

STATE OF ALASKA

COMPETENCY SPECIFICATION

Occupational Group: LABOR TRADES, AND CRAFTS

CAREER AREA: MAINTENANCE SPECIALIST 932X

Definition: Work typically is concerned with complete systems or complex whole structures requiring the application of more advanced skills or licenses than that required for Maintenance Generalist.

Journey level skill in two or more recognized trades is required. Selection of the primary specialty required for the on-going and regular recurring duties will determine placement, however combinations of competencies are expected to occur.

Areas of specialty are identified by class code as follow:

Wage Grade Assignments:
defined by competency level

<i>Area</i>	<i>Code-Wage Grade</i>	
Building/Facility/ Systems Maintenance	9323-xx	
Electronics	9324-xx	Journey I WG 53
Electrician	9325-xx	Journey II or Lead WG 51
Electrical Utility	9326-xx	Foreman WG 50
Plumbing	9328-xx	
Traffic control and electronic systems	9329-xx	

Levels:

Competencies are the required knowledge, skills, abilities and work behavior demonstrated and required for the on-going essential functions of the job. Possession of competencies alone *will not* automatically advance an incumbent; rather, the incumbent must demonstrate and use the competency in the on-going performance of *assigned* duties.

JOURNEY: Worker is fully proficient. Work is performed independently, using standard methods and techniques, and consists of assignments that are typical of the occupational field. Journey workers can use a variety of interrelated skills to independently complete work that conforms to industry standards. The work may require proof of competence, training or certification.

Journey I WG-53 This level performs work involving the full range of assignments normally associated with skilled work whereby the skill was gained through formal training or equivalent work experience. *Typical titles include carpenter, welder, stationary fireman.*

Journey II WG-51 Worker has and regularly uses specific skills and certifications, *such as Certificate of Fitness or the equivalent,* of the highest level skilled crafts. This represents work that generally requires more attentiveness to safety issues and generally has greater consequence of error. *Typical titles include electrician, electronic technician, plumber, electrical utility lineman. Solo maintenance mechanic with appropriate competencies may be included.*

LEAD: Worker performs the work and leads a group of other workers as defined by the collective bargaining unit contract, by directing and reviewing tasks. Lead worker assigns work; sets schedules and priorities; determines methods; provides training and instruction; evaluates and approves completed tasks.

WG-51 This level assigns and reviews daily tasks; ensures work schedules are followed and participates in the work to be done. *Typical titles include, maintenance mechanic.*

FOREMAN: Worker who acts as an intermediary between workers and management to organize, assign and directly supervise the work of a labor, trades and crafts occupational group. The worker is accountable for the quality and quantity of the work accomplished.

WG-50 Work will reflect the supervision of skilled trades.

Essential Core Competencies: “Common or typical” to the career area and required for all levels as appropriate to the specific position. *These are included in the position description and performance evaluation review process.*

Maintenance Specialist core

Knowledge of advanced shop mathematics

Practical knowledge of the principles underlying the work

Working knowledge of two or more trades or crafts work

Ability to

- perform multiple tasks in a variety of skilled trades
- perform construction and maintenance repairs
- use and operate tools, equipment or machines of varying difficulty
- perform physically demanding work
- detect and identify needed repairs
- read and write; follow and apply written and verbal directions
- make decisions and follow through to completion or resolution of a problem
- respond to emergency situations following established procedures
- demonstrate sensitivity and interest in customer concerns and needs
- develop specifications for purchase of technical and/or specialized equipment

Technical Competencies: in addition to Core Competencies. *These are included in the position description and performance evaluation review process.*

JOURNEY level workers will be required to meet the following

TO:

- have the required skills to handle difficult problems encountered
- have comprehensive knowledge of the subject or occupational area

- use judgment in determining actions
- exercise independence in determining actions
- plan and lay out work (i.e., determine how to do one's own work)
- make appropriate choice among alternatives
- complete work with only limited instruction and/or little or no advice
- proceed with work without having results or products generally reviewed in progress

Maintenance Specialist Journey I - 53
in addition

Knowledge of and the ability to perform fundamental maintenance and repair for a variety of trades and crafts work involving segments of systems and integrating into the whole

Knowledge of

- work practices, methods and processes, and their levels of difficulty in two or more trades and crafts
- codes, specifications, standards, regulations and trade manuals
- computer applications used to order, inventory, organizing, monitor and report on work

Knowledge of and skill to interpret drawings, blueprints, specifications and schematics

