



Teri Gardner 2-26-24



**APPRENTICESHIP PROGRAM STANDARDS**  
adopted by

**CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON –  
MECHANICAL INSULATOR**

(sponsor name)

Occupational Objective(s):

SOC#

Term [WAC 296-05-015]

**MECHANICAL INSULATOR**

**47-2132.00**

**10,000 HOURS**



**APPROVED BY**  
**Washington State Apprenticeship and Training Council**  
**REGISTERED WITH**  
**Apprenticeship Section of Fraud Prevention and Labor Standards**  
Washington State Department Labor and Industries  
Post Office Box 44530  
Olympia, Washington 98504-4530

**APPROVAL:**

\_\_\_\_\_  
Provisional Registration

\_\_\_\_\_  
Standards Last Amended

\_\_\_\_\_  
Permanent Registration

By: \_\_\_\_\_  
Chair of Council

By: \_\_\_\_\_  
Secretary of Council

# CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

## INTRODUCTION

This document is an apprenticeship program standard. Apprenticeship program standards govern how an apprenticeship works and have specific requirements. This document will explain the requirements.

The director of the Department of Labor and Industries (L&I) appoints the Washington State Apprenticeship and Training Council (WSATC) to regulate apprenticeship program standards. The director appoints and deputizes an assistant director to be known as the supervisor of apprenticeship who oversees administrative functions through the apprenticeship section at the department.

The WSATC is the sole regulatory body for apprenticeship standards in Washington. It approves, administers, and enforces apprenticeship standards, and recognizes apprentices when either registered with L&I's apprenticeship section, or under the terms and conditions of a reciprocal agreement. WSATC also must approve any changes to apprenticeship program standards.

Apprenticeship programs have sponsors. A sponsor operates an apprenticeship program and declares their purpose and policy herein to establish an organized system of registered apprenticeship education and training. The sponsor recognizes WSATC authority to regulate and will submit a revision request to the WSATC when making changes to an apprenticeship program standard.

Apprenticeships are governed by federal law (29 U.S.C 50), federal regulations (29 CFR Part 29 & 30), state law (49.04 RCW) and administrative rules (WAC 296-05). These standards conform to all of the above and are read together with federal and state laws and rules

Standards are changed with WSATC approval. Changes are binding on apprentices, sponsors, training agents, and anyone else working under an agreement governed by the standards. Sponsors may have to maintain additional information as supplemental to these standards. When a standard is changed, sponsors are required to notify apprentices and training agents. If changes in federal or state law make any part of these standards illegal, the remaining parts are still valid and remain in force. Only the part made illegal by changes in law is invalid. L&I and the WSATC may cooperate to make corrections to the standards if necessary to administer the standards.

Sections of these standards identified as bold “**insert text**” fields are specific to the individual program standards and may be modified by a sponsor submitting a revised standard for approval by the WSATC. All other sections of these standards are boilerplate and may only be modified by the WSATC. See WAC 296-05-003 for the definitions necessary for use with these standards.

Sponsor Introductory Statement (Required):

**The following apprenticeship standards for the development of apprentices in the mechanical insulation trade along with the Related Supplemental Instruction (RSI) have**

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been prepared by representatives in the mechanical insulation trades, the National Center for Construction Education and Research and partners, with the assistance of the Apprenticeship Section of the Washington State Department of Labor and Industries.

### **I. GEOGRAPHIC AREA COVERED:**

The sponsor must train inside the area covered by these standards. If the sponsor wants to train outside the area covered by these standards, the sponsor must enter a portability agreement with a sponsor outside the area, and provide evidence of such an agreement for compliance purposes. Portability agreements permit training agents to use apprentices outside the area covered by the standards. Portability agreements are governed by WAC 296-05-009.

**The area covered by these Standards shall be the state of Washington and Idaho.**

**Applicants and apprentices please note that while the State of Washington has no responsibility or authority in the State of Idaho, CITC's Mechanical Insulator Committee will apply the same standards and guidelines to apprentices registered in the program while working in the State of Idaho.**

**For the purposes of these standards, Region 1 (Western Washington), Region II (Eastern Washington), Region III (Southwestern Washington), and Region IV (Central Washington) contain the following counties:**

- Region I: San Juan, Island, Kitsap, Whatcom, Skagit, Snohomish, King, Pierce, Lewis, Pacific, Thurston, Grays Harbor, Mason, Jefferson, and Clallam.**
- Region II: Ferry, Stevens, Pend Oreille, Lincoln, Spokane, Adams, Whitman, Garfield, Columbia, and Asotin.**
- Region III: Wahkiakum, Cowlitz, Skamania, Clark, and Klickitat.**
- Region IV: Franklin, Walla Walla, Okanogan, Chelan, Douglas, Kittitas, Grant, Yakima, and Benton.**

### **II. MINIMUM QUALIFICATIONS:**

Minimum qualifications must be clearly stated and applied in a nondiscriminatory manner [WAC 296-05-015(17)].

- Age: Must be at least 18 years of age (proof of age required).**
- Education: Must be a high school graduate or have a passing grade on an official high school equivalency test. Applicants must supply the Apprenticeship Committee with proof of graduation from high school**

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or their official high school equivalency test scores. College transcripts will be accepted in lieu of high school transcripts with a high school diploma or High School Equivalency certificate. Only transcripts will be accepted.

Physical: **Must be physically able to perform the work of the trade with or without reasonable accommodation.**

Testing: **None**

Other: **Applicants shall submit proof of the education and age qualifications to the Committee before their applications will be considered completed. This must be done within sixty (60) days of date of application. Applicants not completing the application within sixty (60) days will be required to reapply.**

### **III. CONDUCT OF PROGRAM UNDER WASHINGTON EQUAL EMPLOYMENT OPPORTUNITY PLAN:**

Sponsors with five (5) or more apprentices must adopt an Equal Employment Opportunity (EEO) Plan and Selection Procedure (chapter 296-05 WAC and 29 CFR Part 30).

The recruitment, selection, employment and training of apprentices during their apprenticeship shall be without discrimination because of race, sex (including pregnancy and gender identity), sexual orientation, color, religion, national origin, age, genetic information, disability or as otherwise specified by law. The sponsor shall take positive action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required by the rules of the Washington State Apprenticeship and Training Council and Title 29, Part 30 of the Code of Federal Regulations.

#### **A. Selection Procedures:**

- 1. Applications can be filled out online and are available year-round, unless otherwise determined by the Committee at <https://citwa.org/apprenticeship/online-apprenticeship-application/> Individuals who do not have access to the internet may call CITC at (425) 454-2482 and request an application be mailed to them.**

**Applications can also be obtained by calling (425) 454-2482. All applications submitted must have the original signature of the applicant. Applications must be hand delivered or delivered via US Post or other courier within 14 days of the applicant's request for application. The application must be sent to: CITC, 1930 116<sup>th</sup> Ave. NE, Bellevue WA 98004. Faxed or e-mailed applications will not be accepted. Applications are accepted year-round unless otherwise determined by the Committee.**

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2. After acceptance as an applicant by completing the application and providing the required information relating to meet the minimum requirements, an applicant will be scheduled for an interview. Interviews will be held in January, April, June, and September.
3. The Committee will determine the number of applicants to be accepted prior to holding interviews.
4. In January and June, applicants will be placed in rank order. Applicants being interviewed in April and September will not be ranked and placed on the Ranked Eligibility Pool until the following January or June, unless there are no available applicants on the list.
5. In January and June, any applicants remaining in the Ranked Eligibility Pool will be re-contacted to determine their continued eligibility, willingness and commitment to being registered and referred for work. All applicants will then be re-ranked in the Ranked Eligibility Pool every six months.
6. Employers may request women and minority apprentices in order to meet their own contractual affirmative action requirements for public works projects or other projects with affirmative action requirements.
7. A company who becomes a training agent with CITC must register their non-journey level employees performing the scope of work as defined by these standards as apprentices within 30 days of the Company's registration date as an approved training agent.
8. CITC's Training Agents may incorporate their employment practices with applicants and apprentices from the pool.
9. The Interview Session:
  - a. The interview committee shall have in its possession for review with regard to each applicant: application form, education transcript and proof of birth date.
  - b. Each applicant shall be interviewed by members or designated representatives of the Committee.
  - c. After a brief introduction, the Committee will ask questions of the applicant with the purpose of finding out as much as possible about him/her as an individual and about his/her capacity to participate in apprenticeship.

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- d. Questions for the interview and for purposes of evaluation will be on topics related to job performance such as: work experience, mechanical abilities, and motivation.
  - e. Evaluation must be based on a standard of industry needs, and not by a comparison with other applicants.
  - f. Evaluation of the interview will be based on Excellent, Good, Fair, Poor, and Unacceptable responses on each topic.
  - g. Excellent will be given a numerical range of 16 to 20; Good will be given a numerical range of 11 to 15; Fair will be given a numerical range of 6 to 10; Poor will be given a numerical range of 1 to 5; Unacceptable will be given a zero value. Any applicant who has 50% or more unacceptable responses will not be considered for apprenticeship.
  - h. Answers to questions must be recorded during the interview to produce a record for the applicant's file.
  - i. All applicants must be asked the same questions.
10. Upon acceptance following the interview process, applicants will be asked to complete a "Regional Referral Availability Form" indicating the region(s) in which the applicant is willing to work. A revised/updated version of this form may be submitted by the applicant at any time. Failure to submit a form will result in the applicant committing to employment anywhere within the state of Washington.
  11. Applicants shall be referred to employment with a Training Agent based on the following criteria: (1) overall ranking based on highest score; (2) the region(s) in which the applicant has defined as an acceptable area for employment; and (3) response to the referral contact within 24 hours of the initial referral. If the applicant does not respond to the employment referral the applicant will be dropped to the bottom of the Ranked Eligibility Pool.
  12. If the applicant does not respond to the CITC apprenticeship office with 10 days, the applicant will be removed from the Ranked Eligibility Pool and will need to reapply to the program.
  13. It is the applicant's responsibility to keep his or her current address and contact information on file with the Committee.
  14. Exceptions: Individuals qualifying for Direct Entry under the exception methods described below may have the minimum qualification requirements waived at the discretion of the committee or designee, unless otherwise stated below.

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- a. **Individuals who are currently employed by an approved training agent under an employment category or classification other than the occupation covered by these standards whose position or classification is being revised by the employer to another occupation covered by these standards may receive direct entry into the apprenticeship program. For entry into the program, the applicant must have been employed by the training agent in the original classification a minimum of 6 consecutive months immediately preceding the revision and submit letters of support by their employer. This provision can only be utilized by employers two (2) times per year and up to a total of four (4) employees in a 12-month period unless the dispatch referral is empty. Employers may request the Committee to waive this stipulation if they can show a compelling reason as to why it should be lifted.**
- b. **Individuals relocating from another SAC/ATELS approved apprenticeship program may receive direct entry into the apprenticeship program providing he or she is in good standing with the program from which they are transferring. The apprentices must formally request by letter that the committee accept their transfer and provide official documentation pertaining to their apprenticeship program from which they are transferring. The Committee will examine all documentation submitted prior to granting the transfer for registration into the apprenticeship program.**
- c. **Military veterans who have completed military technical training or who have participated in a registered apprenticeship program or involved with Helmets to Hardhats while in the military in the trade covered by these standards may be given direct entry.**
- d. **Registered Native Americans who have secured work under TERO project may receive direct entry into apprenticeship.**
- e. **Graduates of committee approved programs such as Job Corps may receive direct entry to direct referral.**
- f. **Actively enrolled CITC craft training students who are currently pursuing the trade covered by these standards and who are in good standing with their grades may receive direct entry into the apprenticeship program.**

### B. Equal Employment Opportunity Plan:

1. **Participation in annual workshops, if available, designed to familiarize all concerned with the apprenticeship system and current opportunities.**



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2. **Cooperate with school boards, community colleges, and vocational schools to develop programs which prepare students for entrance into apprenticeship.**
3. **Disseminate information, within shops or concerns, concerning equal opportunity policies of the program's Sponsor(s).**
4. **Engage in such programs designed to recruit, pre-qualify, and place minorities and women (minority and non-minority) in apprenticeship.**
5. **To encourage establishment and use of pre-apprenticeship preparatory trade training and to provide that those who engage in such programs are given full and equal opportunity for admission into the apprenticeship program.**
6. **Use minority and women (minority and non-minority) journeypersons and apprentices to promote the program.**

### C. Discrimination Complaints:

Any apprentice or applicant for apprenticeship who believes they have been discriminated against may file a complaint with the supervisor of apprenticeship (WAC 296-05-443).

## IV. TERM OF APPRENTICESHIP:

The term of apprenticeship for an individual apprentice may be measured through the completion of the industry standard for on-the-job learning (at least two thousand hours) (time-based approach), the attainment of competency (competency-based approach), or a blend of the time-based and competency-based approaches (hybrid approach) [WAC 296-05-015].

**The term of apprenticeship for Mechanical Insulator shall not be less than 10,000 hours of reasonably continuous employment.**

## V. INITIAL PROBATIONARY PERIOD:

An initial probationary period applies to all apprentices, unless the apprentice has transferred from another program. During an initial probationary period, an apprentice can be discharged without appeal rights. An initial probationary period is stated in hours or competency steps of employment. The initial probationary period is not reduced by advanced credit or standing. During an initial probationary period, apprentices receive full credit for hours and competency steps toward completion of their apprenticeship. Transferred apprentices are not subject to additional initial probationary periods [WAC 296-05-003].

The initial probationary period is [WAC 296-05-015(22)]:

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- A. the period following the apprentice's registration into the program. An initial probationary period must not be longer than twenty percent of the term of the entire apprenticeship, or longer than a year from the date the apprenticeship is registered. The WSATC can grant exemptions for longer initial probationary periods if required by law.
- B. the period in which the WSATC or the supervisor of apprenticeship may terminate an apprenticeship agreement at the written request by any affected party. The sponsor or the apprentice may terminate the agreement without a hearing or stated cause. An appeal process is not available to apprentices in their initial probationary period.

**The first 2000 hours of employment shall constitute the initial probationary period. During the period, the apprenticeship registration may be canceled by either party without the formality of a hearing. The Registration Agency shall be notified of such cancellation.**

**During the initial probationary period, the Committee shall make a thorough review of the apprentice's ability and development. Prior to the end of the first 2000 hours of employment, action must be taken on each probationary apprentice to end the probation or cancel the registration. All interested parties shall be notified of such action.**

### VI. RATIO OF APPRENTICES TO JOURNEY LEVEL WORKERS

Supervision is the necessary education, assistance, and control provided by a journey-level employee on the same job site at least seventy-five percent of each working day, unless otherwise approved by the WSATC. Sponsors ensure apprentices are supervised by competent, qualified journey-level employees. Journey level-employees are responsible for the work apprentices perform, in order to promote the safety, health, and education of the apprentice.

- A. The journey-level employee must be of the same apprenticeable occupation as the apprentice they are supervising unless otherwise allowed by the Revised Code of Washington (RCW) or the Washington Administrative Code (WAC) and approved by the WSATC.
- B. The numeric ratio of apprentices to journey-level employees may not exceed one apprentice per journey-level worker [WAC 296-05-015(5)].
- C. Apprentices will work the same hours as journey-level workers, except when such hours may interfere with related/supplemental instruction.
- D. Any variance to the rules and/or policies stated in this section must be approved by the WSATC.
- E. The ratio must be described in a specific and clear manner, as to the application in terms of job site, work group, department or plant:

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The ratio shall not exceed one (1) apprentice to three (3) journey-level workers on the job site.

A job site is considered to be the physical location where the employees report for their work assignments. The employer's shop (service center) is considered to be a separate, single job site. All other physical locations where workers report for work are each considered to be a single, separate job site.

