



APPRENTICESHIP PROGRAM STANDARDS
adopted by

**WESTERN WASHINGTON STATIONARY ENGINEERS
APPRENTICESHIP COMMITTEE**

(sponsor name)

Occupational Objective(s):

SOC#

Term [WAC 296-05-015]

**FACILITIES MAINTENANCE
STATIONARY ENGINEER
WAREHOUSEMAN**

**49-9042.00
51-8021.00
51-9198.01**

**8000 HOURS
8000 HOURS
2000 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:

N/A

Provisional Registration

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By: MARK RIKER
Chair of Council

By: CHRIS BOWE
Secretary of Council

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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 Standards for the development of Stationary Operating Engineer apprentices have been prepared by Local 302, International Union of Operating Engineers

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and Industry representatives, assisted by the Apprenticeship Section, Department of Labor and Industries. When approved and registered with the Washington State Apprenticeship Council, these Standards will govern the training of apprentices in the industry.

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 all of Western Washington.

II. MINIMUM QUALIFICATIONS:

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

Age:	Shall not be less than eighteen (18) years of age at time of application.
Education:	Must have high school or equivalent.
Physical:	Must be able to meet the needs of the trade.
Testing:	N/A
Other:	N/A

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.

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A. Selection Procedures:

1. **Persons desiring apprenticeship training under the Western Washington Stationary Engineers Apprenticeship Committee must first be employed by an employer approved by the Apprenticeship Committee. The applicants are to be selected by the individual employers in accordance with customary and established policies. At the time of registration, the applicant shall be informed of the obligation to abide by the Standards established for the trade. Upon acceptance of the applicant, the Apprenticeship Committee shall make an evaluation based on the Training Coordinator's recommendation and place the applicant in the proper work experience and wage progression period and register the applicant with the Registration Agency.**
2. **The applicant will be given an "Application for Apprenticeship" and will return same to Apprenticeship Coordinator.**
3. **The applicant will be instructed to request a transcript of all school records, which will be forwarded to the Training Coordinator.**
4. **Each applicant will be instructed to attend a regular meeting of the Apprenticeship Committee and/or Training Coordinator in which the applicant is to be registered. The purpose of the applicant's attendance is to explain the apprenticeship program and the responsibilities the apprentice must fulfill during the term of apprenticeship.**
5. **All employers hiring apprentices must sign a compliance form agreeing to be bound by the Affirmative Action Program contained in these Standards and as approved by the Washington State Apprenticeship and Training Council.**

B. Equal Employment Opportunity Plan:

1. **Participation in annual workshops, if available, designed to familiarize all concerned with the apprenticeship system and current opportunities.**
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. **Grant credit for previous trade experience or trade-related courses for all applicants equally.**
5. **Engage in any other such action as stated above to ensure that recruitment, selection, employment and training of apprentices during apprenticeship shall**

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be without discrimination because of race, color, religion, national origin or sex.

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 Stationary Engineer and Facilities Maintenance Mechanic Apprentices shall be four (4) years (8000 hours) of reasonably continuous employment divided into eight (8) equal pay periods of six (6) months duration, including the probationary period.

The term of apprenticeship for Warehouseman Apprentices shall be one (1) year (2000 hours) of reasonable continuous employment divided into two (2) equal pay periods of six (6) months duration.

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)]:

- 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.

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- 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 probationary period for Stationary Engineer and Facilities Maintenance Mechanic Apprentices shall be not less than the first six (6) months (1000 hours) of reasonably continuous employment.

The probationary period for Warehouseman Apprentices shall be not less than the first (420 hours) or reasonably continuous employment.

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:

1. Stationary Engineer

Ratio of apprentices will be one (1) apprentice to two (2) journey-level workers in a specific facility.

2. Facilities Maintenance Mechanic

Ratio of apprentices will be one (1) apprentice to one (1) journey-level worker in a specific facility.

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3. Warehouseman

Ratio of apprentices will be one (1) apprentice to one (1) journey-level worker in a specific facility.

