

## PROGRAM DIRECTIVE

Program Directive A-66  
Issued September 10, 1979  
Revised February 22, 2001

**SUBJECT:** Lighting

**AFFECTED CODES/**

**DIRECTIVES:** OAR 437-002-0144 General Provisions - Illumination

**PURPOSE:** To provide information for the evaluation of the safety and adequacy of lighting in the workplace.

**BACKGROUND:** To evaluate the adequacy of light, the object or task cannot be isolated, but must be viewed in relationship to its surroundings and function. An evaluation must take into account two important factors: quantity (the intensity of the light) and quality. The code for illumination (437-136-065) allows for the consideration of both these factors in judging "the effectiveness of illumination."

In order to apply the evaluation to a compliance citation, the effectiveness must then be related to a potential safety or health problem. The following is provided as a guideline.

**ACTION:** While a light survey can be conducted to evaluate the effectiveness of illumination, interviews may also be necessary to determine the existence of a safety or health problem. Interviews should solicit signs and symptoms such as eye fatigue, eye strain, headaches and a history of safety problems such as incidences of falling, tripping, or bumping.

The lighting survey should contain the following information:

- A. Quantity of Light - The quantity can be measured through the use of a light meter and should be used at the point on the plan that the task is performed. The code allows for the comparison of these values with the 1965 ANSI Standards. An important note is that Table I, "Levels of Maintained Illuminance Currently recommended (in footcandles and lux)," was intended only as a guideline for levels desirable for efficient visual performance. This table was not meant as a requirement for minimum safety levels. ANSI/IES RP-7-1979 includes Table 6, Levels of Illumination for Safety, which has minimum levels ranging from 0.5 to 5.4 footcandles for detection of a hazard. Obviously, the differences

between the two tables are considerable. This difference illustrates the need for the evaluation of problems and quality of light; so the 1965 ANSI Standard can be used as intended - as a guideline.

B. Quality of Light - Besides poor illumination, glare, shadows and visual fatigue are qualities that can contribute to a safety problem. The following information should also be covered to complete the light survey:

1. Worker

Age - As age increases visual acuity usually decreases.

Equipment - Personal protective equipment such as goggles or a full face respirator may necessitate greater illumination.

2. Object or Task

Difficulty - The difficulty of the task and the amount of detail work involved influences the amount and quality of light needed.

Time - This is the time it takes to see an object or the time available for viewing or inspecting the work. An example would be a moving belt where items are being inspected. The faster the belt speed, the less time is available to view the object, hence more light is required to make an evaluation.

Contrast - Is defined as how the object differs from the background in color and intensity. Higher levels of illumination may be needed to compensate for poor contrast. In other cases, a high degree of contrast between light on a task and surrounding light may be undesirable.

Size - An object is more visible as the size increases.

3. Environment and Light Source

Orientation - Note the weather, time of day, location, as applicable.

Description - Note the size of the room, height of ceiling, color and texture of surroundings.

Light Source - Note type of light, natural or artificial, direct or indirect, location of windows, distance from source to object.

4. Special Problems

Glare - Can be defined as any reflected brightness that interferes with vision. Note if direct or indirect.

Alternate Light and Dark Areas - Delayed eye adaptation may result in temporary blindness or task difficulties.

Harsh Shadows - May hide a hazard or contribute to delayed eye adaptation.

Maintenance - Dirt on windows and light fixtures interfere with light transmission. Dirt on ceilings and walls interfere with light reflection. Light fixtures put out less light with age. Broken bulbs and fixtures may need replacements.

Combining the information from employee interviews with the information from a lighting survey should provide the compliance officer with sufficient information to judge the effectiveness of illumination.

References for Further Information:

1. How to Make a Lighting Survey, prepared by the Light Survey Committee of the Illuminating Engineering Society, 1963.
2. American National Standard Practice for Industrial Lighting, A11.1, 1965.
3. American National Standard Practice for Industrial Lighting, RP-7-1979.
4. IES Lighting Handbook (5th Ed.) 1972.

**EFFECTIVE  
DATE:**

This directive is effective immediately and will remain in effect until cancelled or superseded.