

Safe Lighting Practices in the Shipyard Industry

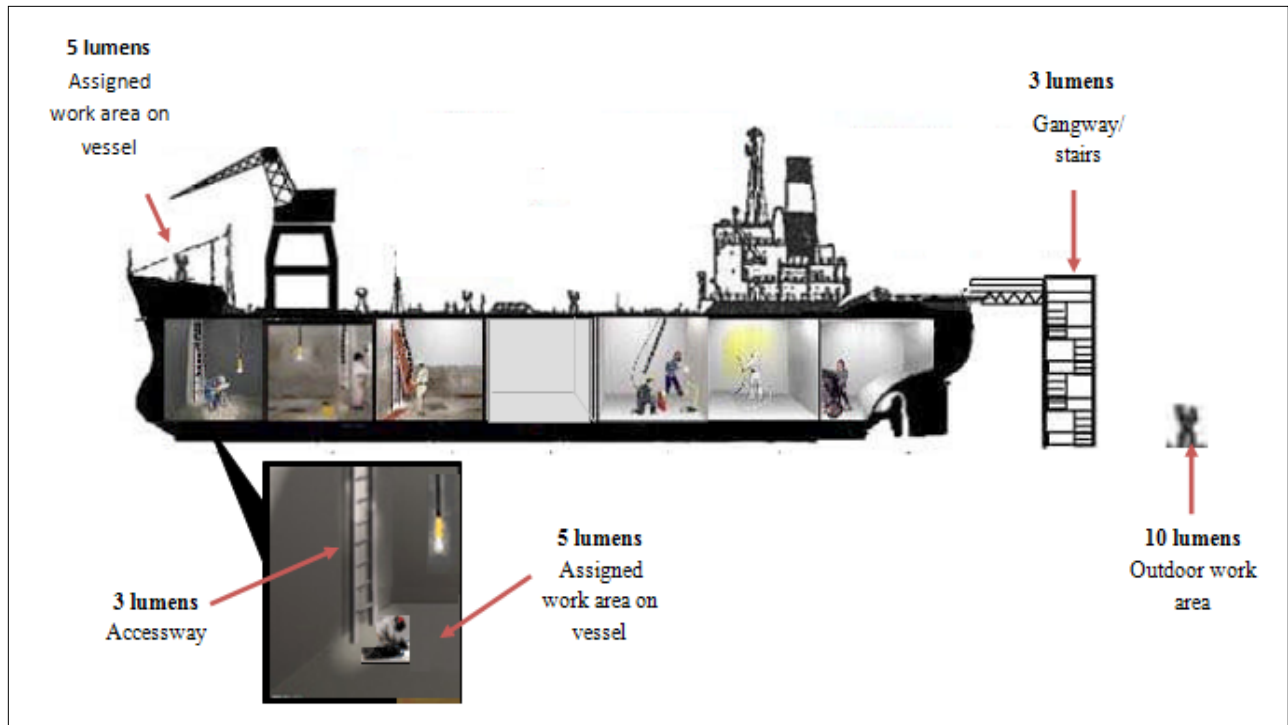
In the maritime industry, many injuries and fatalities occur as a result of inadequate lighting. Slips, trips and falls, electric shock and burns, and the inability to exit a space are examples of the hazards created and/or made worse by improper lighting. Well-lit workplaces, whether on vessels, vessel sections, or at landside areas, are essential to prevent such incidents. This Fact Sheet describes the lighting requirements that employers must follow in shipyards, as specified in 29 CFR 1915.82.

The table below outlines the minimum required lighting levels required for shipyard workers to perform their work and move between job sites safely. Elevated lighting levels, such as in landside work areas, are necessary for precision work, operating heavy equipment, and for reading and comprehending signs, warning labels and instructions.

Where shipyard workers are assigned tasks in a specific location within a larger area, the minimum lumens are only required where the work is being performed. However, if any part of the larger work area is used as an accessway, the minimum lighting required on vessels or vessel sections is 3 lumens, or 5 lumens at general landside areas.

