

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 journey (full performance) level Exterior Electrician at Ronald Reagan Washington National Airport (DCA). Installs, tests, adjusts, maintains, troubleshoots, repairs/replaces, and modifies a full range of electrical distribution systems (consisting of medium voltage (600v-34.5\69kv)) underground power lines, airfield lighting systems and navigational aids [that are not maintained by the Federal Aviation Administration (FAA)], street and parking lot lighting systems, AC/DC and programmable control systems, as well as standby generator systems, uninterruptible power supplies (UPS), and battery systems. 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. Performs related functions.

Works on medium voltage distribution and power systems, automatic transfer switches, UPSs, interior and site lighting systems, portable and stationary generators, motors, motor control centers, traffic signals and variable speed drives.

Troubleshoots, repairs, and performs preventive maintenance on various airfield lighting systems, including runway edge, centerline, and touchdown zone lights; repairs include locating and repairing or replacing faulty transformers, cables, splices, and fixtures, as needed, while working on an active airfield around large operating aircraft. Rebuilds airfield fixtures by dismantling, sand blasting, drilling, tapping, and replacing necessary components to ensure fixtures maintain water tight integrity and proper lighting levels.

Operates, maintains, troubleshoots, and repairs portable light plants and electrical portions of stationary and portable generators.

Repairs switchgears, transformers, regulators, generators, automatic transfer switches, motor control centers, UPSs, and variable speed drives.

Bends and installs conduits, junction boxes, panel boards, control schemes, and other devices associated with electrical systems.

Installs and maintains Transient Voltage Surge Suppression Systems (TVSS) for protection against spikes and swells in the distribution equipment.

Monitors electrical systems by reading and recording gauges, meters, dials, and protective relays within the distribution center switchgear. Uses computers to operate, monitor, troubleshoot, and record critical electrical systems, standby generator systems, and network protective relaying schemes.

Operates, maintains, troubleshoots, and repairs backup generator systems to ensure timely and proper operation during adverse weather conditions and power outages.

Locates and isolates faults in cables, switchgear units, control systems, etc., caused by lightning, failures, and/or construction activities using insulation resistance test base line information.

Regularly reads, updates, and reviews design and as-built blueprints, block diagrams, schematics, manuals, and construction drawings to troubleshoot and/or repair critical backup power systems, medium voltage electrical distribution systems, and variable speed drives. Tests, maintains and troubleshoots battery systems.

Interprets, troubleshoots and repairs faulty electric and electronic components such as circuit boards, programmable logic controllers (PLCs) and digital, electromechanical, electronic and pneumatic relays.

Maintains, troubleshoots, and replaces electrical motors and kWh meters; maintains and records readings on electric revenue meters for tenant billing purposes.

Programs, sets timing of, and installs systems for traffic signal controls, including detection system, conflict monitors, and twelve ring National Electrical Manufacturers Association (NEMA) controllers. Programs, installs, repairs, and calibrates vehicle security gates.

Performs miscellaneous electrical work, such as installing new electric service; temporary substations and wiring; airfield regulators; standby generator systems; and other electrical systems critical to airport operations following the National Electric Code (NEC) and the Airports Authority Design Manual, as assigned.

Operates aerial lift truck (with air brakes), scissor lift, and forklift at heights of up to 95 feet to work on overhead electrical systems and repair lighting for aircraft ramps, streets, parking lots, and lighted directional signs on active ramps around operating aircraft. Drives a pick-up truck to work sites, landside and airside, including active airfields.

Maintains, tests, and repairs lightning protection systems in accordance with National Fire Protection Association (NFPA) 780. Uses protective equipment in accordance with NFPA 70E Personal Protective Equipment (PPE) requirements for safe work on and near energized circuits in order to prevent injury.

Locates and marks the ground, referencing existing underground electrical utilities prior to excavation; notes if cables are live or de-energized. Operates grounding and test devices on medium voltage electrical lines prior to working on them to ensure safe working conditions.

Follows safe clearance switching orders to operate critical systems during normal and abnormal working conditions to ensure continuous airport operations, while preventing injury and unplanned downtime or electrical outages.

Uses a computer, office suite software (such as MS Office), specialized software [such as the Computerized Maintenance Management System (CMMS) and supply and procurement modules of Oracle used by the Airports Authority], and radio and telecommunication devices, to plan, schedule, communicate, research part information, keep up with technology, obtain/close out work orders, etc.