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. Wage Progression Schedules

1. Stationary Engineer and Facilities Maintenance Mechanic

Step	Hour Range or competency step	Percentage of journey-level wage rate*
1	0000 - 1000 hours	60%
2	1001 - 2000 hours	65%
3	2001 - 3000 hours	70%
4	3001 - 4000 hours	75%
5	4001 - 5000 hours	80%
6	5001 - 6000 hours	85%
7	6001 - 7000 hours	90%
8	7001 - 8000 hours	95%

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2. Warehouseman

Step	Hour Range or competency step	Percentage of journey-level wage rate*
1	0000 - 1000 hours	90%
2	1001 - 2000 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. Facilities Maintenance Mechanic Approximate Hours/Competency Level

- 1. Orientation.....200**
 - a. Terminology**
 - b. Maintenance procedures**
 - c. Safety procedures/fire safety**
 - d. Building codes**
- 2. Tool Usage and Care.....1100**
 - a. Hand tools**
 - b. Power Tools**
 - c. Electronic controls/computer equipment**
- 3. Preventive Maintenance700**
 - a. Record keeping (work orders)**
 - b. Proper use of usable spare parts**
 - c. Inventory systems**
 - d. Purchase ordering procedures**
 - e. Quality control procedures**
- 4. Facility.....3000**
 - a. Interior structure**
 - b. Exterior structure**
- 5. Repair and Maintenance3000**
 - a. Equipment**
 - b. Machinery**

TOTAL HOURS: 8000

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B. Stationary Engineer:

Approximate Hours/Competency Level

The apprentice will work directly under a journey-level engineer and from whom the apprentice will receive instruction in all phases of the trade. This experience is to develop a practical and skilled engineer versed in the theory and practice of the Stationary Operating Engineers trade.

The major processes in which the apprentices will be trained and the approximate number of hours to be spent on each process are as follows:

- | | | |
|-----------|--|------------|
| 1. | Plant Operation..... | 800 |
| a. | Air Compressors | |
| b. | Air Conditioners | |
| c. | Air Dryers | |
| d. | Boilers | |
| e. | Chillers | |
| | (1) Absorption | |
| | (2) Reciprocating | |
| | (3) Centrifugal | |
| f. | Controls | |
| | (1) Direct Digital | |
| | (2) Electric | |
| | (3) Electronic | |
| | (4) Pneumatic | |
| g. | Cooling Towers | |
| h. | Fan Units | |
| i. | Fire Alarm Systems | |
| j. | Heat Exchangers | |
| | (1) Air to Air | |
| | (2) Air to Water | |
| | (3) Water to Air | |
| | (4) Water to Water | |
| k. | Heat Pumps | |
| l. | Humidifiers | |
| m. | Lighting | |
| n. | Motors and Motor Starters | |
| o. | Production Equipment | |
| p. | Pumps | |
| q. | Refrigeration Equipment | |
| r. | Resource Recovery and CO-Generation Equipment | |
| | AC/DC Power Generation | |
| s. | Steam Turbines and Engines | |
| t. | Special Machinery | |

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- 2. Monitoring Plant Operations1000**
- a. Air Compressor**
 - (1) Check oil pressure
 - (2) Check oil level
 - (3) Check pressure controls for proper operation
 - (4) Drain moisture from receiver
 - (5) Check cooling water temperature
 - (6) Investigate any unusual operation or noise
 - b. Air Conditioners**
 - (1) Check air and/or water flow
 - (2) Check for proper temperature control
 - (3) Check for proper operation of electrical controls
 - (4) Investigate any unusual operation or noise
 - c. Air Dryers**
 - (1) Check oil pressure
 - (2) Check oil level
 - (3) Check air differential pressures
 - (4) Check pressure controls for proper operation
 - (5) Drain moisture traps
 - (6) Check air discharge temperatures
 - (7) Investigate any unusual operation or noise
 - d. Boilers**
 - (1) Check water level
 - (2) Drain gauge glass
 - (3) Check low water controls
 - (4) Check high water controls
 - (5) Blowdown water column
 - (6) Check surface blowdown
 - (7) Perform a bottom blowdown
 - (8) Check flame failure controls
 - (9) Perform a water analysis and treat accordingly
 - (10) Check fuel oil temperature and pressure
 - (11) Check atomizing air/steam pressure
 - (12) Check fuel oil tank quantity and moisture
 - (13) Check steam/water temperature/pressure
 - (14) Check the feedwater temperature and pressure
 - (15) Check quantity of make-up water
 - (16) Check flue gas temperature and opacity
 - (17) Clean and change burners
 - (18) Check burner operation
 - (19) Clean oil and water strainers
 - (20) Investigate any unusual operation or noise