### VII. APPRENTICE WAGES AND WAGE PROGRESSION:

- A. Apprentices must be paid at least Washington's minimum wage, unless a local ordinance or a collective bargaining agreement require a higher wage. Apprentices must be paid according to a progressively increasing wage scale. The wage scale for apprentices is based on the specified journey-level wage for their occupation. Wage increases are based on hours worked or competencies attained. The sponsor determines wage increases. Sponsors must submit the journey-level wage at least annually or whenever changed to the department as an addendum to these standards. Journey-level wage reports may be submitted on a form provided by the department. Apprentices and others should contact the sponsor or the Department for the most recent Journey-level wage rate.
- B. Sponsors can grant advanced standing, and grant a wage increase, when apprentices demonstrate abilities and mastery of their occupation. When advanced standing is granted, the sponsor notifies the employer/training agent of the wage increase the apprenticeship program standard requires.

#### C. Mechanical Insulator

**Each period shall be 2000 hours.**

**During the first year of approval, the journey-level base rate for Mechanical Insulator will be Washington State's Occupational Employment & Wages 2023 released rate from ESD at the 75<sup>th</sup> percental for a Mechanical Insulator. This rate will be used to determine the minimum wage rate for apprentices performing non-prevailing wage work. The Seattle/Tacoma/Bellevue rate will determine the Region 1 journey-level base rate, the Portland/Vancouver rate will determine the Region 3 journey-level base rate, and the Kennewick/Richland rate will determine the journey-level base rate for Regions 2 and 4. Employers reserve the right to pay apprentices more than the minimum apprentice wage established by each step in the chart below; however, they may not pay the apprentice less.**

**After the first year of approval, the journey-level rate for Mechanical Insulator will be the average journey-level rate for all the employers participating in the Mechanical Insulator program. Once each year, all participating employers will be surveyed for the average wage rate of their Mechanical Insulator journey workers performing non-prevailing wage work in each region. These wage rates will then be**

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averaged to determine the journey-level base rate to establish a minimum hourly base rate for each step a Mechanical Insulator apprentice will be paid. Employers reserve the right to pay apprentices more than the minimum hourly base rate established for each step, but they may not pay less. The survey forms will be signed by the company owner/officer and will become official records of the Committee.

Step	Hour Range or competency step	Percentage of journey-level wage rate
1	0000 - 2000 hours	55%
2	2001 - 4000 hours	65%
3	4001 - 6000 hours	75%
4	6001 - 8000 hours	85%
5	8001 - 10,000 hours	95%

### VIII. WORK PROCESSES:

The apprentice shall receive on the job instruction and work experience as is necessary to become a qualified journey-level worker versed in the theory and practice of the occupation covered by these standards. The following is a condensed schedule of work experience, which every apprentice shall follow as closely as conditions will permit. The following work process descriptions pertain to the occupation being defined.

#### A. **Mechanical Insulator** Approximate Hours/Competency Level

##### Application of Insulation Material and their Finishes

1. **Commercial.....2700**  
**Heating-Airconditioning (Ducts covering and linings including plenums). Fire stops and Fire proofing penetrations.**
2. **Industrial and Process Plant.....2850**  
**Piping, vessels, equipment, etc. (breechings, boiler, hoppers, pumps, storage tanks, etc.) Fire stops and Fire proofing penetrations.**
3. **Refrigeration and Low Temperature.....1400**  
**(piping, equipment, vessels and tanks, etc.)**
4. **Ship and Marine Work.....2240**  
**(Piping, equipment, intakes, exhausts, heat exchangers conditional air ducts, potable water, saltwater flushing)**
5. **Prefabrication.....800**  
**(Fittings, heads, pads, thermal tapes, miters, layouts, and rolled materials)**

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6. Work safety awareness, PPE and tool safety in High hazard areas.....10

**TOTAL HOURS: 10,000**

**IX. RELATED/SUPPLEMENTAL INSTRUCTION:**

The apprentice must attend related/supplemental instruction (RSI). Time spent in RSI shall not be considered as hours of work and the apprentice is not required to be paid.

RSI must be provided in safe and healthy conditions as required by the Washington Industrial Safety and Health Act and applicable federal and state regulations.

Hours spent in RSI are reported to L&I each quarter. Reports must show which hours are unpaid and supervised by a competent instructor versus all other hours (paid and/or unsupervised) for industrial insurance purposes.

For purposes of coverage under the Industrial Insurance Act, the WSATC is an employer and the apprentice is an employee when an unpaid, supervised apprentice is injured while under the direction of a competent instructor and participating in RSI activities.

If apprentices do not attend required RSI, they may be subject to disciplinary action by the sponsor.

A. The methods of related/supplemental training must be indicated below (check those that apply):

Supervised field trips

Sponsor approved training seminars (specify)

**Would include, but are not limited to:**

- **OSHA 10**
- **CPR/First Aid**
- **RSO – High Hazard (20 hours)**
- **Various approved training seminars approved by the Committee and manufacturer specific training**

Sponsor approved online or distance learning courses (specify)

**Would include, but are not limited to:**

- **National Center for Construction Education and Research**
- **Courses approved by the Committee**

State Community/Technical college

Private Technical/Vocational college

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Sponsor Provided (lab/classroom)

Other (specify): **The Construction Industry Training Council, a private vocational school licensed by the Workforce Training and Coordinating Board of the State of Washington.**

B. **160** Minimum RSI hours per year defined per the following [see WAC 296-05-015(6)]:

Twelve-month period from date of registration.\*

Defined twelve-month school year: **September** through **June**.

Two-thousand hours of on the job training.

*\*If no selection is indicated above, the WSATC will define RSI hours per twelve-month period from date of registration.*

C. Additional Information:

**Safety instruction is included in every quarter's curriculum of this craft.**

### X. ADMINISTRATIVE/DISCIPLINARY PROCEDURES:

A. Administrative Procedures:

The sponsor may include in this section a summary and explanation of administrative actions performed at the request or on the behalf of the apprentice. Such actions may include but are not limited to:

1. Voluntary Suspension: A temporary interruption in progress of an individual's apprenticeship agreement at the request of the apprentice and granted by the sponsor. The program sponsor shall review apprentices in suspended status at least once each year to determine if the suspension is still appropriate.
2. Advanced Standing or Credit: The sponsor may provide for advanced standing or credit for demonstrated competency, acquired experience, training or education in or related to the occupation. All sponsors need to ensure a fair and equitable process is applied to all apprentices seeking advanced standing or credit per WAC 296-05-015(11).
3. Sponsor Procedures:

#### Administrative Procedures:

- a. **All Committee members shall be actively participating in the industry as an employer, supervisor, or employee.**

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- b. The Vice President of Apprenticeship oversees the day-to-day operations of the program under the auspices of the Apprenticeship Committee.**
- c. The Committee may accelerate or extend, through the evaluation process, the advancement of an apprentice in each wage progression period.**
- d. When an apprentice is notified that an employment referral is available, he/she must be able to report to work within 24 hours. If the apprentice cannot respond in a timely fashion, the next apprentice on the list may be offered the referral. If an apprentice does not respond to a dispatch, he/she may drop to the bottom of the referral list.**
- e. If an apprentice refuses an employment referral, he/she may be dropped to the bottom of the referral list.**
- f. An apprentice who has been issued a refuse to rehire notice will be interviewed by the Apprenticeship Coordinator, who will review the circumstances and outline corrective steps leading to successful employment. A second refusal to rehire for the same apprentice will result in a committee citation where the apprentice may be dropped from the program.**
- g. All apprentices must be released from "on-the-job" commitments to attend scheduled related instruction.**
- h. An apprentice who is discharged by three (3) employers for the reasons set forth in Section X.B.3.g may have his/her apprenticeship agreement canceled.**
- i. The Committee may, at any time, rotate an apprentice who is not receiving proper training or for any reason they feel will benefit the apprentice.**
- j. The apprentice must have a valid driver license.**
- k. Within 24 hours after termination Apprentices will physically report to the closest CITC training facility to sign the dispatch log. If the apprentice is terminated on Friday, they will report by 9 a.m. on the following Monday.**

**Apprentices who reside 50 miles or more away from the closest CITC facility may request a Request for Dispatch form to be mailed, faxed or emailed to them. This request should be directed to the Bellevue office at (425) 454-2482. This form must be requested and returned to the Bellevue office by the apprentice within 24 hours of lay-off or termination. If the apprentice is terminated on Friday, they will contact CITC by 9 a.m. on the following Monday.**

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- l. Classroom instructors shall keep an attendance record of apprentice's actual class hours, which shall be turned in to the CITC Apprenticeship Coordinator at the end of each class period. All records shall note tardiness and early departures and shall be forwarded to the Committee for disposition.**
- m. It is the apprentice's responsibility to keep his or her current address and contact information on file with the Committee.**
- n. An apprentice must have adequate dependable transportation to the job and classroom.**
- o. Apprentices are responsible for the payment of their books for related classroom instruction.**
- p. Each apprentice shall be required to perform assigned tasks in the classroom in accordance with industry standards at the jobsites. The determination by the Apprenticeship Committee of an apprentice's progress and fitness for the trade shall be based in part on the proficiency shown in subjects covered in the related trade instruction as well as on-the-job.**
- q. The employer shall be included in the evaluation process through jobsite observation. Observations will be forwarded to the Committee for review and appropriate action.**
- r. The requirements for advancement are: Regular attendance at related classes, a 70% average minimum grade, satisfactory reports from the employer and journey-level workers, and work experience reports turned in monthly.**
- s. Apprentices may make a complaint to the Apprenticeship Committee for issues pertaining to either related instruction or on-the-job training. The apprentice must submit the complaint in writing to the Vice President of Apprenticeship no later than 10 days prior to the Apprenticeship Committee meeting. The complaint must be submitted in writing within 60 days of the occurrence. The apprentice shall have the right to appear in person before the Committee. The apprentice shall be notified of the decision of the Apprenticeship Committee in writing. All decisions of the Apprenticeship Committee shall be final.**
- t. The Sponsor retains the right to submit revisions to these Standards to the Washington State Apprenticeship and Training Council, according to Council rules.**



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- u. Apprentices may at any time submit a completed Regional Referral Availability Form to the Mechanical Trades Coordinator. Failure to submit a form will result in the apprentice committing to employment anywhere within the state of Washington. Apprentices may contact the Mechanical Trades Coordinator to change their Regional Referral Availability Form at any time.**
- v. Apprentices with previous experience or training in the trade may request to have previous hours accounted for toward their apprenticeship certification. Each individual case would come before the Apprenticeship Committee for review and approval. Apprentices are required to submit previous work experience hours to the committee within 90 days of their registration as an apprentice with these standards. Extension may be requested from the committee by the apprentice.**
- w. Violation of the "CITC Facility Policies and student code of conduct" policies may result in disciplinary action by the Committee, up to and including cancelation from the apprenticeship program:**

### **CITC Facility Policies and student code of conduct**

- 1. Safety is our first concern! There will be no tolerance for unsafe conditions, improper use of hazardous materials or dangerous tools and equipment.**
- 2. All hand tools and power tools shall be maintained in a safe condition and used only for their intended purpose.**
- 3. All students must wear required protective equipment when working with tools or materials where it is required. Anyone not adhering to this policy will be asked to leave the class and will be marked absent from class for that evening.**
- 4. At the end of class or lab each student will be expected to allow enough time for cleanup of their workspace. All tools/materials will be put back in their proper places. All lab areas will be swept clean each evening.**
- 5. All CITC locations are NO SMOKING facilities. There will be no smoking or vaping inside any buildings or near entrances. No smoking is allowed within 25 feet of any entrance.**
- 6. Use of alcohol, illegal drugs or drugs that can impair the safe use of operating equipment before or during class hours may result in immediate dismissal from class and referred to the committee for further action.**
- 7. Possession, consumption and/or sale of controlled substances, alcohol, or firearms before or during class hours on or near any of CITC's training**

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**facilities which include parking areas will result in immediate dismissal from CITC.**

- 8. Physical/verbal abuse, harassment, or insubordination of any type toward CITC staff, fellow classmates and/or the instructor will not be tolerated and will result in immediate dismissal from class and referred to the committee for further action.**

### B. Disciplinary Procedures

1. The obligations of the sponsor when taking disciplinary action are as follows:
  - a. The sponsor shall be responsible for enacting reasonable policies and procedures and applying them consistently. The sponsor will inform all apprentices of their rights and responsibilities per these standards.
  - b. The sponsor shall notify the apprentice of intent to take disciplinary action and reasons therefore 20 calendar days prior to taking such action. The reason(s) supporting the sponsor's proposed action(s) must be sent in writing to the apprentice.
  - c. The sponsor must clearly identify the potential outcomes of disciplinary action, which may include but are not limited to discipline, suspension or cancellation of the apprenticeship agreement.
  - d. The decision/action of the sponsor will become effective immediately.
2. The sponsor may include in this section requirements and expectations of the apprentices and an explanation of disciplinary actions imposed for noncompliance. The sponsor has the following disciplinary procedures to adopt:
  - a. Disciplinary Probation: A time assessed when the apprentice's progress is not satisfactory. During this time the sponsor may withhold periodic wage advancements, suspend or cancel the apprenticeship agreement, or take further disciplinary action. A disciplinary probation may only be assessed after the initial probation is complete.
  - b. Disciplinary Suspension: A temporary interruption in the progress of an individual's apprenticeship agreement. Conditions will include not being allowed to participate in On-the-Job Training (OJT), go to Related Supplemental Instruction (RSI) classes or take part in any activity related to the Apprenticeship Program until such time as the sponsor takes further action. The program sponsor shall review apprentices in such status at least once each year.
  - c. Cancellation: Refers to the termination of an apprenticeship agreement at the request of the apprentice, supervisor, or sponsor. [WAC 296-05-003].

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

### 3. Sponsor Disciplinary Procedures:

#### Disciplinary Procedures:

- a. Apprentices shall be informed of their work and related training obligations as stated in these Standards
- b. Disciplinary problems may first be handled by the Vice President of Apprenticeship. If the Vice President deems appropriate, the matter may be referred to the Committee for action.
- c. The Committee and/or its designate shall notify the apprentice of any violations of these Standards and the apprentice shall be subject to the disciplinary action procedures as outlined below.
- d. Failure to show regular attendance at related classes may be deemed sufficient cause for the Apprenticeship Committee to initiate disciplinary action procedures as outlined below. Regular attendance is defined as not missing more than two classes per quarter. Apprentices who miss more than two (2) classes per quarter may be summoned before the committee for disciplinary action up to and including cancellation of his or her apprenticeship status.
- e. More than two unexcused absences from class during each quarter may be deemed cause by the Committee for the apprentice's completion date being extended an additional three (3) months with a corresponding three (3) months delay in the apprentice's next scheduled increase

Four (4) unexcused absences from class during the quarter may be deemed cause by the committee for the apprentice being dropped from the program.

Two (2) tardies to class is equal to one (1) absence.

#### Excused absences may be allowed for:

*Illness of apprentice*

*Trips and/or vacations. (By prior approval of the Apprenticeship Committee)*

*Death in immediate family*

*Any other reasons deemed appropriate by the Committee*

- f. Apprentices who have missed related instruction, as outlined in these Standards, will not be eligible for advancement until such time as the requirement is satisfied.

