

SIP009 - GUIDANCE ON LIGHTING





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SIP009

GUIDANCE ON LIGHTING

INTRODUCTION

The Health and Safety Executive provided support to Port Skills and Safety in producing this guidance, which is aimed at improvements within the Ports industry. This guidance may go further than the minimum you need to do to comply with the law with regard to health and safety.

It is for companies operating in the UK ports industry with responsibility for the safe design, construction, operation, management and maintenance of ports and terminal facilities and management of port and terminal activities. It will also be useful to employees and their representatives.

Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance. If the guidance goes beyond compliance, then this will be clearly identified.

Guidance within these shaded areas of this document denotes that the contents go beyond statutory compliance and are industry recommended best practice. These guidelines are not mandatory, though the legislation referenced below is. Individual organisations have a duty of care to those who might be affected by their operations and are responsible for devising arrangements that meet their obligations.

Regulations in this document are referred to by title but not year, because they are amended from time to time and the reader should always seek the current version. Acts are given a year as they tend to change less frequently. The list of references at the end of this document however does include a year that was correct at the time of publication.

This guidance highlights the importance of lighting and the hazards associated with inadequate lighting. It identifies the factors to consider when putting into place adequate lighting, lighting levels, light surveys and the use of portable lighting. Lighting may be suitable when designed and installed correctly, but a proactive maintenance system should also be in place to identify lights that are damaged or not working correctly.



1. REGULATORY FRAMEWORK AND GUIDANCE

- 1.1. The two principal relevant pieces of law are the Health and Safety at Work etc. Act (HSWA) 1974, and the Management of Health and Safety at Work Regulations (MHSWR), which set out the basic requirements to ensure, so far as is reasonably practicable, the health, safety and welfare of all involved.
- 1.2. Port specific, Merchant Shipping and other legislation applies and should be referred to.
- 1.3. Approved Code of Practice (ACOP) L148 'Safety in Docks' was introduced on 6 April 2014: www.hse.gov.uk/pubns/books/l148.
- 1.4. The PSS/HSE Safety in Ports guidance suite, available from the PSS website at: www.portskillsandsafety.co.uk/resources is an important supplement to Safety in Docks ACOP L148.
- 1.5. The guidance is aimed at routine operations and does not cover some of the specialised and high-risk activities. Including those associated with handling dangerous goods and hazardous cargoes, or major hazards sites which are subject to the Control of Major Accident Hazards Regulations for which specialist advice may be required.
- 1.6. Reference can also be made to the:
 - International Labour Organisation's (ILO) Code of Practice on Safety and Health in Ports (ILO 152): www.ilo.org/sector/activities/sectoral-meetings/WCMS_546257/lang--en.
- 1.7. With specific reference to lighting, The Workplace (Health, Safety and Welfare) Regulations, states:
 - 1.7.1. Regulation 8(1) "Every workplace shall have suitable and sufficient lighting".
 - 1.7.2. Regulation 8(2) "The lighting mentioned in paragraph (1) shall, so far as is reasonably practicable, be by natural light".
 - 1.7.3. Regulation 8(3) "Without prejudice to the generality of paragraph (1), suitable and sufficient emergency lighting shall be provided in any room in circumstances in which persons at work are specifically exposed to danger in the event of a failure of artificial lighting".
- 1.8. ACOP L24 Workplace health, safety and welfare states that: (81) Lighting should be sufficient to enable people to work, use facilities without experiencing eye-strain, and safely move from place to place.
- 1.9. ACOP L148 Safety in Docks addresses Lighting in paragraphs 232 to 235 inclusive.



- 1.10. The Dangerous Substances and Explosive Atmospheres Regulations and The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations (which implements the European Union Explosive Atmospheres Directive 94/9/EC (ATEX) within the UK) apply to lighting as a potential source of ignition when dealing with explosive atmospheres.

