Nothing in this job description restricts management's right to assign or reassign duties and responsibilities to this job at any time.

DUTIES Serves as a full performance (journey) level Air Conditioning Mechanic at Washington Dulles International Airport (IAD), Metropolitan Washington Airports Authority (Airports Authority). Troubleshoots, repairs, maintains, installs, and tests a wide range of commercial-grade/industrial-scale equipment or systems (chillers, compressors, valves and pumps, heat pumps, etc.) used in conditioning air, chilling water, or making ice, including sophisticated thermal ice storage technology for air conditioning large buildings at IAD including hangars, airline offices and baggage claim areas of the Airport, the Fire Station and mid-terminal buildings, and Airport radar and computer equipment. Repairs and maintains chillers for built-in drinking fountains, large ice machines, refrigerators, walk-in freezer lockers, window air-conditioners, and stand-alone water coolers. Applies the theories, principles, requirements, and standards of the trade and uses the full range of tools of the trade, including specialized tools and software to adjust equipment/systems and diagnose problems and perform related functions.

Responds to emergency calls (e.g., temperature complaints in areas with stand-alone cooling and/or heating units or systems), troubleshoots and identifies problems (visually checks for cracks and metal erosion, determines temperature of liquid and suction lines, tests air pressure and oil levels, listens to sounds of motors, feels warmth/cold of motors and pipes, uses sense of smell to detect freon or gas leaks, and evaluates computer trouble messages on thermo-ice storage panel, etc.), and performs necessary repairs/adjustments/corrections of equipment (adjusts thermostats, relights pilot lights on gas-fired units, restarts compressors, etc.). Uses schematics to troubleshoot 460/480 volt wiring within units and traces circuitry in control boxes with as low as 30 volts.

Dismantles, repairs and reassembles air conditioning (AC) units and associated HVAC units such as roof-top heat pumps, auxiliary heating units, compressors, chillers, receivers and evaporators, replacing motors, pressure controls, contactors, expansion valves, copper tubing, etc., and repairs or replaces condenser coils. Installs and fits bearings, bushings, connecting rods, shafts, etc. Aligns motors and flywheel drives. Adjusts controls, e.g., defrost timers, switching relays, and reversing valves. Sets heat anticipators when calibrating thermostats and rewires units, as necessary. May install purge units for freon recovery. Works with exiting schematics and may make modifications of the schematics, if necessary. Recommends modifications to equipment such as time-delay devices for package units to preclude the need for resetting after power outages of short duration. Recommends preventive maintenance procedures and cycles for efficient operation of equipment.

May be required to a rebuild gearbox (on top of cooling tower for 1000-ton chiller); isolate and repair malfunctioning high-temperature hot-water valves; rebuild chilled water and high-temperature hot-water pumps (replace mechanical seals and adjust to tolerances required by manufacturer’s specifications); repair exhaust dampers on American Petroleum Institute (API) separator; and replace valves on gas-fired heating systems, etc.

Performs preventive maintenance on reciprocating and centrifugal chillers, pumps, compressors, heating/cooling package units, split systems, window air conditioners, etc., by lubricating and

replenishing oil; changing filters; tightening loose connections; cleaning coils; replacing worn belts, gaskets, pulleys and "0" rings; checking/charging refrigerant, etc.. Manually adjusts heat-pumps from cooling to heating, coordinating actions with IAD Fire Department on initial start-ups in case smoke detectors sound alarms.

May be assigned periodically to check HVAC equipment in the various machine rooms and note/correct abnormal operating conditions.

Applies the theories, principles, requirements, and standards of the trade and uses the full range of tools of the trade, including a wide variety of hand tools and specialized tools and equipment such as: sanders, grinders, saws, drills, wire cutters, shears, wrenches, compound gauges, amp probes, oxygen and acetylene torches, acid pumps, leak detectors, psychrometers, air flow meters, hydrometers, refrigerant reclaimers, vacuum and acid pumps; amp/volt/ohm meters; gauges; manometers; Simpson or similar multimeters; and pipe cutters, benders and threaders when maintaining and repairing air conditioning systems, equipment and units; measuring humidity, water temperature, and gas pressure; brazing copper tubing and parts; etc. Occasionally uses computer software to determine the operational status of equipment monitored and controlled by the energy management system.

As required, picks up supplies and parts and performs inventory of tools, materials, etc.

Occasionally cleans cooling towers and machine rooms and paints equipment. Writes discrepancy reports for problems encountered on tenant-maintained equipment and completes a Job Authorization Request if problems require additional work or parts.

May be assigned an Air Conditioning Repairer for assistance on large/complex repairs.

Drives a pick-up truck (with tools, parts, etc.) to airside and landside work sites, and may drive to/from suppliers and other sites.