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

- g. A contractor may discharge an apprentice for substandard performance, improper conduct, indifference to the contractor's or Committee's rules and regulations, or insubordination.
- h. If an apprentice is fired for cause or quits (after their initial probationary period), he/she will not be dispatched until he/she appears before the Apprenticeship Committee at their next meeting and is subsequently released by the Committee as eligible for work.
- i. It shall be the apprentice's responsibility to maintain a progress record of work experience performed in accordance with the appropriate classification schedule. Such records shall be forwarded by the apprentice to the Vice President of Apprenticeship at the Construction Industry Training Council on the 20th day of each month after they have been signed by the employer or appropriate representative of the employer. The above records shall contain the apprentice's (a) name, (b) classification, (c) employer, (d) months and year of report, as well as hours of work performed. The Vice President of Apprenticeship shall then forward these records to the Apprenticeship Committee prior to each Committee meeting or upon request of the Committee. The work process classifications in which the apprentice has worked each day shall be recorded in the apprentice's record book. The record book is designed with each month in triplicate for the purpose of providing a copy of on the job training for the employer's record, a copy for the apprentice which stays in the book, and the original which is sent to the CITC Vice President of Apprenticeship. The books are available at CITC.
- j. Work experience reports must be turned into the apprenticeship office made out completely and properly, on time. Failure to comply will result in notification of no pay progression until records are completed. The Committee will not accept hours that are more than 90 days past due.
- k. Each apprentice who is late in turning in his/her work experience report will have the following penalties imposed:

<i>First Offense:</i>	Up to 30 days actual work delay in his/her next advancement.
<i>Second Offense:</i>	Up to 60 days actual work delay in his/her work advancement.
<i>Third Offense:</i>	Cause for cancellation of the apprenticeship agreement.

Future advancements will be calculated from the new date.

- l. All other disciplinary action procedures are as follows:  
*1st infraction:* A written warning.

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

**2nd infraction:** Appearance before the Apprenticeship Committee by the apprentice to justify why advancement should not be denied, his/her apprenticeship agreement should not be canceled or whatever other action is being contemplated by the Apprenticeship Committee.

**3rd infraction:** Cause for cancellation of the apprenticeship agreement.

- m. If the apprentice fails to appear before the committee after due notice, disciplinary action may be invoked without hearing.
- n. Should the Apprenticeship Committee find reason to suspend or cancel an apprenticeship agreement, the apprentice shall be notified in writing, specifying the reason for the suspension, cancellation or any disciplinary action. The apprentice shall be notified 20 days in advance of the meeting of the Committee for the purpose of the disciplinary action, suspension, or cancellation.
- o. Individuals who are terminated from the program for cause are prohibited from reapplying to the program for a period of 12 months from the date of their cancellation. After 6 months, the terminated apprentice may request that the committee waive the remaining 6 months. The decision to waive the remaining 6 months will be at the discretion of the committee.
- p. The apprentice shall read Section X in its entirety and be thoroughly familiarized with its content. The apprentice shall keep a copy for ready reference at all times. The apprentice is cautioned that the penalties are enforced and failure to read the regulation will be no excuse.
- q. The Apprenticeship Committee solicits and appreciates any constructive criticism which will further this program.
- r. The terms "apprenticeship committee" or "committee" refer to the apprenticeship committee of the Construction Industry Training Council (CITC), the sponsor of these standards.

### C. Apprentice Complaint Procedures:

1. The apprentice must complete his/her initial probationary period in order to be eligible to file a complaint (WAC 296-05-105).
2. Complaints involving matters covered by a collective bargaining agreement are not subject to the complaint procedures in this section.

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

3. Complaints regarding non-disciplinary matters must be filed with the program sponsor within 30 calendar days from the date of the last occurrence. Complaints must be in writing.
4. If the apprentice disagrees with the resolution of the complaint or wishes to contest the outcome of a disciplinary action by the program sponsor, the apprentice must file a written request for reconsideration with the program sponsor within 30 calendar days from the date the apprentice received written notice of action by the program sponsor.
5. The program sponsor must reply, in writing, to the request for reconsideration within 30 calendar days from the date the program sponsor receives the request. The program sponsor must send a copy of the written reply to the apprentice within the 30 calendar days.
6. If the apprentice disagrees with the program sponsor's decision, the apprentice may file an appeal with the Apprenticeship Program, (WAC 296-05-105). If the apprentice does not timely file an appeal, the decision of the program sponsor is final after 30 calendar days from the date the program sponsor mails the decision to the apprentice. See section "D" below.

### D. Apprentice Complaint Review/Appeals Procedures:

1. If the apprentice disagrees with the program sponsor's decision, the apprentice must submit a written appeal to L&I's apprenticeship section within 30 calendar days from the date the decision is mailed by the program sponsor. Appeals must describe the subject matter in detail and include a copy of the program sponsor's decision.
2. The L&I apprenticeship section will complete its investigation within 30 business days from the date the appeal is received and attempt to resolve the matter.
3. If the Apprenticeship section is unable to resolve the matter within 30 business days, the Apprenticeship section issues a written decision resolving the appeal.
4. If the apprentice or sponsor is dissatisfied with L&I's decision, either party may request the WSATC review the decision. Requests for review to the WSATC must be in writing. Requests for review must be filed within 30 calendar days from the date the decision is mailed to the parties.
5. The WSATC will conduct an informal hearing to consider the request for review.
6. The WSATC will issue a written decision resolving the request for review. All parties will receive a copy of the WSATC's written decision.

## XI. SPONSOR – RESPONSIBILITIES AND GOVERNING STRUCTURE

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

The following is an overview of the requirements associated with administering an apprenticeship program. These provisions are to be used with the corresponding RCW and/or WAC. The sponsor is the policymaking and administrative body responsible for the operation and success of this apprenticeship program. The sponsor may assign an administrator or a committee to be responsible for day-to-day operations of the apprenticeship program. Administrators and/or committee members must be knowledgeable in the process of apprenticeship and/or the application of chapter 49.04 RCW and chapter 296-05 WAC and these standards. If applicable, sponsors must develop procedures for:

### A. Committee Operations (WAC 296-05-009): (Not applicable for Plant Programs)

Apprenticeship committees must be composed of an equal number of management and non-management representatives from a minimum of four to a maximum of twelve members. Committees must convene meetings at least three times per year attended by a quorum of committee members as defined in these approved standards.

### B. Program Operations

The sponsor will record and maintain records pertaining to the administration of the apprenticeship program and make them available to the WSATC or Department upon request. Records required by WAC 296-05-100 will be maintained for five (5) years; all other records will be maintained for three (3) years. Apprenticeship sponsors will submit required forms/reports to the Department of Labor and Industries through one of the two prescribed methods below:

Sponsors shall submit required forms/reports through assigned state apprenticeship consultant.

Or;

Sponsors shall submit required forms/reports through the Apprentice Registration and Tracking System (ARTS), accessed through Secure Access Washington (SAW).

Paper forms as well as ARTS external access forms are available from the sponsor's assigned apprenticeship consultant or online at:

<http://www.lni.wa.gov/TradesLicensing/Apprenticeship/FormPub/default.asp>.

1. The following is a listing of forms/reports for the administration of apprenticeship programs and the time-frames in which they must be submitted:
  - a. Apprenticeship Agreements – within first 30 days of employment
  - b. Authorization of Signature forms - as necessary
  - c. Approved Training Agent Agreements– within 30 days of sponsor action

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

- d. Minutes of Apprenticeship Committee Meetings – within 30 days of sponsor approval (not required for Plant program)
  - e. Request for Change of Status - Apprenticeship/Training Agreement and Training Agents forms – within 30 days of action by sponsor.
  - f. Journey Level Wage Rate – annually, or whenever changed as an addendum to section VII. Apprentice Wages and Wage Progression.
  - g. Related Supplemental Instruction (RSI) Hours Reports (Quarterly):
    - 1st quarter: January through March, due by April 10
    - 2nd quarter: April through June, due by July 10
    - 3rd quarter: July through September, due by October 10
    - 4th quarter: October through December, due by January 10
  - h. On-the-Job Work Hours Reports (bi-annual)
    - 1st half: January through June, by July 30
    - 2nd half: July through December, by January 31
2. The program sponsor will adopt, as necessary, local program rules or policies to administer the apprenticeship program in compliance with these standards. Requests for revision to these standards of apprenticeship must be submitted 45 calendar days prior to a quarterly WSATC meeting. The Department of Labor and Industries, Apprenticeship Section's manager may administratively approve requests for revisions in the following areas of the standards:
- a. Program name
  - b. Sponsor's introductory statement
  - c. Section III: Conduct of Program Under Washington Equal Employment Opportunity Plan
  - d. Section VII: Apprentice Wages and Wage Progression
  - e. Section IX: Related/Supplemental Instruction
  - f. Section XI: Sponsor – Responsibilities and Governing Structure
  - g. Section XII: Subcommittees
  - h. Section XIII: Training Director/Coordinator
3. The sponsor will utilize competent instructors as defined in WAC 296-05-003 for RSI. Furthermore, the sponsor will ensure each instructor has training in teaching techniques and adult learning styles, which may occur before or within one year after the apprenticeship instructor has started to provide instruction.

### C. Management of Apprentices:

1. Each apprentice (and, if under 18 years of age, the parent or guardian) will sign an apprenticeship agreement with the sponsor, who will then register the agreement with the Department before the apprentice attends RSI classes, or within the first 30 days of employment as an apprentice. For the purposes of industrial insurance coverage and prevailing wage exemption under RCW 39.12.021, the effective date of registration will be the date the agreement is received by the Department.



## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

2. The sponsor must notify the Department within 30 days of all requests for disposition or modification to apprentice agreements, which may include:
  - a) Certificate of completion
  - b) Additional credit
  - c) Suspension (i.e. military service or other)
  - d) Reinstatement
  - e) Cancellation
  - f) Corrections
  - g) Step Upgrades
  - h) Probation Completion date
  - i) Other (i.e., name changes, address)
  - j) Training Agent Cancellation
3. The sponsor commits to rotate apprentices in the various processes of the skilled occupation to ensure the apprentice is trained to be a competent journey-level worker.
4. The sponsor shall periodically review and evaluate apprentices before advancement to the apprentice's next wage progression period. The evidence of such advancement will be the record of the apprentice's progress on the job and during related/supplemental instruction.
5. The sponsor has the obligation and responsibility to provide, insofar as possible, reasonably continuous employment for all apprentices in the program. The sponsor may arrange to transfer an apprentice from one training agent to another or to another program when the sponsor is unable to provide reasonably continuous employment, or they are unable to provide apprentices the diversity of experience necessary for training and experience in the various work processes as stated in these standards. The new training agent will assume all the terms and conditions of these standards. If, for any reason, a layoff of an apprentice occurs, the apprenticeship agreement will remain in effect unless canceled by the sponsor.
6. An apprentice who is unable to perform the on-the-job portion of apprenticeship training may, if the apprentice so requests and the sponsor approves, participate in related/supplemental instruction, subject to the apprentice obtaining and providing to the sponsor written requested document/s for such participation. However, time spent will not be applied toward the on-the-job portion of apprenticeship training.
7. The sponsor shall hear and decide all complaints of violations of apprenticeship agreements.
8. Upon successful completion of apprenticeship, as provided in these standards, and passing the examination that the sponsor may require, the sponsor will recommend the WSATC award a Certificate of Completion of Apprenticeship. The sponsor will make an official presentation to the apprentice who has successfully completed his/her term of apprenticeship.

## CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

### D. Training Agent Management:

1. The sponsor shall offer training opportunities for apprentices by ensuring reasonable and equal working and training conditions are applied uniformly to all apprentices. The sponsor shall provide training at an equivalent cost to that paid by other employers and apprentices participating in the program. The sponsor shall not require an employer to sign a collective bargaining agreement as a condition of participation.
2. The sponsor must determine whether an employer can adequately furnish proper on the job training to an apprentice in accordance with these standards. The sponsor must also require any employer requesting approved training status to complete an approved training agent agreement and to comply with all federal and state apprenticeship laws, and these standards.
3. The sponsor will submit training agent agreements to the Department with a copy of the agreement and/or the list of approved training agents within thirty calendar days from the effective date. Additionally, the sponsor must submit rescinded training agent agreements to the Department within thirty calendar days of said action.

### E. Committee governance (if applicable): (see WAC 296-05-009)

1. Apprenticeship committees shall elect a chairperson and a secretary who shall be from opposite interest groups, i.e., chairperson-employers; secretary-employees, or vice versa. If the committee does not indicate its definition of quorum, the interpretation will be “50% plus 1” of the approved committee members. The sponsor must also provide the following information:
  - a. **Quorum: A quorum must be present to carry on the regular business of the apprenticeship Committee. A quorum shall consist of 50% plus 1 member.**
  - b. Program type administered by the committee: **GROUP NON-JOINT**
  - c. The employer representatives shall be:

**Cory O’Neill, Chair**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue WA 98004**

**Anthony Hernandez**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue, WA 98004**

**Jerry Sayles**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue, WA 98004**

# CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON

d. The employee representatives shall be:

**Albert Bojorquez, Secretary**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue, WA 98004**

**Philip Sanders**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue WA 98004**

**Patrick Halloran**  
**1930 116<sup>th</sup> Ave NE**  
**Bellevue WA 98004**

## F. Plant programs

For plant programs the WSATC or the Department designee will act as the apprentice representative. Plant programs shall designate an administrator(s) knowledgeable in the process of apprenticeship and/or the application of chapter 49.04 RCW and chapter 296-05 WAC and these standards.

The designated administrator(s) for this program is/are as follows:

NONE

## XII. SUBCOMMITTEE:

Subcommittee(s) approved by the Department, represented equally from management and non-management, may also be established under these standards, and are subject to the main committee. All actions of the subcommittee(s) must be reviewed by the main committee. Subcommittees authorized to upgrade apprentices and/or conduct disciplinary actions must be structured according to the same requirements for main committees.

NONE

## XIII. TRAINING DIRECTOR/COORDINATOR:

The sponsor may employ a person(s) as a full or part-time training coordinator(s)/ training director(s). This person(s) will assume responsibilities and authority for the operation of the program as are delegated by the sponsor.

**Halene Sigmund, President**  
**Construction Industry Training Council**  
**1930 116<sup>th</sup> Avenue NE**  
**Bellevue, WA 98004**

**CONSTRUCTION INDUSTRY TRAINING COUNCIL OF WASHINGTON**

**Adriana Gamboa, Vice President of Apprenticeship  
Construction Industry Training Council  
1930 116th Avenue NE  
Bellevue, WA 98004**

**Nan Bhusawang, Apprenticeship Program Supervisor  
Construction Industry Training Council  
1930 116th Avenue NE  
Bellevue, WA 98004**

**Kria Gomez, Mechanical Trades Coordinator  
Construction Industry Training Council  
1930 116th Avenue NE  
Bellevue, WA 98004**

For L&I Staff Use Only	
_____	_____
L&I Apprenticeship Consultant	L&I Admin

Department of Labor and Industries  
 Apprenticeship Section  
 PO Box 44530  
 Olympia WA 98504-4530



## Journey Level Wage Rate

From which apprentices' wage rates are computed

TO: Washington State Apprenticeship & Training Council  
 FROM: Construction Industry Training Council of Washington

Occupation:	County(ies):	Journey Level Wage Rate:	Effective Date:
Mechanical Insulator	Region 1 - San Juan, Island, Kitsap, Whatcom, Skagit, Snohomish, King, Pierce, Lewis, Pacific, Thurston, Grays Harbor, Mason, Jefferson, and Clallam.	\$ 58.90	02/14/2024
Mechanical Insulator	Region 2 - Ferry, Lincoln, Adams, Columbia, Whitman, Spokane, Stevens, Pend Oreille, Asotin, and Garfield.	\$ 45.06	02/14/2024
Mechanical Insulator	Region 3 - Wahkiakum, Cowlitz, Skamania, Clark, and Klickitat.	\$ 56.60	02/14/2024
Mechanical Insulator	Region 4 - Okanogan, Chelan, Kittitas, Yakima, Benton, Grant, and Douglas, Franklin, and Walla Walla.	\$ 45.06	02/14/2024

Sponsors must submit the journey-level wage at least annually or whenever changed to the Department.

