

Black text – from standard FAA spec

Blue text – additions to FAA standard spec

~~Strikeout text~~ – deletions from FAA standard spec

Red text – notes to the Engineer/won't appear in spec

I. DESCRIPTION

A. GENERAL

1. Install/remove, and modify taxiway and runway lighting, illuminated signage, power supply, cabling and electrical conduit and all other electrical work
2. In accordance with AC 150/5370-10.
3. Contractor shall have 5 years of verifiable experience
4. The Contractor shall pay for all electrical inspections and permits
5. Contractor shall furnish the Engineer a list of the equipment and materials.
6. Work shall be performed in accordance with these specifications:
 - a) Section 69
 - b) Section 70
 - c) Section 71
 - d) Section 72
7. The following electrical equipment shall conform to the following FAA specifications.
 - a) L-804
 - b) L-804E
 - c) L-850A
 - d) L-850B
 - e) L-850C
 - f) L-852C
 - g) L-852D
 - h) L-852E
 - i) L-852G
 - j) L-852T
 - k) L-858Y, R, L, B
 - l) L-861T
 - m) L-862

II. SUMMARY OF WORK

- A. The work to be performed shall include complete electrical work
- B. This work includes but is not limited to the following:
 1. Maintain in operation all existing field electrical facilities
 2. Furnish, install, test and tag underground cable (L-824)
 3. Furnish and install new signs complete
 4. Furnish and install special blast resistant signs
 5. In[**new**] [**existing**] pavement [**furnish and**] install [**new**] [**salvaged**] [**in-pavement**] [**elevated**] [**runway**] [**taxiway**] [**centerline**] [**edge**] [**warning**] [**flashing guard**] [**clearance bar**] [**threshold**] [**touchdown zone**] [**other**] lights
 6. Remove existing [**elevated**] [**in-pavement**] [**runway**] [**taxiway**] [**centerline**] [**edge**] [**warning**] [**flashing guard**] [**clearance bar**] [**threshold**] [**touchdown zone**] [**signs**] [**other**] lights
 7. Install new blank covers on existing base cans
 8. Furnish and install new pullboxes and manholes
 9. Provide temporary airfield lighting and power connections
 10. Ground all equipment
 11. Modify existing site electrical equipment
 12. Guarantee as required by the Performance and Maintenance Bond.
 13. [Replace existing incandescent/quartz taxiway lights with new Light Emitting Diode (LED)]

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14. Provide temporary panels in the airfield signs to accommodate temporary designations
15. Reconnect, re-tag and re-identify marking of the existing circuits
16. Investigate unknown cables and conduits.
 - a) The areas of work contain existing cables, the functions of which are unknown.
 - b) As a part of this contract, the contractor shall investigate these cables
 - c) upon detection of unknown cables, the contractor shall notify the Engineer
17. Relocate [] electrical items identified on the plans including [].
18. Remove and [dispose of][salvage] electrical items identified on the plans including [].
19. Other items required to complete the work shown on the plans.
 - a) All items of general work required, such as excavation, cutting, patching, etc.,
 - b) The Contractor shall at all times keep the construction areas free
 - c) The electrical construction and installation shall be complete.

III. TEMPORARY TAXIWAY LIGHTING

- A. Temporary taxiway lighting shall be installed at locations shown on the plans
- B. The temporary lighting shall be installed, relocated and reinstalled
- C. Installation and testing performed under this item shall be as specified

IV. PHASING

- A. All existing runway and taxiway lights not included must be kept in operation
- B. The contractor shall be responsible for troubleshooting and investigative work
- C. The contractor shall be responsible all required temporary light fixtures
- D. Contractor shall coordinate with the airport operations and
- E. Contractor shall provide sufficient equipment required to provide temporary circuit
 1. XXX LF of two-inch RGS conduit
 2. XXX LF L-824 cable
 3. XXX L-823 connector kits.

V. INTERRUPTIONS AND TEMPORARY CIRCUITS

- A. The contractor shall not interrupt air traffic
- B. All temporary connections and re-routing of circuits shall be replaced with new materials
- C. **Note:** the contractor shall disconnect all circuit cables from their respective power sources

VI. REMOVALS

- A. The contractor shall remove all existing accessories from the areas shown
- B. The contractor shall core as required to make conduit connections.
- C. Cables, conduits, ducts, and light bases to be removed shall be disposed of legally
- D. All light fixtures shall be delivered to the airport maintenance yard at 7411 world way west.

VII. MAINTENANCE DURING CONSTRUCTION

- A. Contractor shall maintain all systems and equipment provided under contract

VIII. DRAWINGS

- A. The drawings are diagrammatic in nature.
- B. The design drawings may be utilized in the preparation of the shop drawings
- C. The plans and specifications are complementary
- D. Where a disagreement exists the item or arrangements of better quality, greater quantity, or higher cost shall be included in the base bid.
- E. Any discrepancies must be resolved with the engineer before bidding the job.
- F. The responsibility for the correct and satisfactory installation required herein shall rest with the contractor.