Basic knowledge of state procurement procedures

Ability to

- perform visual examinations and operational tests to determine the need for, and the performance of, repair work
- produce finished products with precise fits, accurate dimensions and acceptable appearances
- anticipate problems and recommend alternative solutions using trades and crafts principles
- develop preliminary project scope, which may include plans, drawings, resources, schedules and or budgets for individual projects
- train and supervise locally employed laborers and ensure that tasks get completed correctly by local help
- work from sketches, work orders, basic blueprints and instructions
- fabricate and design modifications from sketches or working drawings for a variety of structures or mechanical, plumbing, environmental systems and equipment
- ensure installation meets and complies with code requirements
- function as general contractor and/or individual project manager to inspect work of contractor
- recognize and respond quickly to dangerous situations or emergencies

Skill in

- assessing problems and negotiating solutions

- determining the appropriate layout of job and material requirements and work sequences, if no available blueprints or plans
- operation of specialized equipment true of the trade or craft such as precision electrical and electronic equipment and diagnostic tools

BUILDING, FACILITY OR CONSTRUCTION

9323-53

Knowledge of and ability to install, repair and maintain entire systems

- [] boilers/furnaces, heating/air conditioning systems and controls
- [] computer systems, networks and related devices
- [] exterior and interior structures, systems, facilities and related fixtures and utilities
- [] pneumatic controls and systems (e.g. HVAC and DDC)
- [] power generation systems and physical plant
- [] sprinkler, alarm and security systems

Knowledge of

- [] carpentry to complete total structure work rather than only a segment or specialized part of a structure
- [] woodworking techniques and advanced shop mathematics to plan, and lay out complex and exact projects with features such as arcs, tangents, and circles

Knowledge of

- [] the acquisition of proper components for electronic circuit board repair
- [] the capabilities, requirements and limitations of electronic systems and components

Knowledge of and ability to inspect, maintain and repair

- [] boiler system controls and burners, and electrical and electronic components of various systems
- [] electrical equipment, controls, alarm systems, distribution systems

Knowledge of:

- [] wastewater collection
- [] wastewater treatment
- [] water and wastewater collection and related electrical controls, equipment and chemicals
- [] water treatment and distribution

[] Knowledge of and ability to troubleshoot and diagnose components and controls of industrial/commercial hydronic/hydraulic systems.

[] Knowledge of oil burning equipment, components and controls

EXAMPLES OF DUTIES

Installs, maintains, calibrates, repairs and de-installs electronic equipment.

Provides scheduled maintenance, diagnostic troubleshooting and repair.

Provides technical assistance and training to rural community water and wastewater operators, either one-on-one or in classroom settings.

Maintenance Specialist Journey II - 51

BUILDING, FACILITY OR CONSTRUCTION 9323-
51

Knowledge of and ability to install, repair and maintain entire systems

- [] exterior and interior structures, systems, facilities and related fixtures and utilities
- [] boilers/furnaces, heating/air conditioning systems and controls
- [] power generation systems and physical plant
- [] sprinkler, alarm and security systems
- [] computer systems, networks and related devices
- [] pneumatic controls and systems (e.g. HVAC and DDC)

Knowledge of and ability to install, repair and maintain whole systems

- [] utility power plants
- [] diesel generators
- [] waste heat recovery
- [] bulk fuel systems

Knowledge of

- [] the acquisition of proper components for electronic circuit board repair
- [] the capabilities, requirements and limitations of electronic systems and components

Knowledge of

- [] materials, construction and start-up practices for electrical generation, waste heat or bulk fuel systems.

Ability to

- [] recognize and respond to dangerous situations or emergencies such as high voltage systems, electrical fires, loose hot wires, broken power lines, etc. and use appropriate response equipment.

Other:

ELECTRONICS 9324-51

Knowledge of

preventive practices in hazardous electrical areas, procedures and practices for discharging capacitors and proper grounding of conduits.

Knowledge of and ability to design, install, troubleshoot, maintain and inspect

- computer systems, networks and related devices
- electronic shop and trade practices, including technological changes
- existing and new electrical and electronic systems, components and devices

Knowledge of and ability to install, de-install, calibrate, repair, maintain and operate

- electronic ambient air monitoring systems
- water and wastewater systems

Knowledge of

- electronic instrumentation such as equipment used in an environmental laboratory or for environmental field monitoring
- related environmental laboratory instruments and support systems
- ambient air monitoring methods and scientific instrumentation

Knowledge of and ability to install, de-install, calibrate, repair, maintain and operate

- electronic ambient air monitoring systems
- water and wastewater systems

Ability to

- troubleshoot and repair defective electronic/electrical equipment

Knowledge of and skill in

- proper soldering, techniques on printed circuit boards
- cabling practices (fiber and copper)

Knowledge of and ability to

- repair power and service equipment at high and low voltage from power terminals
- install conduit and splice cable

Ability to

- recognize and respond to dangerous situations or emergencies such as high voltage systems, electrical fires, loose hot wire, broken power lines and the like and to use appropriate response equipment.