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- e. **Chillers**
 - (1) Check the compressor oil level, temperature and pressure
 - (2) Check the suction and discharge temperature/pressure
 - (3) Check the inlet vane or slide vane position
 - (4) Check the motor amperage and voltage
 - (5) Check the steam pressure
 - (6) Check the cooler refrigerant temperature and pressure
 - (7) Check the brine concentrations
 - (8) Check the cooler water inlet and outlet temperature and pressures
 - (9) Check the condenser refrigerant temperature and pressure
 - (10) Check the condenser water inlet and outlet temperature and pressures
 - (11) Investigate any unusual operation or noise
- f. **Controls**
 - (1) **Direct Digital**
Monitor computer-controlled equipment, temperatures, pressures, volumes, etc.
 - (2) **Electric**
Monitor electric-controlled equipment, temperatures, pressures, volumes, etc.
 - (3) **Electronic**
Monitor electronic-controlled equipment, temperatures, pressures, volumes, etc.
 - (4) **Pneumatic**
Monitor pneumatic-controlled equipment, temperatures, pressures, volumes, etc.
- g. **Cooling Towers**
 - (1) Check for proper fan, pump, and damper operation
 - (2) Check sump water level
 - (3) Perform a water analysis and treat accordingly
 - (4) Investigate any unusual operation or noise
- h. **Fan Units**
 - (1) Check for vibration
 - (2) Visual check of belts and/or couplings
 - (3) Check motor and fan bearing temperatures
 - (4) Check inlet/outlet van/damper operation
 - (5) Check pressure and/or temperature differentials across heating coils, cooling coils, humidifiers, filter banks, etc)
 - (6) Investigate any unusual operation or noise
- i. **Fire Alarm Systems**
 - (1) Disable/enable zones as needed
 - (2) Perform emergency procedures as directed by the Fire Department

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- (3) Check "trouble" zones
 - (4) Investigate any unusual operation
- j. **Heat Exchangers**
 - (1) Air to Air
Check pressure and/or temperature differentials of all air streams and filter banks
 - (2) Air to Water
Check pressure and/or temperature differentials of all air and water streams and filter banks
 - (3) Water to Air
Check pressure and/or temperature differentials of all air and water streams and filter banks
 - (4) Water to Water
Check pressure and/or temperature differentials of all waters streams and filter banks
- k. **Heat Pumps**
 - (1) Check air and/or water flow
 - (2) Check for proper temperature control
 - (3) Check for proper operation of electrical controls
 - (4) Investigate any unusual operation or noise
- l. **Humidifiers**
 - (1) Check pans for proper level and purging and/or drainage
 - (2) Check for proper nozzle operation
 - (3) Check for proper lamp operation
 - (4) Investigate any unusual operation or noise
- m. **Lighting**
 - (1) Check for burned out lamps and/or ballast
 - (2) Check for proper lighting levels
- n. **Motors and Motor Starters**
 - (1) Check for vibration
 - (2) Visual check of belts and/or couplings
 - (3) Check motor bearing temperatures
 - (4) Check amperage and voltage readings
 - (5) Investigate any unusual operation or noise
- o. **Production Equipment**
 - (1) Check bearings, belts, sprockets, sheaves, chains, and conveyers for proper tension, lubrication and operation
 - (2) Monitor temperatures, pressures, and flow rates
 - (3) Check for proper operation of electrical controls
 - (4) Investigate any unusual operation or noise
- p. **Pumps**
 - (1) Check for vibration
 - (2) Visual check of belts and/or couplings
 - (3) Check motor and pump bearing temperatures