**Form must be signed by Committee Chair and Secretary or Program's Authorized Signer**

<input type="checkbox"/> Chair	Date	<input type="checkbox"/> Secretary	Date
<input checked="" type="checkbox"/> Authorized Signer	February 14, 2024		
Print Name: Adriana Gamboa	Signature:		
Signature:	Print Name:		

For L&I Staff Use Only

Received 02/23/2024 EA  
L&I Apprenticeship Consultant

Teri Gardner 2-26-24  
L&I Admin

Department of Labor and Industries  
Apprenticeship Section  
PO Box 44530  
Olympia WA 98504-4530



## Apprenticeship Related/Supplemental Instruction (RSI) Plan Review

Program Name Construction Industry Training Council of Washington	
Occupation Mechanical Insulator	
Term/OJT Hours 10,000	Total RSI Hours 870
Training Provider Construction Industry Training Council of Washington	

By the signature placed below, the **program sponsor** agrees to provide the prescribed RSI for each registered apprentice and assures that:

1. The RSI content and delivery method is and remains reasonably consistent with the latest occupational practices, improvements, and technical advances.
2. The RSI is coordinated with the on-the-job work experience.
3. The RSI is provided in safe and healthful work practices in compliances with WISHA and applicable federal and state regulations.
4. The RSI Plan is maintained, updated and submitted to the Department a minimum of once every 5 years (WSATC Policy 2015-01; rev, 10-21-21).
5. The RSI will be conducted by instructors who meet the qualification of the "competent instructor" as described in WAC 296-05-003:
  - a. Has demonstrated a satisfactory employment performance in her/her occupation for a minimum of three years beyond the customary learning period for that occupation; and
  - b. Meets the State Board for Community and Technical Colleges requirements for a professional technical instructor (see WAC 131-16-080 through -094), or be a subject matter expert, which is an individual, such as a journey worker, who is recognized within the industry as having expertise in a specific occupation; and
  - c. Has training in teaching techniques and adult learning styles, which may occur before or within one year after the apprenticeship instructor has started to provide the related technical instruction.
6. If using alternative forms of instruction, such as correspondence, electronic media, or other self-study, instruction shall be clearly defined.

### Signatures on next page

**Form must be signed by Committee Chair and Secretary or Program's Authorized Signer**

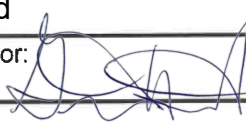
<input type="checkbox"/> Chair	Date	<input type="checkbox"/> Secretary	Date
<input checked="" type="checkbox"/> Authorized Signer	2/23/24		
Print Name: Helene Sigmund		Print Name:	
Signature: Helene Sigmund		Signature:	

**Training Provider Signature**

Approved By (Print Name): Helene Sigmund	Title: President
Signature of the Training Provider: Helene Sigmund	
Date: 2/23/24	

If additional training providers are needed, go to page 4.

**SBCTC**

Print Name: Genevieve Howard	Title: Policy Associate
Signature of the Program Administrator: 	
Date: 4/5/2024	
<input checked="" type="checkbox"/> SBCTC recommends approval	<input type="checkbox"/> SBCTC recommends return to sponsor

Program Name Construction Industry Training Council of Washington – Mechanical Insulator	Occupational Objective Mechanical Insulator
--	--

**Note:** The description of each element must be in sufficient detail to provide adequate information for review by the SBCTC and Review Committee. To add more elements, click on the plus sign that appears below the “Description of Element/Course” field.

**Describe minimum hours of study per year in terms of (check one):**

- 12-month period from date of registration.  
 Defined 12-month school year.  
 2,000 hours of on-the-job training.

Element/Course: Year 1 - Orientation	Planned Hours: 8
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This orientation is designed to ensure that students begin their journey with a clear understanding of standards, policies, safety protocols, and the tools required for success in the field of mechanical insulation. Orientation Agenda: <ol style="list-style-type: none"> <li><b>Yearly 1st Day Orientation:</b> A dedicated orientation session on the first day of the program. Students will explore the course structure, meet fellow students, and get a glimpse of what to expect throughout the year. This session sets the tone for a collaborative and engaging learning environment.</li> <li><b>Review Policies:</b> Students will examine the course syllabus outlining attendance policies, grading criteria, and the code of conduct. This overview fosters clarity regarding expectations and cultivates an environment conducive to optimal learning outcomes.</li> <li><b>Distribute and Discuss Student Handbook:</b> Students will receive the Student Handbook, a comprehensive guide that outlines essential information, resources, and guidelines for the course. A detailed discussion will ensure that everyone is well-acquainted with the handbook’s contents, promoting a seamless learning experience.</li> <li><b>Harassment Training:</b> Prioritize a respectful and inclusive learning environment with anti-harassment and DEI training. Understand the importance of fostering a culture of mutual respect and learn about reporting mechanisms. This session ensures that every participant feels secure and valued throughout the program.</li> <li><b>Classroom and Lab General Safety:</b> Students will discuss the importance of safety in both classroom and lab settings. Students will learn about general safety protocols and emergency procedures. This session is vital for creating a secure and productive learning environment.</li> </ol> <p>1<sup>st</sup> Day Orientation is designed to empower students with the knowledge and tools needed for success in the Mechanical Insulator Course.</p>	

Element/Course: Year 1 - Fundamentals for Success in the Mechanical Insulator Industry	Planned Hours: 38
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This course is designed to provide individuals entering the mechanical insulation industry with the foundational knowledge and skills needed for a successful and fulfilling career. Students will explore key topics essential for professional growth and personal success in the field of mechanical insulation. <b>Course Highlights:</b>	



**1: Understanding the Roots of Mechanical Insulation:**

- Historical development of mechanical insulation and its pivotal role in various industries.
- Exploring the evolution of insulation materials, techniques, and industry standards.
- Recognizing innovations that have shaped the mechanical insulator trade.

**2: Empowering Individuals with Financial Knowledge:**

- Basics of personal finance for the novice craft profession.
- Budgeting, financial planning, and goal setting for personal and professional success.
- Understanding the financial tools and considerations relevant to the trade.

**3: Effective Communication in the Workplace:**

- Developing clear and concise verbal communication skills for effective teamwork.
- Enhancing written communication abilities for documentation and reporting purposes.
- Building strong interpersonal skills to foster positive relationships with colleagues, clients, and stakeholders.

**4: Preparing for a Successful Career Journey:**

- Discuss the importance of a compelling resume and cover letter tailored to the mechanical insulation industry.
- Mastering interview techniques and presentation skills for job success.
- Workplace etiquette, time management, and professional conduct in the industry.

**5: Safe and Efficient Handling of Materials:**

- Proper lifting techniques and ergonomic practices to ensure personal and team safety.
- Understanding material properties and implementing effective handling guidelines.
- Safety protocols for transporting, storing, and utilizing of materials.

**5: Introduction to Drawings for Insulators:**

- Provide students with a basic understanding of various drawings, details, and specifications utilized in the construction industry.
- Provide students with an overview of commonly used blueprints specific to the insulation trade.
- Gain insights into how specifications guide accurate installation.

Element/Course: Year 1 - Safety Certification and Awareness Training	Planned Hours: 42
Mode of Instruction (check all that apply) 35hrs Classroom/ 7hrs Lab	

Classroom  Lab  Online  Self-Study

Provided by: Construction Industry Training Council of Washington – Mechanical Insulator

Description of element/course:

Safety is paramount in the field of mechanical insulation. In the 1<sup>st</sup> year, students will receive safety training on multiple topics, including OSHA 10, CPR/First Aid, asbestos, lead, and silica training, respirator awareness training, hazardous communication awareness training, fall protection & ladder safety, scaffold user training, dropped object prevention training, and mobile elevated work platform training.

**Topics to Include:**

**1. OSHA 10:**

- Overview of OSHA regulations and standards applicable to the mechanical insulation industry.
- Training in hazard recognition, avoidance, and prevention.

**2. CPR/First Aid:**

- Hands-on CPR and AED training covering adult, child, and infant procedures.
- First Aid training focused on common workplace injuries, medical emergencies, and proper response.

**3. Asbestos, Lead, and Silica Awareness Training:**

- An introduction to Asbestos, Lead, and Silica.
- Discuss what “respiratory” hazards are, the proper use of engineering and administrative controls, OSHA’s Table 1 (for silica), and personal protective equipment requirements.
- Covers various topics including recognition of potential hazardous materials, health risks to workers, and information concerning 2017 OSHA/WAC changes for silica exposure.

**4. Hazard Communication (HazCom) Awareness Training:**

- Training on hazard communication standards to ensure students understand how to recognize and safely handle hazardous chemical containing materials commonly used in insulation work, such as adhesives, sealants, and insulation materials.

5. **Respirator Awareness Training:**
  - Understanding the proper use, care, and limitations of respiratory protection equipment.
  - Training on respiratory hazards and best practices for safe respirator use.
6. **Fall Protection & Ladder Safety Training:**
  - Introduction to the fundamentals of fall protection principles, equipment, and best practices.
  - Ladder safety training covering proper usage, inspection, and preventive measures.
7. **Scaffold User Training:**
  - Training on scaffold types, importance of inspections by competent person, and safe use.
  - Hands-on exercises for practical application of scaffold safety.
8. **Dropped Object Prevention Training:**
  - Understanding the hazards associated with dropped objects in the workplace.
  - Training in prevention measures, including proper tool tethering and securement.
9. **Heat Stress Awareness Training:**
  - Understanding causes and symptoms of heat stress including health risks and preventive measures.
  - Recognizing early signs of heat-related illnesses and the importance of hydration, nutrition, appropriate clothing, and PPE to reducing susceptibility to heat-related illnesses and heat stress.
  - Discuss acclimatization and gradual exposure and strategies for heat stress management.
  - Recognizing environmental factors.
10. **MEWP (Mobile Elevated Work Platform) Training:**
  - Gain a comprehensive understanding of Mobile Elevated Work Platforms, including the different types, components, and their applications in various industries.
  - Learn the fundamentals of MEWP operation, including hands-on training on the controls and functions.
  - Understand the importance of proper operation for efficient and safe use.

Element/Course: Year 1 - Fundamental Math for Mechanical Insulators	Planned Hours: 24
Mode of Instruction (check all that apply) 22hrs Classroom/ 2hrs Lab	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course:	
<p>Students will engage in interactive learning experiences, practical demonstrations, and hands-on activities to reinforce their understanding of basic math, basic geometry, geometric construction, tape measure reading, and calculator usage. By the end of the course, students will have a strong foundation in these essential skills, setting the stage for further learning and success in their career as a mechanical insulator.</p>	
<b>Course Highlights:</b>	
<ol style="list-style-type: none"> <li>1. <b>Basic Math:</b> Begin with a focus on basic math skills essential for success in mechanical insulation. Students will refresh and enhance their understanding of arithmetic, algebra, and other mathematical concepts.</li> <li>2. <b>Fractions, Decimals, and Percentages:</b> Importance of fractions, decimals, and percentages and the conversion between fractions, decimals, and percentages in the context of insulation measurements.</li> <li>3. <b>Basic Geometry:</b> Students will be introduced to geometric principles, shapes, and measurements critical for layout and fabrication. Students will gain the foundational knowledge needed for executing geometrically precise insulation work.</li> <li>4. <b>Geometric Construction:</b> Delve into the principles of geometric construction, emphasizing hands-on exercises and practical applications. Students will learn to create accurate geometric shapes and structures required in various insulation projects.</li> <li>5. <b>Tape Measure Reading:</b> Students will learn to interpret measurements accurately, ensuring precision in measurement, layout, and fabrication of insulation materials. Practical exercises enhance proficiency in this critical aspect of the trade.</li> </ol>	

6. **Calculator Usage:** Students will cover basic calculator functions and their application in measuring and calculating material quantities.

Element/Course: Year 1 - Hand and Power Tool Basics	Planned Hours: 8
Mode of Instruction (check all that apply) 5hrs Classroom/ 3hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will review common hand and power tools used in the construction industry and specialized tools for the insulation industry. Students will discuss safety, maintenance, and proper usage of tools. Students will benefit from a combination of theoretical knowledge, practical demonstrations, and interactive workshops.	
<b>Course Highlights:</b> <ol style="list-style-type: none"> <li><b>Overview of Hand Tools:</b> Introduction of hand tools with a focus on commonly utilized hand tools in mechanical insulation work. Students will become familiar with a variety of hand tools, including knives, snips, trowels, and tools used for layout &amp; fabrication of patterns, insulation, and jacketing, shears, saws, and other cutting instruments. Learn proper handling techniques, safety precautions, and applications for each tool in insulation projects.</li> <li><b>Power Tools Basics:</b> Review the fundamentals of power tools with an emphasis on commonly used power tools in mechanical insulation work. Students will cover the usage and safety guidelines for power tools such as drills, impacts, saws, and grinders. Students will gain hands-on experience in operating power tools, ensuring a sound understanding of their applications in insulation work.</li> <li><b>Tool Maintenance and Safety:</b> Students will discuss the importance of tool maintenance and safety practices. Students will learn how to properly care for and maintain hand and power tools to ensure optimal performance. Emphasis will be placed on safety protocols, including personal protective equipment (PPE) and guidelines for safe tool usage on the job site.</li> <li><b>Hands-On Workshops:</b> Engage in hands-on workshops where students can apply their knowledge and skills using a variety of hand and power tools. These workshops provide practical experience in a controlled environment, allowing students to gain confidence and proficiency in the use of hand and power tools.</li> </ol>	

Element/Course: Year 1 - Introduction to Insulation	Planned Hours: 80
Mode of Instruction (check all that apply) 50hrs Classroom/ 30hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Introduces insulation practices across various categories, including commercial, industrial, marine, and refrigeration insulation. Students will gain essential foundational knowledge in materials, installation compliance, hands-on application techniques, protective coverings (jacketing), and safety protocols tailored to each category.	
<b>Course Highlights:</b> <ol style="list-style-type: none"> <li><b>Commercial Insulation Introduction:</b> <ul style="list-style-type: none"> <li><b>Materials Overview:</b> Explore a range of insulation materials suitable for commercial applications, considering factors like thermal efficiency and fire resistance.</li> <li><b>Insulation functions:</b> Reason for insulation, discuss ambient temperatures, heat transfer, energy conservation, temperature extremes, personal protection from burns.</li> <li><b>Compliance Fundamentals:</b> Introduce common regulations governing commercial insulation installations.</li> <li><b>Fundamental Insulation Skills:</b> Participate in introductory hands-on exercises covering foundational commercial insulation techniques. Develop skills to customize insulation materials to fit pipes, fittings, and ducts.</li> <li><b>Commercial Jacketing Basics:</b> Discuss basic jacketing materials and their selection based on project requirements to enhance the durability, weather resistance of insulation systems, and aesthetic covering. (such as mylar jacketed insulation, types of vapor barriers – ASJ – All Service Jacket, FSK – Foil Scrim Kraft, Mud and Rag, and reflective insulation (or RF radiation))</li> </ul> </li> </ol>	

- **Safety Fundamentals:** Emphasize basic safety protocols essential for commercial insulation projects.
  - **Hands-on Basics:** Engage in hands-on sessions introducing foundational techniques for commercial installations. Develop basic fabrication skills to customize insulation materials to fit pipes, fittings, and ducts.
2. **Industrial Insulation Introduction:**
- **Materials Overview:** Examine insulation materials suitable for industrial settings, including those for pipes, boilers, and equipment.
  - **Insulation Functions:** Reason for insulation, discuss ambient temperatures, heat transfer, energy conservation, temperature extremes, personal protection from burns.
  - **Code Fundamentals:** Introduce site specific and various codes governing industrial insulation.
  - **Industrial Insulation Jacketing Basics:** Discuss common jacketing materials and their selection based on project requirements to enhance the durability, mechanical protection, weather resistance of insulation systems, thermal performance, and aesthetic covering.
  - **Safety Fundamentals:** Discuss common safety practices and their importance in industrial insulation work.
  - **Hands-on Basics:** Engage in hands-on sessions introducing foundational techniques for industrial insulation installations. Develop basic fabrication skills to customize insulation materials to fit pipes, fittings, and ducts.
3. **Marine Insulation Introduction:**
- **Materials Overview:** Explore insulation materials designed for marine applications in various environments, considering factors like fire boundaries (A-60), sound dampening, and thermal regulation.
  - **Compliance Fundamentals:** Introduce maritime regulations and standards governing marine insulation installations.
  - **Marine Jacketing Basics:** Understand common jacketing materials and their selection based on project requirements to enhance the durability, corrosion resistance, weather resistance of insulation systems, mechanical protection, thermal efficiency, and aesthetic covering.
  - **Safety Fundamentals:** Introduce safety measures specific to marine insulation work.
  - **Hands-on Basics:** Participate in introductory hands-on exercises covering foundational marine insulation techniques. Develop basic fabrication skills to customize insulation materials to fit pipes, fittings, and ducts.
4. **Refrigeration Insulation Introduction:**
- **Materials Overview:** Examine insulation materials suitable for refrigeration systems, focusing on temperature control and moisture resistance.
  - **Insulation functions:** Reason for insulation, discuss ambient temperatures, heat transfer, energy conservation, temperature extremes, personal protection from burns.
  - **Refrigeration Insulation Jacketing Overview:** Discuss importance of refrigeration insulation jacketing materials and their selection based on project requirements to prevent condensation, provide mechanical protection, enhance durability, regulatory compliance, and aesthetic covering.
  - **Safety Fundamentals:** Discuss safety practices tailored to refrigeration environments.
  - **Hands-on Basics:** Engage in hands-on sessions introducing foundational techniques for refrigeration insulation. Develop basic fabrication skills to customize insulation materials to fit pipes, fittings, equipment, and structures.
5. **Safety Protocols and Environmental Considerations for Insulation Removal:** Emphasize safety as a top priority in insulation removal. Students will review and practice safety protocols, including the use of personal protective equipment (PPE) and the implementation of environmental controls. Understanding how to mitigate potential risks is crucial for a safe and successful insulation removal process.
6. **Quality Control:** Importance of quality control and understanding of Corrosion Under Insulation (CUI).

