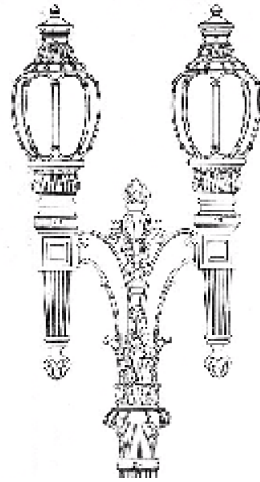


SPECIAL SPECIFICATIONS FOR THE CONSTRUCTION OF STREET LIGHTING SYSTEMS



CITY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS



ISSUED NOVEMBER - 2021

INTRODUCTION

Street Lighting work to be performed in the City of Los Angeles shall be constructed in accordance with the Bureau of Street Lighting's "Special Specifications for the Construction of Street Lighting Systems". These "Special Specifications" supplement the latest edition of the "Standard Specifications for Public Works Construction (Green Book)" and the current edition of the "Additions and Amendments to the (Brown Book)".

The "Special Specifications" include special provisions, standard drawings, approved equipment, and other requirements that must be adhered to by all contractors. No deviations from the "Special Specifications", "Standard Specification", or "Standard Plans" are authorized for street lighting construction within the City of Los Angeles without prior approval from the Bureau of Street Lighting. If there is a conflict between documents, precedence of documents shall be controlled by Section 2-5.2 of the "Standard Specifications for Public Works Construction".

Approved By: *Kerney R. Marine, Jr.*
Assistant Director, Bureau of Street Lighting

Date: November 1, 2021



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FOR APPROVED LUMINAIRES

<http://bsl.lacity.org/led-contractors-vendors.html>

LED Fixtures - Currently Utilized for Citywide Cobrahead Replacement Program

LED Fixtures - Currently Utilized for Citywide Non-Cobrahead Replacement Program

FOR POLES AND OTHER EQUIPMENT

<http://bsl.lacity.org/business.html>

Approved Poles

Approved Misc Equipment

DIVISION 1 GENERAL REQUIREMENTS

1060 - REGULATORY REQUIREMENTS

GENERAL CONDUCT AT JOBSITE

- A. Contractor shall conduct Work in a manner that will not jeopardize any other public work that is in the area, and shall cause minimum inconvenience to the flow of traffic on roads. Contractor shall obey all City, County and all other public authority regulations. All work proposed in this contract shall conform to Traffic Lane requirements specified in General Note No. 19, applicable Supplemental Note(s) on Sheet 1 of the street lighting plans, and/or applicable Street Lighting Special Specifications in the back of the bid documents.
- B. Contractor shall install all material in accordance with the manufacturer's instructions, unless otherwise specified.

STREET LIGHTING CREW COMPOSITION REQUIREMENTS

The Contractor shall designate a Foreman who shall be on the jobsite continuously while any work is being performed and who shall have the authority to act for the contractor in all matters.

The contractor shall adhere to all crew composition requirements specified in the bid documents.

For the purposes of determining prevailing wage, the Journey Level Electrician shall be paid at the rate specified for "Inside Wireman" in the general prevailing wage determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773, and 1773.1.

DIVISION 2

SITework

2010 - SUBSTRUCTURE CONFLICT

Contractor shall locate and protect substructure(s) shown on the plans and those identified by Underground Service Alert (USA). The contractor shall provide for minimum 12" radial clearance between foundation and substructures unless otherwise directed by the Inspector/Engineer. In the event a 12" clearance cannot be achieved, the contractor shall make arrangements for relocation of substructures at no cost to the city.

UNDERGROUND SERVICE ALERT

The contractor shall obtain an underground service alert inquiry I.D. number by calling DigAlert at 1-800-422-4133 before commencing any excavation or installing ground rods. Two working days shall be allowed after the I.D. number is obtained and before the excavation work is started so that utility owners can be notified. The I.D. number must be reported to the Bureau of Contract Administration when calling for inspection. All inspections must be arranged by noon the day before by calling BCA dispatcher at (213) 485-5080. I.D. numbers will not be given more than ten days prior to starting excavation work.

2100 - SITE PREPARATION

CONSTRUCTION IN PROXIMITY OF ELECTRIC OVERHEAD LINES

All new and existing electroliers shall conform to clearances with overhead electric power lines and communication lines per State of California Industrial Safety Orders General Order 95.

Construction in close proximity of high-voltage overhead lines shall be performed in accordance with the provisions of California Code of Regulations Title 8 and Article 86, State of California High Voltage Electric Safety Orders per the latest revision. The contractor shall be responsible for all necessary coordination with responsible utility company and shall assume all costs incurred in complying with these requirements.

In accordance with Section 2-5.1 of the Standard Specifications, each bidder prior to submitting his bid shall inspect the job site and include in his bid any charges by the Department of Water and Power (DWP) or other serving electric utility for de-energizing, grounding or placing effective barriers or sleeves to prevent physical contact with the lines. The bidder shall also assume all costs for temporary relocation of power lines. In addition, Contractor shall not be responsible for costs incurred by the utility for any permanent relocation of lines to accommodate required clearances from street lighting equipment after construction.

Contractor(s), within 15 days of contract execution, shall be responsible for inspecting all electrolierc locations for safety clearance requirements and advising the Inspector/Engineer, in writing, of all locations where safety clearances are required. This information shall be included on the construction schedule.

Requests for safety clearance shall be made to the Superintendent of Streetlight Maintenance (DWP) at (213) 367-9908 at least three weeks in advance of the date the contractor will be working at locations requiring safety clearance services by the utility.

The contractor shall make necessary arrangements with the Dept. of Water and Power at (213) 367-3003 to raise their overhead facilities in order to provide for the clearances specified with any proposed or existing electroliers that is within the contractor's scope of work. The contractor shall make all these arrangements and shall take DWP's timelines into account for their construction schedule.

2300 - BACKFILLING, RESTORATION OF EXCAVATIONS, AND REMOVAL OF EQUIPMENT AND MATERIAL

Subsection 307-2.1 "Excavation and Backfill" of the Standard Specifications for Public Works Construction is modified by the addition of the following:

All excavations for the installation of foundations, conduits and pullboxes, and removal of old systems shall be backfilled, compacted per section 301-1.3 and restored to **match** adjacent areas including sidewalk texture and color. Excess material shall be removed from the jobsite as prescribed in the following Table I. The number of days allowed commences with the start of excavation unless otherwise permitted by the Inspector/Engineer.

**TABLE I
BACKFILLING, RESTORATION OF EXCAVATIONS & REMOVAL OF EQUIPMENT & MATERIAL, MAXIMUM CALENDAR DAYS ALLOWED**

BACKFILLED & COMPACTED OR COVERED	EXCESS EQUIPMENT AND/OR MATERIAL REMOVAL FROM JOB SITE	PERMANENT RESURFACING	CONCRETE PLACED
Daily	3	7	-
Daily	3	-	-
Daily	3	7	-
-	3	-	-
-	3	-	-
5	5	7	-

1. PARKWAY: PILOT HOLES AND JACKING PITS ①②
2. ROADWAY EXCAVATIONS ①②③
3. EXISTING FOUNDATION AND PULL BOX REMOVALS
4. EXISTING STANDARD (POLES) AND MISC. EQUIPMENT
5. NEW FOUNDATION INSTALLATIONS (EXCLUDING CAPS)
6. NEW PULLBOXES: EXCAVATION AND PLACEMENT

- ① Excavation for jacking pits and excavations within roadways shall be backfilled and compacted in accordance with Subsection 301-1.3 of the Standard Specifications for Public Works Construction.
- ② Approved protective plates/covers shall be installed at the end of each day until excavations are no longer needed.
- ③ Temporary asphalt concrete (cold mix) shall be placed immediately after the backfill is compacted in accordance with subsection 306-1.5.1 of the Standard Specifications for Public Works Construction.

The above requirements do not relieve the contractor of his obligation to properly place warning signs and barricades as well as maintain the job site in accordance with Subsections 7-9 and 7-10 of the Standard Specifications for Public Works Construction and the "Work Area Traffic Control Handbook" and/or LADOT Worksite Traffic Control plans.

If the times specified in Table I are exceeded, the contractor (as directed by the Inspector/Engineer) shall stop all other work until the restoration work is brought into compliance. Contract time will continue to be charged during such periods.

DIVISION 3

MANUFACTURE OF CONCRETE ELECTROLIER STANDARDS

3000 - GENERAL

Concrete electrolier standards (herein referred to as "Standard") shall be pre-stressed, with centrifugally spun exposed aggregate, as detailed on applicable standard drawings, and/or the approved shop drawings, the latest approved edition of the "Standard Specifications for Public Works Construction", the latest approved standard plan "Brown Book", and as specified herein.

All poles shall be labeled or marked in a permanent fashion to indicate manufacturer, month and year of fabrication. This marking shall be located within 2 feet from the bottom of the pole but not on the hand-hole cover.

All screws shall be stainless steel.

3005 – INSPECTION REQUIREMENTS DURING MANUFACTURING

If pole inspection is required, the following procedures shall be adhered to. The contractor/manufacturer is directed to call the Bureau of Contract Administration Dispatcher, (213) 485-5080, two (2) working days in advance of the date that inspection will be required. Standards that are not inspected and approved by a Contract Administration INSPECTOR or by the Street Lighting Engineer will not be acceptable for use on any City of Los Angeles Project.