Communicates and interacts effectively with internal and external business contacts including, but not limited to, other members of the unit/team, other Airports Authority employees (such as managers, supervisors, professionals, and support staff), vendors/suppliers/tenants, airport users, and the general public.

Uses a computer and (a) modern office suite software for various applications such as, but not limited to, communicating (email), word processing (light) and (b) enterprise software such as ERP (enterprise procurement-logistics system) applications, inventory management, and the current CMMS to record job progress and document finished work.

*Performs other duties as assigned. *

Critical features of this job are described under the headings below. They may be subject to change through reasonable accommodation or otherwise.

MINIMUM QUALIFICATIONS (MQs)

To be rated qualified for this job, an applicant must meet all of the MQs listed below at the time of vacancy announcement closure.

1. A high school diploma, a Certificate of General Educational Development (GED), or an equivalent combination of education, experience and training.

2. Four years of progressively responsible experience (post high school) in the maintenance, and repair of air conditioning equipment and systems which includes one year in the installation, test, diagnosis, maintenance, and repair of large-scale, commercial and industrial air conditioning (A/C) equipment and systems, such as, chillers, air and water-cooled condensers, low-pressure boilers, humidifiers, dehumidifiers, circulating pumps, air handlers, exhaust fans, air curtains, ice machines, and refrigerators. This includes knowledge of the theories, principles, requirements, and standards of the trade.

   A Journey License as an Heating, Ventilating, Air Conditioning (HVAC) mechanic is evidence of four years of progressively responsible trade experience, but is not, by itself, evidence of the one year of experience specializing in installation, test, diagnosis, maintenance, and repair of large-scale, commercial and industrial air conditioning (A/C) equipment and systems, as specified.

3. Environmental Protection Agency (EPA) Universal Certification (Section 608) to service HVAC/Refrigeration Equipment.

PREFERRED QUALIFICATIONS

The qualifications listed below (if any) are preferred and may be considered in the selection process, but are not required to be rated qualified for this job.

1. Licensed as a HVAC Mechanic in the Commonwealth of Virginia.

2. Experience working safely in a trade on a busy airfield or in an equivalent work environment such as, but not limited to, working in a trade requiring prolonged concentration and attention to detail amid maritime or motor freight cargo loading/unloading or other types of near-constant movements/operations that require continuous situational awareness and alertness to continually changing circumstances and events.

KNOWLEDGE, SKILLS, ABILITIES, AND OTHER FACTORS (KSAOs)

The following KSAOs are required for successful performance of this job and are a basis for rating and ranking applicants who are found to meet the MQs. *Local, Federal, airport industry or Airports Authority-specific bodies of knowledge listed below may be acquired on the job, typically; ability to rapidly acquire them is required at the time of vacancy announcement closure.*

1. Full performance (journey) level knowledge of, and skill in, air conditioning (AC) equipment and systems installation, testing, adjustment, maintenance, troubleshooting, and repair/replacement. This includes but is not limited to:

   Knowledge of the principles of air conditioning and refrigeration such as the refrigeration cycle, heat transfer laws, use of refrigerant tables, pressure-temperature characteristics and mechanical operation of systems/equipment to dismantle, repair and reassemble chillers, compressors, roof-top heat pumps, etc., and to adjust thermostats, switching relays, defrosting timers and similar controls for their proper operations.

   Knowledge of electrical, pneumatic, and electronic principles to evaluate, adjust, and test the operation of AC and HVAC controls.

   Knowledge of building automated systems to operate, test, and troubleshoot automated AC and HVAC equipment.

2. Skill in using tools, technical manuals, schematics, materials, and other equipment and guides in journey level A/C work. Examples include:

   Skill in using shop math to calibrate thermostats and determine sizes of ducts, capacities of equipment, and airflow required to air condition/ventilate small areas.

   Skill in using troubleshooting methods (visual, audible, and mechanical and computer diagnostic messages) to locate probable causes of malfunctions in refrigeration and air-conditioning equipment before dismantling.

   Skill in interpreting schematics and manufacturing specifications in work such as tracing circuitry in control panels, rewiring units and replacing mechanical seals.

   Skill in using tools of the trade such as compound gauges, multimeter, amp probes, vacuum pumps, torches, acid pumps, leak detectors, psychrometers, air flow meters, hydrometers and refrigerant reclaimers to perform tasks such as measure humidity and atmospheric conditions, water temperature and gas pressure; rebuild pumps and valves; repair condenser coils; and braze to replace copper tubing and parts.

3. Skill in problem solving to select, organize, and logically process relevant information (verbal, numerical, or abstract) to solve a problem. This includes skill in using technical manuals and interpreting blueprints and schematics to troubleshoot, adjust and correct AC problems and perform work according to specifications.