Element/Course: Year 2 - Orientation	Planned Hours: 4
Mode of Instruction (check all that apply) <span style="float: right;">4hrs Classroom</span>	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This orientation is designed to ensure that students begin their 2 <sup>nd</sup> year with a clear understanding of standards, policies, safety protocols, and the tools required for success.	
Orientation Agenda:	
<ol style="list-style-type: none"> <li>1. <b>Yearly 1st Day Orientation:</b> Explore the course structure, meet fellow students, and get a glimpse of what to expect throughout the year. This session sets the tone for a collaborative and engaging learning environment.</li> <li>2. <b>Review Policies:</b> Students will examine the course syllabus outlining attendance policies, grading criteria, and the code of conduct. This overview fosters clarity regarding expectations and cultivates an environment conducive to optimal learning outcomes.</li> <li>3. <b>Distribute and Discuss Student Handbook:</b> Students will be provided with the Student Handbook, a thorough guide containing information and resources. An overview will ensure that all students become acquainted with the contents of the handbook, promoting a seamless learning experience for everyone.</li> <li>4. <b>Anti-Harassment Training:</b> Prioritize a respectful and inclusive learning environment with anti-harassment and DEI training. Understand the importance of fostering a culture of mutual respect and learn about reporting mechanisms.</li> <li>5. <b>Classroom and Lab General Safety Review:</b> Review general safety protocols and emergency procedures. This session is vital for creating a secure and productive learning environment.</li> </ol>	
1 <sup>st</sup> Day Orientation is designed to empower students with the knowledge and tools needed for success in the Mechanical Insulator Course.	

Element/Course: Year 2 - Safety Certification and Awareness Training	Planned Hours: 12
Mode of Instruction (check all that apply) <span style="float: right;">10hrs Classroom/ 2hrs Lab</span>	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will undergo refresher training on asbestos, lead, and silica, fall protection, and ladder safety. Students will further their understanding of confined spaces by completing a confined space training course equipping them with the knowledge and skills to navigate potential hazards in their work environment. Courses will be delivered through a combination of theoretical sessions, practical demonstrations, and hands-on exercises.	
<b>Course Highlights:</b>	
<ol style="list-style-type: none"> <li>1. <b>Asbestos, Lead, and Silica Awareness Training Refresher:</b> <ul style="list-style-type: none"> <li>o A review of Asbestos, Lead, and Silica.</li> <li>o Review what “respiratory” hazards are, the proper use of engineering and administrative controls, OSHA’s Table 1 (for silica), and personal protective equipment requirements.</li> <li>o Review various topics including recognition of potential hazardous materials, health risks to workers, and information concerning 2017 OSHA/WAC changes for silica exposure.</li> </ul> </li> <li>2. <b>Confined Space Training:</b> <ul style="list-style-type: none"> <li>o In-depth exploration of confined spaces, associated hazards, and roles of individuals involved in confined space work.</li> <li>o Learn about types of confined spaces and understand the risks of entry.</li> </ul> </li> <li>3. <b>Fall Protection &amp; Ladder Safety Refresher:</b> <ul style="list-style-type: none"> <li>o Review of fall protection principles, equipment, and best practices.</li> <li>o Ladder safety refresher covering proper usage, inspection, and preventive measures.</li> </ul> </li> </ol>	

Element/Course: Year 2 - Intermediate Trade Math for Mechanical Insulators	Planned Hours: 12
Mode of Instruction (check all that apply) <span style="float: right;">9hrs Classroom/ 3hrs Lab</span>	

Classroom  Lab  Online  Self-Study

Provided by: Construction Industry Training Council of Washington – Mechanical Insulator

Description of element/course:

Students will delve into the essential mathematical principles that form the backbone of precision work in the field of mechanical insulation. This course is designed to build upon basic mathematical knowledge and equip students with the skills needed to perform accurate calculations, measurements, and conversions crucial for success in the industry.

**Course Highlights:**

1. **Review of Basic Math Skills:**
  - o Brief recap of fundamental math concepts including addition, subtraction, multiplication, and division.
  - o Application of basic math skills in practical mechanical insulation scenarios.
2. **Review of Fractions, Decimals, and Percentages:**
  - o Review of fractions, decimals, and percentages.
  - o Conversion between fractions, decimals, and percentages in the context of insulation measurements.
3. **Review of Geometry and Trigonometry for Insulators:**
  - o Review basic geometric concepts relevant to insulation work.
  - o Application of trigonometry in calculating angles, dimensions, and slopes in insulation projects.
4. **Review of Algebraic Expressions:**
  - o Review of algebraic expressions and equations.
  - o Solving algebraic equations related to mechanical insulation calculations.
5. **Linear Measurement:**
  - o Precision measurement techniques using rulers, tapes, and other measuring tools.
  - o Converting measurements between different units for accurate sizing in insulation projects.
6. **Area and Volume Calculations:**
  - o Application of mathematical formulas to calculate the area and volume of insulation materials.
  - o Hands-on exercises for determining material requirements based on project specifications.
7. **Mechanical Insulation Calculations:**
  - o Utilizing math concepts to solve complex problems encountered in mechanical insulation projects.
  - o Real-world examples of how math is applied to pattern layout and optimize material usage and efficiency.

Element/Course: Year 2 - Intermediate Installation Techniques

Planned Hours: 56

Mode of Instruction (check all that apply)

16hrs Classroom/ 40hrs Lab

Classroom  Lab  Online  Self-Study

Provided by: Construction Industry Training Council of Washington – Mechanical Insulator

Description of element/course:

Students will examine commercial, industrial, marine, and refrigeration insulation applications. This course is designed to provide a more thorough understanding of materials, selection criteria, installation compliance, layout and fabrication techniques, hands-on application strategies, and safety protocols tailored to each category.

**Course Highlights:**

1. **Insulation Materials:**
  - o Expanded discussion on a wide range of insulation materials suitable for use in commercial, industrial, marine, and refrigeration settings.
  - o Learn about the unique properties and considerations for material selection and usage.
2. **Fabrication Equipment:**
  - o Introduction to Band Saw: Students will be introduced to insulation Band Saws, a foundational tool in insulation. Through hands-on sessions, they will learn the principles of operation, safety protocols, and techniques for precise cutting.
3. **Selection Criteria:**

- Discuss materials selected for specific project requirements and industry standards.
- Examine criteria related to thermal efficiency, acoustics, and environmental factors.
- 4. Code Compliance Review:**
  - Review importance of standards, specifications, and site-specific practices that may impact the material selection or application throughout each industry.
- 5. Layout and Fabrication Techniques:**
  - Develop layout strategies for complex insulation installations in varied settings.
  - Acquire skills in intricate fabrication to customize insulation materials for each category.
- 6. Hands-on Application Techniques:**
  - Engage in hands-on exercises covering insulation installation techniques in commercial, industrial, marine, and refrigeration contexts.
  - Apply theoretical knowledge to real-world scenarios, enhancing proficiency in each insulation category.
- 7. Safety Protocols:**
  - Review safety concerns inherent in commercial, industrial, marine, and refrigeration environments.
  - Discuss common safety practices to ensure a safe working environment.

Element/Course: Year 2 - Introduction to Soft Cover Fabrication	Planned Hours: 28
Mode of Instruction (check all that apply) 6hrs Classroom/ 22hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will learn the art of fabricating soft covers while highlighting the importance of proper material handling procedures. Students will delve into the intricacies of soft cover fabrication techniques, ensuring precision, efficiency, and safety throughout the process.	
<b>Course Highlights:</b>	
<b>1. Introduction to Soft Cover Fabrication:</b> <ul style="list-style-type: none"> <li>○ Overview of the role and applications of soft covers in mechanical insulation.</li> <li>○ Understanding the importance of soft cover fabrication for thermal efficiency and equipment protection.</li> </ul>	
<b>2. Custom Soft Cover Design:</b> <ul style="list-style-type: none"> <li>○ Design principles for custom soft covers tailored to specific equipment and insulation needs.</li> <li>○ Basic techniques for template creation.</li> <li>○ Translating design specifications into actionable fabrication steps for custom soft cover designs (pad tickets).</li> <li>○ Importance of understanding tolerance application in soft cover layout.</li> </ul>	
<b>3. Materials Used in Soft Cover Fabrication:</b> <ul style="list-style-type: none"> <li>○ In-depth exploration of materials commonly used in soft cover fabrication, including fiberglass mat, silicone cloth, hi-temp cloth, hog rings, and staples.</li> <li>○ Selection criteria based on project requirements and environmental considerations.</li> </ul>	
<b>4. Soft Cover Fabrication Equipment and Tools:</b> <ul style="list-style-type: none"> <li>○ Review of basic hand tools utilized for soft cover fabrication.</li> <li>○ Introduction to sewing machine, hog ring clinch and pneumatic gun, clinch and pneumatic staplers, presses, punches, and other equipment.</li> <li>○ Proper handling, maintenance, and safety precautions associated with soft cover fabrication tools and equipment. <ul style="list-style-type: none"> <li>1. Sewing Machine: <ul style="list-style-type: none"> <li>1. Introduction to different types of sewing machines and their applications in stitching insulation materials.</li> <li>2. Hands-on practice to master basic sewing techniques for creating durable and well-finished seams.</li> <li>3. Safety and maintenance of sewing machines.</li> </ul> </li> <li>2. Hog Ring Guns:</li> </ul> </li> </ul>	

- 1. Understanding the purpose and proper use of hog ring guns in attaching and fastening insulation materials.
- 2. Practical exercises to ensure proficiency in securing soft covers with hog rings.
- 3. **Pneumatic Staplers:**
  - 1. Overview of clinch pneumatic staplers and their role in efficiently fastening insulation materials to surfaces.
  - 2. Practical demonstrations on the correct usage and maintenance of clinch and pneumatic staplers.
- 4. **Other Fabrication Equipment:**
  - 1. Introduction to additional tools such as compressors for pneumatic tools, metal shears for mesh applications, and grommet tools.
  - Safety and manufacturer guidelines: Equipment required may vary based on the type of insulation material, complexity of the soft cover design, and the intended application. Discuss the importance of following safety guidelines and manufacturer recommendations when using equipment.
- 5. **Fabrication Techniques:**
  - Basic techniques for fabricating soft covers for pipes, ducts, equipment, and components.
  - Hands-on exercises to refine skills in cutting, sewing, hog ring assembly, stapling, and assembling soft cover components.
- 6. **Importance of Proper Material Handling Procedures:**
  - Comprehensive coverage of proper material handling procedures specific to soft cover fabrication.
  - Safety protocols to ensure the integrity and longevity of soft cover materials.
- 7. **Installation Techniques for Soft Covers:**
  - Various installation methods including hooks, wire, anchors, stapling, Velcro, adhesives, and other common fastening techniques.
  - Selection criteria based on project requirements and environmental considerations.
- 8. **Quality Control in Soft Cover Fabrication & Installation:**
  - Implementing quality control measures to ensure precision and adherence to design specifications.
  - Inspection and evaluation of completed soft covers for quality assurance.

Element/Course: Year 2 - Jacketing Layout & Fabrication for Mechanical Insulators	Planned Hours: 48
Mode of Instruction (check all that apply) 18hrs Classroom/ 30hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This course is designed to provide students with fundamental knowledge and hands-on skills in jacketing work, covering essential techniques such as straight runs, hand banding, end caps, and conicals.	
<b>Course Highlights:</b>	
1. <b>Introduction to Jacketing:</b> <ul style="list-style-type: none"> <li>○ Overview of the role of metal jacketing in mechanical insulation.</li> <li>○ Understanding the importance of precision and accuracy in jacketing fabrication.</li> <li>○ Overview of various jacketing materials including PVC, aluminum, stainless, hand banding, adhesives, and mastics.</li> </ul>	
2. <b>Tools and Equipment:</b> <ul style="list-style-type: none"> <li>○ Introduction to jacketing fabrication tools, including shears, brakes, rollers, flangers, and crimpers. <ul style="list-style-type: none"> <li>1. Introduction to Pittsburgh Machine: Students will learn about the operation and maintenance of these machines, emphasizing the creation of strong, durable seams vital for effective insulation. Students will develop the skills to produce high-quality, customized insulation components.</li> </ul> </li> </ul>	



- 2. **Introduction to Sheet Metal Brakes:** Learn the art of bending and shaping sheet metal with precision through an exploration of sheet metal brakes. Students will focus on techniques for creating bends, folds, and creases, enabling students to craft intricate and customized insulation solutions. Safety practices and hands-on exercises are integral components of this training.
  - 3. **Introduction to Manual Metal Forming Tools:** Students will be introduced to a range of manual metal forming tools, expanding their skill set in manipulating metal jacketing for diverse applications. From hand tools such as crimpers and bead rollers, students will learn about the effective use of forming tools empowering students to work with various materials and configurations.
  - 4. **Introduction to Power Flanger:** Students will learn the basic principles, functionalities, and safe operation of power flanging equipment. From creating precise bends to forming seams in sheet metal, this course is designed to equip students with the foundational knowledge needed to efficiently use power flangers in various applications.
- 3. Introduction to Pattern Development and Usage:**
- o **Introduction to Pattern Development:** Students will learn the principles of pattern development, understanding how to create templates for various shapes and sizes.
  - o **Hands-on Pattern Development:** Engage in practical exercises to develop patterns for different sheet metal components, enhancing pattern creation skills.
  - o **Pattern Usage in Fabrication:** Learn how to effectively utilize patterns in sheet metal fabrication, ensuring accuracy and efficiency in creating shapes such as end caps and conicals.
  - o **Techniques for accurate layout and measurement in sheet metal fabrication.**
  - o **Translating design specifications into precise sheet metal jacketing components.**
- 4. Joining Methods:**
- o **Overview of different methods for joining jacketing using fasteners, riveting, and adhesive bonding.**
  - o **Practical application of joining techniques in jacketing fabrication.**
- 5. Quality Control:**
- o **Importance of quality control in sheet metal jacketing.**
  - o **Inspection and evaluation of fabricated components for adherence to design specifications.**
- 6. Real-world Applications:**
- o **Application of learned skills in real-world scenarios, simulating sheet metal jacketing fabrication projects commonly encountered in mechanical insulation work.**

<b>Element/Course:</b> Year 3 - Orientation	<b>Planned Hours:</b> 4
<b>Mode of Instruction (check all that apply)</b> <span style="float: right;">4hrs Classroom</span>	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
<b>Provided by:</b> Construction Industry Training Council of Washington – Mechanical Insulator	
<b>Description of element/course:</b>	
This orientation is designed to ensure that students begin their 3 <sup>rd</sup> year with a clear understanding of standards, policies, safety protocols, and the tools required for success.	
<b>Orientation Agenda:</b>	
<ol style="list-style-type: none"> <li>1. <b>Yearly 1st Day Orientation:</b> Explore the course structure, meet fellow students, and get a glimpse of what to expect throughout the year. This session sets the tone for a collaborative and engaging learning environment.</li> <li>2. <b>Review Policies:</b> Students will examine the course syllabus outlining attendance policies, grading criteria, and the code of conduct. This overview fosters clarity regarding expectations and cultivates an environment conducive to optimal learning outcomes.</li> <li>3. <b>Distribute and Discuss Student Handbook:</b> Students will be provided with the Student Handbook, a thorough guide containing information and resources. An overview will ensure that all students become acquainted with the contents of the handbook, promoting a seamless learning experience for everyone.</li> </ol>	

4. **Anti-Harassment Training:** Prioritize a respectful and inclusive learning environment with anti-harassment and DEI training. Understand the importance of fostering a culture of mutual respect and learn about reporting mechanisms.
5. **Classroom and Lab General Safety Review:** Review general safety protocols, emergency procedures. This session is vital for creating a secure and productive learning environment.

