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IES Recommended Light Levels and CCT Application-Quick Reference Guidelines Values cited throughout this document are an IES consensus and deemed appropriate for respective functional activity. In a few situations, code requirements are within 10% of IES recommendations. Local and federal government or business foot candle requirement may differ based on zoning or task specific to that situation or organization. These recommendations are to establish a base line for your consideration for plane or planes of task light levels.

The following selected foot-candle ranges represent the Illuminating Engineer Society's (IES) current illumination recommendations. Individual applications will determine exact foot-candle levels. Please refer to the latest most current IES Lighting Handbook 10th Edition for a more detailed evaluation.

INTERIOR

Application - Industrial	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 6}
Assembly & Inspection (Simple) Component Manufacture (Large Parts)	30	15 - 60	30	15 - 60
Component Manufacture (Medium Parts)	50	25 - 100	50	25 - 100
Assembly & Inspection (Difficult) Component Manufacture (Fine Parts)	100	50 - 200	100	50 - 200
General Food Processing ⁴	75	37.5 - 150	20	10 - 40
Application - Warehouse/Storage	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 6}
Bulky Items - Large Labels	10	5 - 20	5	2.5 – 10
Small Items - Small Labels	30	15 - 60	15	7.5 - 30
Receiving/Shipping Dock	10	5 - 20	3	1.5 - 6
Receiving/Staging	30	15 - 60	10	5 - 20
Application - Educational Facility ⁵	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 2, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 2, 6}
Classroom (General)	40	30 - 50	-	-
Gymnasium-Class I (Pro or Div. 1 College)	100	-	30	-
Gymnasium-Class II (Div. 2 or 3 College)	75	-	20	-
Gymnasium-Class III (High School)	50	-	150	-
Gymnasium-Class IV (Elementary)	30	-	100	-

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INTERIOR

Application - Office/Workplace⁵	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 6}
Open Office (Desk)	40	30 - 50	-	-
Private Office (Desk)	40	30 - 50	-	-
Conference Room (Table)	30	15 - 60	-	-
White board (Reading)	-	-	15	7.5 - 30
White board (Presenting)	-	-	30	15 - 60
Presentation Screen (Projector)	-	-	1.5	1.5 - 6
Lunch & Break Room	15	5 - 20	-	-
Stairs	5	2.5 - 10	3	1.5 - 6
Corridor	5	2.5 - 10	3	1.5 - 6
Filing (Intermittent)	15	7.5 - 30	10	5 - 20
Restroom (General)	5	2.5 - 10	3	1.5 - 6
Restroom (Wash Area)	15	7.5 - 30	20	10 - 40
Application - Retail	Horizontal Average (FC) ^{3,6}	Maintained Horizontal Range (FC) ^{1,6}	Vertical Average (FC) ^{3,6}	Maintained Vertical Range (FC) ^{1,6}
Discount/ Warehouse/ Drug/ Convenience (Ambient)	50	25 - 100	20	10 - 40
Department Store (Ambient)	40	20 - 80	15	7.5 - 30
Automotive Sale Showroom	50	25 - 100	10	5 - 20
Automotive Service Area	50	25 - 100	30	15 - 60
Automotive Sales Lot Zone 3 (Exterior Urban)	20	10 - 40	20	10 - 40
Automotive Sales Lot Zone 2 (Suburban)	15	7.5 - 30	15	7.5 - 30
Grocery Store Circulation	20	10 - 40	7.5	3.5 - 15
ATM or Service Kiosk	20	10 - 40	10	5 - 20

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INTERIOR

Application - Retail Continued	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 6}
Grocery Store General Retail	50	25 - 100	20	10 - 40
Grocery Store Cooler	15	20 - 30	15	20 - 30

When working on exterior lighting you must consider BUG rating and light trespass. Illuminance uniformity targets offer best results when planned in conjunction with luminance ratios and surface reflectance's.

EXTERIOR

Application ⁵	Horizontal Average (FC) ^{3, 6}	Maintained Horizontal Range (FC) ^{1, 6}	Vertical Average (FC) ^{3, 6}	Maintained Vertical Range (FC) ^{1, 6}
Parking (Uncovered) Zone 3 (Urban)	1.5	0.75 - 3	0.8	0.4 - 1.6
Parking (Uncovered) Zone 2 (Suburban)	1	0.5 - 2	0.6	0.3 - 1.2
Parking (Covered)	5	-	-	-
Gas Station Canopy	12.5	10 - 15	-	-
Safety (Building Exterior)	1	0.5 - 2	-	-

NOTES

¹ Ranges are based on situations where at least half of users are < 25 years of age (Low value) and > 65 years of age (High value) ² Recommendation for Classrooms assume at least half of users are < 25 years of age (Low range value); When designing the space for students, allowances should be made for the instructor (e.g. task lighting or downlight over desk)

³At least half of the users/occupants are in the age range of 25-65 years old

⁴ Specific task light levels may vary per type of food processing. For more information consult IES Handbook 10th Edition Chapter 30 ⁵ If any sections have been left blank, it means IES has not made a recommendation. Please reference NEC, local and state codes to determine horizontal and vertical foot candles

⁶ The horizontal measurement is known as the horizontal illuminance and is the amount of light that lands on a horizontal surface, such as a tabletop. The vertical measurement is know as the vertical illuminance and is the amount of light that lands on a vertical surface, such as a wall

Correlated Color Temperature Application Overview

What is Correlated Color Temperature (CCT) and how does it affect your lighting retrofit or new construction project? CCT is a measure of the color appearance of a light source, and it is measured in degrees Kelvin. Choosing the CCT in your light fixture can change the ambiance in the installed application.

Orion offers product in 3000K, 3500K, 4000K, and 5000K to let you choose the desired lighting effect for your environment.



- Warm Color Temperatures (2700K to 3500K)
 - [°] Creates a friendly and cozy feel and really draws out natural tones in a space such as amber or beige (i.e., hospitality settings)
- Bright/Cool Color Temperatures (4100K to 5000K)
 - [°] Enhances an environment to feel more active and is closer to natural daylight allowing the true color tones in objects to shine (i.e., office environments)
- Daylight Light Color Temperatures (5000K+)
 - ° Utilized in industrial and task settings to increase productivity and energize individuals in this setting (i.e., distribution centers)

PRODUCT LEAD TIMES

Standard lead time is 10 business days or less from order acknowledgment.

Minimum of three weeks lead-time is required to ship all other standard products, with the exception of exterior fixtures and controls, which have a 3-6 week lead time. Custom designed products will usually require additional lead times and may be subject to other conditions. If the quantity ordered of any given item is greater than 500 pieces, lead-times may be longer than as stated above.





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