IX. SITE CONDITIONS

- A. This subsection as written in the standard specifications will apply under the contract.

X. CODES

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- A. The contractor shall comply with all ordinances, laws, regulations, and codes applicable to the work involved.
 - B. Regular inspections shall be requested by the contractor as required by any and all regulations.
- XI. MAINTENANCE AND OPERATING INSTRUCTIONS**
- A. The contractor shall provide the airport's engineer with complete instructions.
- XII. MAINTENANCE AND OPERATING MANUAL**
- A. The contractor shall collect and assemble ten (10) hardcover books containing the installation details
- XIII. AS-BUILT DRAWINGS**
- A. The contractor shall mark up one set of black line prints to show the as-built conditions
- XIV. SPARE PARTS FOR AIRFIELD LIGHTING AND SIGNAGE SYSTEM**
- A. The contractor shall furnish 5% spare parts to lawa c&m
 1. Lamps
 2. Lamp holders/sockets
 3. Gaskets, seals and O-rings
 4. Reflectors
 5. Lens replacement kits
 6. LED power supply units
 7. Heat sink assembly with LED
 8. Isolation transformers
 9. Breakable couplings
 - B. The contractor shall submit a schedule of spare parts
 - C. The contractor shall submit a schedule of airfield lighting
- XV. INSTALLATION METHODS**
- A. The method used for the installation shall conform to the (neca)
 - B. All electrical materials, methods, and installation shall be in accordance with applicable federal aviation administration's advisory circulars
 - C. All ferrous metal work shall be galvanized.
 - D. All fittings shall be, of an approved corrosion-resisting material
 - E. Contractor shall maintain electrical continuity throughout the system.
- XVI. QUALITY ASSURANCES**
- A. WORKMANSHIP
 1. Workmanship shall be consistent
 - B. MATERIALS
 1. Materials and equipment shall be ul and/or faa approved
 - C. PARTS RATING
 1. All parts shall be of adequate rating
 - D. ENVIRONMENTAL CONDITIONS
 1. The equipment installed shall be designated for continuous outdoors operation
 - a) Temperature:
 - b) Altitude:
 - c) Humidity:
 - d) Sand and Dust:
 - e) Wind:
 - f) Water:
- XVII. TESTING**
- A. The contractor shall furnish all materials, labor and appliances necessary to test
- XVIII. INSPECTION**
- A. At the completion of work, the contractor shall secure approval

XIX. SAFETY PROCEDURES FOR WORKING ON AIRPORT LIGHTING SYSTEM

- A. The contractor shall follow the safety procedures
 - 1. Procedures for Taking Circuits out of Service
 - a) Contractor shall notify the Inspector
 - b) Inspector shall notify Operations, who will notify the Tower
 - c) After shutdown, the Contractor shall field test the circuits
 - 2. Procedures for Placing Circuits Back in Service
 - a) The Contractor will notify the Inspector
 - b) The Inspector will contact all other inspectors
 - c) Operations will notify the Airport electrician

XX. AIRPORT LIGHTING SYSTEM

- A. GENERAL
 - 1. This item consists of airport lighting systems furnished and installed
 - 2. Additional details are contained in the following Advisory Circulars.
 - a) FAA A C 150/5340-18
 - b) FAA AC 150/5340-30
 - c) FAA AC 150/5345-7
 - d) FAA AC 150/5345-26
 - e) FAA AC 150/5345-42
 - f) FAA AC 150/5345-44
 - g) FAA AC 150/5345-46
 - h) FAA AC 150/5345-47
 - i) FAA AC 150/5345-2
 - 3. Codes and Regulations applicable to the project include
 - a) FAA Advisory Circulars
 - b) National Electrical Code (NEC)
 - c) City of Los Angeles, Building Safety Code (Electrical)
 - d) Underwriters Laboratories (UL)
- B. EQUIPMENT AND MATERIALS
 - 1. General
 - a) Airport lighting equipment shall have the prior approval of the FAA
 - b) All other equipment and material shall be subject to acceptance
 - c) List of the equipment and materials required for a particular system are contained in the applicable advisory circulars.
 - 2. Tape
 - a) Rubber and plastic
 - 3. Concrete
 - a) shall conform to the requirements of Section 54
 - 4. Colored Filters
 - a) colored lenses shall conform to the requirements of MIL-C-25050 Type I.
 - 5. Squeeze Connectors
 - a) shall be equal to Crouse-Hinds Company
 - 6. Lamps
 - a) installed in existing units shall be new.
 - 7. Isolating Transformers
 - a) installed in all units shall be new L-830
 - 8. Airfield Lighting Fixture Identification
 - a) All new airfield light shall be identified with new Painted identification
 - 9. Identification Number Plates
 - a) for all lights shall be non-corrosive metal disc
- C. CONSTRUCTION METHODS
 - 1. General

