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Received 05/19/2025 L&I Apprenticeship Consultant	Teri Gardner 5-19-25 L&I Admin

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

Request for Revision of Standards

TO: Washington State Apprenticeship & Training Council

FROM: **IAM/Boeing Joint Apprenticeship Committee #154**

Please update our Standards of Apprenticeship to reflect the following changes:

- Additions shall be underlined (<u>underlined</u>).
- Deletions shall be struck through (~~struck through~~).
- See attached.

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

☐ Chair ☒ Authorized Signer	Date 05-16-2025	☐ Secretary	Date
Print Name: Raymond Miller		Print Name:	
Signature:		Signature:	

Approved By: **Washington State Apprenticeship & Training Council**
Signature of Secretary of the WSATC:
Date:

Attach additional sheets if necessary

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Occupational Objective(s):	SOC#	Term [WAC 296-05-015]
FACILITIES MAINTENANCE MECHANIC	**49-9071.00**	**8000 HOURS**

IV. TERM OF APPRENTICESHIP:

The term of apprenticeship will be 8,000 hours of reasonably continuous employment and experience in the principal operations of the trade for the following occupations:

Facilities Maintenance Mechanic

VII: APPRENTICE WAGES AND WAGE PROGRESSION:

C. Wage Progression Schedules

For Facilities Crane Maintenance Mechanic; Facilities Maintenance Mechanic; Flight Line Mechanic; Manufacturing Machinist; Machine Tool Maintenance Mechanic; Maintenance Machinist; Model Maker; and NC Skin Mill Operator programs.

VIII. WORK PROCESSES:

E. Facilities Maintenance Mechanic **Approximate Hours**

1. **General Shop Equipment……200**
2. **Preventative Maintenance……1000**
3. **Facility Repair & Maintenance……4000**
4. **Specialized/Building Specific……300**
5. **Treatment System Operations & Maintenance……1000**
6. **Distribution System Operations & Maintenance 1500**

Total Hours: 8,000

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Apprenticeship Related/Supplemental Instruction (RSI) Plan Review

Program Name IAM/Boeing Joint Apprenticeship Committee	
Occupation Facilities Maintenance Mechanic	
Term/OJT Hours 8000 hours	Total RSI Hours 600 hours
Training Provider Boeing – customized course curriculum provided by NCCER	

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

☐ Chair ☒ Authorized Signer	Date 05-16-2025	☐ Secretary	Date
Print Name: Raymond Miller		Print Name:	
Signature: Raymond Miller		Signature:	

Training Provider Signature

Approved By (Print Name): Shelley Wilson	Title: BPS Senior Leader
Signature of the Training Provider: Shelley A Wilson	
Date: 05-16-2025	

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

SBCTC

Print Name:	Title:
Signature of the Program Administrator:	
Date:	
☐ SBCTC recommends approval	☐ SBCTC recommends return to sponsor

Program Name	Occupational Objective
IAM/Boeing Apprenticeship Committee	Facilities Maintenance Mechanic

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: Business Communication for Manufacturing- year 1	Planned Hours: 50 hours
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☐ Self-Study Provided by: Boeing	
Description of element/course: This instructor-led course focuses on developing job-ready skills for Apprentices in today's complex mobile and social workplace. This course will help Apprentices develop and strengthen vital communication skills that are critical in the manufacturing industry. These skills include effective verbal and written communication, critical thinking, and teamwork skills. Special emphasis is placed on professionalism and emotional intelligence. Students will also learn basic computer skills by utilizing the Microsoft Office Suite: Outlook, word, Excel, and PowerPoint (all 365). Proprietary Boeing applications and tasks like "inSite" and tie-ins will be covered in this course.	

Element/Course: Facilities Maintenance Basics I – year 1	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course outlines the tools used by Facilities Maintenance workers to measure, lay out, level, cut, drill, and join various materials, review basic math, utilize correct math functions and tables; practice reading different types of drawings used and learn to interpret the symbols, lines, labels and related codes. Introduces basic distribution systems related to water and the related features; including tubes and fittings, valves, and water heating and treatment equipment.	

Element/Course: Introduction to Various Fittings in Maintenance – year 1	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: Introduces apprentices to the different material types of fittings used in maintenance; including ABS, PVC, CPVC, PE, PEX, PB, copper, cast iron and steel. Describes how to measure, cut, join, support, size and label the various types of fittings and tubing of different materials, according to manufacturer's instructions, identify applicable codes and describe how fittings are used in DWV systems.	