ELECTRICAL UTILITY

9326-51

Knowledge of and ability to design and develop specifications and plans

- for electrical utility power distribution systems

]to install, troubleshoot, inspect and maintain electrical power distribution systems

Knowledge of

] materials, construction and start-up practices for electrical generation, waste heat or bulk fuel systems.

] preventive practices in hazardous electrical areas, procedures and practices for discharging capacitors and proper grounding of conduits

Knowledge of and ability to install, repair and maintain whole systems

] utility power plants

] diesel generators

] waste heat recovery

] bulk fuel systems

Ability to

] recognize and respond to dangerous situations or emergencies such as high voltage systems, electrical fires, loose hot wires, broken power lines, etc. and use appropriate response equipment.

Other:

ELECTRICIAN

9325-51

Knowledge of

] preventive practices in hazardous electrical areas, procedures and practices for discharging capacitors and proper grounding of conduits.

] Knowledge of and ability to maintain, inspect, repair, adjust and install electrical systems

Ability to

] recognize and respond to dangerous situations or emergencies such as high voltage systems, electrical fires, loose hot wires, broken power lines, etc. and use appropriate response

] troubleshoot and repair defective electronic/electrical equipment

Other:

PLUMBER

9328-51

Knowledge of and ability to install, troubleshoot, repair and maintain

] plumbing systems and equipment such as potable water supplies and distribution systems

] drain waste and venting systems

] fuel and gas piping systems and venting equipment

Other:

TRAFFIC CONTROL EQUIPMENT SYSTEM

9329-51

Knowledge of and ability to install, troubleshoot, repair and maintain

- []electronic traffic control systems
- []highway illumination systems
- []traffic signal lamps and lenses
- []signal compartments
- []school flasher systems

Skill in developing and modifying computer programs/databases involving traffic control or electronic systems

Other:

EXAMPLES OF DUTIES:

Installs and performs preventive maintenance of facility components and systems, specifically in plumbing HVAC systems. Plans and fabricates systems and components.

Installs new high voltage branch mains; installs new hot water systems.

Repairs electronic devices; does preventive maintenance.

Maintains, repairs, adjusts and installs electrical systems.

Trains residents selected to care and operate utility systems or equipment.

LEAD worker will be required

TO:

- assign, monitor, train and evaluate daily tasks
- make decisions and set and balance priorities
- coordinate tasks of others and work efficiently
- ensure adherence to work schedules, quality standards, safety and security rules
- give clear instructions
- recommend appropriate solutions to difficult situations
- motivate others

Maintenance Specialist Lead 932X- 51

in addition

Ability to

- work in an efficient manner
- ensure adequacy of inventory, equipment, tools and supplies
- recommend alternative solutions to problems encountered

EXAMPLES OF DUTIES:

Compiles estimates and work plans and preventive maintenance schedules.

Inspects work done by lower level workers; makes daily assignments.

Using a combination of skills, maintains and repairs structural and mechanical components for state-owned facilities.

FOREMAN in addition will be required

TO:

- apply knowledge of individual and team behavior to the workplace
- display knowledge of supervisory principals and methods in dealing with employees
- utilize knowledge of best practices to maximize staff potential
- plan and manage resources to meet quality and quantity goals
- coach, mentor and counsel staff to meet competencies
- formulate training plans
- create and maintain an atmosphere of teamwork
- manage staff and resolve conflicts
- organize, set priorities, assign, evaluate and direct work of staff and/or contractors
- prepare and maintain records, correspondence and reports
- ensure safe work environment
- display skill in problem solving

Maintenance Specialist Foreman - 932x- 50

in addition

Ability to

- approve routine material and service contracts
- direct work of cross-functional teams
- understand inter-relatedness of components to full systems
- maintain and impart knowledge of current developments in the industry

Skill in applying creative solutions to problems

EXAMPLES OF DUTIES :

Compiles estimates, work plans. Plans for short-term and long-term preventative and repair maintenance.

Is held accountable for the maintenance and construction of systems installed by journey workers.