Inspection of the Work

- A. Fabrication activity of City of Los Angeles street lighting standards shall occur within normal working hours of the Bureau of Contract Administration, (Monday through Friday, 7:00 AM to 3:30 PM). Any inspection required outside of normal working hours shall require notification seven working days in advance, to arrange inspection. Notification can be made by calling (213) 485-5080.
- B. The work shall be conducted under the general observation of the Inspector and shall be subject to inspection by the Bureau of Contract Administration acting on behalf of the City to ensure strict compliance with the requirements of the Contract Documents, the approved shop drawings, and the approved color and finish samples, as applicable. Such inspection may include mill, plant, shop or field inspection, as required. The Inspector shall be permitted access to all stages of the work, including plants where materials or equipment are manufactured or fabricated.
- C. Inspection and approval of all materials and equipment submitted by the manufacturer is required by the Bureau of Contract Administration acting on behalf of the Bureau of Street Lighting. Mill certifications and test data from approved testing labs may be requested for all materials used.
- D. Inspection at Locations Within 30 Miles (50 Km) from City limits:

When a CONTRACTOR intends to purchase materials, fabricated products, or manufactured equipment from sources located within 50 miles (80 km) of the geographical limits of the City, the CONTRACTOR shall notify the Inspection dispatcher at (213) 485-5080 at least two (2) working days prior to the scheduled date of tests at all stages of manufacture to allow for arrangements specified herein.

- E. Inspection at Locations More than 30 Miles (50 Km) from City limits:
When materials, fabricated products or equipment that are from sources located more than 50 miles (80 km) outside of the geographical limits of the City of Los Angeles, a third party inspector or accredited testing laboratories, approved by the INSPECTOR, shall be engaged by the CONTRACTOR, at the contractor's expense, to inspect the materials, equipment, and/or process.

The third party inspection company shall have been in business with experience in the field of inspection for at least five years and be approved by the Bureau of Contract Administration Materials Control Section. The approval process is initiated by the manufacturer or contractor with a request letter to the Bureau of Contract Administration which includes the following:

- a. Indicate the inspection company to perform the required inspection.
- b. Submit resumes for individual inspectors from the inspection company. It is recommended that at least three inspectors be submitted to allow for scheduling, illness, etc.
- c. Submit a list of the various electroliers to be inspected.

Approval of the third party shall be obtained before producing any material or equipment. Upon Materials Control acceptance of the inspection company and the individual inspectors, the manufacturer will be notified in an approval letter to advise the inspection company to draft an inspection plan for the various types of electroliers that will be inspected. If the inspection plan is acceptable to Materials Control Section of BCA, the manufacturer will be advised to schedule a telephone conference call or face to face prefabrication meeting for the purpose of informing the third party inspection and fabrication quality control personnel of the inspection requirements.

The third party inspector or representative of the testing laboratory shall judge the materials by the requirements of the Plans and Specifications. The approved third party inspector or laboratory shall forward all required reports to the INSPECTOR. No materials or equipment shall be shipped nor shall any processing, fabrication, and/or treatment of such materials, be done without the required inspection and approval by the approved inspection agent.

Approval by said agent shall not relieve the CONTRACTOR of its responsibility to comply with the Contract requirements. The CITY retains the right to perform inspection or testing at such remote sites with CITY personnel in lieu of a third party inspector. In the event that the CITY exercises this right, the CONTRACTOR shall be responsible for all costs associated with this inspection and testing, including the INSPECTOR's wages.

Approval of Quality Control Procedure

Prior to the fabrication of concrete poles, the fabricator shall submit the plant's Quality Control Procedure to the Bureau of Street Lighting and Material Control Section of Contract Administration for review and approval.

Bureau of Street Lighting and/or Bureau of Contract Administration may request periodic visits to monitor Quality Control Department of manufacturer at any time for approval of equipment and/or to allow manufacture to remain on BSL approved manufacturer list.

Material and Manufacturer Requirements

All material shall conform to the provisions of Sections 201-1 and 201-2 of the current edition of the "Standard Specifications for Public Works Construction" Brown Book and its supplement(s) unless otherwise specified.

3060 – AGGREGATE FOR CONCRETE

Approximately equal portions of black and white aggregate graded to produce the required concrete compressive strength and surface appearance shall be used unless otherwise specified. Aggregate shall be free of foreign material which may impair the structural strength or detract from the appearance of the Standard. Material shall be certified to be non-reactive and sound. Contractor/Manufacturer shall submit one sample of aggregate from each source to the Bureau of Street Lighting and Material Control Section of Contract Administration for approval.

3070 – CEMENT FOR CONCRETE

Cement used shall conform to standard specifications for Type I, Type II or Type III Portland Cement, ASTM Designation C-150.

Water

All water shall conform to the provisions set forth in Section 201-1.2.3 of the current edition of the "Standards Specifications for Public Works Construction" Brown Book and its supplement(s).

3230 – PRESTRESSED CONCRETE

The concrete shall exhibit a minimum compressive strength of 3500 P.S.I. (24 Mpa) at time stress is transferred from the steel to the concrete, and 5,000 P.S.I. (34.5 Mpa) at 28 days (6" x 12" cylinder)(152 x 305 mm).

A. Steel

Prestressing steel shall consist of uncoated seven-wire stress relieved strand. The strand shall be mechanically anchored to the base plate or base reinforcing cage depending on type of base supplied.

Standards shall be reinforced with at least four prestressing strands. Unprestressed deformed bars may be used in addition to prestressing strands depending on Standard size and loading of the Standard. The strands shall be pretensioned to develop the design strength of the Standard, but in no case shall the stress in the strand, immediately after transfer, exceed 70 percent of the minimum specified ultimate strength of the strand.

All longitudinal reinforcing shall be spirally wrapped with No. 11 gauge (3.175 mm) or larger steel wire on a variable pitch, dependent upon loading of the Standard. Maximum pitch shall not exceed 6 inches (152.4 mm).

Four galvanized deformed bar studs at least 12" (635 mm) long shall extend a minimum of 2 inches (50.8 mm), but not more than 2-1/2 inches (63.5 mm), above the top of the Standard for attachment of bracket arm or tenon, unless otherwise required by the approved shop drawings.

ASTM Designations:

Prestressing Steel	A 416
Deformed Bar	A615 Grade 60 / A706
Base Plate	A 36
Base Anchor Lugs	A 36

B. Manufacture

All Standards shall be cast in rigid steel molds per approved design. The longitudinal steel reinforcement shall be securely anchored to the top and bottom of mold plates and shall be placed to provide 3/4" (19.04 mm) minimum concrete cover except within 2 feet (60.96 cm) of the Standard top where 5/8" (15.87 mm) minimum concrete cover is acceptable. Concrete shall be placed in mold as rapidly as possible after mixing. When filled, mold shall be placed on spinning machine in a horizontal position and rotated at a gradually increased speed until maximum rotation is attained. Time and speed of rotation shall be sufficient to produce a dense concrete. Excess water and laitance forced to the center of the mass shall be drained in a suitable manner, and the pole shall be respun to provide a smooth hole. A central opening or duct shall be formed throughout the length of the Standard a minimum of 1-1/4" (31.75 mm) in diameter or as shown on the approved shop drawings or as approved by the Bureau of Street Lighting and/or Bureau of Contract Administration. It shall be free from sharp projections, rock pockets or edges of a character which might injure the wire or cable. The base shall be cored to dimensions shown on the approved shop drawings.

3370 – CONCRETE CURING

Curing of Standards shall be in accordance with the phases outlined below:

- A. Mold Cure - Standards shall be cured in their molds until the concrete has attained a set sufficiently hard to prevent deformation or slipping of cable strands.
- B. Curing procedures as described in the currently approved edition of the "Standard Specifications for Public Works Construction", Section 207-2.7 must be followed.

3380 – CONCRETE FINISH

After the Standards have been sufficiently cured, the entire outside surface of the Standards shall be blasted to remove cement laitance and develop the surface texture; care being taken that the true lines of the Standards are maintained. The Standards, when finished, shall be without cracks or crazing, or any discoloration or ridges, and shall have a uniform surface and texture throughout the entire length. The Standards shall have the same color and surface texture as the sample approved by the Bureau of Street Lighting.

Approved Sample (Portion of Finished Pole)

Three sets, showing the range of color, finish and aggregate shall be submitted for approval by the Bureau of Street Lighting. A set will consist of four matching samples. Samples shall be clearly labeled with its mix number. One sample of each set shall be maintained by the following parties:

1. Bureau of Street Lighting - New Technology and Engineering Efficiency Division
2. Bureau of Street Lighting - Field Operations Division
3. Bureau of Contract Administration - Materials Control Group
4. The Manufacturer

Approved Shop Drawings

A copy of the approval letter shall be sent to the Pole Manufacturer and Materials Control. Approved shop drawings, as approved by the Bureau of Street Lighting, shall be maintained by the City and the Pole Manufacturer, as follows:

1. Bureau of Street Lighting - New Technology and Engineering Efficiency Division
2. Bureau of Contract Administration - Materials Control Group
3. Pole Manufacturer

3390 – TESTING REQUIREMENTS

Uniform Practice for Acceptance of Concrete Electrolier Standards

The manufacturer shall furnish test Standards without charge and shall provide adequate equipment and facilities for conducting tests, and shall bear all expense in connection therewith. All testing equipment shall be calibrated by an acceptable testing agency at intervals not to exceed one year.

The Standard cross section shall not deviate more than 3/16" (4.76 mm) from the shape and dimensions shown on the standard drawing. The Standard length shall not deviate more than 1% or 3" (76.2 mm) from dimensions shown on the approved shop drawing, whichever is less.

General

- A. Product Availability - Standards manufactured, which may be used in Los Angeles, shall be available for inspection and testing at the point of manufacture.

- B. Product Identification - The manufacturer shall identify each Standard by lot and day of manufacture in a manner approved by the Engineer/Inspector and shall maintain records indicating concrete composition and other materials used in each lot.
A lot is defined as 100 Standards or less of the same design, bearing proper identification. A new lot number shall be assigned if there is any change in the size, type, or spacing of reinforcing or prestressing steel, concrete mix, or curing method.
- C. Notification of Intent to Manufacture - The Bureau of Contract Administration shall be notified two (2) working days in advance of the beginning of production of Standards which may be used in Los Angeles, at (213) 485-5080.

Testing Requirements

Two levels of testing shall be applied to Standards manufactured for the City of Los Angeles.

