

SECTION 16510  
INTERIOR LUMINARIES

## PART 1 GENERAL

## 1.1 SECTION INCLUDES:

- A. Interior luminaries and accessories.
- B. Exterior luminaries and accessories.
- C. Lamps.
- D. Ballasts.

## 1.2 REFERENCES

- A. ANSI C82.1 - Specification for Fluorescent Lamp Ballasts.
- B. ANSI C82.4 - Specifications for High-Intensity-Discharge Lamp Ballasts (Multiple Supply Type.)
- C. FS W-F-414 - Fixture, Lighting (Fluorescent, Alternating-Current, Pendant Mounting.)
- D. NEMA LE 2 - H-I-D Lighting System Noise Criterion (LS-NC) Ratings.

## 1.3 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Include outline drawings, lamp and ballast data, support points, weights, and accessory information for each luminary type.
- C. Submit manufacturer's installation instructions under provisions of Section 01300.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01610.
- B. Store and protect products under provision of Section 01610.
- C. Handle metal poles carefully to prevent breakage and damage to finish.

## PART 2 PRODUCTS

## 2.1 INTERIOR LUMINARIES AND ACCESSORIES

- A. Fluorescent Luminaries: FS W-F-414; provide hinged frames with latches, and thick virgin acrylic lenses.
- B. Recessed Fluorescent Luminaries: Provide trim type and accessories required for installation in ceiling system installed.
- C. Exit Signs: Stencil face, 6" high red letters on white background, directional arrows as indicated, wall mounting type unless otherwise indicated, LED type with maximum wattage of 4 watts.
- D. HID Luminaries: Pre-wired, with integral ballast.
- E. Lighting Busway: 20-ampere lighting bus way for surface or recessed mounting, by manufacturer of busway-mounted luminaries. Matte white paint factory finish.
- F. Provide in-line fuses in all fixtures on emergency power.
- G. Ballast shall have a sound rating of "A".
- H. Acoustical T-bar Support Clips:
  - 1. Surface mounted fixtures, use Caddy type IDS, or equal.
  - 2. Surface mounted track lighting, use Caddy type 4-G-8, or equal.
- I. Ballasts shall be individually fused and shall have 97% power factor, non-PCB construction UL listed Class P and be listed by Electric Testing Laboratories.
- J. Provide electronic ballasts for fluorescent fixtures with 32 watts, T-8 lamps. Electronic ballasts shall have Total Harmonic Distortion (THD) of not more than 10% and a 5-year manufacturer's warranty.
- K. Exposed bare lamps on fluorescent fixtures shall be protected with wire guards or a protective tubular shield.

- L. All light fixtures in Gymnasiums shall be provided with impact resistant Polycarbonate Lens and safety cable.
- M. Ballasts for tandem wired fixtures shall operate as a parallel circuit, remaining lamps shall continue to operate even if companion lamp(s) fail.
- N. A single ballast may operate as many as four lamps. However, single ballast may not be connected to more than two fixtures.

## 2.2 EXTERIOR LUMINARIES AND ACCESSORIES

- A. Enclosures: Complete with gaskets to form weatherproof assembly.

## 2.3 ACCEPTABLE MANUFACTURERS - LAMPS

- A. G.E.
- B. Sylvania
- C. Philips Lighting Company
- D. Substitutions: Under provisions of Section 01630.

## 2.4 LAMPS

- A. General Use Incandescent Lamps: Inside frosted type, rated 130 volts.
- B. Incandescent Reflector Lamps: Shape as scheduled, rated 130 volts.
- C. Fluorescent Lamps: Cool white energy efficient; all by same manufacturer.
- D. Provide 32 watts, T-8 fluorescent lamps as noted on the drawings.
- E. T-8 lamps shall have minimum of 2800 lumen output, 4100° Kelvin, energy saving.
- F. Metal Halide HID Lamps: Phosphor coated.
- G. High Pressure Sodium HID Lamps: Clear or Coated suitable for all burning positions.

## 2.5 ACCEPTABLE MANUFACTURERS - FLUORESCENT BALLASTS

- A. G.E.
- B. Advanced
- C. MagneTek
- D. Substitutions: Under provisions of Section 01630.

## 2.6 FLUORESCENT BALLASTS

- A. Fluorescent Ballasts: ANSI C82.1; high power factor type.
- B. Nominal 430 ma Lamp Ballasts: Low energy type.

## 2.7 HID BALLASTS

- A. HID Ballast: ANSI C82.4; selected by luminaries manufacturer.
- B. LS-NC Rating: NEMA LE 2; equal to or less than ratings listed in Table C-1.
- C. HID Ballast: High power factor type.

# PART 1 EXECUTION

## 3.1 INSTALLATION

- A. Install lamps in luminaries and lamp holders.
- B. Support surface-mounted luminaries directly from building structure. Fasten to T-bars using screws, or approved ceiling framing member clips.
- C. Install recessed luminaries to permit removal from below. Use plaster frames or install grid clips.
- D. HID Luminaries: Use hangers rated 500 pounds minimum or provide safety chain between ballast and structure. Provide safety chain between reflector and ballast.
- E. Lay-in type recessed fixtures in suspended acoustical ceiling:

1. Fixtures 2' x 4' or larger: Support T-bars at all four corners of fixtures with #12 gauge support wire.
  2. Fixtures smaller than 2' x 4': Support T-bar at each end of fixture with #12 gauge support wire.
- F. Cut-in type recessed fixtures in suspended acoustical ceiling; secure fixture to T-bars. Support T-bars at each end of fixture with #12 gauge support wire.
- G. Pipe or stem mounted continuous row fixtures shall be mounted to channel iron similar to Unistrut, mounted to permanent ceiling structure.
- H. Install lamp guards on fixtures with exposed lamps.

### 3.1 RELAMPING

- A. Relamp luminaries, which have failed lamp or fluorescent lamps with, discolored ends at completion of work.

### 3.2 ADJUSTING AND CLEANING

- A. Align luminaries and clean lenses and diffusers at completion of work. Clean paint splatters, dirt, and debris from installed luminaries.
- B. Touch up luminaries finish at completion of work.

END OF SECTION