Element/Course: Facilities Maintenance Basics II – year 2	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: Introduction to basic electrical safety and the principles of electricity; including voltage, current, resistance, and power. Includes important electrical formulas, circuitry, and common plumbing-related electrical applications. Expands used math concepts, such as the Pythagorean theorem and reviews math used for laying out square corners and to calculate simple, rolling and parallel run offsets. Explains how to identify and interpret isometric drawings, material takeoffs, approved submittal data, civil, architectural, structural, industrial and electrical drawings.	

Element/Course: Drain, Waste and Vent (DWV) Systems – year 2	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: Explains how to locate, install, connect, and test a complete drain, waste, and vent (DWV) system. Discusses how to develop material takeoffs, set up and use levels, how to locate building sewers and building drains, locate fixtures, and test a DWV system.	

Element/Course: Valves – year 2	Planned Hours: 15
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course reviews the various types of valves, their components, application of each type of valve and servicing practices. Explain how to replace packing and O-rings, open and close a valve's bonnet and cover how to safely troubleshoot and maintain several types of valves.	

Element/Course: Water Heaters, Gas and Oil Systems – year 2	Planned Hours: 35
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: Discusses the different types of water heaters, the components, proper installation and testing techniques and covers the latest code requirements, including FAA requirements. Introduce techniques for safe handling of oil. Reviews fuel gas and fuel oil systems, safe handling, safety precautions and potential hazards, applications, systems installation, and testing.	

Element/Course: Steam Systems and Compressors – year 3	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course introduces the properties of water and fundamentals of steam, followed by a detailed review of low-pressure steam systems and components. Covers maintenance of these systems; repair, monitoring and troubleshooting components of these systems, to include boilers, control valves, heat exchangers, condensate traps, and vacuum pumps. Introduces principles of compressed air systems and compressors; describes their components and accessories. Reviews installation and periodic servicing of air compressor systems, troubleshooting and maintenance procedures associated with compressors.	

Element/Course: Sewage and Sump Pump Systems, Waste Systems Maintenance – year 3	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course discusses the installation, diagnosis and repair of pumps, controls and sumps in sewage and storm water removal systems. It explains how to maintain drain, waste and vent systems. Apprentices will learn how to calculate for types of drainage fixture units for waste, storm drainage and roof storage and drainage systems. This course describes types of corrosive waste and reviews related safety issues, explains how to determine when corrosive-resistant waste tubing needs to be installed, how to correctly select and properly connect different types of tubing. Reviews the different types of vents that can be installed in a DWV system and explains how they work.	

Element/Course: Distillation Towers and Heat Transfer Equipment – year 3	Planned Hours: 50
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course will introduce the different types of distillation towers and industrial heat exchange equipment used in the Facilities Maintenance industry. It will explain condensate processing and review the principles of heat transfer, explain the different types of distillation towers, vessels and heat exchange equipment and describe the function, operation, maintenance, and repair of the equipment to ensure safety when servicing equipment.	

Element/Course: Advanced Systems Maintenance – year 4	Planned Hours: 55
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course explains the maintenance of multiple systems the Facilities Maintenance Mechanic will manage. They will learn to identify and describe the function and operation of various systems; troubleshoot, repair, and maintain systems used in industry. They will learn the details of boiler operation, auxiliary equipment needed to generate and manage high pressure steam, manage water supply systems, calculate system requirements and demand, developed lengths, and pressure drops, identify factors that can reduce efficiency of water supply and introduce different backflow prevention devices. This course explains how to disinfect, filter, and soften water supply systems, how to troubleshoot, flush out contaminants and disinfect a potable water system.	

Element/Course: Codes and System Maintenance – year 4	Planned Hours: 55
Mode of Instruction (check all that apply) ☐ Classroom ☐ Lab ☒ Online ☒ Self-Study Provided by: Boeing	
Description of element/course: This course will introduce the different codes used in industry and explains how codes are written, adopted, modified, and implemented. Covers the troubleshooting and repair of fixtures and valves in accordance with code and safety guidelines. Explains how to troubleshoot, diagnose and repair water supply and drainage tubing, water heaters and other equipment. Describes the effects of corrosion, freezing, and hard water on systems. Discusses how to troubleshoot water supply problems, flush out visible contaminants from a system, and disinfect a potable water system.	

Element/Course: Backflow – year 4	Planned Hours: 40
Mode of Instruction (check all that apply) ☒ Classroom ☐ Lab ☐ Online ☐ Self-Study Provided by: Boeing	
Description of element/course: Participants will learn how to: identify types of backflow preventers, components, and functions; inspect backflow prevention assembly installations; test and diagnose simulated problems in all types of approved backflow prevention assemblies; record and report assembly test results.	

Additional Training Providers (if necessary)

Click or tap here to enter text.	
Print Name Training Provider	Signature of Training Provider
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Title of Training Provider	Organization of Training Provider
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