SECTION 16500: LIGHTING

PART 1 - GENERAL

1.1 SCOPE:

Work of this Section shall include the following items:

Interior fluorescent, HID, and incandescent
Exterior HID
Emergency lighting system

1.2 REFERENCED STANDARDS:

NFPA 70 - National Electrical Code
NFPA 101 - Life Safety Code

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES AND LAMPS: <S>

2.1.1 Provide fixtures including interior and exterior fixtures and emergency type fixtures as indicated on the plans and described in the schedule.

2.1.2 All battery packs supplying emergency lighting fixtures shall be capable of sustained operation for at least 90 minutes without any degradation in performance and without going into deep cell discharge. Provide submittal data for each battery pack/fixture application.

A. When the fixture is powered by the battery pack, at least one third of the normal light output shall be available for emergency lighting.

B. All emergency lights shall have a lighted push-to-test button clearly visible and accessible. Remote battery packs shall be provided with a remote lighted push-to-test button to be located as directed by the architect.

C. All battery packs shall be NICAD unless noted otherwise on the plans.

2.1.3 Fixtures shall be complete with lamps as indicated, ballasts, internal wiring, brackets, fittings, lenses, louvers, guards, reflectors, pole supports and accessories as required, indicated or detailed.

2.1.4 Ballasts for fluorescents fixtures shall have the following requirements:

A. They shall be Class P, UL labeled with a sound rating of A.

B. They shall be high power factor (exceeding 90%) and shall have a ballast efficiency factor of 1.06 minimum.

C. Solid state ballasts shall have a total harmonic distortion less than 20% and produce less than 10% third harmonic.

D. Ballasts for PL and BIAX lamps shall be high power factor (not less than 0.90).

Ballast for HID fixtures shall be high power factor constant wattage autotransformer type.

Ballast by Advance, Magnetek, Valmont, Motorola and Robertson are approved equals.

2.1.5 Lamps shall be provided as indicated in the schedule. Nomenclature is based on General Electric lamp ordering code numbers. Comparable lamps by Westinghouse, Norelco, or Sylvania are acceptable.

2.1.6 Note the following prior approvals for specific fixture types: [Add3-15]

Type A12	***Columbia STR24-3***
Type F10	***Kim LTV750***
Type R1	***Finelite Series 5***
Type R2	***Alera AL***
Type R3	***Donovan Sammy D Model BD8993, clear anodized***
	Poulsen PH4 (hardwired only)
Type R5	***Infinity DRM2***
Type W5	***Hubbell Perimaliter 11***
Type W10	***Kim Round Wall Forms WF20***

PART 3 - EXECUTION

3.1 LIGHTING FIXTURES:

3.1.1 Installation methods for each fixture shall be as indicated or detailed and as recommended by the fixture manufacturer for the application. Supports such as mounting brackets, hangers, clamps, etc., shall be provided in the best practical manner consistent with good workmanship and appearance. Fixtures shall be independently supported from the building structure.

3.1.2 Any fixture damaged during construction prior to final acceptance of the project shall be replaced or repaired to the satisfaction of the Architect.

3.1.3 Contractor shall note architectural finish schedules, reflected ceiling plan and existing conditions and furnish proper mounting accessories or trim as required to properly mount each fixture type.

3.1.4 Recessed fixtures shall be provided with mounting frames or rings and shall finish flush to the ceiling without light leaks. Fixtures shall be connected by means of 3/8" flexible metal conduit (max 6'-0" length) from outlet boxes mounted above or alongside the fixture. Wire size in runouts to individual fixtures may be reduced to #14 AWG on 120 volt circuits and #16 AWG on 277 volt circuits.

3.1.5 Fixtures exposed to outdoor temperatures shall be rated for 0 degree Fahrenheit operation.

3.1.6 Adjustable fixtures both inside and outside shall be adjusted by the contractor to illuminate the intended area at the direction of the owner. Adjustment shall be during the hours of darkness.

3.2 LIGHTING CONTACTORS: <S>

Provide mechanically held lighting contactors with two-wire control as indicated on the drawings. Contactors shall be mounted in NEMA type 1 enclosures and shall be sized as indicated, equal to Square D Class 8903, type LXG, Cutler-Hammer Typer C30, or General Electric Type CR360ML2.

END OF SECTION