LEVEL 1 Level 1 shall apply to the manufacture of all Standards immediately following approval for use in the City of Los Angeles as well as to the manufacture of Standards (which do not consistently meet specifications), and not on the Bureau of Street Lighting's approved manufactures list. Normally, Level 1 testing will not exceed six months provided Standards manufactured for use in Los Angeles do consistently meet specifications.

LEVEL 2 Less burdensome than Level 1, the application of Level 2 testing will be at the discretion of the Engineer/Inspector and applies to manufacturers who consistently meet specifications.

- A. Materials - All materials and miscellaneous hardware used in the manufacture of Standards shall be subject to testing by the City prior to use. The frequency of sampling for such testing **shall be determined by the Inspector.**

The manufacturer shall notify the Inspector in writing at least five working days prior to any contemplated change in sources of raw materials, and shall obtain approval of any changes in sources prior to use in City Standards. The manufacturer shall cooperate with, and assist the Inspector in obtaining samples for testing.

- B. Appearance
1. Color and Surface Finish - All Standards manufactured for use in Los Angeles shall be uniform in color and surface appearance consistent with the approved sample as required by Section 3380. Inspection for appearance shall be conducted at the place of manufacture.
 2. Surface Defects
 - a) Non-Structural - Surface defects extending less than 5/8" (15.87 mm) into the shell may be repaired without prior approval of the Inspector. The repair must be made by a method that will produce a permanent bond and a surface that blends with the color and surface appearance of the Standard.
 - b) Structural - The manufacturer shall not repair surface defects extending greater than 5/8" (15.87 mm) into the shell without prior inspection by the Inspector. Standards containing voids or insufficient cover over prestressing cables or reinforcing steel will be rejected.

C. Structural Tests

1. Concrete Cylinders - The manufacturer shall take and prepare concrete test cylinders at the direction of and in a manner satisfactory to the Inspector, and bear all expenses in connection therewith. Records of concrete compressive strengths for each lot shall be maintained by the manufacturer in a manner satisfactory to the Inspector/Engineer. The Inspector/Engineer reserves the right to sample and test concrete for compressive strength. Test results reported by the Engineer shall govern in case of conflict with results reported by the manufacturer.
 2. Concrete Cores - When and as directed by the Engineer, core samples shall be taken by the manufacturer to determine the thickness and uniformity of concrete. Such sampling will generally not exceed four per lot. The manufacturer shall bear all expenses in connection therewith.
 3. Straightness - At a frequency determined by the Engineer, Standards will be tested for straightness. Standards shall be sufficiently straight when in a vertical position such that the maximum deviation from a string line on the face of the Standard in a plane passing through the longitudinal axis shall not exceed the tolerance listed in Table II. At the discretion of the Inspector/Engineer, such tests may be conducted at the place of manufacture, or at the project site following erection.
 4. Design Working Load
 - (1) Selection - Standards to be tested at the point of manufacture will be selected at random in accordance with Table II herein.
 - (2) Bending - The test specimen shall have a load applied equal to design working load for a period of one hour. Any test specimen with any crack while under load will be rejected.
 - (3) Permanent Deformation - Standards shall be loaded to 1.7 times the design working load, deflection of the top of the Standard recorded, and the load released after one hour. Evident residual cracking or spalling after release of the load, or failure to recover at least 90% of the maximum deflection under load (measured immediately after release of the load) shall be cause for rejection.
- a. Ultimate Strength
- (1) Selection - Standard to be tested at the point of manufacture will be selected at random in accordance with Table II herein.
 - (2) Loading - The specimen shall be loaded to failure and all required data recorded. The manufacturer shall conduct the test and the inspector shall witness and record the results.
 - (3) Cross-Sections - Cross-sections shall be taken at third points on specimens loaded to failure in the loading test. Steel placement, concrete density, and corrosion control not within tolerances specified on shop fabrication drawings or in the specifications shall be cause for rejection. The three specimens taken at third points and the report shall be delivered to the Bureau of Street Lighting, Field Operations Division, via the CITY INSPECTOR.

Acceptance Standard

- A. Acceptance - If the tested specimen of a designated lot meets all test requirements, all of the Standards of that lot shall be considered as complying with the requirements.
- B. Rejection - In the event of failure to meet all test requirements, two additional specimens from the lot shall be tested. Both of these specimens shall meet the test requirement, otherwise the entire lot shall be rejected. The manufacturer may submit individual Standards from a rejected lot for testing. Those Standards which meet the requirements of the tests specified by the Engineer will be accepted.
- C. Identification of Standards - The CITY INSPECTOR will mark the base as follows:
 - 1. The Lot Number and the Sequence Number within the Lot (L.A.P. No.) with a black felt pen.
 - 2. On all Standards that are in compliance with Shop Drawings and Table II and Table III shall be stamped with the words "L.A. City Approved" with black ink.

Testing levels are established as shown in Table II, as follows:

**TABLE II
TESTING REQUIREMENTS**

TEST	TESTING LEVELS	
	Level 1	Level 2
Materials	D	D
Appearance		
1. Color and Surface	D	D
2. Structural Defects	All	All
Concrete Cylinders	D	D
Concrete Cores	D Maximum of 4 per lot	D Maximum of 4 per lot
Straightness	Table 3	Table 3
Design Working Load (for each style of standard)	One test per lot	One test every six months
Ultimate Strength (for each style of standard)	One test per each 300 standards (or portion thereof if less than 300 per year).	One test per year of standards exceeding 500 or "D" if less than 500 standards.

D = At the discretion of the Engineer/Inspector

TABLE III
STRAIGHTNESS REQUIREMENTS

A. BOW OR CURVATURE

Length of Standard Excluding Base (Feet) (cm)		MAXIMUM ALLOWABLE DEVIATION FROM STRINGLINE
Over	Equal to or Under	
--	21 (640 cm)	1/2" (12.7 mm)
21 (640 cm)	26 (792 cm)	3/4" (19.04 mm)
26 (792 cm)	35 (1067 cm)	1" (25.40 mm)
35 (1067 cm)	40 (1219 cm)	1-1/4" (31.75 mm)
40 (1219 cm)	---	As Specified by Engineer

B. MISALIGNMENT

Short crooks in the Standard shall not exceed 1/4" (6.35 mm) deviation from centerline of the Standard per 5 feet (152.4 cm) of length.

C. UNIFORMITY OF SURFACE

Offsets or jogs due to mold extensions or joints shall not exceed 1/16" (1.587 mm) on the surface of the Standard.

DIVISION 5

MANUFACTURE OF STEEL / ALUMINUM ELECTROLIER STANDARDS

5000 - GENERAL

Electrolier standards (herein referred to as "Standard") shall be fabricated with, dimensions materials, welding, and finish in accordance with the approved shop drawings, the latest approved edition of the "Standard Specifications for Public Works Construction", the latest approved standard plan "Brown Book", and as specified herein.

The Standard cross section shall not deviate more than 3/16" (4.76 mm) from the shape and dimensions shown on the standard drawing. The Standard length shall not deviate more than 1% or 3" (76.2 mm) from dimensions shown on the approved shop drawing, whichever is less.

If the project is part of a construction and bid document, the contractor shall be responsible for all submittals and all costs.

All screws shall be stainless steel.

All poles shall be labeled or marked in a permanent fashion to indicate manufacturer and month and year of fabrication within 2 feet from the bottom of the pole. This marking shall not be on the hand hole.

5005.1 - METAL POLE EQUIPMENT APPROVAL PROCEDURES

All street lighting metal poles installed within the City of Los Angeles must be approved by the Bureau of Street Lighting by one of the following procedures.

Manufacturers are required to obtain approval for:

1. New street lighting pole designs.
2. "Or Equal" metal pole submittals. (Submittal must have interchangeable parts with unit specified on the plan)
3. Metal poles with approved Bureau of Street Lighting Standard Plans.

Manufacturers who are approved by the Bureau of Street Lighting for a specific pole type shall be exempt from steps 2 and 3 below.

A copy of the approval letter shall be sent to the Pole Manufacturer and Materials Control

APPROVAL PROCEDURES:

1. (Not required for poles with approved Bureau of Street Lighting Standard Plans)
Contractor/Manufacturer shall submit Shop Drawings and Structural Calculations as specified on the plans. Shop drawings and calculations shall be stamped by a registered Structural or Civil Engineer licensed by the State of California. Drawings shall include but not be limited to the following: material specifications, manufacturing processes, finish

coating specifications, pole dimensions, welding and connection details, catalog and shop drawing numbers with revision notes. The shop drawings should also state that the pole structure and hardware comply with the “specifications for structural supports of highway signs, luminaires and traffic signals” portion of AASHTO most recently adopted by the Los Angeles Board of Public Works and that all welds are in accordance with the latest editions of the AWS D1.1 welding code. Forward documents to City of Los Angeles Bureau of Street Lighting – 2nd Floor, Technical Services Division, 1149 South Broadway, LA CA 90015. Written notification of approval or required changes will be sent within 30 days after documents are received.

2. Contractor/Manufacturer shall submit a pole “prototype.” One complete electrolier, including luminaire arm and anchor bolts shall be submitted to the Bureau of Street Lighting Field Operations Division at 4550 Santa Monica Boulevard, Los Angeles, CA 90029. Notify the engineer 10 days prior to delivery at bslm40@lacity.org. All deliveries to F.O.D. shall be labeled with pole type (design number or reference number), project title, paint color (if any). F.O.D. shall be notified 48 hours prior to delivery (323) 913-4744. Written notification of approval or required changes will be sent within 30 days after the pole is received. Pole inspection by the Bureau of Contract Administration may be required.
3. Pole inspection shall be in compliance with all specifications herein.

NON-COMPLIANCE

The manufacturer shall be responsible for submitting required items as outlined in the above procedures. Failure to complete each step will result in one of the following:

1. Notification to repeat the required procedure step.
2. Disapproval of the proposed equipment.
3. Notification of manufacturer non-compliance, prohibiting manufacturing of product(s) for the City of Los Angeles.

The Bureau of Street Lighting has the right to request adherence to steps 1, 2 and 3 for any pole on the approved manufacture list at any time.

