

***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 the Electrical Engineer for capital projects at Ronald Reagan Washington National Airport (DCA) and Washington Dulles International Airport (IAD), with primary focus on Aviation Enterprise Capital Construction Program (CCP) projects under the Design Department (Department) in the Office of Engineering (Office), Metropolitan Washington Airports Authority (Airports Authority). Primary functions include support of design management activities, project management, and contract management. Designs, projects and studies involve electrical and mechanical engineering and concern medium and low voltage systems, power distribution systems, airfield, ramp, parking lot and roadway lighting systems, emergency building power and lighting systems, control and fire alarm systems, and related electrical systems and installation of primary utility lines at DCA and IAD, heating, ventilation and air conditioning (HVAC) systems, sewage and industrial waste collection and treatment facilities, domestic water distribution, fire protection, and aviation fueling; proficiency in the electrical and mechanical engineering disciplines is required—electrical engineering is primary. Incumbent may also assist in the management of projects under the Aviation Enterprise Capital, Operating and Maintenance Investment Program (COMIP). As assigned, assists in the analysis of projects to improve schedules, quality assurance and quality control, cost control, progress reporting, and safety. Performs related functions.

--Assists senior staff in the design management activities of the management team employed by the Airports Authority's principal management consultant for major capital projects and supporting or miscellaneous capital projects that include electrical/mechanical engineering components. Assists in the monitoring of new designs in progress and reviews work to ensure work performed meets Airports Authority Design Manual requirements, building code requirements, industry standards, and 'best practices'. Assists in the development of design progress reports, design and construction schedules; and coordinates with designers (within and outside the Airports Authority) on contractor-submitted items to ensure the design intent is accomplished in construction. Assists in the review of engineering designs and contract documents managed by others to ensure project interdependencies are coordinated so that construction activities may proceed expeditiously with the fullest achievement of Airports Authority objectives. Assists staff in coordinating the work activities of a number of consultants assigned to the Airports Authority's Terminal Expansion/Redevelopment Program including assisting in establishing work schedules, assignments, and priorities. Helps evaluate the overall aesthetics of structures and helps ensure proper scales of design.

--As project engineer, assists in preparation of, or helps make recommendations for, system and facility studies and designs that include: electrical and mechanical system performance characteristics (including controls, configuration, construction processes and maintainability), calculations, schematics, specifications and cost estimates. Assists in the review of system and facility studies and designs (from initial schematics to final construction drawings, specifications, etc.) prepared by airport tenants to ensure conformance with electrical and mechanical standards and related design plans, to determine the demand for future capacity, etc. Assists in the development of plans for specific design projects (including the technical and administrative steps, resources, time lines and costs, as applicable) covering the development, procurement, and

design phases, and design support during construction. In the development phase, assists in the development of functional requirements, criteria, preliminary studies, work scopes, budgets and schedules. In the procurement phase, assists in the development of solicitation packages that adhere to the Airports Authority public procurement procedures in coordination with procurement officials and staff. In the design phase, assists in developing products that ensure an appropriate blend of cost, aesthetics, functionality, constructability, maintainability and sustainability. Assists with design support during construction.

--As Contracting Officer's Technical Representative (COTR), provides technical advice to managing consultants or others to help evaluate design and construction bids; performs technical reviews; helps select Architectural/Engineering (A/E) firms for contract award — leads or participates in panels to select consultants and contractors for design and construction contracts; leads technical aspects of contract negotiations; and otherwise works with and supports the Airports Authority Contracting Officer (CO). As COTR in the design phase, manages the contract to ensure adequacy of the A/E's work, timeliness, accuracy of the construction cost estimates, and appropriate coordination between managing consultants and contractor(s) and with governmental bodies. Prepares technical aspects of contract change orders and reviews invoices and applications for payment, issues approvals for payment, resolves payment issues, and prepares contract modifications. Maintains liaison with procurement officials before and throughout construction to provide input toward accomplishing goals of the Airports Authority's Local Disadvantaged Business Enterprise (LDBE), Minority-owned Business Enterprise (MBE) and Woman-owned Business Enterprise (WBE) special emphasis contracting programs, and to control change orders, invoicing and program budgets.

--Coordinates the design A/E firm's provision of construction phase services to ensure procedures and processes are correctly followed for submittals (such as shop drawings, documents, material samples, etc.), and to facilitate project meetings and site visits, correspondence, and processing of Requests for Information.

