



INTRODUCTION

The lighting of crew spaces should facilitate visual task performance and the movement of crew members within a space. It should also aid in the creation of an appropriate visual environment. Lighting design involves integrating these aspects to provide adequate illumination for the safety and well-being of crew as well as for the various tasks performed on board vessels.

The selection of appropriate illuminance levels for specific tasks and crew spaces is an important consideration in the design of lighting systems. There is a difference of opinion as to what levels of light is considered best for visual tasks. Since illuminance recommendations are generally consensus values, for any task, a range of illuminances may apply.

Since visual tasks performed within habitable spaces on board a vessel are generally similar to tasks encountered ashore, requirements for illuminance on vessels generally correspond to those tasks performed in living, working, and recreation areas on shore.

Visual tasks encountered on vessels vary widely. In addition to the illuminance level, external factors, such as contrast with respect to the background, object size, brightness, time available for viewing or recognition, and reflectance determine the visibility of an object within the visual field. Other considerations for visibility include task duration, task criticality, visual fatigue, discomfort, glare, veiling reflections, shadows, flickering, and the age and visual acuity of the observer. From a subjective viewpoint, aesthetics, color, and the psychological effects of lighting should also be regarded during lighting design. These external and subjective factors are interrelated and should be considered together with objective qualities during the process of selecting illuminance levels, but do not have to be separately quantified.



TERMS/DEFINITIONS

Adaptation: The process by which the eye becomes accustomed to more or less light than it was exposed to during an immediately preceding period. It results in a change in the sensitivity of the eye to light.

Diffuser: A device which redirects or scatters the light from a source.

Direct glare: Glare resulting from high source luminance in the field of view. It is often caused by insufficiently shielded light sources in the field of view. It is also associated with bright areas (such as light fixtures, windows, and so forth) that are adjacent to the visual task area.

Direct lighting: Illuminance by light fixtures directing 90 to 100 percent of their emitted light in the general direction of a visual task surface. In a typical space, it refers to light emitted in the downward direction.

Disability Glare: Glare which reduces the ability to perform a visual task.

Discomfort Glare: Glare which produces viewer discomfort, but which does not interfere significantly with visual task performance or visibility.

Footcandle, fc: A measure of illuminance on a surface.

General Lighting: Lighting designed to provide a substantially uniform level of illuminance throughout an area, exclusive of any provision for special, localized task.