1<sup>st</sup> Day Orientation is designed to empower students with the knowledge and tools needed for success in the Mechanical Insulator Course.

Element/Course: Year 3 - Safety Certification and Awareness Training	Planned Hours: 10
Mode of Instruction (check all that apply) 9hrs Classroom/ 1hr Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will undergo refresher training on asbestos, lead, and silica, fall protection, and ladder safety. Students will also complete a CPR/First Aid Training.	
<b>Course Highlights:</b>	
<ol style="list-style-type: none"> <li>1. <b>Asbestos, Lead, and Silica Awareness Training Refresher:</b> <ul style="list-style-type: none"> <li>o A review of Asbestos, Lead, and Silica.</li> <li>o Review what “respiratory” hazards are, the proper use of engineering and administrative controls, OSHA’s Table 1 (for silica), and personal protective equipment requirements.</li> <li>o Review various topics including recognition of potential hazardous materials, health risks to workers, and information concerning 2017 OSHA/WAC changes for silica exposure.</li> </ul> </li> <li>2. <b>Fall Protection &amp; Ladder Safety Refresher:</b> <ul style="list-style-type: none"> <li>o Review of fall protection principles, equipment, and best practices.</li> <li>o Ladder safety refresher covering proper usage, inspection, and preventive measures.</li> </ul> </li> <li>3. <b>CPR/First Aid Training:</b> <ul style="list-style-type: none"> <li>o Hands-on CPR and AED training covering adult, child, and infant procedures.</li> <li>o First Aid training focusing on common workplace injuries, medical emergencies, and proper response.</li> </ul> </li> </ol>	

Element/Course: Year 3 - Intermediate Insulation Layout & Fabrication	Planned Hours: 66
Mode of Instruction (check all that apply) 26hrs Classroom/ 40hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This course focuses on varied techniques covering equal tees, unequal tees, introduction to 90s and gores, bevel layouts, straight runs, and end caps. Students will gain hands-on experience in applying these concepts, ensuring proficiency in intricate insulation installations.	
<b>Course Highlights:</b>	
<ol style="list-style-type: none"> <li>1. <b>Equal Tee Fabrication:</b> <ul style="list-style-type: none"> <li>o Explore layout strategies for creating equal tee intersections in insulation systems.</li> <li>o Understand the importance of precise layouts for optimal insulation performance.</li> <li>o Review the need for oversized insulation for electrical and steam traced pipe.</li> <li>o Review of soft cover fabrication and installation.</li> <li>o Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures.</li> </ul> </li> <li>2. <b>Unequal Tee Fabrication:</b> <ul style="list-style-type: none"> <li>o Fabrication techniques required for creating unequal tee intersections in insulation projects.</li> <li>o Develop skills in customizing insulation materials for varied tee configurations.</li> <li>o Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures.</li> </ul> </li> </ol>	

- Discuss the need for oversized insulation for electrical and steam traced pipe.
- Review of soft cover fabrication and installation.
- 3. Introduction to 90s and Gores:**
  - Delve into the layout and fabrication of 90-degree turns (90s) and gores in insulation systems.
  - Understand the nuances of creating smooth transitions and bends for complex installations.
  - Discuss the need for oversized insulation for electrical and steam traced pipe.
  - Review of soft cover fabrication and installation.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures.
- 4. Bevel Layouts:**
  - Acquire skills in bevel layouts, essential for creating tapered and angled insulation components.
  - Explore the application of bevel layouts in various insulation scenarios.
  - Review the need for oversized insulation for electrical and steam traced pipe.
  - Review of soft cover fabrication and installation.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures.
- 5. Multi-Layered Straight Runs:**
  - Develop proficiency in creating straight runs in insulation installations.
  - Understand the importance of precision in straight runs for a seamless and effective insulation system.
  - Discuss proper layering techniques for multi-layer insulation.
  - Discuss the processes and use of fasteners in the application of insulation materials, including techniques such as wiring and banding.
  - Review the need for oversized insulation for electrical and steam traced pipe.
  - Review of soft cover fabrication and installation.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures.
- 6. 45-Degree Equal Lateral:**
  - In-depth exploration for layout and pattern fabrication to create a 45-degree equal lateral.
  - Review the need for oversized insulation for electrical and steam traced pipe.
  - Review of soft cover fabrication and installation.
  - Hands-on exercises for fabricating a 45-degree equal lateral with precision and efficiency.
- 7. 45-Degree Unequal Lateral:**
  - In-depth exploration for layout and pattern fabrication to create a 45-degree unequal lateral.
  - Review the need for oversized insulation for electrical and steam traced pipe.
  - Review of soft cover fabrication and installation.
  - Hands-on exercises for fabricating a 45-degree unequal lateral with precision and efficiency.
- 8. Quality Control and Precision Measurement:**
  - Review importance of quality control measures to ensure precision and adherence to design specifications.

Element/Course: Year 3 - Intermediate Jacketing Pattern and Layout	Planned Hours: 80
Mode of Instruction (check all that apply)	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will learn additional skills about a range of topics, including equal tees, unequal tees, introduction to 90s and gores, bevel layouts, straight runs, and end caps. Through comprehensive theoretical sessions and hands-on exercises, students will gain the knowledge and proficiency needed to excel in complex pattern layout.	
<b>Course Highlights:</b>	

1. **Equal Tee Fabrication:**
  - In-depth exploration of equal tee joints in metal jacketing.
  - Techniques for creating precise and durable equal tee joints, emphasizing waterproofing applications.
2. **Unequal Tee:**
  - In-depth exploration for creating unequal tee joints in metal jacketing.
  - Hands-on exercises for fabricating unequal tee joints with precision and efficiency, emphasizing waterproofing applications.
3. **Introduction to Gores - 90s, 45s and Sweeps:**
  - Formulas used for creating short and long radius 90-degree segmented gores, 45s and sweeps.
  - Learn to layout and create gore patterns that optimize material usage and ensure a precise fit.
  - Create templates for short and long radius 90-degree segmented gores, 45s and sweeps.
  - Explore the concept of segmented gores and their application in jacketing for complex scenarios.
  - Importance of waterproofing applications.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures for gores.
4. **Bevel Layouts and Applications:**
  - In-depth exploration of bevel layouts in sheet metal fabrication.
  - Applications of bevel layouts in complex projects, including insulation system components.
  - Importance of waterproofing applications.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures for bevel layout.
5. **Snap-On or Locking Seams:**
  - Discuss snap-on or locking seam systems where the jacketing pieces snap or lock into place, providing a secure and interlocked connection.
    1. Enhanced Weather Resistance.
    2. Increased Aesthetics.
    3. Reduction of Heat Loss or Gain.
  - Standing Seams basic layout for installation on ducting.
  - Review of Pittsburg lock form and power flanger
  - Importance of waterproofing applications.
6. **Straight Runs:**
  - Techniques for creating straight runs with precision and accuracy.
  - Practical exercises for cutting, bending, bolt clearance, and fabricating straight runs.
  - Engage in hands-on practical exercises that simulate real-world scenarios. Students will have the opportunity to apply their knowledge and skills in a controlled environment, reinforcing proper techniques and safety procedures for straight runs.
  - Importance of waterproofing applications.
7. **45-Degree Equal Lateral:**
  - In-depth exploration for layout and pattern fabrication to create a 45-degree equal lateral.
  - Importance of waterproofing applications.
  - Hands-on exercises for fabricating a 45-degree equal lateral with precision and efficiency.
8. **45-Degree Unequal Lateral:**
  - In-depth exploration for layout and pattern fabrication to create a 45-degree unequal lateral.
  - Importance of waterproofing applications.
  - Hands-on exercises for fabricating a 45-degree unequal lateral with precision and efficiency.
9. **Quality Control and Precision Measurement:**
  - Review importance of quality control measures to ensure precision and adherence to design specifications.
  - Techniques for precise measurement in jacketing fabrication and pattern layout.
  - Importance of waterproofing applications.


Element/Course: Year 4 - Orientation	Planned Hours: 4
Mode of Instruction (check all that apply) <span style="float: right;">4hrs Classroom</span>	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course:	
<p>This orientation is designed to ensure that students begin their 4<sup>th</sup> year with a clear understanding of standards, policies, safety protocols, and the tools required for success.</p> <p>Orientation Agenda:</p> <ol style="list-style-type: none"> <li>1. <b>Yearly 1st Day Orientation:</b> Explore the course structure, meet fellow students, and get a glimpse of what to expect throughout the year. This session sets the tone for a collaborative and engaging learning environment.</li> <li>2. <b>Review Policies:</b> Students will examine the course syllabus outlining attendance policies, grading criteria, and the code of conduct. This overview fosters clarity regarding expectations and cultivates an environment conducive to optimal learning outcomes.</li> <li>3. <b>Distribute and Discuss Student Handbook:</b> Students will receive the Student Handbook, a comprehensive guide that outlines essential information, resources, and guidelines for the course. A detailed discussion will ensure that everyone is well-acquainted with the handbook's contents, promoting a seamless learning experience.</li> <li>4. <b>Anti-Harassment Training:</b> Prioritize a respectful and inclusive learning environment with anti-harassment and DEI training. Understand the importance of fostering a culture of mutual respect and learn about reporting mechanisms.</li> <li>5. <b>Classroom and Lab General Safety:</b> Review general safety protocols and emergency procedures. This session is vital for creating a secure and productive learning environment.</li> </ol> <p>1<sup>st</sup> Day Orientation is designed to empower students with the knowledge and tools needed for success in the Mechanical Insulator Course.</p>	

Element/Course: Year 4 - Safety Certification and Awareness Training	Planned Hours: 4
Mode of Instruction (check all that apply) <span style="float: right;">4hrs Classroom</span>	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course:	
<p>Students will undergo refresher training on asbestos, lead, and silica, fall protection, and ladder safety.</p> <ol style="list-style-type: none"> <li>1. <b>Asbestos, Lead, and Silica Awareness Training Refresher:</b> <ol style="list-style-type: none"> <li>a. A review of Asbestos, Lead, and Silica.</li> <li>b. Review what “respiratory” hazards are, the proper use of engineering and administrative controls, OSHA’s Table 1 (for silica), and personal protective equipment requirements.</li> <li>c. Review various topics including recognition of potential hazardous materials, health risks to workers, and information concerning 2017 OSHA/WAC changes for silica exposure.</li> </ol> </li> <li>2. <b>Fall Protection &amp; Ladder Safety Refresher:</b> <ol style="list-style-type: none"> <li>a. Review of fall protection principles, equipment, and best practices.</li> <li>b. Ladder safety refresher covering proper usage, inspection, and preventive measures.</li> </ol> </li> </ol>	

Element/Course: Year 4 - Tank Head Insulation and Head Gore Jacketing	Planned Hours: 40
Mode of Instruction (check all that apply) <span style="float: right;">8hrs Classroom/ 32hrs Lab</span>	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course:	
<p>This course is crafted to provide students with knowledge and skills essential for performing tasks in complex tank head insulation and tank head jacketing. Students will develop proficiency in applying techniques and materials vital for successful tank head insulation, while also acquiring the necessary</p>	

knowledge and skills for effective head gore jacketing. The course emphasizes the critical role of tank heads in pressure vessels and storage tanks, highlighting the importance of insulation in maintaining structural integrity, enhancing thermal efficiency, and minimizing energy loss.

### **Course Highlights:**

#### **1. Introduction:**

- Overview of tank heads
- Importance of tank head insulation and head gores

#### **2. Tank Head Insulation:**

- Introduction to Tank Head Insulation & Selection Criteria:
  1. Common tank head insulation materials
  2. Considerations for temperature, moisture, and environment
  3. Unique challenges and considerations
- Crimp Wrap Techniques:
  1. Exploration of crimp wrap insulation
  2. Techniques for crimp wrap installation
  3. Selection and application of high-performance materials
- Block Insulation Applications:
  1. Fabrication and application techniques
  2. Handling complex geometries
  3. Versatility in material options
- Removable Insulation Blankets:
  1. Installation and removal procedures
  2. Utilization of multi-layered insulation
- Pattern Layout for Tank Head Insulation:
  1. Techniques for precise pattern layout
  2. Addressing complexities in tank head insulation
- Fabrication and Installation Proficiency:
  1. Hands-on exercises
  2. Real-world scenarios and case studies
- Fastener Options and Applications:
  1. Exploration of fastener options
  2. Selecting appropriate fasteners
- Troubleshooting and Problem Solving:
  1. Identifying and Addressing Problems with Tank Head Insulation
- Quality Control and Inspection:
  1. Quality control measures
  2. Inspection techniques
  3. Documentation and reporting
- Review Safety Protocols for Tank Head Insulation:
  1. Safety considerations
  2. Emergency response planning
  3. Utilizing personal protective equipment (PPE)

#### **3. Tank Gores – Jacketing:**

- Understanding Tank Head Gores
  1. Overview of tank head gores
  2. Importance in jacketing selection on vessels
  3. Identification of jacketing requirements
- Jacketing Materials and Selection:
  1. Study of jacketing materials for tank gores
  2. Material thickness considerations
  3. Review of common types of jacketing such as ASJ, PVC, and aluminum, utilized on head gores
- Jacketing Techniques and Layouts:
  1. Customization for various tank head shapes
  2. Hands-on training in head gores application

- Thermal Coatings and Weather Resistance:
  1. Application of thermal coatings
  2. Various membrane materials and mastics
  3. Strategies for weather resistance
- Safety Considerations:
  1. Overview of safety standards
  2. Fireproofing jacketing materials
  3. Safety protocols
- Practical Applications and Case Studies:
  1. Review and discuss case studies for failures, remedies, and proper installation
  2. Hands-on application for jacketing techniques

Element/Course: Year 4 - Insulation & Jacketing for Boiler Systems	Planned Hours: 40
Mode of Instruction (check all that apply) 10hrs Classroom/ 30hrs Lab	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	

Description of element/course:  
 This course is designed to equip students with the essential skills and knowledge for effective boiler insulation and jacketing. Covering key aspects from introduction to advanced techniques, students will gain knowledge in the following: material selection, pattern layout techniques, fastener, sealant, and adhesive options, fabrication and installation methods, quality control measures, material handling best practices, and safety protocols specific to boiler insulation and jacketing. The course will utilize a combination of theoretical lectures, hands-on practical sessions, case studies, and interactive discussions to provide a comprehensive and engaging learning experience.

