

GUIDELINES FOR INSPECTION AND ACCEPTANCE OF STREET LIGHTING SYSTEMS

All street lighting systems *that will be maintained by the City of Columbus, Division of Electricity*, including work in progress, shall be inspected to ensure that facilities and material are designed and installed in compliance with the Division of Electricity's current "Material and Installation Specifications"(MIS) and the current City of Columbus, "Construction and Material Specifications"(CMS).

Qualified electrical professionals are required to assist inspectors and engineers with the inspection of street lighting systems. The contractor shall assist with the inspection of all new streetlight systems installed by said contractor.

DOE shall make all final connections to existing street light circuits that are maintained by DOE.

All communications between the Division of Electricity and the contractor regarding the construction, installation and inspection of a street lighting system shall be made through the inspection service

1. CONTRACTOR'S RESPONSIBILITIES

- A. The **contractor** is responsible for installing the streetlight system per the Division of Electricity's current Material and Installation Specifications and the current City of Columbus, Construction and Material Specifications unless otherwise authorized in writing by the Division of Electricity (DOE).
- B. **Contractors** working on Division of Electricity facilities are required to comply with their company's OSHA Lock Out/Tag Out Program and comply with the Division of Electricity's Conductor Safety Program and Policies. (See MIS-95)
- C. The **contractor** shall advise the inspection service of any proposed streetlight change or deviation of the approved construction plan. Inspection service shall determine if the Division of Electricity should be contacted for DOE's opinion or advice regarding the streetlight change.
- D. The **contractor** shall make arrangements with the appropriate electric provider for primary service to the controller. For DOE power please contact Chris Vogel at 645-6963

- E. The **contractor** shall comply with the inspection services requirements to inspect during construction. The **contractor** shall complete all punch list items before DOE accepts the new streetlight system.
- F. The **contractor** shall provide the inspection service with the signed “Electrical Testing 1000.18” form. The inspector shall submit the form to DOE engineering at least 5 working days before final acceptance is desired.
- G. Acceptance of a New Streetlight System from the **Contractor**.
 - 1) **New Circuit / New Controller / AEP or SCP Power**
 - a. The **contractor** shall request AEP/SCP to make the final connection to the AEP/SCP transformer.
 - b. The **contractor** shall energize the AEP/SCP controller and cover the photocell so the inspector can see that the photocell and all the lights on the circuit are working properly.
 - c. The **contractor** shall assist the DOE engineer *or inspector* with the examination of any circuit that has been energized even if the controller is in the off position.
 - d. The **contractor** shall assist the engineer by energizing the controller, checking the amps, voltage, wiring and grounding of the controller.
 - e. Per the Electrical Testing 1000.18 form the **contractor** shall also *perform* with the Voltage regulation and Current Balance Test *for the engineer to record*.
 - f. The **contractor** shall open pull boxes and **all** streetlight pole hand hole covers and pull out the cable so fusing, grounding and neutral bonding can be inspected.
 - g. The **contractor** shall test the ground wire and determine the ohms for the *inspector* to record. Locations for spot testing shall be determined by the Engineer. *(If the project is accepted before July 2004 and/or test forms have not been submitted by contractor then the contractor shall test the ground wire and determine the ohms for the engineer to record on all poles.)*
 - 2) **New Circuit/ DOE Power**
 - a. Before the circuit is energized the inspection service, with the aid of **contractor** shall inspect the installation and prepare a punch list. When repairs are made, the **contractor** shall notify the inspection service.

- b. The contractor shall assist the engineer accepting the light system by tic tracing the poles and opening the controller, pole hand holes and pull boxes so the wiring can be checked for correctness.