2. *HEALTH*

- 2.1. The wide range of activities in ports can give rise to possible health risks such as exposure to dusty cargoes; back injuries, sprains and strains from lifting and handling, pushing and pulling; noise and vibration. There is specific legislation including the Control of Substances Hazardous to Health Regulations, the Control of Noise at Work Regulations, the Manual Handling Operations Regulations and Personal Protective Equipment at Work Regulations.
- 2.2. While there is reference to some specific health risks in these guidance documents, it is not possible to cover all the issues. Further information and guidance on the identification, assessment and reduction or avoidance of such risks can be found on the HSE website at:
- Ports web pages: www.hse.gov.uk/ports
 - Control of Substances Hazardous to Health: www.hse.gov.uk/coshh
 - HSE Whole Body Vibration in Ports Information Paper: www.hse.gov.uk/vibration/wbv/ports.pdf
 - Musculoskeletal disorders (MSDs): www.hse.gov.uk/msd
 - Noise at Work: www.hse.gov.uk/noise
 - Personal Protective Equipment: www.hse.gov.uk/toolbox/ppe
 - Vibration at Work: www.hse.gov.uk/vibration

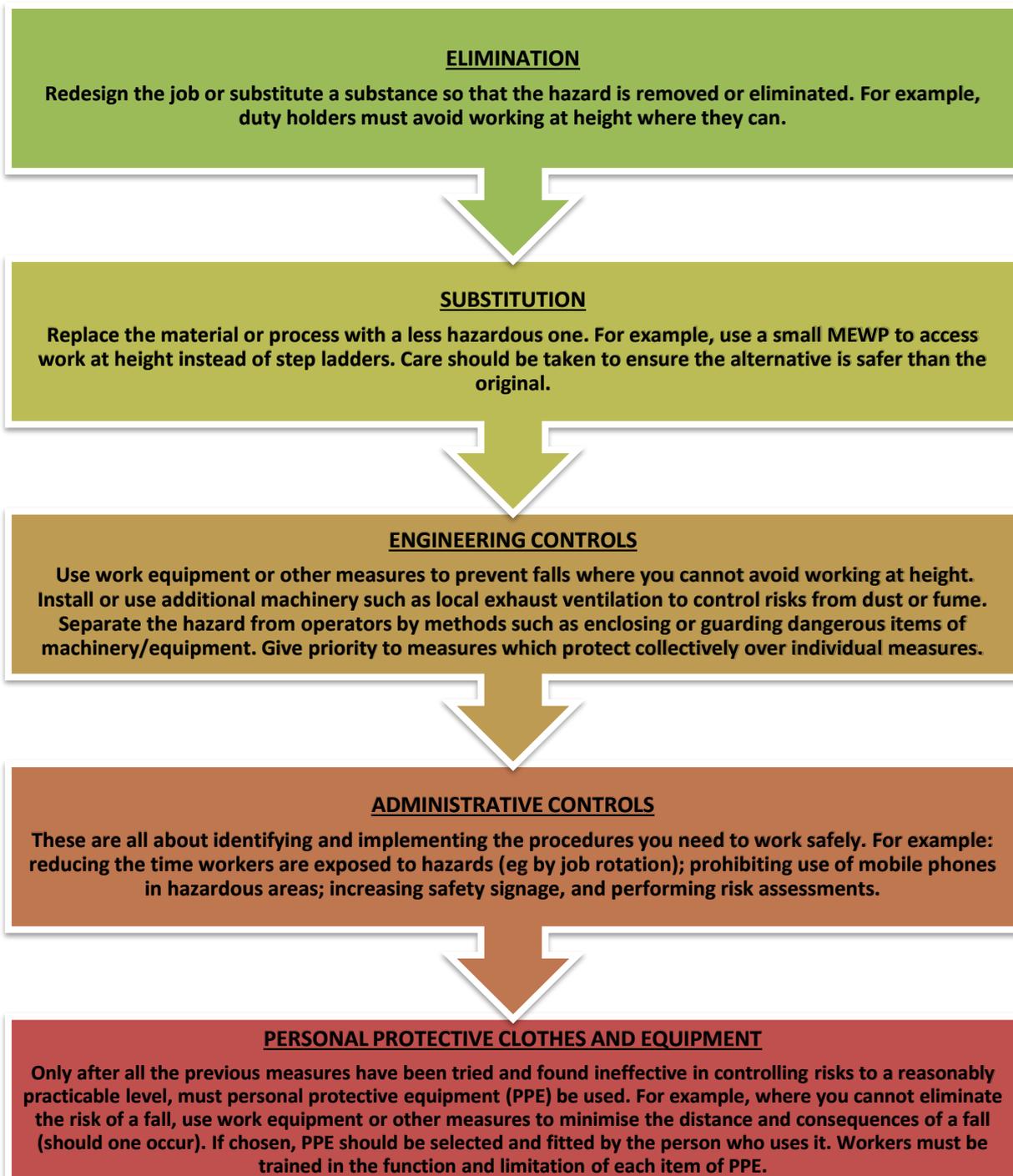
3. *RISK ASSESSMENT*

- 3.1. Risk Assessments must be undertaken in accordance with the Management of Health and Safety at Work Regulations. The risk assessment must consider the risks, to everyone involved or affected by the activity. This includes but is not limited to non-permanent employees (MPE's), ship's crew, passengers and visitors. The appropriate control measures must be introduced and should consider collective measures before personal or individual measures.
- 3.2. Risks should be reduced to as low as is reasonably practicable by taking preventative measures in order of priority below. The diagram opposite sets out an ideal order to follow when planning to reduce risk.

3.3. Risk assessments must be reviewed:

- regularly
- immediately after any incident
- when there are significant changes to the operation

HIERACHY OF CONTROLS



Reference: HSE Leadership and Worker Involvement Toolkit. Available at www.hse.gov.uk/construction/lwit/assets/downloads/hierarchy-risk-controls



