

SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior luminaires.
- B. Exit signs.
- C. Drivers.

1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
 - 2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 - 3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
 - 4. Notify the Design Professional of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.03 SUBMITTALS

- A. See Section 26 0510 - General Electrical Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
 - 2. Provide photometric calculations where luminaires are proposed for substitution upon request.
 - 3. Provide dimming system layout drawing with all components identified.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
- D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- E. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

1.04 WARRANTY

- A. Provide three year manufacturer warranty for all LED luminaires, including drivers.
- B. See Section 26 0510 for additional warranty requirements.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.
- B. Substitutions: See Section 26 0510.

2.02 EXIT SIGNS

- A. Description: Exit signs and similar signs for special purpose applications such as area of refuge/rescue assistance.
- B. Description: Internally illuminated exit signs with LEDs unless otherwise indicated; complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
 - 1. Number of Faces: Single or double as indicated or as required for the installed location.
 - 2. Directional Arrows: As indicated or as required for the installed location.

2.03 DRIVERS

- A. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to 1% percent relative light output, standard for LED, without flicker.
 - 2. Control Compatibility: Fully compatible with the dimming controls to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 0537 as required for installation of luminaires provided under this section.
- B. Install products according to manufacturer's instructions.
- C. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- D. Suspended Ceiling Mounted Luminaires:
 - 1. Do not use ceiling tiles to bear weight of luminaires.
 - 2. Secure surface-mounted, recessed, and pendant-mounted luminaires to building structure.
 - 3. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
 - 4. In addition to ceiling support wires, provide two galvanized steel safety wire(s), minimum 18 gauge, connected from diagonal corners of each recessed luminaire to building structure.
 - 5. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.
- E. Recessed Luminaires:
 - 1. Install trims tight to mounting surface with no visible light leakage.
 - 2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
 - 3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.

4. Downlights: Use fixtures supports provided by manufacturer.
 5. For recessed flanged fixtures in hard ceilings (i.e. wood, gypboard, etc.), support the fixture from structure with two 3/8" threaded rods.
- F. Install accessories furnished with each luminaire.
 - G. Bond products and metal accessories to branch circuit equipment grounding conductor.
 - H. Wall mounted exit signs shown over doors:
 1. Atriums, lobbies or corridors with high ceilings, storefront: Confirm location and mounting height with A/E prior to rough-in of these areas.
 2. Other locations:
 - a. If the ceiling is 12' or lower, locate the exit sign centered between the top of the door frame and the ceiling. All exit signs mounted over doors in the same space shall be at the same height.
 - b. If the ceiling is greater than 12', mount the exit sign such that the bottom of the sign is 7'-6" above finished floor.
 - I. Any luminaire larger than 2' x 4' shall be supported independent of ceiling framing.
 - J. The Contractor shall verify all ceiling types and configuration prior to ordering fixtures. The Contractor shall review the reflected ceiling plan, including any changes or modifications to the documents made during construction. The Contractor shall furnish fixtures compatible with the ceiling type being installed.
 - K. Locate recessed ceiling luminaires as indicated on the reflected ceiling plan.
 - L. Install surface mounted luminaries and exit signs plumb and adjust to align with building lines and with each other. Secure to prevent movement.
 - M. Install recessed luminaires to permit removal from below.
 - N. Install wall mounted fixtures at height indicated. Request this information prior to rough-in if no height is indicated.
 - O. Connect luminaires to branch circuit junction boxes provided under Section 26 0537 using flexible conduit. Support flexible conduit from structure. Flexible conduit shall not rest on ceiling tiles, and shall not rest on ceiling grid supports. Do not support flexible conduit from ceiling support wires. Do not support flex conduit from luminaire support wires.
 - P. Structural system attachments, unless noted otherwise:
 1. Poured-in-place concrete or precast solid masonry: Concrete expandable anchors.
 2. Steel Bar Joists or Steel Beams: 1 5/8-inch x 3/4-inch x 12 gauge channel bolted to top chords. Drill channel and secure threaded rod to channel
 3. Along bar joist or steel beam center line: Malleable iron beam clamp.

3.04 FIELD QUALITY CONTROL

- A. Inspect each product for damage and defects.
- B. Operate each fixture after installation and connection. Inspect for proper connection and operation.
- C. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.
- D. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by the Design Professional.

3.05 ADJUSTING

- A. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by the Design Professional.
- B. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by the Design Professional.

3.06 CLEANING

- A. Clean surfaces according to NECA 500 (commercial lighting) and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.
- B. Clean electrical parts to remove conductive and deleterious materials.
- C. Remove dirt and debris from enclosures.
- D. Clean photometric control surfaces as recommended by manufacturer.
- E. Clean finishes and touch up damage.
- F. Replace any cracked or bent lenses or louvers. Replace any lenses or louvers with deficiencies as noted by the Design Professional.

3.07 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of luminaires to the Design Professional, and correct deficiencies or make adjustments as directed.

3.08 PROTECTION

- A. Protect installed luminaires from subsequent construction operations.

END OF SECTION