OHS PROGRAM: How to Comply with Workplace Lighting Requirements

Ensuring worker health and safety can be complicated. For example, choosing and implementing the proper machine guards for equipment can be a complex process. But sometimes the simplest steps can go a long way toward keeping workers safe. A good example is workplace lighting. By making sure that the workplace is adequately lit, you can protect workers from hazards such as slips, trips and falls, keep them from developing conditions such as eye strain and headaches, and ensure they can do their jobs easily and safely. So here's what you need to know to comply with the lighting requirements in the OHS laws.

Defining Our Terms

This article discusses the basic lighting requirements in the OHS regulations for workplaces in general. It doesn't cover specific lighting requirements that might apply to certain tasks, such as traffic control, equipment, such as powered mobile equipment, or workplaces, such as underground mines.

LIGHTING CHECKLIST: Download a workplace lighting checklist you can use to inspect your workplace and ensure that it's appropriately lit.

5 KEYS TO LIGHTING COMPLIANCE

The OHS regulations in each jurisdiction contain requirements for workplace lighting, often in a section entitled "Illumination." And although there are some differences, these requirements typically cover these five areas:

#1: Measuring Light Levels

As discussed more below, some jurisdiction's OHS regulations have specific lighting level requirements that require minimum lighting levels for certain areas or tasks. So to ensure that you're in compliance with these requirements, you'll need to measure the lighting levels throughout the workplace.

The regulations may require you to take such measurements following the procedures in designated standards or guides, such as ANSI standards ANSI/IES-RP-7, "American National Standard Practice for Industrial Lighting" and ANSI/IESNA RP-1, "American National Standard Practice for Office Lighting"; or the Lighting Handbook published by the Illuminating Engineering Society of North America.

Lighting levels used to be measured in units called "foot-candles" but are now generally measured in "lux" (10.76 lux = 1 foot-candle) or decalux. The measurements are made using a device called a luxmeter or light meter. The OHS regulations or referenced standards may explain exactly how those measurements should be taken to ensure they're accurate. For example, the guidelines to BC's OHS regulations explain that for measuring illumination in the field, the Lighting Handbook suggests that:

- Any conditions that might affect the readings, such as interior surface reflectance, lamp type and age, voltage and survey instruments, be noted;
- Detectors be cosine and colour corrected;
- Detectors be used at temperatures between 15øC and 50øC;

- Care be taken to avoid casting shadows or reflecting light onto the detector, while taking readings;
- Lighting systems be on for at least one hour to ensure that normal operating output has been attained, before measurements are taken;
- For interior measurements, the area be divided into 60 cm squares, the readings be taken 76 cm above the floor and then averaged; and
- Daylight is excluded from the readings, if possible.

#2: General Lighting Requirements

The most basic lighting requirement is that the workplace must have enough light so workers can do their jobs safely. The OHS regulations take two basic approaches to light level requirements:

General requirement. Some OHS regulations simply require the employer to provide sufficient illumination for workers to do their jobs safely and leave it to employers to determine appropriate lighting levels or to comply with designated voluntary standards, such as the ANSI lighting standards mentioned above. For example, the Alberta *OHS Code* doesn't specify minimum lighting levels, letting employers determine if lighting in the workplace is adequate for the tasks being performed and the conditions. When making these determinations, employers should consider the following factors:

- The type of activity or task being performed. For instance, jobs involving detailed work or small parts will require more light than other jobs;
- The importance of speed and accuracy in performing the task;
- Type of surfaces in the area, such as whether they reflect or absorb light; and
- Characteristics of the worker performing the task, including his age and vision.

Specific light level requirements. Other jurisdictions spell out very specific light level requirements in their OHS regulations. These requirements may differ by type or part of workplace or the task being performed in the area and generally specify the minimum levels of light required as measured in lux. For example, the chart at the end of the article shows the minimal lighting level requirements under BC's OHS regulations, which are fairly typical.