Certifications Licenses or Training:

[] Alaska Commercial Drivers License

- endorsements:
- Alaska Drivers License
 - Asbestos Worker Certificate
 - Basic Traffic Signal Troubleshooting
 - CERTIFICATE OF FITNESS as Electrical Lineman
 - CERTIFICATE OF FITNESS as Electrician
 - CERTIFICATE OF FITNESS as Plumber
 - Criminal background check
 - Electronic Technician
 - FCC General Radio Telephone Operator License
 - Federal security check
 - Fire Alarm System Certificate
 - First Aid and CPR Certificate
 - 40 hour Hazardous Materials Training and annual refresher course(s)
 - Heating Ventilation Air Conditioning (HVAC)
 - International Municipal Signal Association Certificate:
 - Maintenance and Installation of Roadway Lighting
 - Mandt training
 - State security check
 - Stationary Steam Boiler Certificate
 - Traffic Control Equipment Technician
 - Universal Refrigeration Certificate
 - Wastewater Collection Certification
 - Water Distribution Certification
 - Water Treatment Certification
 - Work Zone Traffic Safety Control

Other:

Environmental Conditions and Physical Requirements:

BUILDING OCCUPANCY VALUE CATEGORY

- BASIC: Class B and below
- two-car garage
 - storage and warehouse
- MEDIUM: Class A office building
- HIGH: 24-hour operation
high volume use
live-saving issues on premises
number and complexity of systems where the physical plant is integral to the program:
- correctional centers

- crime laboratories
- health laboratories
- hospitals
- other:

- Understanding of and willingness to work or interact with high risk populations, such as at a State
 - correctional facility
 - psychiatric hospital
 - Pioneers' Home
 - medical, chemical or forensic laboratory
 - other:

Exposure to:

- use of manual or portable power tools for extended periods in uncomfortable positions
- continuous standing and walking
- considerable bending, kneeling and stooping, bending, stooping, crawling
- climbing ladders, scaffolding or rooftops
- work in areas of dust, fumes, and hazards associated with the variety of tasks being performed
- moderate to high noise levels
- inclement weather including extreme conditions
- confined areas such as crawl spaces and attics which may be dusty and dirty
- possibility of cuts, bruises and contusions
- handling heavy and bulky material up to 50 pounds, unassisted
- lifting and moving heavier items with the assistance of lifting devices or other workers occasionally
- need to use protective devices such as ear plugs, safety glasses, respirators and gloves
- high pressure steam, compressed gasses or high voltage electrical shock
- travel by small planes, helicopters, etc., in hazardous flying conditions
- underground active runway areas
- chemical hazards (blood borne/airborne pathogens, bodily fluids, infectious/contagious diseases, etc.)
- environmental hazards, such as oil spills and contaminated sites
- physical agents (cold/heat stress, noise, lasers, ultraviolet radiation, hand-arm vibration, ionizing radiation, and microwave-radio frequency radiation)
- heights more than twenty-five (25) feet above ground on towers, bridgework and antennas
- explosives
- avalanche dangers

OTHER:

Equipment:

- blueprints, plans, schematics and specifications
- forklifts
- trucks (light, pick-up, flatbed, dump)
- two-way radio
- underground locating equipment
- variety of computerized or electrical testing equipment
- variety of general and specialized hand and power tools and equipment
- variety of snow and ice removal tools and equipment
- welders, cutting torch, soldering & brazing tools

[] BUILDINGS

- compressors, generators
- potable water systems
- respirators and safety equipment and gear
- scaffolding, extension ladders
- sweeper
- Other:

[] GROUNDS

- AC and DC variable power supplies
- asphalt kettle
- backhoe
- chain saw
- D-8 Caterpillar
- dump trucks
- garden tools
- grader
- ground compactor, jack hammer
- hand and riding mower
- light seed cleaning equipment
- loaders
- rototiller
- spreader
- tractors
- vehicles
- [] boom truck
- [] pickup w/lift gate
- Other:

[] SHOP AND FIELD:

- drill press
- hand and power tools
- lathe
- mill machine

- potable water systems
- respirators and safety equipment and gear
- snow and ice removal equipment
- soldering & brazing tools
- two-way radio
- underground locating equipment
- Other:

[] WATER/WASTE WATER:

- atomic absorption analyzer
- calibration devices
- flow meters
- fusion machine
- gas, liquid, ion chromatographs
- graphite furnace
- ion couples plasma/mass spectrometer
- mass spectroscopy detectors
- meteorological sensors
- oscilloscope
- Other:

Other: variety of general and specialized tool and equipment as stated:

- chemical analysis and instrumentation:
 - hydrogen and nitrogen gas generating systems
 - high purity distillation and deionizing water systems
 - spectrometers, chromatographs
- electrical:
- electronic:
- electronic traffic control:
- mechanical:
- painting:
- plumbing:
- refrigeration:
- testing equipment related to a trade or craft:
- welding machine (gas and electric):

GUIDE IN THE RANKING OF TOOLS AND EQUIPMENT

[] BASIC

Acetylene welding
Bench drill press
Hand tools

[] MEDIUM

Lathe (metal higher than wood)

Milling tools

Stick welding

[] HIGH

Boom truck

D-8 caterpillar

Grader

potable water systems

TIG welding