5005.2 – INSPECTION REQUIREMENTS DURING MANUFACTURE

If pole inspection is required per 5005.1, the following procedures shall be adhered to.

The contractor/manufacture shall call the Bureau of Contract Administration Dispatcher, (213) 485-5080, two (2) working days in advance of the date that inspection will be required unless otherwise specified. Standards that are not inspected and approved by a Contract Administration INSPECTOR or by the Bureau of Street Lighting Engineer will not be acceptable for use on any City of Los Angeles Project.

Inspection of the Work

- A. Fabrication activity of City of Los Angeles street lighting standards shall occur within normal working hours of the Bureau of Contract Administration, (Monday through Friday, 7:00 AM to 3:30 PM). Any inspection required outside of normal working hours shall

require notification seven working days in advance, to arrange inspection. Notification can be made by calling (213) 485-5080.

- B. The work shall be subject to inspection by the Bureau of Contract Administration acting on behalf of the City to ensure strict compliance with the requirements of the Contract Documents, the approved shop drawings, and the approved color and finish samples, as applicable. Such inspection may include mill, plant, shop or field inspection, as required. The Inspector shall be permitted access to all parts of the work, including plants where materials or equipment are manufactured or fabricated.
- C. Inspection and approval of all materials and equipment submitted by the manufacturer is required by the Bureau of Contract Administration and the Bureau of Street Lighting. Mill certifications and test data from approved testing labs may be requested for all materials used.
- D. Inspection at Locations Within 30 Miles (50 Km) from City:
When the CONTRACTOR intends to purchase materials, fabricated products, or manufactured equipment from sources located within 30 Miles (50 Km) of the geographical limits of the City, the CONTRACTOR shall notify the Inspection dispatcher at (213) 485-5080 at least two (2) working days prior to the scheduled date of tests at all stages of manufacture to allow for arrangements specified herein.
- E. Inspection at Locations More than 30 Miles (50 Km) from City:

When materials, fabricated products or equipment that are from sources located more than 30 Miles (50 Km) outside of the geographical limits of the City of Los Angeles, two third party inspectors or accredited testing laboratories, approved by the INSPECTOR, shall be engaged by the CONTRACTOR, at the contractor's expense, to inspect the materials, equipment, and/or process.

The third party inspection company shall have been in business with experience in the field of inspection for at least five years and be approved by the Bureau of Contract Administration Materials Control Section. The approval process, is initiated by the manufacturer or contractor with a request letter to the Bureau of Contract Administration which includes the following:

- a. Indicate the inspection company to perform the required inspection.
- b. Submit resumes for individual inspectors from the inspection company. It is recommended that at least three inspectors be submitted to allow for scheduling, illness, etc.
- c. Submit a list of the various electroliers to be inspected.

Approval of the third party shall be obtained before producing any material or equipment. All third party inspection companies must be approved by the Bureau of Contract Administration. In order for the Contractor to request approval, he must submit a request letter to the Bureau of Contract Administration. Upon Materials Control acceptance of the inspection company and the individual inspectors, the manufacturer will be notified in an approval letter to advise the inspection company to draft an inspection plan for the various types of electroliers that will be inspected. If the inspection plan is acceptable to Materials Control Section of BCA, the manufacturer will be advised to schedule a telephone conference call or face to face prefabrication

meeting for the purpose of informing the third party inspection and fabrication quality control personnel of the inspection requirements.

The third party inspector or representative of the testing laboratory shall judge the materials by the requirements of the Plans and Specifications. The approved third party inspector or laboratory shall forward all required reports to the INSPECTOR. No materials or equipment shall be shipped nor shall any processing, fabrication, and/or treatment of such materials, be done without the required inspection and approval by the approved inspection agent.

Approval by said agent shall not relieve the CONTRACTOR of its responsibility to comply with the Contract requirements. The CITY retains the right to perform inspection or testing at such remote sites with CITY personnel in lieu of a third party inspector. In the event that the CITY exercises this right, the CONTRACTOR shall be responsible for all costs associated with this inspection and testing, including the INSPECTOR's wages.

Approval of Quality Control Procedure

Prior to the fabrication of steel poles, the Pole Manufacturer shall submit the plant's Quality Control Procedure to the Bureau of Street Lighting and Material Control Section of Contract Administration for review and approval.

Bureau of Street Lighting and/or Bureau of Contract Administration may request periodic visits to monitor Quality Control Department of manufacture at any time for approval of equipment and or to allow manufacture to remain on BSL approved manufacture list.

5010 – MATERIAL AND FABRICATION REQUIREMENTS

All material and fabrication shall conform to the approved shop drawings and also be in compliance with the contents of this provision.

5010.1 – STEEL GENERAL REQUIREMENTS

Steel used shall conform to the following ASTM designations:

Shaft (sheet steel)	<u>A..... (min. 40,000 psi)</u> <u>A570 Grade C (50 - 80,000 psi range)</u> <u>A611 Grade C (65 - 90,000 psi range)</u>
Base Plate	A36 (slot tolerances shall be 0" to +1/8")
Castings	A27 Grade 65-35
Luminaire Arm	A53 Grade B or A120 (standard pipe)
Bolts	A449
Base Anchor Lugs	

5010.2 – ALUMINUM GENERAL REQUIREMENTS

Aluminum used shall conform to the following ASTM designations:

Shaft (aluminum)	B209M
Castings	B26/B26M
Luminaire Arm	B429-90a
Spun Shaft	B241/B241M
Square Extruded Shaft	B429

5030.1 - STEEL FINISHING (GALVANIZING/PAINTING)

Galvanizing

Steel poles shall be galvanized in conformance with section 210-3 of the Standard Specifications for Public Works Construction. The contractor must exercise proper caution after galvanizing, during transportation and storage to protect against wet storage staining.

Painting (New pole)

For painting of existing poles, please refer to Section 5600.

All steel poles requiring painting shall be hot-dip galvanized in conformance with section 210-3 and then painted in conformance with section 310-1 through 310-5.3 of the Standard Specifications for Public Works Construction as applicable. Painted poles shall be free of bubbles

Painting Requirements

All painting shall be accomplished using a two-part epoxy / polyurethane system consisting of equivalent High solids epoxy primer and "**SPECIFIED COLOR**" Polyurethane top coat (or approved equal). Coating system used must meet a minimum level of testing criteria. The testing criteria are as follows:

- Abrasion: < 60.5 mg after 1000 cycles (per ASTM D4060)
- Accelerated Weathering: No blistering, cracking or delamination. 72% gloss retention after 4 weeks of exposure (per ASTM G53 4/8 cycle)
- Adhesion: Rated 5B (per ASTM D3359 Method B)
- Humidity (Cleveland): No blistering, cracking or delamination of film (per ASTM D2247 at 1000 hours of exposure).
- Salt Fog Exposure: No face corrosion, face blistering or loss of adhesion. Less than 1/16" creepage from scribe (per ASTM B 117 at 2000 hours exposure.)
- Impact Resistance: Direct – 140 in-lbs, Reverse – 50 in-lbs (per ASTM D2794)
- VOC compliant
- Paint Thickness: Minimum topcoat thickness of 5 MILS DFT (Dry Film Thickness), Minimum primer thickness of 5 MILS DFT.

All coatings must be submitted to the BSL for approval. Evidence of compliance to the outlined criteria will be necessary and must be submitted after award of contract and prior to beginning work.

Specifications shall include the name of the manufacturer, brand, catalog/product number(s), ASTM Test results and other information sufficient to show that the coating system meets or exceeds the requirements. Send an email to bslm40@lacity.org for additional paint information.

Paint materials shall meet VOC requirements of the South Coast Air Quality Management District's Rule 1113.

Surface preparation for painting shall conform to the requirements of the latest edition of the Standards Specifications for Public Works Construction, Section 310 Painting.

Paint shall be applied according to the manufacturer's application procedures. The painted surfaces shall be free from irregularities such as "RUNS" and "SAGS". The standard of measurement for minimum thickness shall be any 4 square inch area on a flat surface.

Brush or roller may be used for touch up only. The painter shall supply a touch-up-kit composed of both primer and top coat for field touch up.

Approved Samples:

A. with section 210-3 of the Standard Specifications for Public Works Construction

Painted – The Contractor shall submit three (3) 3"x5" matching samples of the specified finish for approval by the Bureau of Street Lighting. The paint samples must be on metal chips and have a label adhesively attached to the back of each chip. The inspector or BSL shall request an approved paint sample if needed. The label should include the following:

- Manufacturer
- Brand
- Catalog Number/Name

5030.2 – ALUMINUM FINISHING, SURFACE TREATMENT, (ANODIZING /DURANODIC)

Reference Specifications and Standards:

The anodic finish coatings specified herein are identified by the Aluminum Association Designation System for Aluminum Finishes which utilizes designation numbers preceded by the letters "AA". All cleaning, preparing anodizing and sealing of aluminum items shall conform to the requirements of the Aluminum Association Standards for Anodized Architectural Aluminum, Class I Anodic Coating, and these Specifications.

Anodizing Processes

General:

- A. Aluminum components shall not be anodized until all forming and fabricating operations, including welding, have been completed.
- B. The interior of tubular sections need not be anodized.
- C. The contractor shall protect the anodized finish on the aluminum components from any damage through all erection operations to the final acceptance of the work.

- D. Upon completion of installation, all protective coverings shall be removed from the anodized aluminum components and all exposed surfaces shall be thoroughly cleaned and left free from scratches, water stains or any other blemish.
- E. Prior to final acceptance of the work, the Contractor shall remove and replace all anodized aluminum components that might have become damaged by any cause or that do not conform to the limitations of the process control color samples. Replacement components acceptable to the Engineer shall be provided by the Contractor at no extra cost to the City.