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- (4) Check inlet/outlet valve operation and position
 - (5) Check pressure and/or temperature differentials across pump
 - (6) Investigate any unusual operation or noise
 - q. Refrigeration Equipment
 - (1) Check air and/or water flow
 - (2) Check for proper temperature control
 - (3) Check for proper operation of electrical controls
 - (4) Investigate any unusual operation or noise
 - r. Resource recovery and co-generation equipment
 - AC/DC Power Generation
 - (1) Check for proper temperatures and pressures
 - (2) Check amperage and voltage readings
 - (3) Check for proper fuel levels and filtering
 - (4) Check for proper cooling and air flows
 - (5) Check for proper synchronization and phases
 - (6) Check for proper operation of electrical controls
 - (7) Investigate any unusual operation or noise
 - s. Steam Turbines and Engines
 - (1) Check for proper steam pressures and temperatures
 - (2) Check for proper pressures and temperatures for lubrication
 - (3) Check for proper speed and control
 - (4) Investigate any unusual operation or noise
 - t. Special Machinery
 - (1) Check for proper temperatures and pressures
 - (2) Check for proper lubrication
 - (3) Check amperage and voltage readings
 - (4) Check for proper operation of electrical controls
 - (5) Check bearing, belts, sprockets, sheaves, chains, and conveyors for proper tension, lubrication and operation
 - (6) Investigate any unusual operation or noise
- 3. Diagnostic Analysis 1300
 - a. Water Analysis
 - (1) Hot water boilers
 - (2) Steam boilers
 - (3) Closed-loop heating systems
 - (4) Closed-loop cooling systems
 - (5) Condenser water
 - (6) Chilled water
 - b. Boiler/furnace stack gases analysis
 - (1) Temperature
 - (2) CO, CO₂, O₂, NO_x

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- c. **Ambient air conditions**
 - (1) **Temperature**
 - (2) **Carbon Dioxide**
 - (3) **Oxygen**
 - (4) **Humidity**
 - (5) **Contaminates**
- d. **Process wastewater**
 - (1) **PH**
 - (2) **Contaminates**
- e. **Testing the "Sequence of Operation" for the following equipment:**
 - (1) **Air Compressors**
 - (2) **Air Conditioners**
 - (3) **Air Dryers**
 - (4) **Boilers**
 - (5) **Chillers**
 - (a) **Absorption**
 - (b) **Reciprocating**
 - (c) **Centrifugal**
 - (6) **Controls**
 - (a) **Direct digital controls**
 - (b) **Electric controls**
 - (c) **Electronic controls**
 - (d) **Pneumatic controls**
 - (7) **Cooling towers**
 - (8) **Fan units**
 - (9) **Fire alarm systems**
 - (10) **Heat exchangers**
 - (a) **Air to air**
 - (b) **Air to water**
 - (c) **Water to air**
 - (d) **Water to water**
 - (11) **Heat pumps**
 - (12) **Humidifiers**
 - (13) **Motor starters**
 - (14) **Production equipment**
 - (15) **Pumps**
 - (16) **Refrigeration equipment**
 - (17) **Resource recovery and CO-generation equipment**
 - (18) **Steam Turbines and Engines**
 - (19) **Special machines within the craft jurisdiction by contract**

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f. Electrical

- (1) Testing for continuity, grounds, short circuits, etc., on the electrical circuits of:**
 - (a) Air Compressors**
 - (b) Air Conditioners**
 - (c) Air Dryers**
 - (d) Boilers**
 - (e) Chillers**
 - (f) Controls**
 - 1) Transformers**
 - 2) Solenoid operations**
 - 3) Timers and timing devices**
 - 4) Control devices**
 - 5) Connecting three-phase and single-phase motors**
 - 6) Reversing motor direction**
 - 7) Reduced voltage starting**
 - 8) Overload protection/overload heater selection.**
 - 9) Inherent motor protection**
 - 10) Braking circuits**
 - 11) Photo-electric/proximity sensors**
 - 12) Programmable controllers**
 - 13) Direct digital Controllers**
 - 14) Contactors, starters and relays**
 - 15) Motor control centers**
 - (g) Cooling towers**
 - (h) Fan units**
 - (i) Fire alarm systems**
 - (j) Heat Exchangers**
 - 1) Air to air**
 - 2) Air to water**
 - 3) Water to air**
 - 4) Water to water**
 - (k) Heat pump**
 - (l) Humidifiers**
 - (m) Lighting**
 - (n) Motors and motor starters**
 - (o) Production equipment**
 - (p) Pumps**
 - (q) Resource recovery and co-generation equipment**
 - (r) Steam Turbines and Engines**
 - (s) Special machines within the craft jurisdiction by contract**

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- (2) **Circuit analysis**
 - (a) **Ohms law**
 - (b) **Rules of line diagrams**
 - (c) **Wire codes and amperage calculations**
 - (d) **Numerical cross referencing**
 - (e) **Wiring diagrams**
 - (f) **Torque and horsepower**
 - (g) **AC/DC motor speed control**
 - (h) **Solid state starting/speed control**
 - (i) **Photo-electric control**
 - (j) **Inspection and analysis of mechanical equipment**
 - 1) **Inspect bearings, belts, sprockets, sheaves, chains, etc.**
 - 2) **Vibration analysis**
- 4. **Preventive Maintenance 1400**