Minimum Required Lighting Levels

Lumens (foot-candles)	3	5	10	30
Areas of Operation	General areas on vessels and vessel sections such as: <ul style="list-style-type: none"> • Accessways • Exits • Gangways • Stairs • Walkways 	General landside areas such as: <ul style="list-style-type: none"> • Corridors • Exits • Stairs • Walkways 	Landside work areas such as: <ul style="list-style-type: none"> • Machine shops • Electrical equipment rooms • Carpenter shops • Lofts • Tool rooms • Warehouses • Outdoor work areas 	First-aid stations
		Landside tunnels, shafts, vaults, pumping stations, and underground work areas		
		All assigned work areas on any vessel or vessel section		Health and sanitation facilities such as: <ul style="list-style-type: none"> • Changing rooms • Showers • Sewered toilets • Eating or drinking areas • Break areas



Out-of-service lighting needs to be promptly replaced or repaired before work or passage is permitted in that area. In walkways/passageways, traffic may need to be diverted until lighting replacement/repairs are completed.

Temporary Lighting

Where required lighting levels cannot be met by permanent lighting sources, temporary lighting may be used in combination with permanent lighting to achieve the minimum required lighting levels.

Temporary lighting must be:

- Guarded when bulbs are not completely recessed to prevent workers from contacting a hot bulb;
- Equipped with electric cords designed with sufficient capacity to safely carry the electric load, protecting workers from hazards such as electrical shock and fire;



Guarded bulb

- Equipped with electric cord connections and insulation that are maintained in a safe condition (e.g., free from being broken, cracked or damaged); and
- Grounded, either through a third wire in the cord or a separate wire, when non-current-carrying metal parts are exposed. Grounding must be done in accord with 29 CFR part 1910, subpart S.



Light stand used to protect electrical cords.

Additional requirements to ensure the safety of shipyard workers include:

- Never suspend lights or lighting stringers solely by their electric cords (e.g., from the rungs or side rails of ladders), unless they are designed to do so. Improper suspension can place tension on cords, causing them to fray, break, or become otherwise damaged, which can expose workers to electrical shock or fire.
- Branch circuits must have over-current protection that does not exceed the rated current-carrying capacity of the cord used. Over-current protection helps prevent possible electrical and fire hazards associated with circuit overloading.
- When splicing is necessary, its insulation must exceed that of the original cord. This will help prevent worker injury and ignition of combustible materials should a surplus of energy or a "hot spot" occur at the splice junction.

Emergency or Portable Lighting

Emergency or portable lights do not fall within the “temporary lighting” category and are not required to meet similar lighting levels. However, such lights are only intended for short-term use, such as evacuating a space, and must not be used to perform work tasks unless it is in addition to the already existing lighting.

Examples of such lighting may include, but are not limited to flashlights, head lamps, glow sticks, and clamp/magnetic portable lights.

Portable or emergency lights are required:

- In any dark area that does not have permanent or temporary lights;
- Where lights are not working;

- Where lights are not readily accessible; and
- On a vessel or vessel section, where the only means of illumination are not part of the vessel or vessel section, and where natural sunlight provides insufficient illumination.

Risk of Fire or Explosion

- In any area where the atmosphere contains a concentration of flammable vapors that are at or above 10 percent of the lower explosive limit (LEL), explosion-proof, self-contained temporary and portable lights must be used.
- All explosion-proof, self-contained temporary and portable lights must be approved by a nationally recognized testing laboratory (NRTL).
- Never use matches or open-flame devices for lighting purposes.



Magnetic portable light in use



Portable lights (head lamp and flashlight)



Explosion-proof lights

All lighting photographs courtesy of Bath Iron Works.

Note: States with OSHA-approved state plans may have different requirements. See www.osha.gov/dcsp/osp/index.html.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For assistance, contact us. We can help. It's confidential.



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