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, vendors/suppliers, service contractors, tenants, airport users, and the general public.

Provides escorts for design engineers, consultants and contractors for site surveys or other activities within the secure areas of the airport.

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 three of the MQs listed below at the time of vacancy announcement closure.

1. A high school diploma or 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 electrical equipment and systems, which includes one year specializing in installation, test, diagnosis, maintenance, and repair of a range of medium voltage electrical equipment and systems, such as, but not limited to, generators, transformers, switches, circuit breakers, control systems, rectifiers, regulators, and similar equipment. This includes knowledge of the theories, principles, requirements, and standards of the electrical trade. (A Journey License as an Electrician is evidence of four years of progressively responsible electrical trade experience, but is not, by itself, evidence of the one year of experience specializing in installation, test, diagnosis, maintenance, and repair of a range of medium voltage electrical equipment and systems, as specified.)
3. Ability to obtain a Class B Commercial Driver's License (CDL) within 90 days of hire, or placement, into the job.

PREFERRED QUALIFICATIONS

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

1. A Journey License (or higher) as Electrician.
2. Substantive experience in operating, maintaining, and repairing airfield lighting systems, switchgear, traffic signals, and/or overhead lighting.
3. Experience working safely in a skilled trade on a busy airfield or in an equivalent work environment such as, but not limited to, work in a skilled 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 due to continually changing circumstances and events.

4. Possession of a Class B Commercial Driver's License (CDL).

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, medium voltage electrical equipment and systems installation, testing, adjustment, maintenance, troubleshooting, and repair/replacement. This includes but is not limited to:

Knowledge of the theories, principles, requirements, and standards of the electrical trade and the National Electric Code (NEC), altogether, as they apply to transformers, rectifiers, series and parallel AC and DC circuitry, integrated circuits and suppression circuits, AC and DC controls, switches, air and vacuum circuit breakers, starters, regulators, switchgear, motor control centers, variable speed drives and cables to perform preventive maintenance, calculate circuitry, recognize malfunctions, locate their causes, and determine the best methods for correcting defects to maintain or restore electrical service.

Knowledge of Federal and State regulations, codes and standards and Federal Aviation Administration (FAA) regulations as they pertain to airfield lighting, medium voltage electrical distribution systems, emergency generator systems, low voltage electrical distribution systems, and emergency battery systems. Skill in installing and modifying electrical systems, subsystems, and components used for airfield lighting and medium voltage service to troubleshoot, repair, and perform preventive maintenance on various airfield lighting systems.

Ability to rapidly acquire technical knowledge of new equipment and systems as they come on line and off warranty.

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

Skill in using hand and power tools of the trade in routine and non-routine work, such as various fault locators, AC and DC hi-potential testers, transformer turns ratio testers, battery impedance testers, micro-ohm meters, resistance testers, phasing sticks, infra-red cameras, phase rotation meters, medium voltage meters, current meters, volt/ohm meters, and pipe threading machines to locate areas of malfunction; to determine whether a line is energized, de-energized, or where energy is lost; to repair equipment such as medium voltage electrical distribution systems, low voltage electrical systems, and power back-up systems; and to perform related functions.

Skill in using test equipment and computer software in working on electrical systems.

Skill in using manufacturers' manuals, specifications, schematics, blueprints, and other drawings (including construction drawings, block diagrams, and wiring diagrams) to determine appropriate settings or alignments and trace circuits and perform related functions.

Skill in developing new drawings or modifying existing schematics.

3. Skill in problem solving to select, organize, and logically process relevant information (verbal, numerical, or abstract) to solve a problem. This includes the ability to recognize subtle aspects of problems, identify relevant information, and make balanced recommendations and decisions. Examples include assessing electrical and electronic system performance by taking readings, calculating line loads using specialized software, etc.; maintaining and troubleshooting airfield regulators and emergency generator systems; and troubleshooting runway sensor systems.
4. Skill in using a computer, modern office suite software (such as MS Office), specialized software (such as the CMMS and supply and procurement modules of Oracle used by the Airports Authority), and radio and telecommunication devices to plan, schedule, communicate using MS Outlook for interdepartmental communication, word processing (light word processing only), and perform research (Internet use, as in searching for parts and performance information and keeping up with technology), etc. This includes skill in using electrical-electronic diagnostics software for troubleshooting, specialized software for system fine-tuning, and skill in using specialized energy management software.
5. Skill in written communication to understand written information (including instructions, descriptions, and ideas) and in written communication 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 DCA and Airports Authority supply procedures), and writing briefly about similar types of matters, such as closing out work orders and completing Material Safety Data Sheets (MSDS).
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, contractors, and customers.
7. Interpersonal skills to interact with business contacts in a businesslike, customer service-oriented manner.
8. Ability to work safely and knowledge of the safety rules and procedures needed to do so.

