

## Recommended Light Levels

Light Level or Illuminance, is the total luminous flux incident on a surface, per unit area. The work plane is where the most important tasks in the room or space are performed.

### Measuring Units Light Level - Illuminance

Illuminance is measured in foot candles (*ftcd, fc, fcd*) (or *lux* in the metric SI system). A *foot candle* is actually *one lumen of light density per square foot*, *one lux* is *one lumen per square meter*.

- $1 \text{ lux} = 1 \text{ lumen} / \text{sq meter} = 0.0001 \text{ phot} = 0.0929 \text{ foot candle (ftcd, fcd)}$
- $1 \text{ phot} = 1 \text{ lumen} / \text{sq centimeter} = 10000 \text{ lumens} / \text{sq meter} = 10000 \text{ lux}$
- $1 \text{ foot candle (ftcd, fcd)} = 1 \text{ lumen} / \text{sq ft} = 10.752 \text{ lux}$

### Common Light Levels Outdoor

Common light levels outdoor at day and night can be found in the table below:

Condition	Illumination	
	( <i>ftcd</i> )	( <i>lux</i> )
Sunlight	10,000	107,527
Full Daylight	1,000	10,752
Overcast Day	100	1,075
Very Dark Day	10	107
Twilight	1	10.8
Deep Twilight	.1	1.08
Full Moon	.01	.108
Quarter Moon	.001	.0108
Starlight	.0001	.0011
Overcast Night	.00001	.0001

### Common and Recommended Light Levels Indoor

The outdoor light level is approximately *10,000 lux* on a clear day. In the building, in the area closest to windows, the light level may be reduced to approximately *1,000 lux*. In the middle area its may be as low as *25 - 50 lux*. Additional lighting equipment is often necessary to compensate the low levels.

Earlier it was common with light levels in the range *100 - 300 lux* for normal activities. Today the light level is more common in the range *500 - 1000 lux* - depending on activity. For precision and detailed works, the light level may even approach *1500 - 2000 lux*.

The table below is a guidance for recommended light level in different work spaces:

Activity	Illumination ( <i>lux, lumen/m<sup>2</sup></i> )
Public areas with dark surroundings	20 - 50
Simple orientation for short visits	50 - 100
Working areas where visual tasks are only occasionally performed	100 - 150
Warehouses, Homes, Theaters, Archives	150
Easy Office Work, Classes	250
Normal Office Work, PC Work, Study Library, Groceries, Show Rooms, Laboratories	500
Supermarkets, Mechanical Workshops, Office Landscapes	750
Normal Drawing Work, Detailed Mechanical Workshops, Operation Theatres	1,000
Detailed Drawing Work, Very Detailed Mechanical Works	1500 - 2000
Performance of visual tasks of low contrast and very small size for prolonged periods of time	2000 - 5000
Performance of very prolonged and exacting visual tasks	5000 - 10000
Performance of very special visual tasks of extremely low contrast and small size	10000 - 20000