

# 26 50 00 – Lighting

## DIVISION 26 - Electrical



### STATEMENT OF PURPOSE & BACKGROUND

- Scope:
  - Selection and installation of lighting for school buildings, grounds and exterior facilities
- Statement of goals:
  - Provision of high quality lighting and lighting controls to provide ample illumination and appropriate energy efficiency.
- Revision history of section:
  - 4/14/2016 (date of adoption)
  - 06/22/2018
  - 01/18/2019
  - 05/20/2021
  - 10/28/2022 (added Metalux FP, updated links and code references)

### FIXTURE SELECTION AND APPLICATION CRITERIA

Application	Foot-candles	Selection	Notes
<b>INTERIOR SPACES</b>			
<b>Administrative Offices</b>			
Open Office	50 fc	TYPE A,C	
Private	30-50 fc	TYPE A,C	
<b>Auditorium or Commons</b>			
Assembly	10 fc	TYPE A,B	Retrofit LED Cans at Existing AUD
Reading	30-50 fc	TYPE A,B	
<b>Bathrooms</b>			
	30 fc	TYPE A	
<b>Cafeterias</b>			
Dining	30 fc	TYPE A,B	
Kitchen	50 fc	TYPE A	Meet MDH Standard
<b>Classroom</b>			
	50 fc	TYPE A,B	
<b>Computer Lab</b>			
	3-50 fc	TYPE A,B	
<b>Gymnasium</b>			
General Exercise	30 fc	TYPE D	
Reading	50 fc	TYPE D	
Basketball	75 fc	TYPE D	
<b>Hallway</b>			
	30 fc	TYPE A	
<b>Library</b>			
Stacks, AV, Circulation	30 fc	TYPE A,B	
Open Study Area	50 fc	TYPE A,B	
<b>Locker room</b>			
	10 fc	TYPE A,E	
<b>Maintenance Room</b>			
	30 fc	TYPE E	
<b>Medical Offices</b>			
	50 fc	TYPE A,B	
<b>Science Lab</b>			
	50 fc	TYPE A,B,E	Meet NFPA REQ

<b>Stairwells</b>	15 fc	<b>TYPE E</b>	
<b>Pool, Natatorium</b>	30 fc	<b>TYPE K, L</b>	
<b>EXTERIOR LIGHTING</b>			
<b>Building Exterior</b>		<b>TYPE H</b>	
Active Entrances	5 fc	<b>TYPE H</b>	
Inactive Entrances	3 fc	<b>TYPE H</b>	
Building Surroundings	1 fc	<b>TYPE H</b>	
Flag Lighting		<b>TYPE M</b>	
<b>Parking</b>			
High Active	3.6 fc	<b>TYPE I</b>	
Medium Active	2.4 fc	<b>TYPE I</b>	
Low Active	.2 fc	<b>TYPE I</b>	
<b>Roadways</b>	1 fc	<b>TYPE I</b>	
<b>ATHLETICS</b>			
Football / Soccer Baseball /Softball	15-30 fc	<b>TYPE J</b>	
Tennis	20-30 fc	<b>TYPE J</b>	

## Fixture Types:

Fixture Type	Description	Mounting	Notes
<b>TYPE A:</b> <i>Classroom</i> <i>Corridors</i> <i>Office</i> <i>Administration</i> <i>Restrooms</i>	1. GE – BR Series 2. Philips – Day-brite 3. Metalux GR LED 4. Metalux FP 5. Alternate fixture by Facilities Dept Approval	Lay-in Surface	2x4, 2x2, 1x4 surface mounted with available wrap kit. Low profile where space is restricted
<b>TYPE B:</b> <i>Public Meeting Space – Cafeteria, Commons</i>	1. GE – IS 2. Philips - Boldplay 3. Philips – Micro-square suspended	Pendant Suspended	Classrooms with exposed ceilings
<b>TYPE C:</b> Architectural Lay-in <i>Office, Administration, Commons</i>	1. GE – BV Series 2. Philips – 97XL 3. Metalux GR LED 4. Metalux FP 5. Alternate fixture by Facilities Dept Approval	Lay-in Surface	2x4, 2x2, 1x4 surface mounted with available wrap kit. Low profile where space is restricted
<b>TYPE D:</b> <i>High Bay Lighting GYM or Fieldhouse</i>	1. GE-ABV Series 2. Philips - ILHHBX 3. Metalux VHB LED High Bay 4. RAB High Bay	Lay-in Surface Suspended Wall	Alternate fixture by Facilities Dept Approval
<b>TYPE E:</b> <i>Utility Light</i> <i>Stair Light</i>	1. GE-ALM 2. GE-ALC5 (Public) 3. GE-ALV (Utility) 4. Philips - LF	Surface Wall	
<b>TYPE F:</b> <i>Emergency Exit</i>	Lithonia LE S 2 G EL <b>No exceptions</b>	Surface Wall Suspended	
<b>TYPE G:</b> <i>Emergency Egress</i>	COOPER - SELW <b>No exceptions</b>	Surface Wall	
<b>TYPE H:</b> <i>Exterior Wall Packs</i>	RAB preferred GE, Philips	Wall	

