**PART 1 - GENERAL**

* 1. **SECTION INCLUDES**
     1. Interior luminaires and accessories.
     2. Emergency lighting units.
     3. Exit Signs.
     4. Ballasts.
     5. Fluorescent lamp emergency power supply.
     6. Lamps.
     7. Luminaire accessories.
  2. **REFERENCES**
     1. ANSI C78.379 - Electric Lamps - Incandescent and High-Intensity Discharge Reflector Lamps - Classification of Beam Patterns.
     2. ANSI C82.1 - Ballasts for Fluorescent Lamps -Specifications.
     3. ANSI C82.4 - Ballasts for High-Intensity Discharge and Low Pressure Sodium Lamps (Multiple Supply Type).
     4. ANSI/NFPA 70 - National Electrical Code.
     5. ANSI/NFPA 101 - Life Safety Code.
     6. NEMA WD 6 - Wiring Devices-Dimensional Requirements.
     7. Title-24 C.C.R.
  3. **SUBMITTALS**
     1. Submit under provisions of Division 21.
     2. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
     3. Product Data: Provide dimensions, ratings, and performance data.
     4. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.
     5. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
  4. **PROJECT RECORD DOCUMENTS**
     1. Submit under provisions of Division 01.
     2. Accurately record actual locations of each luminaire.
  5. **OPERATION AND MAINTENANCE DATA**
     1. Submit under provisions of Division 01.
     2. Maintenance Data: Include replacement parts list.
  6. **QUALIFICATIONS**
     1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years experience.
  7. **REGULATORY REQUIREMENTS**
     1. Conform to California building code and NFPA 101 for installation requirements.

**PART 2 - PRODUCTS**

* 1. **LUMINARIES, EMERGENCY LIGHTING UNITS, AND EXIT SIGNS**
     1. Furnish products as specified on Drawings.
     2. Install ballasts, lamps, and specified accessories at factory.
  2. **BALLASTS**
     1. Fluorescent Ballast:
        1. Advance Instant Start, IOP Series.
        2. Sound Rating: Less than 30 dB.
        3. Description: ANSI C82.1, high power factor type, rapid start electronic ballast.
        4. Provide ballast suitable for lamps specified.
        5. Voltage: Match luminaire voltage.
        6. Source Quality Control: Certify ballast design and construction by Certified Ballast Manufacturers, Inc. Guarantee ballast replacement for three (3) years.
        7. Ballast Protection: Resetting type thermal protector.
  3. **INCANDESCENT LAMP EMERGENCY POWER SUPPLY**
     1. Manufacturers:
        1. Cooper.
        2. Dual Lite.
        3. Or equal.
     2. Description: Remote-mounted, self-contained emergency lighting unit.
     3. Lamp Ratings: Two F40CW lamp providing 1200 lumens, minimum.
     4. Battery: Sealed type, rated for 10-year life.
     5. Include TEST switch and AC ON indicator light, installed to be operable and visible from the outside of an assembled luminaire.
  4. **LAMPS**
     1. Fluorescent Lamp Manufacturers:
        1. Sylvania XP Series. Or equal to GE.
        2. Prefer G.E. lamps – no Phillips.
     2. Provide lamp type specified for luminaire.
     3. Reflector Lamp Beam Patterns: ANSI C78.379.
  5. **ACCESSORIES**
     1. Provide all required accessories such as sockets, glassware, boxes, spacers, mounting devices, lamps, etc.
     2. Provide minimum 0.125 inches thick, “KSH” Pattern 12 100% virgin acrylic lenses where applicable.

**PART 3 - EXECUTION**

* 1. **EXAMINATION**
     1. Examine substrate and supporting grids for luminaries.
     2. Examine each luminaire to determine suitability for lamps specified.
  2. **INSTALLATION**
     1. Install in accordance with manufacturers instructions.
     2. Locate recessed ceiling luminaries as indicated on reflected ceiling plan.
     3. Install surface mounted luminaries and exit signs plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
     4. Light Fixture Support: Conform to Section 26 05 33.
     5. Install recessed luminaries to permit removal from below.
     6. Install wall mounted luminaries, emergency lighting units and exit signs at height as indicated on Drawings.
     7. Install accessories furnished with each luminaire.
     8. Connect luminaries, emergency lighting units and exit signs to branch circuit outlets provided under Section 26 05 33 as indicated.
     9. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
     10. Bond products and metal accessories to branch circuit equipment grounding conductor.
     11. Install specified lamps in each luminaire, emergency lighting unit and exit sign.
     12. Verify all ceiling types and provide lighting fixtures with suitable mounting hardware for mounting in or on subject ceiling.
     13. Recessed mounted fixtures shall be approved for the fire rating of the ceiling or shall be enclosed with fire rated material and installed in complete accordance with fire departments requirements.
     14. Surface Mounted Fluorescent Fixtures: Where fixtures are indicated for installation on low-density cellulose fiberboard (see room finish schedule on drawings), provide 1-1/2" ceiling spaces, unless UL approved for mounting directly to the ceiling material.
     15. Standard Plaster Frames: Provide plaster frames for all recessed lighting fixtures installed in plaster or drywall ceilings (see room finish schedule on drawings). Provide plaster frame designed and fabricated of such materials to preclude the possibility of staining the plaster.
     16. Properly support and align fixtures and provide all necessary steel shapes for support of the fixtures. Coordinate complete fixture installation with the building construction.
     17. Square and rectangular fixtures shall be mounted with sides parallel to building lines unless otherwise indicated.
     18. Where special fixtures to be used in special ceiling are scheduled, verify all ceiling systems and coordinate fixture type and accessories prior to ordering fixtures. Coordinate and cooperate with ceiling supplier in the preparation of ceiling system Shop Drawings.
     19. Install fluorescent fixtures as recommended by the manufacturer or as necessary to provide exact horizontal alignment, preventing horizontal or vertical deflection on angular jointing of fixtures suspended in continuous rows.
     20. Two-lamp ballasts shall be allowed to feed single lamps in tandem fixtures and shall be properly identified to show which lamps are fed from this ballast by markers on the fixture and the ballast.
  3. **FIELD QUALITY CONTROL**
     1. Operate each luminaire after installation and connection. Inspect for proper connection and operation.
     2. Each fluorescent fixture when initially energized shall be left on continuously for 100 consecutive hours to properly burn in fluorescent lamps.
  4. **ADJUSTING**
     1. Aim and adjust luminaries as directed.
     2. Adjust exit sign directional arrows as indicated.
     3. Re-lamp luminaries that have failed lamps at Substantial Completion.
  5. **CLEANING**
     1. Clean electrical parts to remove conductive and deleterious materials.
     2. Remove dirt and debris from enclosure.
     3. Clean photometric control surfaces as recommended by manufacturer.
     4. Clean finishes and touch up damage.
  6. **DEMONSTRATION**
     1. Provide systems demonstration.
     2. Provide minimum of two hours demonstration of luminaire operation.

# END OF SECTION