

# Lighting

The way our surroundings look and the quality of the lighting is important to how we feel and how well we can work. Natural light from windows, the quality of the electrical lighting, as well as the colours and the finish in the work space can affect our ability to work.

## How much light you need depends on

- how quickly and accurately you need to do a task
- whether your work surface absorbs or reflects light
- general lighting
- your vision

## Light sources

The source of light can be either direct or indirect.

**Indirect light** reflected from ceiling and wall sources is usually better than light from a single source. Indirect light is more spread out and does not create shadows.

**Direct light** sources such as overhead, fluorescent lights should be covered with diffusers or baffles to reduce shadows and spread out the light. However, for a specialized task such as parts inspection, lighting may be designed to form shadows to make it easier for workers to see certain features.

## Problems with lighting

**Too little light** — when you do not have enough light for the need

**Glare** — when a bright light or reflection makes it difficult to see an object.

**Improper contrast** — when there are very different light levels from one work area to another, or, when the colours of objects are not different enough

## Poor lighting can

- reduce the sharpness of your vision, your sensitivity to contrast, and your ability to quickly adjust your focus between near and far objects.
- lead to dry or burning eyes, tearing, red eyelids, blurred vision, double vision, and headaches. If you work in awkward postures to see better, you may also develop neck, shoulder, and back aches and pains.
- affect the quality of work and productivity, especially if precision is required.
- be a safety hazard. You are more likely to misjudge the position, shape or speed of an object.

## What should your employer do?

Manitoba Workplace Safety and Health Regulations require employers to provide:

- ✓ sufficient lighting to allow workers to perform their jobs safely
- ✓ emergency lighting that operates if the regular lighting system fails

## Employers should . . .

### Provide Enough Light

- ✓ Determine how much light is needed to do the task. Electronics assembly, engine repair and data entry all require different lighting. More light is needed for fast paced, detailed work than for rough assembly work
- ✓ Use adjustable blinds on windows to adapt to changes in daylight

- ✓ Ensure that light fixtures are routinely inspected, cleaned and maintained properly. Old fluorescent bulbs produce a flicker that is often not noticeable, but it can still cause eye strain.
- ✓ Ensure adequate lighting for the security of shift workers in and around the workplace.

### **Reduce Glare**

- ✓ Use multiple light sources for both task and general lighting.
- ✓ Design or adjust lighting so that both direct and reflected glare is not in the field of view.
- ✓ Place work area between rows of overhead light sources. Daylight should come from a window from the side and not from the front or back. In most situations, task lighting should also be from the side.
- ✓ Reduce reflection. A totally white surface reflects much light, a black surface does not. A matte finish reflects less light than a shiny one. In an office, the most reflective surface should be the ceiling and the least reflective should be the floor.

### **Ensure Proper Contrast**

- ✓ Minimize the difference between the amount of light for the task and the surrounding area for most work. Generally, the work area should be brighter than the surrounding areas.
- ✓ Provide high contrast for fine detail work between the task and the immediate background. For example, using a black pen rather than a pencil on white paper will increase the contrast and improve readability.

## **What can you do?**

- Ask your workplace health and safety committee to do a lighting survey to assess the amount, direction, and distribution of light to avoid glare, shadows and extreme contrasts for all workers. Tools and standards are available to help your committee measure and improve lighting.
- When doing close work, look away and focus on a distant object every few minutes to prevent eye fatigue. Blink several times.
- Provide your eye examiner with information about your job. Check your vision at least every two years. You may need to use task specific glasses, for example, to do computer work.

For more information

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