***Insider* Says:** In addition to lighting levels, the OHS regulations may also require employers to address other lighting-related issues, such as flickering of lights, glare and contrast.

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#3: Types of Lighting

The OHS regulations don't generally require employers to use specific types of lighting. So employers will typically use a combination of various kinds of lighting to satisfy the requirements, including sunlight or daylight and artificial lighting. Artificial lighting can be further broken into:

- Direct lighting, such as overhead lights that direct most of their light towards the work areas;
- Indirect lighting, which direct their light up and away from work areas; and
- Task or focused lighting, such as a desk lamp.

#4: Emergency Lighting Requirements

In addition to the lighting requirements for the usual working conditions, the OHS regulations also include requirements for emergency lighting. (This chart shows the emergency lighting requirements in each jurisdiction's OHS regulations.) These regulations usually require the provision of emergency

lighting when the failure of regular lighting could endanger workers.

In general, the emergency lighting system should come on automatically when the regular lighting system fails and have its own independent power source. Emergency lighting should provide enough illumination so that workers may:

- Conduct emergency shutdown procedures;
- Evacuate the workplace; and
- Restore the regular lighting system.

In addition, employers should regularly test the emergency lighting system to ensure that it’s functioning properly. You can incorporate such testing into the regular emergency drills you should be conducting in the workplace.

#5: Maintenance of Lighting Equipment

To ensure that your workplace is always in compliance with the lighting requirements, make sure that burnt out light bulbs are promptly replaced (and the old ones properly disposed). In addition, you should have procedures for repairing and maintaining lighting equipment so the workplace is always properly illuminated. For example, light fixtures should be regularly cleaned because dirt can reduce the amount of light emitted.[/learn_more]

BOTTOM LINE

Poor lighting in the workplace can make it harder for workers to do their jobs efficiently and safely. Dimly lit areas may also conceal safety hazards and thus expose workers to injuries. In addition, working in insufficient lighting can impact workers physically, such as by causing eye strain and headaches. And a lack of emergency lighting can seriously endanger workers in the event of, say, a fire or explosion and make them unable to evacuate safely. So ensure that your workplace complies with the lighting requirements to prevent

these issues.

Illumination Levels for Certain Tasks under BC Law

Task category	**Examples**	**Minimum illumination** level in lux
Simple orientation for short temporary visits	Inactive storage, waiting areas, VDT screens, log loading and unloading	50
Working spaces where visual tasks are only occasionally performed	Stairways, freight elevators, truck loading, active bulk storage	100
Visual tasks of high contrast or large size	Bakery mixing rooms, hospital central (clean) linen rooms, locker rooms, reading good quality text, casual reading, simple assembly, hand or simple spray painting, rough lumber grading, rough woodworking and benchwork	200
Visual tasks of medium contrast or small size	Hair styling shops, kitchens, vehicle repair garages, sawmill filing room (work areas), reading poor quality text, prolonged or critical reading, medium bench or machine work, mail sorting, fine hand painting and finishing, fine woodworking and finishing	500

Visual tasks of low contrast or very small size	Difficult assembly tasks, difficult inspections, weaving, clothing alteration, finished lumber grading	1,000
Visual tasks of low contrast and very small size over a prolonged period	Very difficult assembly tasks, sewing, fine bench or machine work, extra-fine hand painting and finishing	2,000
Very prolonged and exacting visual tasks	Exacting assembly or inspection, extra fine bench or machine work, precision manual arc-welding	5,000
Very special visual tasks of extremely low contrast and small size	Very detailed cloth product inspection and examination	10,000

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Illuminate the Outside of the Workplace, too

Ensuring the inside of your workplace is adequately lit isn’t enough. You must also ensure that the exterior is properly lit as well. For example, poor lighting in parking lots and garages can leave workers vulnerable to workplace violence by creating shadows or blind spots where attackers can hide. So make sure that you have adequate exterior lighting around the workplace and near the entrances. [/box]