must occur no later than 90 days prior to the start of the next calendar school year. Notice outside of the aforementioned window will be viewed as a breach of the agreement.

The undersigned parties accept and approve THIS AGREEMENT



Dr. Christopher Pearson, Acting Superintendent
Marysville School District #25

05/19/22
Date



Ryan Santeford
Training Director, GWWPT, UA Local 26

05/06/2022
Date

Marysville School District No. 25
4220 80th Street NE – Marysville, WA 98270
360-965-0026
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