**Course Highlights:**

1. **Introduction to Boiler Insulation and Jacketing:**
  - Overview of boiler systems and their insulation requirements
  - Importance of jacketing in maintaining insulation integrity and efficiency
2. **Insulation Functions:**
  - Discuss common insulation materials such as calcium silicate, mineral wool, fiberglass, foam glass
  - Discuss criteria considerations in insulation material usage based on boiler types and applications
3. **Pattern Layout Techniques:**
  - Complex pattern layout methods for optimizing insulation coverage
  - Considerations for various boiler shapes and sizes
4. **Fastener, Sealant, and Adhesive Options:**
  - Selection criteria for fasteners, sealants, and adhesives
  - Practical applications and considerations for specific boiler insulation scenarios
5. **Multilayered Soft Cover Fabrication and Installation:**
  - Discuss high temp materials utilized in fabrication such as wire mesh and stainless foil backing
  - Discuss measuring and application techniques specific to multilayered soft covers
6. **Fabrication and Installation:**
  - Techniques for fabricating and installing insulation and jacketing
  - Hands-on exercises for practical application
7. **Quality Control Measures:**
  - Ensuring compliance with industry standards and project specifications
8. **Material Handling Best Practices:**
  - Review of proper handling, storage, and transportation of insulation materials
  - Prevention of damage and ensuring material integrity
9. **Safety Protocols in Boiler Insulation and Jacketing:**
  - Identifying and mitigating potential hazards specific to boiler insulation projects
  - Adhering to safety protocols for a secure work environment

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Element/Course: Year 4 - Duct Insulation & Jacketing	Planned Hours: 32
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Mode of Instruction (check all that apply)	8hrs Classroom/ 24hrs Lab
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Classroom    Lab    Online    Self-Study

Provided by: Construction Industry Training Council of Washington – Mechanical Insulator

Description of element/course:

This course is designed to provide students with more in-depth knowledge and hands-on skills required for proficient duct insulation and jacketing. As duct systems play a pivotal role in various industries, this course encompasses a wide array of topics, covering both insulation and jacketing techniques essential for maintaining structural integrity, optimizing thermal efficiency, and minimizing energy loss. Students will explore material selection criteria for commercial, industrial, marine, and refrigeration insulation. Students will discuss essential aspects such as pattern layout, fabrication techniques, fastener, sealant, adhesive options, and installation techniques. Additionally, discussions on quality control underscore the importance of maintaining industry standards, with a strong emphasis on material handling and safety in duct insulation and jacketing.

**Course Highlights:**

**1. Introduction:**

- o Review of duct systems
- o Review commercial, industrial, marine, and refrigeration applications.
- o Review insulation and jacketing requirements for ducts.

**2. Duct Insulation:**

- o Material Selection Criteria:
  - 1. Review of insulation materials
  - 2. Review selection factors, such as temperature, moisture, environmental conditions
- o Pattern Layout Techniques:
  - 1. Precise layout for ducts
  - 2. Optimization strategies for material usage
- o Layout of Removable Soft Covers:
  - 1. Discuss layout of removable soft covers
  - 2. Selection criteria for fasteners, sealants, and adhesives.
- o Fastener, Sealant, and Adhesive Options:
  - 1. Exploration of options
  - 2. Applications in securing and sealing
- o Fabrication and Installation Proficiency:
  - 1. Hands-on exercises
  - 2. Analysis of successful duct insulation and jacketing case studies in various applications
- o Quality Control Measures:
  - 1. Review importance of quality control measures to ensure precision and adherence to design specifications.
- o Material Handling Best Practices:
  - 1. Importance of proper handling
- o Safety Protocols in Duct Insulation:
  - 1. Address complex safety challenges inherent in commercial, industrial, marine, and refrigeration settings, ensuring a secure work environment.

**3. Duct Jacketing:**

- o Insulation Materials and Function:
  - 1. Examination of suitable materials
  - 2. Evaluation of material properties
- o Duct Jacketing Techniques:
  - 1. Customizing solutions for unique shapes
  - 2. Discuss techniques such as standing seams, slip joint, Pittsburgh, expansion joints for ducts



- Layout and Fabrication for Transitions:
  1. Patterns for square to round transitions
  2. Fabrication techniques
- Layout and Fabrication for Reducers:
  1. Processes for eccentric and concentric reducers
  2. Application exercises for precise covers
- Sealing and Joint Integration:
  1. Ensuring proper seals
  2. Application of sealants and adhesives
- Vapor Barrier Installation:
  1. Methods for proper installation
  2. Enhancing weather resistance
- Weather Resistance and External Factors:
  1. Strategies for weather resistance
  2. Impact of external factors
- Energy Efficiency and System Optimization:
  1. Improving energy efficiency
  2. Integration for climate control
- Safety Considerations:
  1. Overview of safety standards
- Practical Applications and Case Studies:
  1. Examine case studies detailing duct insulation and jacketing to enhance comprehension of processes and applications. Evaluate whether the case studies demonstrate proper or improper installation practices.
  2. Hands-on projects for application techniques

Element/Course: Year 4 - Miscellaneous Insulation	Planned Hours: 16
Mode of Instruction (check all that apply) <span style="float: right;">8hrs Classroom/ 8hrs Lab</span>	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	

Description of element/course:  
 Students will delve into insulation systems utilized in specialty applications. This course will introduce students to various materials including grease ducts, acoustical spaces, firestops, and aerogel applications. The course covers material selection criteria for commercial, industrial, marine, and refrigeration settings, emphasizing pattern layout, fabrication techniques, fastener, sealant, and adhesive options. Quality control measures will be highlighted, along with a strong focus on material handling and safety in these specialized insulation contexts.

**Course Highlights:**

1. **Grease Duct Insulation:**
  - Common insulation materials such as calcium silicate, mineral wool, ceramic fiber.
  - Material selection criteria for grease duct insulation in commercial kitchens, industrial facilities, and marine applications.
  - Pattern layout, fabrication, fastener, sealant, and adhesive options for grease duct insulation.
  - Quality control measures specific to grease duct applications.
  - Review of safety protocols for handling insulation materials in grease duct installations.
2. **Acoustical Insulation:**
  - Common insulation materials such as fiberglass, mineral wool, rubber, cellulose spray foam, cork, MLV, and foam board.
  - Material selection criteria for acoustical insulation in commercial spaces, industrial settings, and marine environments.
  - Pattern layout, fabrication, fastener, sealant, and adhesive options for acoustical insulation.
  - Quality control measures specific to acoustical insulation applications.
  - Review of safety protocols for handling insulation materials in acoustical installations.
  - Discuss acoustical insulation use in soft cover fabrication.
3. **Firestop & Fireproofing Insulation:**

- Common insulation materials such as intumescent sealants, firestop mortar, mineral wool and Pyrogel.
- Material selection criteria for firestop insulation in commercial, industrial, and marine applications.
- Material selection criteria for fireproofing insulation in commercial, industrial, and marine applications such as Pyrogel XTF and stainless jacketing.
- Pattern layout, fabrication, fastener, sealant, and adhesive options for firestop/ fireproofing insulation.
- Quality control measures specific to firestop insulation applications.
- Safety protocols for handling insulation materials in firestop installations.

**4. Hydrophobic Insulation:**

- Common insulation materials such as Aerogel, Super Mat, Pyrogel, Cryogel.
- Review of soft cover application
- Material selection criteria for hydrophobic insulation in commercial, industrial, and refrigeration applications.
- Pattern layout, fabrication, fastener, sealant, and adhesive options for hydrophobic insulation.
- Quality control measures specific to hydrophobic insulation applications.
- Safety protocols for handling insulation materials in hydrophobic installations.

Element/Course: Year 4 - Insulation & Jacketing for Refrigeration Systems	Planned Hours: 24
Mode of Instruction (check all that apply)	
<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course:	
<p>This course is designed for students to elevate their knowledge and skills in refrigeration insulation and jacketing. Students will gain in-depth knowledge across key topics, including a comprehensive refrigeration overview, vapor barrier techniques, application of vapor barriers, insulation of refrigeration equipment, jacketing of refrigeration equipment, insulation of valves, and jacketing of valves. The course emphasizes material selection criteria for commercial, industrial, marine, and refrigeration applications, while focusing on pattern layout, fabrication, fastener, sealant, and adhesive options. Quality control measures, material handling, and safety protocols in refrigeration insulation will be stressed throughout the course.</p> <p><b>Insulation for Refrigeration Systems:</b></p> <ol style="list-style-type: none"> <li><b>1. Refrigeration Overview:</b> <ul style="list-style-type: none"> <li>○ Components and functions of refrigeration systems.</li> <li>○ Importance of insulation in refrigeration for energy efficiency and temperature control.</li> </ul> </li> <li><b>2. Insulation of Equipment:</b> <ul style="list-style-type: none"> <li>○ Review of common insulation materials utilized with refrigeration equipment such as pipes, tubing, compressors, pumps, condensers, storage tanks, heat exchangers, etc.</li> <li>○ Material selection criteria for insulating refrigeration equipment.</li> <li>○ Techniques for pattern layout, fabrication, and application on equipment.</li> </ul> </li> <li><b>3. Insulation of Valves:</b> <ul style="list-style-type: none"> <li>○ Discussion of common insulation materials for valves.</li> <li>○ Material selection criteria for insulating valves in refrigeration systems.</li> <li>○ Specialized techniques for insulating and protecting valves.</li> </ul> </li> <li><b>4. Removable Insulation Systems:</b> <ul style="list-style-type: none"> <li>○ Installation and removal techniques for removable insulation covers on refrigeration components.</li> <li>○ Utilization of reusable and durable materials for optimal jacketing performance.</li> </ul> </li> <li><b>5. Vapor Barriers:</b> <ul style="list-style-type: none"> <li>○ Discussion of common vapor barrier materials utilized in refrigeration systems such as mastics, adhesives, tapes, polyethylene film, pit-wrap, rubber, etc.</li> <li>○ Techniques for vapor barrier installation in refrigeration applications.</li> <li>○ Considerations for preventing condensation and maintaining thermal efficiency.</li> <li>○ Review case studies to discuss effects of proper and improper installation.</li> <li>○ Hands-on exercises applying vapor barriers in refrigeration scenarios.</li> </ul> </li> </ol>	

**6. Safety Protocols in the Application of Refrigeration Insulation:**

- o Emphasizing the importance of safety protocols and the utilization of personal protective equipment (PPE) to safeguard against potential hazards.
- o Examine risk mitigation strategies by addressing the appropriate handling and storage procedures for insulation materials, as well as conducting hazard identification and risk assessments to proactively manage potential dangers.

**Jacketing for Refrigeration Systems:**

**1. Overview of Refrigeration System Jacketing:**

- a. Comprehensive understanding of the importance of jacketing in refrigeration systems.
- b. Identification of specific requirements for jacketing based on system components and environmental considerations.

**2. Material Selection:**

- a. In-depth discussion of jacketing materials suitable for refrigeration systems.
- b. Evaluation of material properties, including thermal conductivity, moisture resistance, and compatibility with refrigerants.

**3. Customization Techniques:**

- a. Techniques for customizing jacketing solutions to fit the unique shapes and sizes of refrigeration system components.
- b. Hands-on training in the application of specialized insulation materials for precise and efficient jacketing.

**4. Sealing and Joint Integration:**

- a. Explore methods for ensuring proper seals and integration at jacketing joints in refrigeration systems.
- b. Techniques to enhance the weather resistance and longevity of jacketing systems.

**5. Vapor Barrier Implementation:**

- a. Review importance of vapor barriers in refrigeration system jacketing.
- b. Review proper installation and selection of vapor barrier materials for enhanced insulation performance.

**6. Corrosion Protection:**

- a. Strategies for preventing and mitigating corrosion under insulation (CUI) in refrigeration system components.
- b. Selection and application of jacketing materials with anti-corrosive properties.

**7. Safety Considerations in Jacketing:**

- a. Prioritizing safety protocols specific to working with jacketing materials in refrigeration systems.
- b. Minimizing Risks and Hazards

**8. Project Work: Hands-On Jacketing Applications:**

- a. Practical applications of learned skills through hands-on jacketing projects.
- b. Fabrication and installation of jacketing systems on refrigeration components in a controlled environment.

Element/Course: Year 5 - Orientation	Planned Hours: 4
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Mode of Instruction (check all that apply)	
<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study	4hrs Classroom

Provided by: Construction Industry Training Council of Washington – Mechanical Insulator

Description of element/course:  
 This orientation is designed to ensure that students begin their 5<sup>th</sup> year with a clear understanding of standards, policies, safety protocols, and the tools required for success.

Orientation Agenda:

1. **Yearly 1st Day Orientation:** Explore the course structure, meet fellow students, and get a glimpse of what to expect throughout the year. This session sets the tone for a collaborative and engaging learning environment.
2. **Review Policies:** Students will examine the course syllabus outlining attendance policies, grading criteria, and the code of conduct. This overview fosters clarity regarding expectations and cultivates an environment conducive to optimal learning outcomes.

3. **Distribute and Discuss Student Handbook:** Students will receive the Student Handbook, a comprehensive guide that outlines essential information, resources, and guidelines for the course. A detailed discussion will ensure that everyone is well-acquainted with the handbook's contents, promoting a seamless learning experience.
4. **Anti-Harassment Training:** Prioritize a respectful and inclusive learning environment with anti-harassment training. Understand the importance of fostering a culture of mutual respect and learn about reporting mechanisms.
5. **Classroom and Lab General Safety:** Review general safety protocols and emergency procedures. This session is vital for creating a secure and productive learning environment.

1<sup>st</sup> Day Orientation is designed to empower students with the knowledge and tools needed for success in the Mechanical Insulator Course.