4. Skill in using a computer and modern office suite software (such as MS Office) to plan, schedule, communicate (using email), word process (light word processing only) and perform research (Internet use, as in searching for parts and performance information and keeping up with technology), specialized software (such as the CMMS to obtain/close out work orders, supply and procurement modules of Oracle to requisition parts, and HVAC

diagnostic and operating software to troubleshoot problems and fine tune equipment), and radio and telecommunication devices to exchange work information.

5. Skill in written communication to understand written information (including instructions, descriptions, and ideas) and to express such information in writing so that others will understand. Examples include reading technical-operational materials (such as technical manuals, maintenance schedules, and work orders) and administrative-programmatic materials, such as Airports Authority supply procedures, and writing briefly about similar types of matters, such as closing out work orders and using Safety Data Sheets (SDS).

6. Skill in oral communication to understand verbal information (including instructions, descriptions, and ideas) and to express such information verbally so that others will understand. Examples include exchanging routine and non-routine operational and procedural information with co-workers, and customers.

7. Interpersonal skills to interact effectively with business contacts in a business like, customer service-oriented manner.

8. Knowledge of and ability to apply safety rules and procedures needed to do so.

RESPONSIBILITY Is responsible, at the full performance (journey) level, for troubleshooting, repairing, maintaining, and installing air conditioning and refrigeration equipment. Reports to the Air Conditioning Group Supervisor.

Is responsible for planning test procedures, determining corrective maintenance or replacement parts and equipment required and restoring HVAC service in compliance with electrical codes, safety practices, accepted practices of the trade and manufacturers' specifications. Recommends modifications to equipment and preventive maintenance procedures. The shop leader usually assigns preventive maintenance and trouble calls; the need for additional work may be identified by the mechanic in doing routine maintenance or assigned as special projects by the supervisor. The work leader spot and verifies completion in accordance with accepted trade practices. The supervisor assures that work is satisfactorily completed by reviewing the efficiency of systems; the kind and number of complaints from airline offices, FAA tower operations, shop areas, etc.; and the nature of supplies/parts required.

EFFORT Work involves moderate to heavy physical effort. Moves throughout the airport complex. Frequently stands in one position, works in cramped positions and tight spaces, and/or works in hard-to-reach and hard-to-see situations that typically require standing, walking, stooping, kneeling, crouching, reaching, climbing (fixed vertical ladders and extension ladders to reach roof top heat pumps or tops of cooling towers) or other positioning of self to access and work on air conditioning equipment. Lifts or otherwise moves heavy objects weighing up to 100 pounds, e.g., window AC units weighing up to 75 pounds or a compressor. Rolls freon cylinders weighing up to 225 pounds (for 1000-ton chiller). Uses hoists, pulleys or crane to move larger compressors, condensers or chillers. In troubleshooting, evaluates pitch and warmth/cold of motors. Distinguishes color coded objects such as color coded wiring in control panels and water chemical testing materials. Occasionally uses a computer monitor to locate history data on equipment or determine

utility operating conditions Determines operating data on air-conditioning equipment from dials and gauges. Reviews schematics and name plates on equipment containing small print. Communicates by two-way radio. In driving, operates vehicle using judgment in consideration of weather, traffic and other factors.

WORKING CONDITIONS Works inside and outside in all types of weather, including inclement weather (rain, fog, snow, ice, cold and high heat/humidity). Is exposed to various risks and hazards: possible burns from steam and chemicals; fumes and gases; possible electrical shock; potential falls from ladders and buildings; injury from flying metal parts from grinding; and loud noises from electric generators, chillers, and compressors. Is exposed to dust, dirt, and dampness. Takes care, exercises established safety precautions and wears personal protective equipment as appropriate and required. Is subject to the pressure of working quickly, but safely and accurately, to keep utilities in service or restore service.

OTHER SIGNIFICANT JOB ASPECTS Is subject to hold-over and recall on a 24-hour basis for essential services and other emergencies such as snow removal. Is subject to working rotating shifts.

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(A/C) and ventilation systems, refrigeration equipment, and auxiliary heating and A/C units within airport buildings, such as, but not limited to, chillers, air and water-cooled condensers, low-pressure boilers, humidifiers, dehumidifiers, circulating pumps, air handlers, exhaust fans, air curtains, ice machines, refrigerators and associated equipment/components. Maintains, repairs and modifies equipment or systems (chillers, compressors, valves and pumps, heat pumps, etc.) used in conditioning air, chilling water or making ice, including sophisticated thermal ice storage technology for air-conditioning large buildings. The areas served by the equipment and systems include and computer equipment, etc. Also repairs and maintains chillers for

e.g., redesigns pneumatic and electronic controls. Troubleshoots to