<b>TYPE I:</b> <i>Exterior Parking Pole</i>	RAB preferred GE, Philips	Pole	
<b>TYPE J:</b> <i>Athletic Field Lighting</i>	Musco - LED Qualite	Pole	
<b>TYPE K:</b> <i>Natatorium Lighting – Wall packs</i>	RAB WPT LED Tallpack	Wall	
<b>TYPE L:</b> <i>Pool Lighting – Underwater</i>	Pentair Intellibrite 5G LED	Pool Wall	
<b>TYPE M:</b> <i>Flag Lighting – Exterior</i>	Philips eW Burst Compact Powercore BCP463 LED, 4000 K	Ground or Building	Provide glare shields where required. Verify if flagpole is specified with integral light fixtures

#### OUTLINE SPECIFICATION

- Warranty
  - Five years on mechanical defects.

#### Lighting:

1. SPPS has adopted energy conservation measures. All applicable LED products should be certified through the Design Lights Consortium (DLC) or Energy Star Certified. See the following links for reference:
  - a. <http://www.designlights.org/>
  - b. <https://www.energystar.gov/productfinder/product/certified-light-fixtures/results>
2. Provide luminaires, branch circuiting and switching complete per Minnesota Energy Code (MEC) 2020 or ASHRAE 90.1-2016 to be determined at start of project.
3. Match existing fixture types in remodeled areas where existing fixtures remain. LED is preferred if more than 50% of building is new.
4. Minimize the use of different fixture types and lamp types for ease of maintenance and stocking lamps.
5. Exterior lighting to be LED with the ability to reduce lamp output to 10% with motion sensing activation to 100% full output.
6. Submit point by point foot-candle calculations for parking lot and exterior lighting.
7. Submit lighting level calculations for classrooms, corridors, bathrooms, cafeterias, media centers/libraries, gymnasiums and auditoriums.
8. Wall-mounted fixtures required for stairways in order to avoid requirement for scaffolding for repair and lamp replacement.

**Controls:**

1. See SECTION 26 09 23 – LIGHTING CONTROL DEVICES for controls and BAS information.
2. Control Sequence based on adherence method – Minnesota Energy Code (MEC) 2020 or ASHRAE 90.1-2016 to be determined at start of project.

Control Type	Description	Notes
<b>A: BAS with Manual Switch</b>	Manual switch on occupancy sensor off	1. Requires .6 watts /SF 2. Option – monitor by BAS
<b>B: Bi-Level Switching</b>	Two switches, 50% on/100% Occupancy sensor off	1. Switch 1-50% 2. Switch 2-100% Similar to inboard/outboard
<b>C: Dimmer</b>	Manual switch on to 50% Dimmer switch to raise to 100% Occupancy sensor off	1. Dimmer switches allow for 0-100” illumination
<b>D: Daylight Harvesting</b>	Manual switch on to 50% Dimmer switch to raise to 100% Occupancy sensor off Daylight sensor to control lights at windows	1. Adds daylight harvesting where applicable
<b>E: Relay</b>	Relay on/off public spaces with remote switch for override	1. Traditional relay panel with BAS for time of day control
<b>F: BAS</b>	Relay on/off BAS to override	1. For parking lot, walkway, and building perimeter lighting.

End of Section