



The physiology of the eye and its capability to garner information is important to understand when discussing visibility. Visibility is a fundamental factor in optimizing task performance. Visibility along with the nature of the tasks performed should inform the design of lighting systems.

## Ship and Offshore Installation Lighting

Visual tasks onboard vessels are similar to those found ashore and many of the lighting requirements onboard vessels are similar to those on shore. However, there are special requirements for marine vessel lighting equipment that have to be taken into consideration. The design and selection of equipment for marine lighting must take into account the marine environment, which is substantially more severe than that encountered in typical onshore applications. Marine specific concerns include:

- Electrical shock and grounding hazards (presence of water, metal hulls and other metal structures)
- Vibration, shock, and slam
- Temperature and humidity extremes
- Moisture and corrosion
- Electrical systems with transients and fluctuations
- Presence of water
- Fire resistance
- Limitations on size and weight
- Radio frequency interference

## General and Task Lighting

Interior lighting systems are classified into two types: general background lighting, and localized (task) lighting. There are recommended minimum maintained illuminance levels for both general and task lighting that are referenced in the Lighting Criteria sections of ABS HAB Guides (2012, 2012, and 2013). These should be achieved under specified test conditions prescribed in those documents and require measurement and testing against criteria defined in the ABS guidelines. These recommendations include human factors data when they exist with regard to the recommended lighting levels. It is strongly recommended that these values are adhered to, in order to facilitate efficient and safe task performance above and beyond the minimum required lighting levels. Complete and detailed lighting requirements can be found in the ABS HAB Guides (2012, 2012, and 2013).

In workspaces where red or low-level white illuminance is provided to facilitate dark adaptation, the maintained illuminance levels in the ABS HAB Guides (2012, 2012, and 2013) still should be achieved. Lighting in different areas of the bridge should be adjustable in brightness and direction to achieve these illuminance ranges.

## Benefits of Adequate Lighting

An improvement in visual performance can yield an improvement in task or work performance, reflected in a higher output and in a lower number of errors. Good lighting can also contribute positively to safety and accident rates, absenteeism, health, and well-being. Over the last two decades science has consistently shown the positive influence of good lighting on health and well-being along with much evidence that bad lighting can cause many health issues, including headaches, sore eyes, and blurred vision.

Good lighting in the workplace and on the task is essential for optimal task performance, especially with a progressively aging workforce. In the metal industry, for example, good lighting can be expected to increase productivity by about sixteen percent.