--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), consultants, contractors, vendors and suppliers. Communication includes formal presentations to a diverse array of stakeholders.

--Uses a computer and (a) modern office suite software (such as MS Office) to communicate (email), plan, schedule, word process, manipulate data (databases and spreadsheets), prepare charts/graphics and presentations, and conduct research (Internet use); (b) enterprise software for requisitioning, budgeting, time and attendance reporting, and other functions; and (c) specialty software used in the Department such as Primavera P6 scheduling software for progress reporting.

--Drives a sedan or similar vehicle to travel to/from construction sites, to attend meetings and to attend to other business, landside and airside.

--\*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 Bachelor's Degree in Electrical Engineering or an equivalent combination of education, experience and training that totals four years.
2. Three years of progressively responsible experience that includes substantive work in the range of DUTIES in this job description such as, but not limited to, (a) assisting in design management by monitoring new designs in progress, reviewing work to ensure it meets the organization's functional requirements, building code requirements, industry standards, and 'best practices', and performing related functions; (b) preparing, or recommending, system and facility studies and designs that include electrical and mechanical system performance characteristics (including controls, configuration, construction processes and maintainability), calculations, schematics, specifications and cost estimates; (c) (i) providing technical advice to help evaluate design and construction bids, perform technical reviews, and help select A/E firms for contract award (by leading, or participating in, panels to select consultants/contractors for design and construction contracts), (ii) leading technical aspects of contract negotiations, managing, or helping manage, the contract to ensure adequacy of the A/E's work, timeliness, accuracy of the construction cost estimates, and appropriate coordination, and (iii) preparing technical aspects of contract change orders, reviewing invoices and applications for payment, and otherwise working with and supporting the CO; and (d) coordinating the design A/E firm's provision of construction phase services to ensure procedures and processes are correctly followed for submittals (such as shop drawings, documents, material samples, etc.) and to facilitate project meetings and site visits, correspondence, and processing of Requests for Information.

A fully equivalent combination of education and training beyond what is needed to satisfy MQ 1 may be substituted for up to two of these three years of experience. One example is a Master's Degree in Electrical Engineering may be substituted for two years of experience.

## **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. Possession of (a) designation as an Engineer in Training (EIT) in the Commonwealth of Virginia or (b) official verification of passing the Fundamentals of Engineering (FE)

examination of the National Council of Examiners for Engineering and Surveying (NCEES) from the jurisdiction in which the examination was taken.

### **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. Comprehensive professional knowledge of Electrical Engineering concepts, principles and practices and professional knowledge of Mechanical Engineering concepts, principles and practices altogether to assist in the program management, project management, and contract management of airside and landside capital improvement projects. These bodies of knowledge include knowledge of ways to incorporate such factors as constructability, maintainability and sustainability with functionality, and perform quality assurance/quality control of projects.
2. Knowledge of key regulatory requirements of Airports Authority contracting and engineering procedures; knowledge of building and fire codes used by the Airports Authority; and knowledge of other airport-related requirements, standards and procedures altogether to advise on the full range of electrical and mechanical design and construction issues encountered at the airports, and to serve as an Airports Authority project manager or COTR.
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 duly considering airport operational needs and Airports Authority business objectives in helping specify Terminal Expansion/ Redevelopment Program design project requirements, helping ensure due consideration of aesthetics, functionality, constructability, maintainability and sustainability in review of A/E firm designs, interpreting regulatory requirements affecting design, and estimating the time/cost of design and construction contracts.
4. Skill in oral communication to understand verbal information (including facts, assertions and arguments) and to express such information verbally so that others will understand and, at times, be convinced or persuaded, such as the wisdom of tradeoffs between initial construction costs and costs of maintainability. This skill also includes encouraging effective oral communication by others (such as resident engineers) and in making formal presentations.
5. Skill in written communication to understand written information, draw inferences, form hypotheses and develop logical arguments, and to express such information in writing so that others will understand and, at times, be convinced or persuaded. Examples include skill in

preparing memoranda, in drafting technical documents and in reviewing the written work of others (such as consultants) to identify and help resolve discrepancies in designs and reports.

6. Skill in using a computer and (a) modern office suite software (such as MS Office) to communicate (email), plan, schedule, word process, manipulate data (databases and spreadsheets), charts/graphics and presentations, and conduct research (Internet use); (b) enterprise software for requisitioning, budgeting, time and attendance reporting, and other functions; and (c) specialty software used in the Department such as Primavera P6 scheduling software for progress reporting.
7. Interpersonal skills to interact effectively with business contacts in a businesslike, customer service-oriented manner.

