

**1.0 GENERAL**

**.1 Summary**

- .1 Fixture Selection: Efficiency of the light source and luminaire is a significant factor.
- .2 LED is the preferred light source.
- .3 Select luminaires to achieve BCIT’s objectives of quality lighting with minimum energy consumption.
- .4 Provide night lighting in spaces to allow safe passage for those entering the space at night.
- .5 Lighting Standards for building interiors vary depending on the usage. Lighting levels, energy efficiency, and controls shall be as outlined in Table 1 - BCIT Lighting Standards - Interior.
- .6 Luminaire selection for interiors shall be based on area usage, ceiling type, lighting levels, and other contributing factors. Selection of a BCIT standard fixture with standard components is recommended, however others will be considered upon approval from BCIT. Refer to Appendix ‘A’ - Selection of Luminaires – Interior.

**2.0 PRODUCTS**

**.1 Manufacturers**

- .1 Refer to Section 26.51.01 Appendix A: Luminaires Interior PRODUCTS.
- .2 Colour Temperature:
  - .1 All light sources colour temperature to be determined by project use. Coordinate requirements with BCIT Facilities. Consider matching colour temperature to existing in the case of existing facilities/renovations.
- .3 Voltage:
  - .1 Lighting fixture voltage shall be consistent throughout each building. Refer to the following:

Building Distribution	Lighting Voltage
120/208 Volts	120 Volts
120/240 Volts	120 Volts
277/480 Volts	277 Volts
347/600 Volts	347 Volts

- .4 LED Drivers:
  - .1 Supply LED drivers with 0-10 volt dimming as a standard.
  - .2 Housing protection against moisture, dust, and vibrations.
  - .3 Minimum 50,000 hours life.

Consultants are to provide complete specifications, and review these Technical Standards documents to include BCIT requirements within the specifications as applicable to the project.

- .4 Module temperature control.
- .5 Constant light output.
- .6 Compliance with IES LM-80 Standards.
- .5 Diffusers:
  - .1 Luminaires with diffusers shall have durable, long life diffusers to minimize glare and maximize lighting uniformity.
- .6 Lamps:
  - .1 LED Light Source: Source high efficiency LED with the following features:
    - .1 Nominal 100 lumens/watt or better; minimum 75 lm / watt.
    - .2 Rated life: Minimum L70 at 50,000 hours.
    - .3 Compliance with IES LM-79 Standards.
  - .7 Luminaire Selection:
    - .1 Preferred luminaires: 2' x 4' luminaires or as indicated.
    - .2 Instructional Shops: High Bay LED luminaires are preferred.
- .2 Interior Lighting Standards**
  - .1 Lighting calculations must be made for maintained lux (footcandle) levels.
  - .2 BCIT Lighting Standards – Interior: Refer to tables below.
  - .3 Consult with BCIT Facilities for additional code considerations or special-use cases, etc.

BCIT Lighting Standards - Interior								
AREA USE	ILLUMINATION		LPD <sup>1</sup>	LIGHTING CONTROL				
	FC	LUX		LOCAL SWITCH	VACANCY SENSOR	MULTI-LEVEL SWITCH	OCCUPANCY SENSOR	BCIT MASTER CONTROLS
1 Classroom	50-60	500-600	1.24	X	X	X		X
2 Lecture Hall	40-50	400-500	1.24	X	X	X		X
3 Laboratory	50-60	500-600	1.28	X		X		X
4 Computer Lab	35-45	350-450	1.28	X		X		X
5 Instructional Shop	40-50	400-500	1.59	X				X
6 Offices - Open Area	50	500	0.98	X		X		
7 Offices - Private	50	500	1.11	X	X	X		
8 Meeting Room	40-50	400-500	1.23	X	X	X		
9 Staff Room	30-40	300-400	0.73	X	X	X		
10 Washroom	20	200	0.98		X		X	X
11 Corridor	20	200	0.66				X	X

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12	Stairwell	20	200	0.69					X
13	Change or Locker Room	30	300	0.75	X	X			X
14	Storage Room	30	300	0.63	X	X			
15	Service Room	30	300	0.95	X	X <sup>2</sup>			
16	Elevator Cabs (Maintained by elevator service provider)	25	250						x

<sup>1</sup> Lighting Power Density - Based on IES/ASHRAE 90.1-2010 or latest version

<sup>2</sup> Vacancy sensor to be provided in Service Rooms if less than 250 ft<sup>2</sup>

**3.0 EXECUTION**

**.1 Lighting Installation**

- .1 Measure the illumination level after completion and submit a commissioning report.

\*\*\* END OF LIGHTING INTERIOR SECTION \*\*\*