- 3.4. Most accidents and near misses can be avoided if the risks from the work are suitably and sufficiently assessed and appropriate control measures adopted. A risk assessment should record the significant hazards and risks of an operation together with the relevant control measures. In port operations, risk assessments should consider changes such as tidal changes, weather, trim, list, load/cargo and vessel dynamics.
- 3.5. Planning and work execution are discussed in HS(G) 177, Managing Health and Safety in Dockwork: www.hse.gov.uk/pubns/books/hsg177.
- 3.6. The Health and Safety at Work Act 1974 applies on board a ship when shore-based workers are engaged in cargo handling or other tasks on board. Cargo handling may include, but is not limited to:
- loading, unloading, stowing, unstowing, pouring, trimming, classifying, sizing, stacking, unstacking
 - composing and decomposing unit loads
 - services in relation to cargo or goods such as tallying, weighing, measuring, cubing, checking, receiving, guarding, delivering, sampling and sealing, lashing and unlashng.
- 3.7. The Health and Safety at Work Act 1974 applies to the Master and ship's crew when working with shore-based personnel on board ship.
- 3.8. A signed agreement or an agreed and recorded system of work with the master of each vessel is recommended. This is not a legal requirement but may help to ensure effective co-ordination with other parties.
- 3.9. Regulations made under the Health and Safety at Work Act 1974; such as:
- The Management of Health and Safety at Work Regulations
 - The Lifting Operations and Lifting Equipment Regulations
 - The Provision and Use of Work Equipment Regulations
- do **not** apply to a master or crew of a ship, or any persons employing them, in relation to:
- safe access, plant and equipment which remain on board the ship
 - any undertakings or work which are carried out on board ship solely by the master and the crew.
- Instead, the Merchant Shipping Act 1894 and related Merchant Shipping Regulations impose similar duties on board ship in UK territorial waters.
- 3.10. A ship's Master has duties under the Health and Safety at Work Act 1974 in relation to the ship's crew who are put ashore to perform their own tasks. For example, loading ship's stores or carrying out maintenance work on their ship. Those duties extend to plant and equipment (for example a forklift truck) under the Master's control being used ashore by ship's crew, or when used by shore-based workers ashore or on-board ship.



