Guidelines for Good Occupational Hygiene Practice in a Workplace - Lighting

It is essential for employees to work and move around safely in a workplace under adequate lighting. Natural lighting is preferable but due to its unreliable nature and many other uncontrollable factors like sky brightness, seasonal variation, distance from windows and limited window area, etc., artificial lighting is often used as a supplement to daylight. Modern indoor work environment relies very heavily on artificial lighting. Artificial lighting so provided should enable employees to see the visual task with ease and improve accuracy for better performance. The appearance, colour and details of the interior can also be enhanced through appropriate lighting.

Lighting Provision

In workplaces, the artificial lighting provided should be such that there is no risk of accident to all employees (too dim), nor should it be damaging to their eyesight such as causing glare (too bright) or visual fatigue. The recommendations of illuminance for general activities are given below.

Recommendations of Illuminance for General Activities

The following table gives examples of optimum levels of lighting for a wide range of activities/areas.

Item	Task position or area	Optimum average illumination in lux	Notes
1. OFFICES			
	General offices	500	
	Computer work stations	500	Local lighting may be required for reading a document.
	Drawing work stations	750	Local lighting is appropriate.
	Other areas, e.g. file storage and reception, telephone operators	300	
2. BANKS			
	Counter, office area	500	
	Public area	300	
3. SHOPS & SUPERMARKETS			
	General	500	Illuminating the vertical surfaces of the display is required.
	Counter	500	

Item	Task position or area	Optimum average illumination in lux	Notes
4. LIBRARIES			
	General	300	
	Counter, book repair, sorting	500	
	Bookshelves	150	Illuminating the vertical faces at the bottom of book stack is required.
	Reading tables	300	Local lighting may be appropriate.
5. SCHOOLS			
	Classrooms, laboratories	500	
	Art rooms, needlework rooms	500	Supplementary local lighting is desirable.
	Music rooms, sports halls	300	
	Workshops	300	Supplementary local lighting is desirable.
6. MANUFACTURING AND PROCESSING AREAS			
	Major control rooms	500	
	Handling of hazardous substances	500	Special luminaires are desirable if corrosive or explosive atmosphere may be present.
	Handling of substances which are not hazardous	200	
	Automatic processes	200	
	Simple assembly, rough bench, machine and inspection work; e.g. heavy machinery assembly	300	
	Medium assembly, bench, machine and inspection work; e.g. vehicle body assembly	500	Local lighting may be appropriate.
	Assembly of precision components, fine bench, machine and inspection work; e.g. insertion of electronic components, inspection of PCBs	1000	Local lighting is desirable. Care is necessary to control specular reflections.

Item	Task position or area	Optimum average illumination in lux	Notes
	Assembly of high precision parts, very fine inspection work; e.g. clothing inspection, watch making	1500	Local lighting is desirable. Care is necessary to control specular reflections.
7. DISTRIBUTION AND STORAGE			
	Loading bays	150	
	Unpacking, sorting	200	
	Large item storage	100	Supplementary local lighting may be necessary if identification requires perception of detail.
	Small item rack storage	300	Supplementary local lighting may be necessary if identification is visually difficult.
	Issue counter, storeman's desks	500	Local lighting may be appropriate.
	Packing and despatch	300	
8. CATERING SERVICES			
	Vegetable preparation, washing up areas, food distribution	300	
	Food preparation and cooking	500	
	Food stores and cellars	150	
9. GENERAL BUILDING AREAS			
	Entrances, lobbies, waiting rooms, gatehouses	200	Care should be taken to avoid a sudden change of illuminance between inside and outside.
	Enquiry desks	500	Localised lighting may be appropriate.
	Corridors, passageways, stairs, lifts	100	
	Boiler rooms, mechanical plant rooms, electrical power supply and distribution rooms	200	
	Covered car parks	50	
	Outdoor car parks	10	

Item	Task position or area	Optimum average illumination in lux	Notes
	Emergency equipment locations	50	
	Emergency lighting	10	Operate automatically when normal power supply fails
10. CONSTRUCTION SITE			
	Site clearance, excavation and soil work	200	Portable local lighting may be needed.

Note: ***Minimum Levels of Lighting –***

(1) For Item 1-8, the measured average levels of lighting at a task position or in an area should not be less than 1/3 of the optimum average illumination.

(2) For Item 9-10, the measured average levels of lighting at a task position or in an area should not be less than 1/10 of the optimum average illumination.

Reference:

(1) Chartered Institution of Building Services Engineers (CIBSE), Code for Interior Lighting, London, 1994.

(2) Canada Occupational Health and Safety Regulations, Part VI.

Lighting Assessment

Readers, who would like to understand the basic concepts of lighting assessment and the measurement of lighting levels with a luxmeter, please refer to our publication "Lighting Assessment in the Workplace".

Enquiries

If you wish to enquire about this publication or require advice on occupational health and hygiene issues, please contact Occupational Safety and Health Branch of the Labour Department through:

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Telephone: 2852 4041
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Complaints

If you have any complaints about unsafe workplaces and practices, please call the Labour Department's occupational safety and health complaint hotline on 2542 2172. All complaints will be treated in the strictest confidence.

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