Requirements:

A. Finish Designations

1. Type I Finish shall be Aluminum Association designation AA-M10c21-A41 clear color.
2. The minimum coating thickness shall be 0.7 mils measured according to ASTM B 244-68.
3. The minimum coating weight shall be 32 mg/sq. in. measured according to ASTM B 137-45 (1967).
4. The coating seal shall be tested according to ASTM B 136-72 (Dye Stain Test).
5. Color variations of anodized aluminum components shall be limited to the range established by the approved process control samples. Components shall be subject to visual comparison during production finishing and at the time of final acceptance of the work. Each component shall be marked for field installation so as to minimize color variation of adjacent components in the same plane.
6. One sample from each rack of production lots of finished components shall be tested for thickness and seal. One sample from each production shift shall be tested for weight.

- B. Anodic coatings shall conform to military Specified Designation MIL-A-8625-C, Type III, Class I. Coating thickness shall be .002 +/- .0002, unless otherwise specified.

Approved Samples

Three approved paint samples will be provided by BSL during the preconstruction meeting. One shall be for the contractor, inspector and manufacturer. Additional samples will be provided upon request.

5050.1 – STEEL SHOP WELDING

AWS D1.1 shall govern all steel welding. Welding and related operations shall conform to applicable provisions of the Structural Welding Code, AWS D1.1, of the American Welding Society. All welding shall be performed in accordance with the written procedures using only those joint details which have pre-qualified status when performed in accordance with AWS D1.1. Use of electroslag or electrogas welding processes or the short circuiting transfer mode of the gas metal arc process will not be acceptable.

Welding shall be performed only by welders or operators who have been qualified in accordance with AWS D1.1. The qualification test records shall be made available to the inspector on request.

BUTT – WELDING OF SECTIONS

When sections are butt-welded together, the welded seams on adjacent sections shall be placed to form continuous straight seams from base to top of standard in accordance with this section.

The butt-welded transverse joints shall be strengthened by inserting a welded sleeve at each joint. The sleeve shall be 0.135 inch (3.429 mm) nominal thickness or thicker steel having the same chemical composition as the steel in the standard. The sleeve shall have a minimum length of one inch. The sleeve shall be centered at the joint and have the same taper as the standard so that the outside of the sleeve is in full contact throughout its length and circumference.

All welds shall be continuous. The weld metal at the transverse joint shall extend to the sleeve, making the sleeve an integral part of the joint. No transverse weld shall occur within three inches of mast arm fittings. All longitudinal welds shall be performed by the submerged arc process and tested in accordance with Test Method No. California 664. All exposed welds, except fillet welds and welds on top of mast arms shall be ground flush with the base metal.

5050.2 – ALUMINUM SHOP WELDING

AWS D1.2 shall govern all aluminum welding. Welding and related operations shall conform to applicable provisions of the Structural Welding Code, AWS D1.2, of the American Welding Society. All welding shall be performed in accordance with the written procedures, using only those joint details which have been qualified in accordance with AWS D1.2.

Welding shall be performed only by welders or operators who have been qualified in accordance with AWS D1.2. The qualification test records shall be made available to the inspector on request.

5500.1 – STEEL FABRICATION

STANDARDS

Standards shall be fabricated from full length sheets, or from sections not to exceed two in number for standards exceeding 30-foot (9.15 m) in length. Steel pole shafts shall be fabricated as shown in the Standard Plans and the following requirements:

All pole shafts less than 32 feet in length and all luminaire arms less than or equal to 8 feet in length, shall be fabricated from sheet steel conforming to ASTM A570, Grade C, or from 0.120-inch (3.048 mm), or thicker sheet steel of weldable grade having a minimum yield strength of 50 – 80,000 psi after fabrication.

All pole shafts exceeding 32 feet in length and all luminaire arms exceeding 8 foot in length shall be fabricated using grades of steel as required by engineering calculations and the approved shop drawings. See section 5050.1 for Butt Welding of Sections.

Other components shall be of steel conforming to the ASTM requirements listed in Section 5010.1.

Small voids (those no larger or deeper and 0.125") may be repaired using foundry putty, automotive body filler or an approved equal. Voids on edges, corners and decorative designs shall be ground smooth to maintain the original design surface.

Standards shall be straight, with a permissive variation not to exceed those listed in Table V, Straightness Requirements (pg. 30). A maximum static deflection of 4 inches (10.16 cm), without wind load, will be permitted for standards and shall be measured with all signal heads, mast arms, street name signs and luminaires in place.

BASE PLATES

All exposed edges of the plates which make up the base assembly shall be finished smooth, and all exposed corners of such plates shall be neatly rounded to 1/8-inch (3.175 mm) minimum radius. Tolerances for slots on the base plates of steel poles shall be from 0" to +1/8".

BOLTS AND WASHERS

Bolts - High-strength bolts, nuts and flat washers used to connect base plates shall conform to ASTM Designation: A 325, F1554 G 36, 55, or 105 and shall be galvanized as specified in section 210-3 of the Standard Specifications for Public Works Construction.

Plate washers shall be fabricated by saw cutting and drilling steel plate conforming to ANSI Designation: 1018, and be galvanized as specified in section 210-3 of the Standard Specifications for Public Works Construction. Prior to galvanizing, all burrs and sharp edges shall be removed and holes shall be chamfered sufficiently on each side to allow the bolt head to make full contact with the washer without tension on the bolt.

High-strength cap screws shown on the plans for attaching luminaire arms to standards shall conform to ASTM Designation: A 325 or ASTM Designation: A 449 and shall comply with the mechanical requirements of ASTM Designation: A 325 after galvanizing. Said cap screws shall be galvanized as specified in section 210-3 of the Standard Specifications for Public Works Construction. The threads of the cap screws shall be coated with a lubricant which is clean and dry to the touch.

The galvanized faying surfaces of the connections between signal or lighting mast arms and poles shall be free of surface imperfections, such as lumps, runs, and scum, which would prevent intimate, uniform contact between the faying surfaces.

5500.2 – ALUMINUM FABRICATION

All material for standards shall be supplied in the mill finish and shall be uniform and commercially sound as described by ASTM B 209M. All poles shall be labeled to indicate manufacturer.

5590 – TESTING REQUIREMENTS

Uniform Practice for Acceptance of Steel Electrolier Standards

When Inspection is required the following testing requirement shall be adhered to.

General - The contractor/manufacturer shall furnish test Standards without charge and shall provide adequate equipment and facilities for conducting tests, and shall bear all expense in connection therewith. All testing equipment shall be calibrated by an acceptable testing agency at intervals not to exceed one year.

All samples for testing shall be selected by the Inspector unless otherwise arranged.

General

- A. Product Availability - Standards manufactured, which may be used in Los Angeles, shall be available for inspection and testing.

- B. Product Certification and Test - The CONTRACTOR shall supply mill certificates or affidavits and manufactures' certification for verification of steel materials. Steel shall be identified by heat or melt number. The CONTRACTOR shall provide notification and supply necessary reports at least two working days in advance of domestic fabrication and ten working days in advance of foreign fabrication, so that a shop inspection of the steel can be made. The CONTRACTOR shall provide the following testing and certification for each type of steel:
 - 1. Mill Order Steel. When steel is directly from the steel mill and is readily identifiable by heat and melt numbers, the CONTRACTOR shall furnish mill certificates.
 - 2. Local Stock Steel. When steel is from a steel service center and can be identified by heat or melt numbers, the CONTRACTOR shall provide mill certificates and one tension and one bend test for each 50 tons or fractional part thereof for each size of steel used in the work.
 - 3. Unidentifiable Steel. When steel cannot be identified by heat or melt numbers or the source of steel is questionable, the CONTRACTOR shall provide one tension and one bend test for each 5 tons or fractional part thereof for each size of steel used in the work.

Identification test specimens shall be taken under the direction of the City of Los Angeles INSPECTOR or approved third party inspector, and shall be machined by the CONTRACTOR to dimensions as required by the related ASTM Specifications. These tests shall be in addition to the normal testing required under this specification, and all costs for same shall be borne by the CONTRACTOR.

Testing Requirements

Two levels of testing shall be applied to Standards manufactured for the City of Los Angeles.

Level 1 shall apply to the manufacture of all Standards immediately following approval for use in the City of Los Angeles as well as to the manufacture of Standards (which do not consistently meet specifications) and not on the Bureau of Street Lighting's approved manufactures list. Normally, Level 1 testing will not exceed six months provided Standards manufactured for use in Los Angeles do consistently meet specifications.

Application of Level 2 testing will be at the discretion of the Engineer. Testing levels are established as shown in Table IV.

- A. Materials - All materials and miscellaneous hardware used in the manufacture of standards shall be subject to testing by the City prior to use. The frequency of sampling for such testing shall be determined by the Engineer.

- B. Casting - One casting from each lot of 50 castings or less shall be subject to radiographic inspection, in accordance with provisions in ASTM Designation: E 94. The castings shall comply with the acceptance criteria severity level 3 or better for all types and categories of discontinuities as specified in ASTM Designations: E 186 and E 445. If the one casting fails to pass the inspection, 2 additional castings shall be radiographed. Both of these castings shall pass the inspection or the entire lot of 50 will be rejected. Material certifications consisting of physical and chemical properties and radiographic films of the castings shall be filed at the manufacturer's office. These certifications and films shall be available for inspection upon request.
- C. Surface Defects
- D. Structural Tests
1. Tensile Strength - The manufacturer shall take and prepare samples at the direction of and in a manner satisfactory to the Inspector/Engineer, and bear all expenses in connection therewith. Records of tensile strengths for each lot shall be maintained by the manufacturer in a manner satisfactory to the Inspector/Engineer. The Inspector/Engineer reserves the right to sample and test steel for tensile strength. Test results reported by the Engineer shall govern in case of conflict with results reported by the manufacturer.
 2. Straightness - At a frequency determined by the Inspector/Engineer, Standards will be tested for straightness. Standards shall be sufficiently straight when in vertical position such that the maximum deviation from a string line on the face of the Standard in a plane passing through the longitudinal axis shall not exceed the tolerance listed in Table V. At the discretion of the Inspector/Engineer, such tests may be conducted at the place of manufacture, or at the project site following erection.
 3. Standards
 - a. Design Working Load

Selection - Standards to be tested at the point of manufacture will be selected at random in accordance with Table IV herein.