- 3.11. MGN532 (M) Safe Movement on board ship states that the shipowner and the master should ensure that safe means of access is provided and maintained to any place on the ship to which a person may be expected to go. This includes accommodation areas, and passenger areas. All transit areas and working areas, including areas used for loading and unloading of cargo, should be adequately and appropriately lit. The Code of Safe Working Practices for Merchant Seamen gives further information on lighting levels.
- 3.12. The risk assessment should take into account lighting as a possible source of ignition.

4. CONSULTATION, COOPERATION AND COORDINATION

- 4.1. **Consultation:** Employers have a duty to consult with their employees, or their representatives, on health and safety matters. By gaining worker involvement on health and safety through two-way communication, concerns can be raised and solved together, and views and information can be sought and exchanged in a timely manner.
- See HSE pages: *Consulting and involving your workers:*
www.hse.gov.uk/involvement
- 4.2. **Cooperation and Coordination:** Cooperation and coordination between shipside and landside employers is required. Employers must therefore carry out risk assessments and develop safe systems of work (in consultation with the workers involved) that all parties agree to. So that the respective employers can co-operate effectively with each other.

5. FACTORS TO CONSIDER

- 5.1. HSE's guidance document "Lighting at Work" (HSG38), and British Standard BS EN 12464-1:2011 Lighting of workplaces: Indoor workplaces and BS EN 12464-2:2014 Lighting of work places: Outdoor work places, provide generic guidance on lighting in all workplaces. However, this guidance may not consider some factors relevant to ports. These factors include the following:
- 5.1.1. The type of lighting used and the colour rendering of that lighting, which can significantly affect the visibility of people and objects in any given illuminance level.
- 5.1.2. The location of light switches should be clearly marked and accessible.
- 5.1.3. Lighting should be reasonably constant and uniform minimising sharp contrasts.
- 5.1.4. Obstacles and hazards which are likely to be dangerous when vehicles, lifting equipment or people move should be made conspicuous through suitable lighting and/or marking.
- 5.1.5. Changes in lighting levels when moving from one area to another, such as from within a ship to quayside, should be avoided as this can impact on the

ability of an individual's eyes to react. This can also apply to areas of deep shadows.

- 5.1.6. It is the vessels responsibility to provide lighting, which is suitable sufficient and switched on prior to the cargo operations commencing.
- 5.1.7. Lighting on board vessels may be restricted in areas such as holds, stairwells and other access ways; subject to risk assessment light levels may need to be increased.
- 5.1.8. The impact of excessively high lux levels on the safety of navigation of vessels in port areas, given the need for Pilots and Masters of ships to maintain "night vision."
- 5.1.9. Lighting should be so arranged to minimise glare.
- 5.1.10. The requirements for lower lighting levels in cabs of cranes, watercraft, vehicles, control rooms and security offices, which are working during hours of darkness.
- 5.1.11. Environmental impact and light pollution; port areas may be in or close to environmentally sensitive and designated sites, or to urban and residential areas, and the impact of lighting on these areas needs to be considered.
- 5.1.12. Hazards/activities which following a risk assessment may require increased levels of lighting such as under ship to shore container cranes.
- 5.1.13. Lighting levels at railheads and rail loading areas.
- 5.1.14. Lighting should be such to enable obvious damage to or leakage from packages, IBC's and cargo transport units to be seen and to make warning signs clearly visible.
- 5.1.15. Redundancy built into any existing or planned lighting schemes i.e. to prevent the failure of a lamp instantly resulting in poor lighting levels.
- 5.1.16. Historical data on lighting in port areas.
- 5.1.17. The presence of hazardous or explosive materials, and the requirements for design of lighting systems to minimise the risk of fire and explosion (see Dangerous Substances and Explosive Atmospheres Regulations).
- 5.1.18. Protection of cargo from heat (e.g. as a potential source of ignition) and light (e.g. light sensitive cargo.)
- 5.1.19. The protection of cargo from contamination from damaged lamps, e.g. in the storage of foodstuffs.
- 5.1.20. Collision protection of lighting towers and installations from vehicle impact, including heavy plant that might be operating nearby.
- 5.1.21. Design and provision of lighting should consider the need for safe access for maintenance of equipment and reducing risks of working at height.