Perform the daily, weekly, monthly, quarterly, semi-annual, and annual mechanical and electrical maintenance as needed on the following equipment:

 - a. **Air Compressors**
 - b. **Air Conditioners**
 - c. **Air Dryers**
 - d. **Bearings adjustment**
 - e. **Boilers**
 - f. **Chillers**
 - g. **Controls**
 - (1) **Direct digital controls**
 - (2) **Electric controls**
 - (3) **Electronic controls**
 - (4) **Pneumatic controls**
 - h. **Cooling towers**
 - i. **Electrical Distribution**
 - j. **Fan units**
 - k. **Fire alarm systems**
 - l. **Heat exchangers**
 - (1) **Air to air**
 - (2) **Air to water**
 - (3) **Water to air**
 - (4) **Water to water**
 - m. **Heat pump**
 - n. **Humidifiers**
 - o. **Lighting**
 - p. **Motor control centers**
 - q. **Motors and motor starters**
 - r. **Production equipment**
 - s. **Pumps**

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- t. Refrigeration equipment
- u. Resource recovery and co-generation equipment
- v. Steam Turbines and Engines
- w. Transformers
- x. Any other mechanical/electrical device found in the field

5. Mechanical Repairs 700

Perform the needed mechanical repairs on the following equipment

- a. Air Compressors
- b. Air Conditioners
- c. Air Dryers
- d. Boilers
- e. Chillers
- f. Controls
- g. Direct digital controls
 - (1) Electric controls
 - (2) Electronic controls
 - (3) Pneumatic controls
- h. Cooling towers
- i. Fan units
- j. Fire alarm systems
- k. Heat exchangers
 - (1) Air to air
 - (2) Air to water
 - (3) Water to air
 - (4) Water to water
- l. Heat pumps
- m. Humidifiers
- n. Lighting
- o. Motors and motor starters
- p. Production equipment
- q. Pumps
- r. Refrigeration equipment
- s. Resource recovery and co-generation equipment
- t. Steam turbines and engines
- u. Any other mechanical device found in the field

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6. Plant safety 500
- a. Lockout and tagout of energy sources
 - b. Industrial/CPR first aid
 - c. Hazardous material
 - d. Chemical identification safety
 - e. Emergency procedures
 - f. OSHA/WISHA/EPA Standards and Regulations
 - g. General electrical/mechanical safety
 - h. Industrial Accidents/Reporting
 - i. Plant general up-keep
7. Fabrication 900
- a. Welding and use of oxy-acetylene equipment
 - b. Metal cutting power machine
 - c. Shop and bench work
 - d. Job planning
 - e. Line voltage/low voltage circuitry
 - h. Circuit Analysis
 - (1) Ohms law
 - (2) Rules of line diagrams
 - (3) Wire codes and amperage calculations
 - (4) Numerical cross referencing
 - (5) Wring Diagrams
 - (6) Torque and horsepower
 - (7) AC/DC motor speed control
 - (8) Solid state starting/speed control
 - (9) Photo-electric control
 - (10) Panel box connections
 - (11) Conduit bending
 - (12) Control devices
 - (13) Connecting three-phase and single-phase motors
 - (14) Reversing motor direction
 - (15) Reduced voltage starting
 - (16) Overload protection/overload heater selection
 - (17) Inherent motor protection
 - (18) Braking circuits
 - (19) Photo-electric/proximity sensors
 - (20) Programmable controllers
 - (21) Direct digital controllers

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8. Electrical Repairs 1400

Perform the needed electrical repairs on the following equipment:

- a. AC/DC power generation equipment
- b. Transformers and solenoids
- c. Contactors, relays and starters
- d. Line voltage and control voltage wiring
- e. Motor overload protection
- f. Timers and timing devices
- g. Motor control centers
- h. Control devices and sensors
- i. Programmable controllers
- j. Direct digital controllers
- k. Any other line voltage and/or low voltage device encountered in the field

In addition, the apprentice will be taught the use, care and safe handling of all tools, materials and apparatus commonly used in connection with the Stationary Operating Engineers trade.

