

PART 1 - GENERAL

1.1 REFERENCE
STANDARDS

- .1 CSA Group
 - .1 CSA C22.1-12, Canadian Electrical Code, Part 1 (22nd Edition), Safety Standard for Electrical Installations.

1.2 DEFINITIONS

- .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.3 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets. Include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Certificates:
 - .1 Provide CSA or accepted equivalent certified equipment and material.
 - .2 Where CSA or accepted equivalent certified equipment and material is not available, submit such equipment and material to inspection authorities for special approval before delivery to site.
 - .3 Submit test results of installed electrical systems and instrumentation.
 - .4 Permits and fees: in accordance with General Conditions of contract.
 - .5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.
 - .4 Manufacturer's Field Reports: submit to Departmental Representative manufacturer's written report, within 3 days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.
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1.4 CLOSEOUT
SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for Crouse-Hinds Champ Pro LED floodlight or approved equivalent for incorporation into manual.
 - .1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.
 - .2 Operating instructions to include following:
 - .1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.
 - .2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.
 - .3 Safety precautions.
 - .4 Procedures to be followed in event of equipment failure.
 - .5 Other items of instruction as recommended by manufacturer of each system or item of equipment.
 - .3 Print or engrave operating instructions and frame under glass or in approved laminated plastic.
 - .4 Post instructions where directed.
 - .5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.
 - .6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

1.5 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Storage and Handling Requirements:
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- 1.5 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)
- .3 (Cont'd)
 - .1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials.

PART 2 - PRODUCTS

- 2.1 DESIGN
REQUIREMENTS
- .1 Operating voltages: to CAN3-C235.
 - .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
 - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
 - .3 Language operating requirements: provide identification nameplates and labels for control items in English and French.
 - .4 Use one nameplate or label for both languages.

- 2.2 MATERIALS AND
- .1 Material and equipment to be CSA certified or obtain special approval from authority having jurisdiction before delivery to site and submit such approval as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

- 2.3 WARNING SIGNS
- .1 Warning Signs: in accordance with requirements of authority having jurisdiction and Departmental Representative.
 - .2 Porcelain enamel decal signs, minimum size 175 x 250 mm.
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- 2.4 WIRING TERMINATIONS .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

PART 3 - EXECUTION

- 3.1 INSTALLATION .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CAN/CSA-C22.3 No.1 except where specified otherwise.

- 3.2 NAMEPLATES AND LABELS .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

- 3.3 FIELD QUALITY CONTROL .1 Conduct following tests in accordance with Section 01 45 00 - Quality Control.
- .1 Circuits originating from branch distribution panels.
 - .2 Lighting and its control.
 - .3 Insulation resistance testing:
 - .1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.
- .2 Carry out tests in presence of Departmental Representative.
- .3 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .4 Manufacturer's Field Services:
 - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.
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3.3 FIELD QUALITY CONTROL
(Cont'd)

- .4 (Cont'd)
 - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS
- .1 Section 26 05 00 - Common Work Results for Electrical.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for roadway lighting and include product characteristics, performance criteria, physical size, finish and limitations.
- 1.3 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 26 05 00 - Common Work Results for Electrical and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
.1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect roadway lighting from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of packaging materials.

PART 2 - PRODUCTS

- 2.1 LUMINAIRE MOUNTING BRACKETS
- .1 Mounting brackets steel aluminum for specified luminaires:
.1 Single brackets as indicated.
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2.1 LUMINAIRE MOUNTING BRACKETS (Cont'd) .1 (Cont'd)
.2 Type: Yoke mount to tenon adapter, Cat #SFA6 or approved equivalent "SFA6 slipfitter" accessory.

2.2 LUMINAIRES .1 Luminaire with cast aluminum weatherproof housing and:
.1 Lamp type: LED, wattage: 216W, Cooper Lighting, Cat # PFMA25LCY/UNV3476 or approved equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION .1 Install luminaires on poles, using yoke mount to tenon adapter, as per drawings.
.2 Apply "Never-Seez" or approved equivalent to all fasteners for each new light luminaire.
.3 Install bird spikes on luminaires and bull horns as per drawings.
.4 Check luminaire orientation, level and tilt.
.5 Connect luminaire to lighting circuit.
.6 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

3.2 CLEANING .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.
.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
.3 Waste Management: separate waste materials for reuse and recycling.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.