**RESPONSIBILITY** Is responsible for support of design management, project management and contract management for the full range of electrical and mechanical projects and issues encountered at the Airports Authority. Work contributes to the success and cost effectiveness of expansion/redevelopment of DCA and IAD.

Reports to the Manager, Design Department (Supervisor) who typically makes assignments in terms of specific objectives, known or anticipated problem areas, due dates, priorities, and special considerations. Special assignments are typically made in terms of general and special issues and expected results, known or anticipated unique problems, due dates, etc. The incumbent plans and carries out all work steps independently. On high profile work, or work where controversy is anticipated, the incumbent may work more closely with a higher grade employee or the Supervisor. In all work, the incumbent is to balance function, aesthetics, budget and schedules within the framework of a variety of design considerations, some of which are common to many airports (as with Federal Aviation Administration [FAA] standards and requirements) and others of which are specific to the Airports Authority (as in Airports Authority policy objectives and technical requirements, the interests of historic preservation, major demolition, space constraints, etc.). The incumbent carries out work under the supervision of the Supervisor with periodic reviews of overall progress and important events through discussions, reports and formal presentations; incumbent resolves most technical or project management conflicts that arise without assistance. Consults with the Supervisor on unusual problems or sensitive developments by defining the problems and offering options for resolution, typically presenting them with thorough analysis, advice and recommendations. Work is expected to be accurate, adequate and adhere to guidelines. The work is subject to review for quantity, quality, timeliness, customer service, teamwork, specified performance management goals and measures, and other factors.

Guidelines include, but are not limited to, the Airports Authority Design Manual; FAA Advisory Circulars and Transportation Security Administration (TSA) issuances; county and regional master plans; previous Airports Authority planning and design efforts; the Airports Authority CCP and COMIP budgets; work products of managing consultants, A/E firms, and contractors; DCA and IAD specific airport security requirements; Airports Authority programs, guidelines, policies, and procedures regarding the CCP and the COMIP, contracting (including such special

emphasis contracting programs as the LDBE, MDE, and WBE programs) and other programmatic matters; the Airports Authority Building Codes Manual and permitting/inspection processes in use at the Airports Authority; and Federal or other laws or standards on the environment, transportation, life safety (such as National Fire Protection Association [NFPA] standards), and public access to facilities and transportation (such as the accessibility provisions of the Americans with Disabilities Act [ADA]). The incumbent works in strict adherence to some guides (such as FAA Advisory Circulars and the public procurement process), adapts/adjusts other guides to fit specific situations, and recommends/develops Terminal Expansion/Redevelopment project specifications.

**EFFORT** The work is primarily sedentary and incumbent may sit for extended periods when performing deskwork; however, regularly traverses areas of uneven terrain and unfinished construction and moves and positions self to gather data in the field and inspect work on site. Distinguishes color-coded items on maps and drawings; selects materials and colors for basic designs; and matches shades or fine distinctions of colors for special effects. Regularly reviews drawings and other documents containing small print, symbols and engineering notations. Uses a computer and communicates by telephone frequently. Transports files, opens and closes file drawers, and performs similar activities. In driving, operates vehicle using judgment in consideration of weather, traffic, and other factors.

**WORKING CONDITIONS** Works primarily in adequately lighted, adequately ventilated, and temperature controlled office and conference rooms; occasionally works outdoors at job sites amid construction in or atop unfinished buildings and other structures. While in the field, is subject to adverse weather conditions and dust/grease/dirt. May be exposed to hazardous substances in areas of new construction, redevelopment, or environmental clean-up. When airside, is subject to noise from aircraft. In construction areas, is subject to noise from construction equipment and potential for injury arising from accidents (involving construction equipment, moving vehicles, falling debris, etc.) that are common to the construction industry. Wears hard hat, safety glasses, ear protection, boots or safety shoes, and other personal protective equipment, as necessary. Follows established safety practices and identifies potential hazards in unfinished areas to eliminate, avoid, or minimize potential hazards to self or others, as appropriate, to work site and circumstances. Is subject to job pressures due to having to achieve tight project schedules within cost budget, the need to quickly react to and help resolve the numerous problems encountered during construction, and having to balance aesthetics, functionality, constructability, maintainability, and sustainability.

**OTHER SIGNIFICANT JOB ASPECTS** May be required to occasionally work nights and weekends depending on project schedules, airport operations and other factors.