6. GUIDANCE ON LIGHTING LEVELS

6.1. The following table shows generic minimum guidelines and standards, however dependent on the assessment of risk, higher levels may be required.

| Source | Area | Average (lux) | Minimum (lux) |
|--|---|---------------|---------------|
| Suggested Industry Guide levels (subject to risk assessment) | lorry park, corridors, circulation routes, where there is the movement of machines, people & vehicles | 20 | 5 |
| HS(G) 38 Lighting | Construction site clearance, excavation and soil work, loading bays etc. As above but in hazardous areas | 50 | 20 |
| | kitchens, factories, assembling components etc. Where there is work that requires perception of detail | 100 | 50 |
| | access equipment, immediate approaches and areas used for loading or unloading of cargo or for other work processes | not stated | 20 |
| Code of Safe Working Practices for Merchant Seamen | Where dangers of trip/fall are greater than usual because of bad weather or where means of access is obscured, e.g. by coal dust, consider a higher minimum | not stated | 30 |
| | transit areas | not stated | 8 |

6.2. It is the responsibility of the ship to provide conditions on board in which port work can safely be carried out. However, before starting to load or unload a ship, the company responsible for the stevedoring work (the “stevedore”) should itself take steps to ensure that: suitable deck and under-deck lighting, taking into account any specific need that may require additional lighting, is provided.



7. OTHER FACTORS TO CONSIDER WITH LIGHTING SCHEMES

7.1. There are other factors to consider along with the brightness of the lighting sources, these include “colour rendering” “glare”, “illuminance ratios” environmental/energy use and “correction factors”.

7.2. Colour Rendering

Colour Rendering is a measure of how accurately colours can be perceived under a particular light source. Calculating the colour-rendering index of a light source is complex, and specialist advice should be sought. However, industrial lamps/bulbs can be bought with specific colour rendering classes applicable to certain circumstances, as summarised in the table below.

7.3. Colour Rendering Classes for Exterior Lighting.

The table below is based on CIE 129: 1998 (International Commission on Illumination) - “Guide for Lighting Exterior Work Areas”, however LEDs were not particularly addressed at the time of publication. The table content for LEDs has come from other, more recent sources.

| | | |
|----------------|--|--|
| 1 | Incandescent, fluorescent | Only necessary when accurate selection by colour is required |
| 2 | Induction, metal halide, white high-pressure sodium, colour improved high pressure sodium, Light Emitting Diodes | |
| 3 | Mercury | Generally acceptable |
| 4 | High pressure sodium | |
| 5 | Light Emitting Diodes | Generally acceptable |
| Not Classified | Low pressure sodium | Not to be used if colour discrimination is important |

7.4. Glare

Glare can be directly from a light source or reflected, and in either case can lead to discomfort and distraction. Based on British Standards, practical measures for reducing glare due to lighting arrangements, include:



- 7.4.1. Considering the arrangement of lights (height, spacing, positioning and aiming angle of any floodlighting).
 - 7.4.2. Providing matt surface finishes.
 - 7.4.3. Reducing the strength of individual lights.
 - 7.4.4. Providing a greater number of lower strength lights and lights that emit over a wider surface area.
- 7.5. The best way to conduct an initial assessment of glare is to talk to operators and walk/drive through the affected areas. If problems are identified it may then be necessary to involve a lighting specialist to deal with them.
- 7.6. **Illuminance Ratios/Uneven Lighting**

Large differences in illuminance between areas may affect safety in places of frequent movement. This can arise where:

- 7.6.1. Local or localised lighting exposes an employee to a range of illuminances.
 - 7.6.2. Movement between working areas of significantly different illuminances exposes people to a sudden change of illuminance. This can occur when transitioning from outdoor to indoor areas but also for drivers under cranes. Over illuminating the crane working area in relation to the surrounding area can create this problem.
- 7.7. **Environmental Aspects and Energy Use**
- 7.7.1. Increasingly it is important to consider wider environmental aspects and energy use, for example incorporating the use of sensors to dim or switch of lighting in areas not in use into the lighting design. However, designs that incorporate such devices should also consider safety factors such as illuminance ratios/uneven lighting.
 - 7.7.2. The design should also consider what may be acceptable lighting levels for areas which have changing use.

7.8. **Correction Factors**

Different sources of light may require different correction factors for measurement. For example, in both indoor and outdoor lighting, the perceived lux levels from Light Emitting Diodes may differ from the actual light measurements. A light calculation for LED flood lights, based on conventional lux requirements, may result in too high perceived light levels at low background luminance levels. This could lead to the installation of excessive lighting, higher energy consumption and unnecessary environmental impact.

8. CARRYING OUT LIGHTING SURVEYS

8.1. Instrumentation

The light meter (Illuminance meter) should:

- 8.1.1. Have a wide angle of acceptance in order to minimise errors.
- 8.1.2. Have an in-built correction feature for light reaching the detector at oblique angles, e.g. a cosine corrected head.
- 8.1.3. Possess a low sensitivity to differing light sources, e.g. simulated daylight vs sodium or mercury vapour, or be provided with appropriate correction factors including for LED lights.
- 8.1.4. Exhibit a high enough sensitivity to read down to values of 1.0 lux or less and a wide enough dynamic range to cope with illuminance levels of hundreds of lux without overloading or damaging the instrument. (Note: digital read-outs with a minimum number of scale changes are to be preferred to analogue read-outs where interpolation between scale points at the extremes of the range can often lead to significant errors)
- 8.1.5. Have an accuracy of at least that quoted for Type 1 photometers in BS 667, "Illuminance meters: requirements and test methods", i.e. $\pm 10\%$.



Figure 1 - Light Meter



Figure 2 - In addition, an illuminated read-out and a quick "warm up" time are desirable. A "hold" facility for the read-out is a useful additional feature.



- 8.2. Instruments should be routinely serviced and calibrated by a competent person at intervals of no more than twelve months. Functional checks, e.g. battery checks and read-outs against an appropriate check source, should be made before the survey on each occasion of use.

9. *MEASUREMENTS – GENERAL CONSIDERATIONS*

- 9.1. In using the light meter care should be exercised in selecting measurement positions, which are generally representative of the lighting conditions, not those which would indicate the extremes which may exist. It is not reasonable therefore always to orientate the meter towards the closest light source, nor is it reasonable to choose a dark corner, remote from the main place of work or means of access. It may be appropriate to use a grid of measurement.
- 9.2. The survey should, where relevant, take account of the weather conditions in obtaining a representative assessment of the lighting conditions. In general, the light meter should be positioned at around 1m above the ground or floor level, which is a typical working position for many manual activities. Where measurement at around 1m clearly does not accurately represent the lighting level, for example, because of obstructions, which could lead to a tripping hazard being concealed or inadequately lit, consideration can exceptionally be given to varying the height of measurement.
- 9.3. In all cases, the detector in the light meter should be parallel to the ground or surface of the floor. A portable, adjustable stand or tripod to support the light meter would be useful. Care should be taken to avoid standing between the light meter and the light source or placing the detector unreasonably in a region of shadow. At low lighting levels, where a light meter with an illuminated read-out is used, care should be taken to avoid falsely high readings by inadvertently holding the detector close to the read-out.