***ALL CONNECTIONS TO D.O.E.'S TRANSFORMERS OR
EXISTING CIRCUITS SHALL
BE MADE BY D.O.E. ONLY***

- c. *Connecting a new circuit to a DOE transformer*
 1. After the DOE engineer approves the pole wiring the engineer shall schedule DOE distribution crew to connect the transformer to the controller with the coiled cable provided by the **contractor** at the pole or pad. DOE distribution crew will check controller for correctness before tying into the transformer.
- d.. *Connecting a new circuit to an existing DOE circuit*
 1. After the DOE engineer approves the pole wiring on the new circuit with the aid of the **contractor** the engineer shall schedule DOE distribution crew to connect the new streetlight system to an existing circuit within 24 hours.
 2. The DOE crew will inspect and tic-trace the existing controller and circuit before connecting the new circuit installed by the **contractor**.
 3. The contractor shall be present when DOE connects to the new circuit and energizes the controller. The **contractor** and DOE shall inspect and tic-trace their circuits for problems. If repairs are necessary by either group the DOE distribution crew will determine if the new circuit can remain connected to the existing circuit. All repairs shall be made within 24 hours. Both the **contractor** and DOE shall comply with Lock/Out, Tag/Out procedures.
- e. The **contractor** will aid DOE engineer in doing a final inspection of the controller and spot checking streetlight poles and pull boxes. Locations for spot testing ohms shall be determined by the Engineer. (If the project is being accepted before July 2004 and/or test forms have not been submitted by **contractor** then all poles must be tested.)

- f. The DOE distribution crew will make two (2) trips to a new circuit at no cost to the **contractor**. The **contractor** will be charged for labor and equipment for all DOE crew trips after two.
- g. The DOE engineer shall accept the circuit *or* if the contractor needs to make repairs to the circuit the **contractor** must contact the inspection service and follow the DOE “Lock out Tag out” procedure. After repairs are made the **contractor** shall notify the inspection service and the inspector and the DOE engineer will do a final inspection and acceptance.
- h. *Per the Electrical Testing 1000.18, the **contractor** shall perform the Voltage Regulation and Current Balance Test for the engineer to record.*

2. INSPECTOR’S RESPONSIBILITIES

- A. All street lighting systems installed by contractors shall require an **inspector** to be on site to oversee the installation. The **inspector** shall see that the streetlight system is installed per the Division of Electricity’s current Material and Installation Specifications and the current City of Columbus, Construction and Material Specifications unless otherwise authorized in writing by the Division of Electricity (DOE).
- B. **Inspectors** are required by DOE to use the current 3 page, “Inspection Checklist for Streetlight Construction” and “Electrical Testing 1000.18” forms. The completed forms shall be submitted by the inspector to DOE for streetlight pole installation history. (“The Division of Electricity Note” on construction plans has required “testing” since November, 2003)
- C. The contractor shall request the **inspection service** to contact DOE engineering five working days before a final connection to an existing DOE system is needed. If a problem is detected with the circuit and DOE is unable to leave the circuit energized, the contractor must make corrections and reschedule the final connection with the **inspector**. (DOE contacts: For subdivisions call Chris Vogel 614-645-6963; for other street lighting call Mihai Orbocea, 614-645-6851.)

- D. The **inspector** shall determine if the Division of Electricity should be contacted for DOE's opinion or advise regarding any electrical change or deviation of the approved construction plan.
- E. The **inspector** shall not open hand holes or pull boxes on a circuit that has been energized even if the circuit is currently de-energized. The **inspector** shall have the contractor assist with inspection of poles, pull boxes, conduit, circuits and controllers.
- F. The **inspector** shall contact the DOE engineering associate (Chris Vogel) by e-mail with a "Notification of Final" when a subdivision is ready for inspection and acceptance by DOE. The inspector shall fax copies of the 3 Checklist Forms so the engineer can use them for his inspection. The DOE engineering FAX # is 645-5814.