TOTAL HOURS: 8000

C. Warehouseman Approximate Hours

1. Orientation.....200

- a. Terminology
- b. Maintenance procedures
- c. Methods of shipment and costs

2. Receiving.....1000

- a. Receives goods and places in stock inventory
- b. Inspects freight damage and makes proper claims
- c. Completes all paper work and return to business office
- d. Keep yearly records of all items received

3. Inventory and Stock Control600

- a. Keeps inventory of warehouse
- b. Adds all new items to District inventory
- c. Keeps track of all back order

4. Housekeeping of Warehouse.....100

TOTAL HOURS: 2000

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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): **Various Committee Approved Seminars**

☐ Sponsor approved online or distance learning courses (specify)

☒ State Community/Technical college

☐ Private Technical/Vocational college

☒ Sponsor Provided (lab/classroom)

☒ Other (specify): **BR Engilking HVAC School and Brudvik School of Refrigeration.**

B. **144** 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: (insert month) through (insert month).

☐ 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.*

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C. Additional Information:

The Apprenticeship Committee recommends that the courses for Stationary Operating Engineers be limited to those who are actually apprentices in the Stationary Operating Engineer Trade in accordance with these Standards.

In the event an apprentice has completed all of their required RSI, but has less than the required OJT, the apprentice will not be required to attend further classes unless directed by the Committee.

(Variance approved at 10/16/2014 WSATC meeting)

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:
 - a. **To review every 1000 hours the progress of each apprentice. All parties participating under the Standards may be asked for a report on each apprentice.**
 - b. **Periodic Evaluation and Work Progress Record Books:**
 - (1) **Each apprentice will be furnished with a "Work Progress Record Book" which must be signed or initialed at the end of each month by the timekeeper or foreman supervising the apprentice. The record must be submitted to the Training Office no later than the fifth of the following month regardless if the apprentice is working or not.**

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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].
3. **Sponsor Disciplinary Procedures:**
 - a. **Apprentices must complete at least 72 hours of related supplemental instruction every six months of their apprenticeship term. If the apprentice does not comply with the above rule, they may be placed on probation. The Apprenticeship Committee will determine terms of the**

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probation. If put on probation, the committee will send a notice to the apprentice who has twenty (20) days to appeal.

(1) The Apprenticeship Committee shall have the authority to withhold advancement, suspend, or cancel the Agreement for failure to comply but any action must conform to the appeal requirements. The Apprentice in question will receive a notice twenty (20) days prior to any hearing or meeting that would suspend or cancel their Agreement.

b. The Work Progress Record Book must be submitted to the Training Office no later than the fifth of the following month regardless if the apprentice is working or not. If the apprentice violates the above rule three (3) times, they may be placed on probation. The Apprenticeship Committee will determine terms of the probation.

(1) The Apprenticeship Committee shall have the authority to withhold advancement, suspend, or cancel the Agreement for failure to comply but any action must conform to the appeal requirements. The Apprentice in question will receive a notice twenty (20) days prior to any hearing or meeting that would suspend or cancel their Agreement.

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.
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.

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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

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:

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- 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
 - 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

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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.
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

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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.

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

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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: **SEE ABOVE**

b. Program type administered by the committee: **GROUP JOINT**

The Apprenticeship Committee will be composed of at least six (6) members; three (3) or more members representing the employers of Stationary Engineers and three (3) or more members representing the International Union of Operating Engineers, Local 286, each side having equal numbers.

- c. The employer representatives shall be:

**Erik Knowles, Chairman
Port of Seattle
PO Box 68727, Sea-Tac Airport
Seattle, WA 98168-0727**

**Robert Cowan
Fred Hutchinson Cancer
Research Center
PO Box 19024
Seattle, WA 98109-1024**

**Lew Newman
ABM Onsite Services
2001 22nd Ave South
Seattle, WA 98144**

**Rick Hudson
Renton Technical College
3000 NE 4th Avenue
Renton, WA 98056**

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d. The employee representatives shall be:

Michael Bolling, Secretary
IUOE Local 302
18 "E" St. SW
Auburn, WA 98001

Jeff Alexander
IUOE Local 302
18 "E" Street SW
Auburn, WA 98001

Dennis Irgens
Fred Hutchinson Cancer
Research Center
1100 Fairview Ave North
M/S LF 100
Seattle, WA 98109

Ron Voight
Port of Seattle – Sea-Tac Airport
Post Office Box 68727
Seattle, WA 98168-0727

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:

N/A

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.

Christian Dube, Training Coordinator
18 "E" Street SW
Auburn, WA 98001