10. *MEASUREMENTS FOR WORKING AREAS*

- 10.1. When making measurements in working areas:
- 10.1.1. The working area should be divided into zones, each representative of the local lighting conditions throughout that area.
 - 10.1.2. Each zone should be divided up into appropriate 3m squares (or less for places with limited working space or static operations)
 - 10.1.3. Measurements should be taken at the centre point of each square or a representative sample of squares. For example, for a yard area illuminated by a symmetrical arrangement of lighting towers, it would suffice to take measurements in squares lying on a line from the centre of the area and passing through the base of one tower, going outwards as far as necessary, and similarly for a line running midway between two adjacent towers.

- 10.1.4. Measurements should consider colour rendering, and be repeated as appropriate in one or more additional zones depending on the variability of the lighting throughout the area.

11. MEASUREMENT FOR ACCESS ROUTES

11.1. When making measurements at a means of access:

- 11.1.1. The means of access route should be divided up into zones, each representative of the local lighting conditions along the total path length.
- 11.1.2. Within any one zone, a series of measurement positions should be selected along the centre line of the means of access, with a separation of typically 3m for e.g. a long roadway and less, say 1m, for short connecting passageways.
- 11.1.3. Measurements should be made in accordance with “Measurements for Working Areas” above and repeated as appropriate in one or more additional zones depending on the viability of the lighting along the total path.
- 11.1.4. For pedestrian only access routes:
- No single measurement is less than 1.0 lux \pm 20%
 - The average of the measurement for any one zone, as given by the number of measurements, is not less than 5.0 lux. Averaging over a zone should normally be based on not less than 6 individual measurements forming a representative sample.

11.2. Where vehicles and pedestrians share an area, the illuminance levels should be higher in line with the figures in HSG38 and BS12464.

11.3. In the case of large relatively evenly illuminated extended areas it may be appropriate to divide zones into larger squares, say, up to 10m squares and take measurements in a representative sample of these.

11.4. The measurements should be such that:

- 11.4.1. No single measurement is less than 5.0 lux \pm 20%; and
- 11.4.2. The average of the measurements for any one zone (as given by the sum of the levels at each measurement point divided by the number of measurements) should normally be based on not less than 6 individual measurements forming a representative sample. The average of the measurement for any one zone, as given by the number of measurements, is not less than the values specified for each work activity in this guidance.

Note: averaging across zones may be permissible where the work is mobile and wide-ranging.



- 11.5. While this guidance is principally designed for evaluating installed lighting systems, account may be taken of local temporary lighting, e.g. vehicle spot lamps, where this form an integral part of the agreed working arrangements.

12. *RECORD OF MEASUREMENTS*

- 12.1. Written records of lighting surveys should be prepared by a competent person, and should include the following particulars:
- the date, time and location of the survey
 - designation of the location, i.e. access route or working area, also the nature and frequency of use
 - a full description of the lighting, including any defects
 - information on weather and other environmental conditions
 - details of the light meter used to include measurement position
 - the individual measurements, minimum values and average values
 - recommendations for any remedial action, which could include in certain cases improved decoration for indoor parts of port premises
 - details of remedial action taken

13. *MONITORING AND MAINTENANCE*

- 13.1. The monitoring and maintaining of lighting conditions is important in ensuring proper health and safety performance. Monitoring involves ensuring the lighting levels have been maintained. Existing infrastructure should have a maintenance regime to ensure that damaged and faulty lighting are repaired/replaced as required to maintain identified levels of lighting.
- 13.2. Reviewing involves the checking of standards, planning, control and organisation and changing them when necessary to improve health and safety. For example, installing new lighting designs may create different health and safety risks; therefore, lighting levels may need to be changed or altered.
- 13.3. Lighting levels should be surveyed at appropriate intervals, to establish that suitable levels are being maintained. The need and frequency for measurements to be repeated will depend upon factors such as: maintenance regimes, change of circumstances and risk assessment. It may be appropriate to reassess lighting levels at intervals of no more than 5 years, or more frequently if circumstances dictate that this is necessary.
- 13.4. Lux figures in the guidance are minimum recommended average-**maintained** illuminance levels. A monitoring and maintenance regime should ensure that faults/damages will be noted quickly, and the intended lighting levels are maintained.



