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.)

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