3. DIVISION OF ELECTRICITY'S RESPONSIBILITIES

A. Final Connection Procedure

- 1) Upon receiving a request for a new street lighting system to be connected with an existing DOE maintained circuit, with the assistance of the contractor, the **engineer**, with the assistance of the contractor, shall inspect the pole wiring of each new streetlight and spot test grounds to determine if ohms readings are below 25. Findings shall be recorded on the DOE Inspection form. (If the project is being accepted before July 2004 and/or test forms have not been submitted by **contractor** then all poles must be tested.)
- 2) **Engineering** shall enter the project information into the Contractor Operations database and notify **distribution** staff at least 24 hours before the new circuit is ready for the final connection.
- 3) After **distribution** energizes the circuit, the crew shall check the amps, fusing and grounding on the controller. All existing streetlight poles shall be tic-traced before leaving the controller on automatic. Information shall be recorded on the appropriate forms.
- 4) If there is a problem on the circuit, distribution shall determine if the circuit can remain energized. If repairs are necessary by either the contractor or DOE, the DOE **distribution crew** will determine if the new circuit can remain connected

to the existing circuit. All repairs shall be made within 24 hours. If the circuit remains energized, both the contractor and DOE shall comply with Lock/Out, Tag/Out procedures. The DOE **distribution crew** will make two (2) trips to a new circuit at no cost to the contractor. The contractor will be charged for labor and equipment for all **DOE crew** trips after two. The DOE **crew** will charge their time to a CO# provided by the **engineer**

- 5) The **engineer** shall notify the inspector that the contractor needs to make repairs and reschedule the final connection.

B. Division of Electricity's Acceptance of a Streetlight System

- 1) Engineering shall inspect a streetlight system within 10 business days of receiving notice from the inspector. The inspection service shall coordinate this effort with the contractor as necessary. The contractor shall assist DOE engineering with inspection of all new streetlight systems. The inspection shall consist of the following:

- a. A system that has a new controller with AEP or SCP will be locked out and de-energized by the contractor.
- b. The grounding wire for controller shall be tested and the ohms recorded. The Voltage Regulation and Current Balance Test shall be measured and recorded per 1000.18 of the CMS book.
- c. The controller panel shall be checked for correctness. (See photo). The amps of each circuit leg shall be measured and recorded. Each leg shall be fused according to following chart:

Load Amperage	Fuse Size	Fuse Reducer
1 - 12	15 A	Buss #216
13 - 25	30 A	Buss #216
26 - 37	45 A	Buss #616
38 - 50	60 A	Buss #616
51 - 66	80 A	N/A
67 - 83	100 A	N/A

- d. Each new pole shall be tic-traced by the engineer before touched.
- e. Each new pole hand hole shall be opened by the contractor and checked for compliance with MIS- 41 by the engineer.

- f. The engineer shall clean each pole and attach a pole identification number at 6' and "Call Before You Dig" sticker at 4'.
 - g. The engineer shall clean a portion of the control box door and attach the "Control Number" stickers, "Hazard Warning" sticker and the "Call Before You Dig" sticker.
 - h. The engineer shall record the results of the inspection on the "Inspection Checklist for Streetlight Construction" which will have already been filled out in part by the inspector.
 - i. The contractor/DOE shall energize the circuit and assist the engineer with tic-tracing each pole before the circuit is left on automatic overnight.
 - j. The engineer shall notify the inspector of any changes that need to be made by the contractor before the streetlights are accepted
 - k. The engineer shall re-inspect the project after corrections have been made.
 - l. The engineer shall send the acceptance letter to the inspection provider within 24 hours of accepting the project.
 - m. The engineer shall fill out the Meta-Map form for circuit inventory and input the information into the database.
 - n. The engineer shall correct maps and create a single line drawing representing an As Built of the circuit layout.
- 2) Acceptance of a street lighting project by the Division of Electricity will be complete when:
- a. All inspection and test forms are filled out by the inspection service, the contractor and DOE,
 - b. Each pole and controller is labeled with an ID # and a "Call before you Dig" sticker.
 - c. Engineer has sent the "Acceptance Letter" to inspection provider.
- 3) Engineering shall create a single line circuit drawing within 24 hours of accepting a new circuit or lights tied on to an existing circuit. Maintenance of the circuit by the DOE distribution section will begin when a single line has been drawn and entered into the single line database for use by distribution.