

DIVISION 26 – ELECTRICAL

26 51 00 INTERIOR LIGHTING

PART 1 - GENERAL

1.01 GENERAL

- A. In general, specify LED interior lighting fixtures for new construction.
- B. For renovations and renewals, consider LED lighting or matching existing fixtures, considering budget, maintainability, and energy conservation factors.
- C. LED products shall comply with the following standards:
 - 1. IESNA LM-79
 - 2. IESNA LM-80
 - 3. IESNA TM-21
 - 4. IEC 62717
 - 5. IEC 62722-2-1
- D. At a minimum, foot-candle levels shall comply with the most current IESNA standards.
- E. Select and specify lighting fixtures expected to last 25,000 hours or more.
- F. Preferred voltage for interior lighting is 277V with dedicated neutral. Exceptions require approval from WSU Engineering Services.
- G. Warranty: Provide a minimum five year manufacturer's warranty on the following:
 - 1. All LED components
 - 2. Fluorescent ballasts
 - 3. Exit signs

1.02 DESIGN FOR ECONOMY AND MAINTAINABILITY

- A. Limit the types of fixtures specified in new construction. An unreasonable range of fixture types becomes problematic for long-term maintenance.
- B. Do not specify non-standard, custom-made, or custom-fit luminaires or fixtures, unless specifically approved by WSU Engineering Services.
- C. Fixtures shall be designed and installed where readily accessible for maintenance and replacement (generally interpreted as accessible from an 8-

DIVISION 26 – ELECTRICAL

26 51 00 INTERIOR LIGHTING

foot ladder). In general, install fixtures in stairwells 8-feet over landings. Designers shall specifically consider the location of light fixtures in high-ceiling spaces and indicate these locations and elevations on project drawings.

PART 2 - PRODUCTS

- A. LED Luminaires: All luminaires shall have a minimum CRI value of 80 and a color temperature range of 3500-4500 Kelvin.
- B. LED Drivers:
 - 1. Provide and install manufacturer-recommended drivers compatible with the fixtures specified.
 - 2. LED drivers shall be dimming-type standard. Exceptions require approval by WSU Engineering Services.
 - 3. Drivers shall be compatible with the lighting control system (per manufacturer's recommendations) and shall control luminaires from 1-100% light output, or otherwise specified by the luminaire schedule and controls intent documents.
- C. Fluorescent Luminaires: Lamps shall be T-8 rapid start, T5 and T5HO. Fluorescent and metal halide fixtures shall be suitable for operating on 277 volts if that voltage is available.
- D. Electronic Ballasts for Fluorescent Fixtures:
 - 1. Ballasts for fluorescent lighting fixtures shall be electronic. Fluorescent light ballasts shall contain no PCBs.
 - 2. All ballasted light fixtures shall be protected by a dual element fuse to protect the ballast.
 - 3. Ballasts shall be Sound Group "A" rating with Class "P" protection.
 - 4. Total harmonic distortion for electronic ballast shall be less than 10% of the input current.
 - 5. Current crest factor shall be less than 1.7. Operation frequency shall be 25 - 60 khz with no visible flicker.
- E. Incandescent Luminaires: Lamps shall be extended service type and be rated for 125 volts.
- F. Emergency/Egress Lighting:

DIVISION 26 – ELECTRICAL

26 51 00 INTERIOR LIGHTING

1. Emergency lighting fixtures shall match other lighting fixtures that are in the same general area.
2. All emergency fixtures shall be on emergency lighting panel circuits (where WSU Life Safety Feeder EB13 feeds the building). The fixtures shall be same type as others in the area being lighted and shall contribute to the normal lighting level.
3. Lighting of stairwells and egress pathways shall have both normal power lighting and WSU Feeder EB13 (where available). Provide two sources of power within all egress pathways.
 - i. Where emergency power is not available, provide emergency lighting by means of battery pack units which are activated automatically by loss of primary power.
4. "Exit" sign lighting shall be on an un-switched emergency lighting circuit. Exit lighting shall be lit by green LED.

2.02 LIGHTING CONTROLS

A. Pre-Approved Manufacturers:

1. Cooper – Greengate
2. Acuity Controls nLight
3. Other manufacturers require approval from WSU Engineering Services.

PART 3 - EXECUTION

3.01 FACTORY COMMISSIONING

- A. Upon completion of installation, the system shall be commissioned by a manufacturer's authorized representative who will verify a complete and fully functional system.
- B. The Electrical Contractor shall provide both the WSU Construction Manager and the manufacturer and the electrical engineer with 21 working days written notice of the system startup and adjustment dates.

3.02 OWNER TRAINING

- A. Upon completion of the system commissioning, competent manufacturer-authorized technicians shall provide proper training for the care, adjustment, and operation of all system components to the WSU Facilities Services and client personnel, including adjustment and maintenance of the system.

DIVISION 26 – ELECTRICAL
26 51 00 INTERIOR LIGHTING

1. Instructors shall be thoroughly familiar with all parts of the installation, and shall be trained in operating theory as well as practical operation and system maintenance.
 2. Furnish instruction at the times and dates selected by the WSU Construction Manager.
- B. Installation, startup, and maintenance assistance shall be available from the manufacturer on an as-needed basis.

END OF SECTION