 - (1) Bending - The test specimen shall have a load applied equal to design working load for a period of one hour. Any test specimen with any crack while under load will be rejected.
 - (2) Permanent Deformation - Standards shall be loaded to 1.7 times the design working load, deflection of the top of the Standard recorded, and the load released after one hour. Evident residual cracking or permanent deformation after release of the load, or failure to recover at least 90% of the maximum deflection under load (measured immediately after release of the load) shall be cause for rejection.
 - b. Ultimate Strength

Selection - Standard to be tested at the point of manufacture will be selected at random in accordance with Table IV herein.

- (1) Loading - The specimen shall be loaded to failure and all required data recorded. The manufacturer shall conduct the test and the inspector shall witness and record the results.
- (2) Cross-Sections - Cross-sections shall be taken at third points on specimens loaded to failure in the loading test. Steel thickness, and galvanizing or painting not within tolerances specified on shop fabrication drawings or in the specifications shall be cause for rejection. The three specimens taken at third points and the report shall be delivered to the Bureau of Street Lighting, Field Operations Division, via the CITY INSPECTOR.

Acceptance Standard

- A. Acceptance - If the tested specimen of a designated lot meets all test requirements, all of the Standards of that lot shall be considered as complying with the requirements.
- B. Rejection - In the event of failure to meet all test requirements, two additional specimens from the lot shall be tested. Both of these specimens shall meet the test requirement otherwise the entire lot shall be rejected. The manufacturer may submit individual Standards from a rejected lot for testing. Those Standards which meet the requirements of the tests specified by the Inspector/Engineer will be accepted.
- C. Identification of Standards - The CITY INSPECTOR will mark the base as follows:
 1. The Lot Number and the Sequence Number within the Lot (L.A.P. No.) with a black felt pen.
 2. On all Standards that are in compliance with Shop Drawings and Table IV and Table V shall be stamped with the words "L.A. City Approved" with black ink.

**TABLE IV
TESTING REQUIREMENTS**

TEST	TESTING LEVELS	
	Level 1	Level 2
Materials	D	D
Casting	One casting from each lot of 50	D
Tensile Strength	D	D
Straightness	D	D
Design Working Load (for each style of standard)	One test per lot	One test every six months
Ultimate Strength (for each style of standard)	One test per each 300 standards (or portion thereof if less than 300 per year).	One test per year

D = At the discretion of the Inspector/Engineer.

**TABLE V
STRAIGHTNESS REQUIREMENTS**

A. BOW OR CURVATURE

Length of Standard Excluding Base, in Feet (cm)		MAXIMUM ALLOWABLE DEVIATION FROM STRINGLINE
Over	Equal to or Under	
--	21 (640 cm)	1/2" (12.7 mm)
21 (640 cm)	26 (792 cm)	3/4" (19.04 mm)
26 (792 cm)	35 (1067 cm)	1" (25.40 mm)
35 (1067 cm)	40 (1219 cm)	1-1/4" (31.75 mm)
40 (1219 cm)	--	As Specified by Engineer

B. MISALIGNMENT

Short crooks in the Standard shall not exceed 1/4" (6.35 mm) deviation from centerline of the Standard per 5 feet (152.4 cm) of length.

C. UNIFORMITY OF SURFACE

Offsets or jogs due to joints shall not exceed 1/16" (1.587 mm) on the surface of the Standard.

5600 – STEEL ELECTROLIER RESTORATION

The pole and all other previously painted metal surfaces shall be prepared for painting in conformance with the requirements of Standard Specifications for Public Works Construction (latest edition) Section 310-2.5 Blast cleaning method.

If the electroliers need to be removed, the contractor shall provide alternate roadway lighting during the removal, surface preparation and painting of the pole in accordance to General Note NO. 5 on the street lighting plan front sheet and Section 16510 of this document.

The contractor is hereby notified that paint scrapings may contain lead. All local State and Federal laws must be adhered to in the removal and disposal of lead paint.

Painting of existing galvanized streetlights

Existing galvanized streetlights must have proper surface preparation to avoid future peeling of applied paint. This preparation shall include etching the existing streetlights. This may be done by hand sanding the poles or other BSL approved method. After completion of that process the entire surface shall be solvent cleaned to remove any grease, wax, stickers, tape, remaining stabilizers or other surface contaminants. Luminaires shall remain galvanized unless otherwise specified.

Paint shall be applied in accordance to the manufacture's application instructions and Section 5030.1 of this document.

- A. All surfaces shall be stripped to manufacturer's recommendations. All surface preparation shall conform to the Standard Specifications for Public Works Construction, "Greenbook", (SSPWC Section 310-2.2 and 310-2.3) and coating manufacturer's data, (which the Contractor must retain at each job-site), unless otherwise specified by the Construction Inspector and approved by the Bureau of Street Lighting. ***The Contractor's bid should be based on this level of surface preparation.***

The Contractor is advised that the level of surface preparation may vary (as approved by the Inspector) depending on pole/pedestal condition. Extreme corrosion may require Power Tool Cleaning (per section 310-2.4 of the Greenbook) and/or Blast Cleaning (per section 310-2.5 of the Greenbook).

Spot priming of bare substrate may be necessary in some cases. This shall be accomplished by using a two-part epoxy/polyurethane system consisting of equivalent High Solids epoxy primer and "SPECIFIED COLOR" Polyurethane top coat (or approved equal. See Section 5030.1.

- B. Coatings shall be applied only to clean, dry, and properly prepared (per manufacturers data) electroliers. All loose paint, concrete, dirt, oil, grease, posters, and handbills shall be removed. Minor cleanup, removal, and disposal of incidental bush and tree trimmings and debris may also be necessary and should be considered when preparing a bid.

Whether spraying, brushing, rolling, or preparing the surface, the contractor shall be responsible for protecting all property and persons during the painting process. Refer to section 310-1.1 of the Greenbook regarding Weather Conditions. No painting shall be

done in rain, fog, when precipitation is imminent or when the temperature is below 45°F or above 100°F including surface temperatures. All glassware shall be masked before applying paint to the electrolier. The base of the electrolier shall be masked to prevent runs and drips to the sidewalk.

Workmanship: Coating shall be applied in thickness' not to exceed manufacturers printed instructions. All coats shall be evenly spread and free of defects. All coats shall have no ridges, sags, variations in texture, color, or finish. Any finish showing dust, deposits, or impurities shall be removed and/or refinished.

- C. Any broken, cracked, punctured or indented electrolier parts, cast iron and/or copper shaft, shall be either filled with a pre-approved material similar to the product called Dyna-Glass (Dynatron product manufactured by BONDO Corporation) or welded and ground to a smooth finish to the satisfaction of the City Inspector. Thirty (30) days prior to the start of construction, the Contractor shall submit for approval by the Director of the Bureau of Street Lighting a sample of the proposed filler material with its specifications.

All exterior surfaces shall be primed and painted in accordance with Section 310-5.1 of the latest Edition of the Standard Specifications for Public Works Construction, and any special specifications of the project.

When refurbishing, the Contractor shall arrange to have one prototype electrolier, completely modified, assembled and refurbished, ready for inspection and approval by BSL engineering staff before completing work on the remaining electroliers.

1. Miscellaneous Reporting

The Contractor shall notify the project manager and/or the construction engineer in writing (1149 South Broadway, Suite 200, LA CA 90015, 213-847-1300) of any electrolier or pedestal which is in a state of disrepair or hazardous condition. Repairs and hazardous conditions must be corrected prior to starting any painting on the equipment in question. A state of disrepair or hazardous condition shall include, but not be limited to, the following:

- (1) Electrolier(s) missing base covers.
- (2) Broken glassware.
- (3) Missing Glassware.
- (4) Leaning electrolier(s).
- (5) Electrolier(s) loose at the base.
- (6) Overhead conductor wire(s) resting on electrolier.
- (7) Overhead conductor wire(s) within 10 feet of electrolier.
- (8) Electrolier(s) on during daylight hours.
- (9) Broken, bad order or missing handhole/access covers.

a. Banners

Poles that have been specified to be painted and have banners installed on them shall be identified prior to painting by the contractor. No poles are to be painted prior to banner removal; banner removal will be performed by the banner company. To coordinate banner removals please call Bureau of Street Services at 213 473-4502.

b. Traffic and Parking Signs

In those instances where the level of Surface Preparation requires temporary removal of traffic and/or parking signs, the Contractor shall contact the Department of Transportation. The Contractor may be required to provide temporary traffic and/or parking signs at these locations. If the required level of Surface Preparation can be attained without removal of traffic and/or parking signs, the Contractor shall mask all signs to prevent any overspray.

c. Inspection

The Bureau of Contract Administration will perform inspection of Contractor work. The assigned Inspector will ensure that the label information on the paint container matches the paint that has been specified in these Special Specifications. The Contractor will also be required to inform the Inspector whenever a new paint container is being opened so that the Inspector can verify the paint type. Paint from unlabeled cans and batched or thinned paint that has not been identified cannot be used.

The Inspector will verify the actual number of poles/pedestals that have been painted.

If the Contractor ceases pole painting for more than 24 hours, the Inspector must be informed 24 hours prior to resuming pole painting activities. The Contractor shall call the Metropolitan Dispatcher at (213) 485-5080, Valley Dispatch at (818) 756-8355 before 12:00 noon the day before inspection will be required.

The Contractor must get approval from the Inspector for the Surface Preparation. No coating shall be applied until this approval is granted.

Any incidental damage to the finish coating shall be field repaired. The repair method shall be in accordance with manufacturer's published recommendations. Acceptability of the repair shall consider corrosion protection and aesthetics.