Element/Course: Year 5 - Safety Certification and Awareness Training	Planned Hours: 42
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input checked="" type="checkbox"/> Self-Study <span style="float: right;">40hrs Classroom/ 2hr Lab</span>	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will undergo refresher training on asbestos, lead, and silica, fall protection, and ladder safety. In addition, student will complete CPR/ First Aid training and an OSHA 30 course.	
<b>Course Highlights:</b>	
<ol style="list-style-type: none"> <li>1. <b>Asbestos, Lead, and Silica Awareness Training Refresher:</b> <ol style="list-style-type: none"> <li>a. A review of Asbestos, Lead, and Silica.</li> <li>b. Review what “respiratory” hazards are, the proper use of engineering and administrative controls, OSHA’s Table 1 (for silica), and personal protective equipment requirements.</li> <li>c. Review various topics including recognition of potential hazardous materials, health risks to workers, and information concerning 2017 OSHA/WAC changes for silica exposure.</li> </ol> </li> <li>2. <b>CPR/First Aid:</b> <ol style="list-style-type: none"> <li>a. Hands-on CPR and AED training covering adult, child, and infant procedures.</li> <li>b. First Aid training focused on common workplace injuries, medical emergencies, and proper response.</li> </ol> </li> <li>3. <b>Fall Protection &amp; Ladder Safety Refresher:</b> <ol style="list-style-type: none"> <li>a. Review of fall protection principles, equipment, and best practices.</li> <li>b. Ladder safety refresher covering proper usage, inspection, and preventive measures.</li> </ol> </li> <li>4. <b>OSHA 30:</b> <ol style="list-style-type: none"> <li>a. Students will gain knowledge and skills that help prevent injuries and keep workplaces safe and productive.</li> </ol> </li> </ol>	

Element/Course: Year 5 - Jacketing – Expanded Metal Cages	Planned Hours: 24
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study <span style="float: right;">4hrs Classroom/ 20hrs Lab</span>	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: Students will delve into complex jacketing techniques, materials, and safety considerations specific to expanded metal cages. The course aims to enhance skills in designing and implementing jacketing systems that provide durability, personnel protection, and longevity for diverse applications.	
<b>Key Learning Objectives:</b>	
<ol style="list-style-type: none"> <li>1. <b>Understanding Expanded Metal Cages:</b> <ul style="list-style-type: none"> <li>o In-depth exploration of the design, structure, and applications of expanded metal cages in various settings.</li> <li>o Identification of jacketing requirements specific to expanded metal cages.</li> </ul> </li> <li>2. <b>Material Selection:</b> <ul style="list-style-type: none"> <li>o Review of materials suitable for expanded metal cage jacketing.</li> </ul> </li> </ol>	

- Discussion of material properties, including thermal conductivity, corrosion resistance, and durability.
- 3. Customization Techniques:**
  - Techniques for customizing layout and fabrication of jacketing to fit the intricate shapes and sizes of expanded metal cages.
  - Hands-on training in the layout, fabrication, and application of jacketing materials.
- 4. Removable Metal Cage Systems:**
  - Installation and removal techniques for removable metal cage systems.
  - Utilization of reusable and durable materials for optimal performance.
- 5. Safety Considerations in Metal Cage Systems:**
  - Discuss safety protocols and considerations for working with expanded metal cages.
  - Safety measures tailored to cage jacketing for personnel protection.
- 6. Case Studies:**
  - Analyzing real-world case studies of successful expanded metal cage jacketing projects.

Element/Course: Year 5 - Rubber Applications	Planned Hours: 24
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study <span style="float: right;">4hrs Classroom/ 20hrs Lab</span>	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This course is designed to provide students with a more in-depth understanding of techniques, materials, and safety considerations specific to rubber insulation for a variety of equipment. The course is designed to provide students with the skills to design, implement, and maintain insulation systems that provide superior thermal performance, durability, and reliability in various settings.	
<b>Course Highlights:</b>	
<b>1. Properties of Rubber Insulation:</b> <ul style="list-style-type: none"> <li>○ Comprehensive exploration of the physical, thermal, and mechanical properties of rubber-based insulation materials.</li> <li>○ Understanding the unique advantages and considerations of rubber insulation in equipment applications.</li> </ul>	
<b>2. Rubber Insulation Materials for Equipment:</b> <ul style="list-style-type: none"> <li>○ In-depth study of rubber insulation materials suitable for insulating various types of equipment.</li> <li>○ Evaluation of material characteristics, including flexibility, resistance to moisture, and thermal conductivity.</li> </ul>	
<b>3. Customization Techniques for Rubber Insulation:</b> <ul style="list-style-type: none"> <li>○ Techniques for customizing rubber insulation solutions to fit the specific shapes and sizes of equipment and pipe systems.</li> <li>○ Hands-on training in layout, precision cutting, fitting, and application of rubber insulation materials on equipment and pipe system surfaces.</li> </ul>	
<b>4. Sealing and Joint Integration in Rubber Insulation:</b> <ul style="list-style-type: none"> <li>○ Discuss methods for ensuring proper seals and integration at insulation joints using rubber materials.</li> <li>○ Techniques to enhance the resistance of rubber insulation to moisture and environmental factors specific to equipment applications.</li> </ul>	
<b>5. Thermal Performance Optimization for Equipment:</b> <ul style="list-style-type: none"> <li>○ Strategies to optimize the thermal performance of rubber insulation in diverse equipment environments.</li> <li>○ Application of reflective coatings, insulation thickness calculations, and additional layers for enhanced insulation effectiveness.</li> </ul>	
<b>6. Acoustic Insulation for Equipment:</b> <ul style="list-style-type: none"> <li>○ Utilizing rubber insulation for soundproofing and acoustic control in equipment applications.</li> <li>○ Understanding the principles of noise reduction and absorption with rubber materials in industrial settings.</li> </ul>	
<b>7. Resistance to Chemicals and Corrosion in Rubber Insulation:</b>	



- Application of standing seam techniques in conjunction with Pittsburgh seams for precise and efficient fabrication.
  - Application of learned skills through the fabrication of a cone with standing seam.
  - Application of learned skills through the layout, fabrication, and installation of large equipment surface areas.
- 7. Thermal Performance Optimization:**
- Strategies to optimize thermal performance in large equipment insulation.
  - Application of reflective coatings, insulation thickness calculations, and additional layers for enhanced efficiency.
- 8. Safety Considerations for Large Equipment Insulation:**
- Safety protocols specific to working with insulation materials on large equipment.
  - Fire-resistant properties of insulation materials and safety measures tailored to large equipment insulation.
- 9. Case Studies and Innovation:**
- Analysis of successful large equipment insulation projects, including real-world application.
  - Exploration of innovative approaches and emerging trends in large equipment insulation technology.

Element/Course: Year 5 - Introduction to Job Planning	Planned Hours: 40
Mode of Instruction (check all that apply) <input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Online <input type="checkbox"/> Self-Study <span style="float: right;">35hrs Classroom/ 5hrs Lab</span>	
Provided by: Construction Industry Training Council of Washington – Mechanical Insulator	
Description of element/course: This course will discuss introductory leadership roles within the field of mechanical insulation. Students will develop a robust skill set encompassing basic leadership principles, various leadership styles, effective communication, delegation strategies, and problem-solving techniques. The curriculum extends beyond traditional leadership aspects to cover the crew leader's vital role in jobsite safety, jobsite technology, project planning, scheduling, estimating, blueprint reading and specifications for commercial, industrial, marine, and refrigeration systems. Performance tasks will be integrated into the learning process to provide practical application opportunities.	
<b>Course Highlights:</b>	
<p><b>1. Basic Leadership Skills:</b></p> <ul style="list-style-type: none"> <li>○ Introduction to essential leadership skills, including motivation, team building, and conflict resolution.</li> <li>○ Development of self-awareness and emotional intelligence for effective leadership.</li> </ul> <p><b>2. Understanding Different Leadership Styles:</b></p> <ul style="list-style-type: none"> <li>○ Exploration of diverse leadership styles such as autocratic, democratic, transformational, and situational leadership.</li> <li>○ Assessment of the strengths and weaknesses of each style and their applicability in mechanical insulating scenarios.</li> </ul> <p><b>3. Effective Communication:</b></p> <ul style="list-style-type: none"> <li>○ Strategies for clear and concise communication within the crew and with project stakeholders.</li> <li>○ Enhancement of active listening and feedback skills to foster a collaborative working environment.</li> </ul> <p><b>4. Delegating Responsibilities:</b></p> <ul style="list-style-type: none"> <li>○ Techniques for effective delegation, considering team members' strengths and project requirements.</li> <li>○ Balancing workload distribution to optimize crew performance.</li> </ul> <p><b>5. Problem Solving and Decision Making:</b></p> <ul style="list-style-type: none"> <li>○ Introduction to problem-solving frameworks applicable to mechanical insulating scenarios.</li> <li>○ Decision-making strategies considering risk, cost, and project timelines.</li> </ul> <p><b>6. Crew Leader's Role in Jobsite Safety:</b></p> <ul style="list-style-type: none"> <li>○ Understanding the crew leader's responsibility in maintaining a safe working environment.</li> <li>○ Implementation of safety protocols, risk assessments, and emergency response planning.</li> </ul> <p><b>7. Introduction to Project Management and Scheduling:</b></p>	

- Discuss techniques for project planning, including defining objectives, identifying tasks, budgeting, procurement, and establishing timelines.
- Introduction to critical path method (CPM) scheduling for efficient project management.
- 8. Introduction to Estimating and Budgeting:**
  - Principles of estimating project costs and budgeting for mechanical insulating projects.
  - Evaluation of materials, labor, and overhead costs to create accurate project estimates.
- 9. Blueprint Reading and Specifications for Commercial, Industrial, Marine, and Refrigeration Systems:**
  - Comprehensive training in interpreting blueprints specific to commercial, industrial, marine, and refrigeration insulation projects.
  - Understanding specifications and material callouts for precise project execution.
- 10. Jobsite Technology Integration:**
  - Exploration of technology tools and applications relevant to mechanical insulating crews.
  - Implementation of jobsite technology for enhanced communication, project tracking, and reporting.



## Additional Training Providers (if necessary)

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Title of Training Provider

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Organization of Training Provider

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\_\_\_\_\_  
L&I Apprenticeship Consultant

\_\_\_\_\_  
L&I Admin

Department of Labor and Industries  
Apprenticeship Section  
PO Box 44530  
Olympia WA 98504-4530



## Apprenticeship Committee Representative Qualifications

The Apprenticeship Committee is responsible for the day-to-day operations of the apprenticeship and training program and operating the program consistent with the standards of apprenticeship. Pursuant to WAC 296-05-009, the Representative listed below shall be familiar with the applicable apprenticeship standards.

Name of Program Construction Industry Training Council of Washington - Mechanical Insulator
--

Committee Representative Name Anthony Hernandez	Committee Representative Signature 
<input checked="" type="checkbox"/> Employer Representative <input type="checkbox"/> Employee Representative <i>(Does not have the authority to hire or fire)</i>	

### Work Experience

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
Construction Manager	BrandSafway LLC.	02/2023	Current
Project Manager	BrandSafway LLC.	05/2019	02/2023
Insulation & Asbestos Foreman	BrandSafway LLC.	03/2018	05/2019
Insulation/Abatement Worker	BrandSafway LLC.	12/2014	03/2018

### Education History

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Green Hill Academy	2002	G.E.D.	

### Other Technical Certifications or Licenses Held

Asbestos Supervisor Certification(Washington State) Ahera Building Inspector Certification (Washington State)
--

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Name of Program  
 Construction Industry Training Council of Washington - Mechanical Insulator

Committee Representative Name Jerry Sayles	Committee Representative Signature <i>Jerry Sayles</i>
<input checked="" type="checkbox"/> Employer Representative <input type="checkbox"/> Employee Representative <i>(Does not have the authority to hire or fire)</i>	

### Work Experience

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
PM	JRT Mechanical Inc.	08/23	Present
PM/Installer	American Heating Inc.	08/10	03/20
Plumbing/HVAC	Waterways Plumbing	05/05	08/10
HVAC installer	Area heating	03/95	05/05

### Education History

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Clark College	05/09		GED

### Other Technical Certifications or Licenses Held

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Name of Program <b>Construction Industry Training Council of Washington - Mechanical Insulator</b>
---

Committee Representative Name <b>Cory O'Neill</b>	Committee Representative Signature 
<input checked="" type="checkbox"/> Employer Representative <input type="checkbox"/> Employee Representative (Does not have the authority to hire or fire)	

### Work Experience

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
general foreman	Matrix Service Inc.	2019	present
foreman	Matrix Service Inc.	1/2014	1/2019
field craft	Matrix Service Inc.	10/2009	1/2014

### Education History

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Western Washington University	06/2002	Communication	Bach of Arts
Hudson's Bay High School	06/1997		Diploma

### Other Technical Certifications or Licenses Held

Asbestos Supervisor Certified

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 Apprenticeship Section  
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## Apprenticeship Committee Representative Qualifications

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Name of Program	Construction Industry Training Council of Washington - Mechanical Insulator
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Committee Representative Name Albert Bojorquez	Committee Representative Signature <i>Albert Bojorquez</i>
<input type="checkbox"/> Employer Representative <input checked="" type="checkbox"/> Employee Representative (Does not have the authority to hire or fire)	

### Work Experience

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
Insulator	Cutting Edge Plumbing and Mechanical	10/18	current
Insulator	Local Union 82	07/10	09/18

### Education History

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Local Union 82 Apprenticeship Program	07/14		Certification

### Other Technical Certifications or Licenses Held

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**Apprenticeship Committee  
 Representative  
 Qualifications**

The Apprenticeship Committee is responsible for the day-to-day operations of the apprenticeship and training program and operating the program consistent with the standards of apprenticeship. Pursuant to WAC 296-05-009, the Representative listed below shall be familiar with the applicable apprenticeship standards.

Name of Program:  
 Construction Industry Training Council of Washington - Mechanical Insulator

Committee Representative Name: Philip Sanders	Committee Representative Signature: 
<input type="checkbox"/> Employer Representative <input checked="" type="checkbox"/> Employee Representative (Does not have the authority to hire or fire)	

**Work Experience**

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
Mechanical Insulator	Matrix Services- Insulation Dept	08/2016	02/2024
Mechanical Insulator	Brand Energy- Insulation Dept	02/2014	04/2016
Mechanical Insulator	Transfield Services- Insulation Dept	10/2007	01/2014

**Education History**

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Alger Learning Center	10/27/2020	Finished Credits	Diploma
Sehome High School			

**Other Technical Certifications or Licenses Held**

Washington State Certified Asbestos Supervisor #ABAS000333698  
 NCCER Mechanical Insulator

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**Apprenticeship Committee  
 Representative Qualifications**

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Name of Program  
 Construction Industry Training Council of Washington - Mechanical Insulator

Committee Representative Name  
 Patrick Halloran

Committee Representative Signature  
*Patrick Halloran*

Employer Representative  Employee Representative (Does not have the authority to hire or fire)

**Work Experience**

Position (most recent first)	Employer / Organization	From (mm/yy)	To (mm/yy)
Foreman	Mechanical Insulating Inc.	08/16	Present
Supervisor	Norvanco International Inc.	06/04	08/16

**Education History**

Name of Training and/or School (most recent first)	Completed Date (mm/yy)	Program of Study	Degree or Certification
Kentlake High School	06/99		Diploma

**Other Technical Certifications or Licenses Held**

CPR/AED/First-A  
 STI Firestop Certificates in: The Basics, Silicone Sealants, Firestopping Key Points, Product Installation for Putty Pads, Intumescent Sealants, Firestop Spray, Firestop Plugs, Firestop Pillows, Firestop Composite Sheet, Firestop Box Inserts, and Collars, Wrap Strips & Tuck Ins  
 Equipment certified Class 3A and Class 7



*Received 02/23/2024 EA*

*Teri Gardner 2-26-24*



Date: February 14, 2024

To: Chair Riker and Members of the WSATC

From: Halene Sigmund, President, CITC

Re: Sustainability Plan for CITC Mechanical Insulator Package

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The Construction Industry Training Council of Washington (CITC) is a well-established 501 c 3 nonprofit organization that was incorporated in 1985. CITC is licensed by the Washington State Workforce Training and Education Coordinating Board (WTECB) under Chapter 28c.10 RCW. Additionally, CITC has been operating Washington State registered apprenticeship programs under 49.04 RCW since 1999.

Currently, CITC has 12 occupations that are registered with the state of Washington as recognized apprenticeships. The total number of apprentices registered in these programs is just under 2000 with an employer participation base of just under 400. CITC is funded by employer fees.

Between its six (6) brick and mortar facilities across the state of Washington, CITC has over 100,000 sq ft of training space. CITC has an established infrastructure with systems and processes in place to support multiple apprenticeship programs. This infrastructure, along with approximately 30 administrative staff and 100 instructors, maintains the required capacity to deliver the related supplemental instruction and support required to ensure the welfare of our apprentices.