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- 2. a) installation and testing shall be as specified in AC 150/5340-
Light Placement
 - a) fixtures shall be installed at the location shown on the plans.
- 3. Airfield Lighting Fixtures
 - a) shall conform to FAA specification for the type of the lights.
- 4. The installation and testing shall be as specified in the FAA AC 150/5340-30.
- 5. Orientation of Light Beam for Taxiway Centerline Lights
 - a) Taxiway centerline lights should be oriented
 - (1) On Straight Segments
 - (2) On Curved Portions
 - (3) High speed Exit Taxiways
- D. LIGHTED GUIDANCE SIGNS
 - 1. General
 - a) Signs shall be “Lumacurve” with low voltage LED
 - 2. Sign Construction
 - a) shall be constructed of lightweight materials.
 - b) (VA) shall not exceed the maximum specified.
 - c) shall be single or double face
 - d) shall be 1, 2, 3, or 4-modules in length
 - e) shall be provided with the proper power cord and plug
 - f) shall be of modular construction;
 - 3. Wind Loading
 - a) shall be in accordance with The FAA-requirements.
 - 4. Isolation Transformers
 - a) shall conform to FAA Specification L-830, AC 150/5345-47
 - 5. Sign Placement
 - a) at the locations shown on the plans.
 - 6. Concrete Pads
 - a) shall be constructed to the dimensions on the drawings.
 - 7. Nameplate
 - a) shall have a nameplate giving the sign name and number
 - 8. Leveling
 - a) the machined upper surface of the base flange will be level within 2 degrees
 - 9. Identification Tags
 - a) Tags shall consist of a copper metal disc of 2 inches diameter
 - 10. Cable Entrance
 - a) Seal cable entrance to the base.
 - 11. Cable Connection
 - a) pull underground supply cable into each light base.
 - 12. Assembling Unit
 - a) signs and connect in accordance with manufacturer’s instructions.
 - 13. Special Electrical Filters
 - a) Special filters are required in the sign unit base
 - 14. Testing
 - a) the current to the lamps shall be checked with a true RMS ammeter.

XXI. ELECTRICAL POWER WORK

- A. PRODUCT DELIVERY, STORAGE AND HANDLING
 - 1. Provide factory-wrapped water-proof flexible barrier
- B. GROUNDING
 - 1. provide grounding facilities for the entire electrical installation
 - 2. Inspection
 - a) examine the areas which conduit and fittings are to be installed

- 3. Installation
 - a) Install conduit and fittings as indicated
- C. DRY TYPE POWER TRANSFORMER
 - 1. Dry type power transformers shall be NEMA 3R
- D. SURGE ARRESTER
 - 1. Surge Arrester shall be UL listed
- E. FUSED DISCONNECT SWITCHES
 - 1. Fused disconnect switches shall be heavy duty type
 - 2. Heavy duty fused disconnect switches shall be UL listed.
- F. MEDIUM VOLTAGE POWER CABLES
 - 1. Medium voltage power cable shall be insulated (EPR) with PVC jacket.

XXII. METHOD OF MEASUREMENT

- A. The quantity of [signs,] [temporary panels for the designated signs,] [lights,] [temporary fixtures][I-868 cans with ¾” steel cover][other]
- B. “Standing red” barricade lights
- C. Temporary circuits and fixtures
- D. The investigation of unknown cables

XXIII. BASIS OF PAYMENT

- A. Payment will be made at the contract unit for each complete [sign,] [temporary panel for the designated signs,] [light,] [temporary fixture][I-868 can with ¾” steel cover][other]
- B. Payment will be made at the contract lump sum price for “standing red” barricade lights.
- C. Payment will be made at the contract lump sum price for temporary circuits and fixtures barricade lights.
- D. Payment will be made at the contract lump sum price for temporary circuits and fixtures barricade lights.
- E. The investigation of unknown cables shall be measured as a lump sum and shall be paid and prorated out of an allowance, stipulated in the “ schedule of work and prices” as a part of the bid package.
- F. Payment for all removals shall be made at the contract lump sum price for all work necessary to complete the removals as shown on the plans.
- G. No separate payment shall be made for reconnecting, re-tagging and re-identifying markings of the existing circuits to match revised airfield lighting circuitry, which should be considered as incidental to airfield lighting work.
- H. No additional payment will be made for difficulties encountered when accomplishing work required by this section of the specifications in areas of night construction, or in other areas subject to constructions phasing restrictions.
- I. Payment will be made under:
 - 1. 68.1 Sign [1][2][3][4]-module, size [3][4] , [single][double] face - per each
 - 2. 68.2 Temporary Sign [1][2][3][4]-module, size [3][4] , [single][double] face - per each
 - 3. 68.3 [In- Pavement] [Elevated] [runway] [taxiway] [centerline] [edge] [guard] [other] light with base can, and isolation transformer in [new][existing][PCC][AC] pavement - per each
 - 4. 68.4 “standing red” barricade lights – per lump sum
 - 5. 68.5 temporary lighting - per lump sum
 - 6. 68.6 electrical power work at [] - per lump sum
 - 7. 68.7 relocate [] - per lump sum
 - 8. 68.8 investigation of unknown cables - per allowance
 - 9. 68.9 removal of electrical items- per lump sum

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10. 68.10 [other] - per [each][lump sum][allowance]

XXIV. END OF SECTION