The field inspector is responsible for approving the repair procedures and final acceptance of the work. Significant amount of coating damage, either in size of areas or quantity of areas, shall, at the discretion of the field inspector, require a second blasting and coating to the original specifications contained herein.

d. Damage to City Street Lighting Equipment

- 1) All costs for replacing parts and/or repairing damages attributed to the Contractor while removing, installing, refurbishing or handling any street lighting equipment shall be born by the Contractor. Any street lighting equipment damaged as a result of Contractor operations shall be repaired and/or replaced in kind to the satisfaction of the Bureau of Street Lighting and at the Contractor's expense.
- 2) The contractor shall inspect street lighting equipment for damage in the presence of the City Inspector and shall notify the Bureau of Street Lighting of any existing damage before the start of the street lighting work.
- 3) The contractor shall be responsible for any damage to street lighting equipment not identified as pre-existing.
- 4) In the event that any street lighting standards, luminaires, lanterns or any other designated components listed in the specifications for removal,

refurbishment and/or delivery to the Bureau of Street Lighting has been damaged by the Contractor, and the repairs and/or replacement proposed by the Contractor are not to the satisfaction of BSL, then those damaged parts shall have a replacement value as determined solely by BSL and a corresponding amount shall be deducted from any outstanding or future payment due to the Contractor.

5700 – ELECTROLIER METAL BASES

A. LEVELING DEVICE

All metal bases installed below the grade are required to have a compatible non-corroding metal leveling device to ensure proper installation of the base on the anchor bolts. Contractor shall submit a shop drawing of the proposed device for BSL review and approval.

B. JOINT SEALANT

All metal bases installed below the grade shall have a gap no less than $\frac{1}{2}$ " and no more than $\frac{3}{4}$ " wide around the bottom of the base. A bead of approved by BSL joint sealant shall be then applied to prevent any contact between base and concrete cap and to provide a waterproof seal.

Similarly, a bead of approved joint sealant shall be applied between the top of the base and the electrolier shaft to create a waterproof seal.

DIVISION 16 ELECTRICAL

16000 - GENERAL

The street lighting systems within the City of LA operate on a series (constant current) or multiple (constant voltage) system. This section will specify luminaire, ballast and lamp specifications, special lighting considerations and testing requirements.

16050 - BASIC MATERIALS AND METHODS

All material used shall meet all applicable regulations and codes per Section 209-1 of the Standard Specifications for Public Works Construction. (Latest Edition)

All screws used shall be stainless steel.

16050.2 MULTIPLE CIRCUITS

A. MULTIPLE CIRCUIT SYSTEM WIRING

Multiple circuit wire shall be no. 6 AWG stranded copper conductor, type THWN/THHN insulation, UL approved for 600 Volt operation unless otherwise noted.

Three wires (color code - 1- red, 1-black, 1-white) shall be installed in all multiple circuit conduit unless others specified. Even numbered conductors shall be connected to red and white and odd numbered conductors shall be connected to black and white wires. Blue shall be used when a switch wire is needed.

B. WIRE CONNECTORS - SERIES AND MULTIPLE

Wire connectors shall bear the Underwriters Laboratory seal of approval. The installation procedure, including connector size and crimping tools shall conform to the manufacturer's recommendations. Generally, bulky or odd shape connectors, narrow connectors which may damage the wire, or twist-on and split-bolt type connectors will not be allowed. The mechanical performance of the connector shall be such that no free play can be observed after the connector is subjected to a combination of hand-applied twists and pulls. A solid cross section will also be required when the connector is subjected to saw cutting. All wire connectors shall have a nominal cross sectional area equivalent to the area of the largest conductor connected.

C. MULTIPLE CIRCUIT ELECTROLIER WIRING

All #10 AWG wires used for Multiple Circuit Electrolier Wiring referenced in Standard Drawing No. L-301-1 shall be #10 THWN AWG **SOLID** copper conductors.

D. REMOTE MONITORING SYSTEM

All newly installed luminaires shall have a BSL approved remote monitoring system unless specified otherwise.

E. FUSES

Fuses located at the pole pullbox (for wires going up the pole) are to be 10 amps unless otherwise specified.

16060 - GALVANIZED CONDUIT

All new conduit shall be 1 ½ " (minimum) rigid galvanized steel type unless otherwise specified. The conduit shall conform to Section 307-2.5 and 210-3 of the Standard Specifications for Public Works Construction. The galvanization shall be continuous, and the inside surface of the conduit shall be smooth and seamless.

Any clamps required shall be hot-dipped galvanized.

A. ABANDONING CONDUIT

Conduit that is to be abandoned shall have all wires removed. The conduit shall then be removed to a depth of at least 12" below the surface and have both ends crimped.

B. INSTALLATION OF OAKUM IN CONDUIT ENDS

At least a one foot length of continuous oakum shall be securely packed into all uncapped conduit ends in pullboxes, electrolier bases, etc., immediately after the installation of conductors in the conduit.

The oakum shall be packed around the conductors in such a manner that visible gaps will not remain between the conductors and conduit, and with sufficient care to avoid damage to conductors, bushings or conduit.

The type of oakum to be used shall be string oakum which is tar or oil saturated to be water resistant.

This special provision supersedes all notes referring to oakum installation on standard drawings.

C. PIPE LUBRICANT

As stated in section 307-2.5 of the Standard Specifications for Public Works Construction (Greenbook) "All threads shall be treated with approved joint compound before fittings are replaced thereon."

16400 - SERVICE POINTS

Streetlighting systems in the City are serviced by overhead or underground services from the Department of Water and Power. Contractor shall give the Department of Water and Power Streetlight Maintenance at (213) 367-9966 five days advance notice of the required service date. Contractor must submit a M21 form to request service.

A. VAULT SERVICE LOCATIONS

To determine and confirm the exact service location of stub outs for vault service points, the contractor shall contact the Department of Water and Power Street Lighting Engineering Section at (213) 367-3002

Thirty feet of slack in each conductor entering the vault shall be provided to “rack” the conductor on the walls of the vault.

B. SERVICE PULLBOX

In the Service pull-box, the contractor shall furnish and install two disconnecting splices for each circuit. The disconnects shall be so installed that the two service wires may be connected together.

All service pullboxes shall be Type 3 and meet all specification per detail L-201-0.

When specified on the plans services not in a pullbox must be in a service cabinet. Service cabinets shall be UL listed, rated for a minimum of 10,000 AIC or otherwise specified on the plans. Service cabinets shall be installed per manufactures specifications and adhere to all requirements of the NEC. The breakers, meter and disconnecting device shall be in one enclosure as required by the NEC.

When breakers are used on a street lighting circuit, the neutral wire shall only be grounded at the service point and a green ground wire shall be used for equipment grounding of all streetlighting poles and current carrying equipment.

C. JUNCTION BOXES

Junction boxes shall be used only when specified on the plans or otherwise approved by the engineer.

Any junction boxes used must be NEMA 3 or 4X with a hinged-based latch or approved equal.

D. FUSES FOR SERVICE PULLBOXES

Fuses at the service pullbox shall be 30 amp unless otherwise noted.

16430 - CIRCUIT CLEARANCE

Prior to any work being done on any existing street lighting circuit, the contractor shall obtain daily circuit clearance from the Department of Water and Power Streetlight Maintenance at (213) 367-9966. Deadline to request clearance is noon of the day before clearance is to be given.

The contractor can obtain two types of authorization to work on street lighting circuits. “Clearance Authorization” - this type of authorization is required when the contractor needs to work on an existing circuit and the work will not involve permanent circuit load changes to the circuit. “Service Authorization” - this type of authorization is required when the contractor needs to work on an existing circuit that involves a permanent load change or needs a new service point.

The Department of Water and Power (DWP) will de-energize and re-energize circuits between the hours of 8:30 a.m. and 2:30 p.m. Monday thru Friday. In the event DWP crews are required by the contractor to “stand-by” during the course of work or the contractor fails to complete his work sufficiently in time for the Department of Water and Power to re-energize the circuit within the prescribed time, the contractor shall be liable for any and all “stand-by” and overtime charges accrued by Department of Water and Power’s crews.

An “Emergency Clearance” service is also available for an additional charge. Deadline to request Emergency Clearance is noon of the day the clearance is to be given.

16460 – FIELD ACCEPTANCE

All requests for Field Acceptance Tests will be directed to the Bureau of Street Lighting’s Field Operations Division (323-913-4744).

16500 - LIGHTING

Any luminaire may be subject to photometric testing. Luminaires will be tested for average footcandles and uniformity ratio and adherence to the IES data provided.

LIGHT DISTRIBUTION

Light distribution shall be as defined in the Appendix of the latest ANSI/IES RP8 latest adopted by the City of Los Angeles.

16510 - TEMPORARY STREET LIGHTING SYSTEM

Temporary lighting systems are required for public right-of-ways (roadways, sidewalks, walkways, underpasses, overpasses, detour roads, etc.), when existing street lighting systems are impacted during construction.

The contractor shall provide alternative roadway lighting during construction. The temporary street lighting system must be in operation prior to removing the existing street lighting system.

1. The contractor shall submit a temporary lighting plan including photometrics to the BSL Engineering and Technical Services Division for approval 30 days prior to the start of construction. Written approval from BSL is required prior to installing the temporary lighting system.
2. Contractor shall install a temporary street lighting system by installing a temporary pole adjacent to an existing street lighting pole. The temporary street lighting system must provide an average illumination and uniformity ratio (avg/min) to match existing lighting levels utilizing standard roadway lighting optics. (No floodlights). Temporary poles shall have minimum mounting height of 30 feet. Luminaire shall provide a minimum of 8,000 lumens. Luminaires shall be cutoff type 3 light distribution pattern.
3. Contractor shall make arrangements with the Department of Water and Power for service or shall provide an alternate power supply.

4. The temporary street lighting system must be in operation from dusk to dawn.
5. The contractor shall provide nightly patrol and daily written reports to the Bureau of Street Lighting of all street light outages within one block surrounding the construction sites.
6. The contractor shall repair all street light outages related to the construction within 48 hours.

Installation and operation of the temporary lighting system shall be in accordance with all federal, state and local codes including but not limited to Section 209 of the latest edition of the Standard Specifications for Public Works Construction.