RESPONSIBILITY Is responsible, at the journey (full performance) level, for installing, testing, maintaining, troubleshooting, repairing, and modifying exterior electrical equipment and systems (including medium voltage distribution lines, airfield lighting systems, AC and DC control systems, and backup generator systems) to help provide essential airfield and other electrical service within prescribed limits and according to codes, standards, regulations, and other guidelines (such as, but not limited to, the NEC, FAA Advisory Circulars (ACs) and the Airports Authority

Design Manual. Independently plans, lays out, and completes regularly recurring work. Typically seeks assistance only on unusual or complex problems. Makes decisions and recommendations within the scope of one's assignments and authority, keeps the supervisor informed and brings matters not covered by established procedures or other guidelines forward for guidance or resolution. Works within established tolerances calibrating equipment, making alignments, and fine-tuning to specific voltages. Work is subject to review in process, upon completion, and in other ways (such as performance of electrical equipment/systems after repair, nature and number of call-backs, and comments by customers) in terms of quality, quantity, timeliness, customer service, teamwork, adherence to requirements, and other factors, including attainment of specified performance management goals and objectives.

EFFORT Work requires moderate to heavy physical exertion (such as frequent, prolonged periods of exerting 20 to 40 pounds of force or continual exertion of force in the range of 10 to 20 pounds), and considerable mental attention (as in working in very close proximity to energized electro-mechanical equipment). Frequently moves from one area to another and ascends/descends stairs in checking equipment. Stoops, stretches, bends, kneels, or otherwise positions self to access and use or fix work objects and to work in tight spaces; may do such for long periods. Carries or otherwise moves and sets up parts weighing up to 80 pounds or more. Ascends/descends straight extension and fixed vertical ladders up to 85 feet. Must be constantly alert for indications of potential equipment problems or safety issues, such as stuck gauges, overheating motors, and changes in motor sounds or alarm bells. May use ladder, personnel lift, and bucket truck to reach work objects. Distinguishes color coded wiring. Uses computer. Obtains information about the status of equipment/systems from dials and gauges. Reviews, corrects, creates and updates schematics containing small print. Operates vehicle using judgment in consideration of traffic, weather, and other factors. Communicates by two-way radio and telephone.

WORKING CONDITIONS Regularly works outside in all types of weather, including inclement weather (rain, fog, snow, ice, cold and high heat/humidity). Drives vehicle landside and on airfield. Sometimes works with dirty, greasy parts in confined spaces. Is exposed to dust, dirt, dampness, and noise of jet aircraft, generators, and chillers. Is exposed to various risks and hazards: hazardous substances, such as asbestos and chemicals; possibility of injury from driving/working on airfield and streets; falls, cuts, bruises, eye injuries, and electrical shocks and burns from working amid energized high voltage electrical systems; and fumes/gases from working in electrical manholes. Is exposed to extremely noisy conditions produced by jet aircraft, electric generators, and chillers. Works at heights of up to 95 feet and is subject to fall from high elevations while performing various duties. Exercises care, follows safety precautions and procedures, and uses personal protective equipment and other safety gear, such as arc flash clothing, hard hat, face shield, safety shoes, hearing protection, eye protection, high voltage gloves, hot sticks, blankets, safety-recovery harness with tripod, and confined space monitor, as required. Is subject to time pressures of restoring operations of equipment or systems essential to airport or airline functions, safety or security.

OTHER SIGNIFICANT JOB ASPECTS Subject to holdover or recall on a 24-hour basis for essential services and emergencies, such as snow removal and restoration of electrical systems for which the unit is responsible. This position is required to work various shifts as needed based on work load, operational needs, shift coverage, etc. May be required to work night hours or weekends on airport systems.