14. *PORTABLE/TEMPORARY LIGHTING*

14.1. If fixed lighting schemes are not practical portable/temporary lighting may be deemed suitable and sufficient, having considered the environment in which it will be used, including for example explosive atmospheres. Where portable/temporary lighting is used the supports and leads should be arranged, secured or covered to prevent a person tripping, or being hit by moving fittings, or walking into cables or supports.

14.2. **Diesel Powered Generators**

If using diesel powered generators, the following need to be considered, this is not an exhaustive list:

- diesel fumes and confined spaces
- sufficient fuel
- noise
- transporting fuel
- security
- environmental spillage
- ignition sources

14.3. Leads should be kept clear of moving equipment/machinery, moving loads. If the leads pass through a doorway, the doors should be secured open to avoid damage to the cable. Portable lights should never be lowered or suspended by their leads. To avoid risks of electric shock from the mains voltage, the portable lamps should be of low voltage, preferably 12 volts. Where low voltage is not practicable, other suitable precautions should be taken.

14.4. Portable lighting equipment should be suitably maintained and tested. The electrical installation associated with temporary lighting should be visually checked each time prior to use. Guidance on appropriate checks is available in HSG107, Maintaining portable and transportable electrical equipment.

RELEVANT LEGISLATION AND GUIDANCE

Relevant legislation and guidance include but are not limited to the following. Please note that these are the correct versions at the time of publishing, but the reader should always seek out the most current version.

The current versions of other PSS Safety in Ports Guidance documents can be found at: www.portskillsandsafety.co.uk/resources

- ACOPL148, Safety in Docks. Approved Code of Practice: www.hse.gov.uk/PUBNS/books/l148
- British Standard BS EN 12464-1:2011 Lighting of work places: Indoor work places
- British Standard BS EN 12464-2:2014 Lighting of work places: Outdoor work places
- British Standard BS 667:2005, Illuminance Meters: Requirements and Test Methods
- Code of Safe Working Practices for Merchant Seafarers (COSWP):
www.gov.uk/government/publications/code-of-safe-working-practices-for-merchant-seafarers
- Control of Major Accident Hazards Regulations (COMAH) 2015: www.hse.gov.uk/comah
- Control of Substances Hazardous to Health Regulations (COSHH) 2002: www.hse.gov.uk/coshh
- Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002:
www.hse.gov.uk/fireandexplosion/dsear
- Dangerous Goods in Harbour Areas Regulations 2016: www.hse.gov.uk/pubns/books/l155
- The Electricity at Work Regulations 1989 and guidance on electrical safety:
www.hse.gov.uk/electricity
- Health and Safety at Work etc. Act (HSWA) 1974: www.hse.gov.uk/legislation/hswa
- HS(G)38 "Lighting at Work" – Health and Safety Executive, 2002:
www.hse.gov.uk/pubns/books/hsg38
- HSG107 "Maintaining portable electrical equipment" Health and Safety Executive, 2013:
www.hse.gov.uk/pubns/books/hsg107
- International Commission on Illumination (CIE 129:1998)
- International Labour Organisation's (ILO) Code of Practice on Safety and Health in Ports (ILO 152): www.ilo.org/sector/activities/sectoral-meetings/WCMS_546257/lang--en
- Managing Health and Safety in Dockwork HS(G) 177: www.hse.gov.uk/pubns/books/hsg177
- Port Marine Safety Code (PMSC):
www.gov.uk/government/uploads/system/uploads/attachment_data/file/564723/port-marine-safety-code.pdf
- Provision and Use of Work Equipment Regulations (PUWER) 1998:
www.hse.gov.uk/work-equipment-machinery/puwer

- Workplace health, safety and welfare a short guide for managers:
www.hse.gov.uk/pubns/indg244.pdf



Raising Standards in UK Ports

FURTHER INFORMATION

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