The Contractor shall be both liable and responsible for the installation, operation, maintenance, and removal of the temporary street lighting system. Street lights installed on temporary traffic signal poles shall be in accordance with the latest edition of the LADOT special provisions and standard drawings for the installation and modification of traffic signals.

16520 - DATE CODING OF STREET LIGHTING EQUIPMENT

SCOPE

This specification includes all luminaires or other lighting fixtures or equipment intended for the lighting of streets bikeways and walkways. Each separate electrical component as identified herein shall be identified with the month and year of installation at the time of installation. All dating shall be marked clearly and neatly with numerals 2" (two inches) high. Yellow traffic paint shall be used on all ballasts. A "permanent" black felt tip marker shall be used on all other equipment unless otherwise specified.

A. LUMINAIRES

The date of installation shall be marked inside the luminaire housing near the service wire entry. The date of installation shall be marked on the inside face of the ballast or driver door. If no space is available, the date shall be placed upon the device using yellow traffic paint.

B. DRIVERS

All external drivers shall indicate wattage and current specs

C. OTHER EQUIPMENT

Special lighting fixtures, timers, switching devices, and other equipment associated with lighting shall also be dated in a manner consistent with this specification and as approved by the Engineer. Photoelectric cells shall not be dated.

D. ALTERNATE METHODS

Alternate methods of dating shall have prior approval of the Engineer.

16950 - TESTING - LIGHTING EQUIPMENT

All streetlighting equipment used in the City of Los Angeles must be approved by the Bureau of Street Lighting. The contractor shall furnish all test equipment without charge and shall take test timelines into account.

16950.1 - PROCEDURES (LUMINAIRE TESTING)

A. TESTING FOR QUALITY ASSURANCE OF LUMINAIRES ON THE APPROVED EQUIPMENT LIST

Quality assurance testing is required for projects that have more than 24 units of a given size. The contractor shall submit 2 samples for 25 to 100 units and 1 additional sample within each 100 units thereafter.

Test samples shall be submitted after the M40 form has been approved. The Engineering and Technical Services Division will respond within 30 days of submittal. The sample luminaires and lamps must be new and shall be delivered to the BSL Field Operations Division located at 4550 W Santa Monica Blvd., Los Angeles. Deliveries and retrievals of lamps and luminaires shall be scheduled with the BSL Warehouse Section Head at (323) 913-4726, two working days prior to delivery or retrieval date. All deliveries to FOD shall be labeled with project title applicable work order and paint color (if any). If deliveries are not scheduled, or if approved M40 forms are not submitted with the deliveries, the equipment will not be accepted. The samples must be in their original packaging with no signs of tampering.

Tests will be performed to determine if the luminaires/lamps comply with Section 16950.2 of these Special Specifications. Upon completion of the approval process, one of the following actions shall result:

- No failures in meeting the specifications - The entire delivery lot will be accepted.
- One sample fails, - Additional samples will be randomly selected and tested. The quantity of additional samples will equal that of the first submittal for testing. If there are no additional failures in the additional samples submitted, the entire lot will be accepted. If there is one failure in the additional samples, the entire delivery lot will be rejected.
- Two samples fail - The entire delivery lot will be rejected.

B. TESTING FOR LUMINAIRES NOT ON THE APPROVED EQUIPMENT LIST

All new luminaires (not on the approved equipment list) that are seeking approval must be submitted to the Testing Equipment and Evaluation (TEE) Section of the Bureau. Here are the steps required for approval:

1. The vendor shall submit to the TEE Section specification sheets and ies files for the proposed luminaire.
2. The TEE section will review and evaluate the ies file and specification sheets. The section will confirm using computer simulations that the luminaire will perform satisfactorily.
3. The vendor shall submit one luminaire for mechanical evaluation and power consumption testing. Section C (below) details the most common mechanical criteria that will be inspected
 - At this point if required, luminaires will also be evaluated for similarity to an already approved fixture. ('Or Equal ' approval)

4. The vendor will then take the sample luminaire to an independent testing lab (please contact the TEE section for approved labs) in order to confirm the manufacturer's ies file. **The vendor/manufacturer is responsible for all fees required by the testing lab.**
5. The independent testing lab will then send a copy of their report to the vendor and to the TEE Section.
 - o If BSL *approves* the fixture, then the manufacturer will send the fixture back to BSL. It will be kept as an approved reference fixture for future comparisons.
 - o If BSL *rejects* the fixture, then the manufacturer will pick up the fixture from the lighting lab.
 - o In cases where the report is inconclusive, BSL may require further testing.

When the luminaire meets all BSL requirements it will be approved for the specified project only.

C. MECHANICAL REQUIREMENTS

These requirements are specified to ensure the longevity of the fixture and safe, easy maintenance. The requirements are additional to any/all requirements specified in these Special Specifications.

1. Luminaire must be clearly labeled with the full catalog number.
2. There shall be no sharp edges or corners near serviceable parts.
3. A safety cable is required to keep a hood opening upwards in an open position between 90 and 95 degrees, and a lid opening downwards in an open position between 80 and 90 degrees, or aircraft cable – opening to a position between 80 and 90 degrees.
4. Driver shall be easily accessible and removable for ease of maintenance.
5. External (remote) driver shall be waterproof.
6. Disconnects for the LED optical components and the driver are required for easy removal.
7. All solid state components shall rated up to at least IP66
8. Glass panels are required unless polycarbonate or acrylic is otherwise approved. Panels must be gasketed. Gasket should be part of the unit; not the glass.
9. Doors or lids on the luminaire housing shall be fully gasketed.
10. Rubber gaskets shall be used; foam gaskets are not allowed. Gaskets shall be securely attached.
11. Any adhesive compound used must not degrade under heat generated by the operation of the fixture and must withstand pulls by bare hand.
12. Glass refractors that can be installed in different positions must be marked "House-side", "Street-side" and "Distribution type".
13. Internal wiring must be rated for 105 C and routed away from heat generating components and must not interfere with the lighting distribution of the unit.
14. All luminaire components must be securely fastened.
15. The reflector shall be sturdy and not easily bent.
16. Any covers provided for access to serviceable parts shall be securely attached but easily removable.
17. Screws on the luminaire housing shall be captive and all the same type.

D. CONTAINER IDENTIFICATION

Each shipping container shall be clearly marked to indicate contents, the manufacturer, make, model, wattage, and City purchase order number (where applicable).

Changes:

- (1) Table of Contents – Changed Standard Drawing from CD855 to CD954
- (2) Section 2010 – Removed phone number for Valley Dispatcher
- (3) Section 5005.1 – Removed sentence referring to the contractor
- (4) Section 5005.1 – Modified approval procedure 1, revised and added requirements for pole shop drawings and calculations.
- (5) Section 5005.1 – Modified approval procedure 3, removed requirement that pole inspection must be mentioned in the letter.
- (6) Section 5030.1 – Under Galvanizing: removed "...requiring galvanizing..."
- (7) Section 5030.1 – Under Painting (New pole): added "steel"
- (8) Section 5600 – Under Painting of existing galvanized streetlights: Added section C which covers cast iron and copper shafts
- (9) Section 5600 – Under Miscellaneous Reporting: added section d which covers damage to City Street Lighting Equipment
- (10) Section 16400 – Under Junction Boxes: changed from NEMA "3R" to "3"
- (11) Page A-1 – Added NB, C, X explanation
- (12) Page A-2 – Added " **269-less ignitor "
- (13) Page A-3 – Revised catalog numbers for the GE multiple or series 200WHPS & 250WHPS luminaires
- (14) Page A-3 – Added " ** 283-less ignitor"
- (15) Page A-4 - Added " ** 283-less ignitor"
- (16) Page A-7 – Revised catalog numbers for the GE 250W & 400W MH luminaires
- (17) Page A-14 – revised the Ameron catalog numbers
- (18) Page A-15 – Added Valmont to approved 40'Davit manufacturers
- (19) Page A-15 – Under Arms: added arm lengths and octagonal concrete
- (20) Page A-16 – Added approved lamps

2009 Changes:

- (21) Added Field Acceptance (Section 16460)
- (22) Added 5700 – Electrolier Metal Bases
- (23) Added Street Lighting Specifications to Section 1060
- (24) Added ASTM standard for bolts to A449 (Section 5010.1)
- (25) Changed minimum topcoat thickness to 3 MILS DFT and minimum primer thickness to 3 MILS DFT(Section 5030.1)
- (26) Changed the paint approval process. BSL will provide approved paint chip samples upon request (Section 5030.1)
- (27) Changed the reporting procedure from Construction Section to Project Manager/Construction Engineer (Section 5600)
- (28) Added Remote Monitoring System (Section 16050.2)
- (29) Added Fuses (Section 16050.2)
- (30) Added reference to Section 210-3 and clarified conduit requirements (Section 16060)
- (31) Added Pipe Lubricant (Section 16060)
- (32) Clarified the testing procedure for conventional vs non-conventional (LED, Induction, etc) luminaires (Section 16950.1)
- (33) Added Induction Section 2 (Section 16950.2)
- (34) Added Pipe Lubricant (Section A-13)
- (35) Revised American Electric catalog numbers
- (36) Added Approved Composite Pullbox catalog numbers (Section A-13)
- (37) Changed UM catalog number for CD951B (Section A-16)
- (38) Added several approved catalog numbers for luminaires and conversion kits

2021 Changes:

- (39) Removed Section 1070 - lamp identification systems
- (40) Changed Section 2010 - 12" clearance to 12" radial clearance
- (41) Changed Section 3005 - the distance required for third party inspection to 30 miles
- (42) Added to Section 5005.1 - ramifications of non-compliance
- (43) Changed Section 5005.2 - the distance required for third party inspection to 30 miles
- (44) Changed Section 5030.1 - paint thickness to 5 MILS DFT
- (45) Removed Section 16050.1 - Series circuit section
- (46) Changed Section 16950.1 – Added LED testing procedures removed lamp testing procedures
- (47) Removed Section 16950.2 – HID specifications
- (48) Removed Approved Equipment List (poles, luminaires, misc equipment)
- (49) Added Links to Approved Lists on website

