

LIGHTING AT WORK

PURPOSE AND SCOPE

This HSE information provides additional direction and guidance on lighting at work to allow safe movement around the workplace and to allow workers to perform their job without having to adopt awkward postures or strain their eyes to see. The principles of this information document shall be applied. However the practical application in the field may differ according to circumstance providing the standards are not lowered or safe outcomes are potentially compromised.

PLANNING LIGHTING IN THE WORKPLACE

Taking into account seasonal and natural light variations, lighting requirements must first be identified for:

- General work locations
- Primary and secondary access routes
- Emergencies access routes
- Public access ways
- Security areas.
- The nature of the work activity
- The nature of hazards and risks in the workplace
- The work environment
- Illumination levels, including both natural and artificial light
- The transition of natural light over the day
- Glare
- Contrast
- Reflections

Consideration must be given to possible changes to access routes or work locations that will require frequent modifications to the lighting design.

Safe lighting systems must be chosen and expert assistance must be acquired particularly for areas where flammable gasses could be present.

LIGHTING SOURCES AND TYPES

When selecting light sources:

- Preference must be given to fluorescent sources as these give a wide light source, generate low levels of heat and are more environmentally-friendly and economical to run
- Halogen lights must be avoided (particularly on tripod mounts) and are only to be used if there are no fluorescent light options – halogen lights give harsh light leading to excessive contrast, run very hot leading to risk of burns or fire, consume relatively large quantities of electrical power, and are expensive to run and replace
- Where halogens are used to give general lighting, they should be safely mounted or clamped on columns, crane masts etc.
- Ensure lights do not flicker, glare or dazzle, and avoid colour casts leading to miss identification of colours or excessive differences in light levels

Lighting sources must also be:

- Suitably positioned so they can be properly maintained or replaced and disposed of
- Protected by mesh guards or proprietary diffusers



Tripod Halogen light



Halogen lighting in secure position easily and safely serviceable



Fluoro mounted on stand

LIGHTING LEVELS

The following lighting usages and associated light levels should be adhered to:

- Outdoor lighting - 20 lux, constantly maintained
- Loading bays and outdoor work - 50 lux
- Work requiring limited perception of detail - 100 lux
- Local lighting at individual workstations - 200-500 lux with no sources of glare (e.g. direct sunlight, unshaded light-bulbs)
- Staircases or escalators - 300 lux, to provide good contrast between treads and risers
- Cellars or store rooms - 300 lux

- Building construction sites (interior)
 - Walkways and access areas - 40 lux
 - Structural steel fabrication - 160 lux
 - General work areas - 160 lux
 - Woodworking (rough sawing and bench work) - 240 lux
- For other work areas refer to AS/NZS 1680.2.4 Interior lighting

Different lighting levels may be needed for different times of the day. Too much lighting can result in glare. Measures to prevent low or excessive levels of lighting, glare or reflection include:

- Providing additional lighting, such as a lamp on a movable arm
- Changing the position of existing lights
- Changing the location of the workstation
- Increasing or decreasing the number of lights
- Changing the type of lighting used e.g. from white light to blue light
- Changing the diffusers or reflectors on existing lights
- Using screens, visors, shields, hoods, curtains, blinds or external louvers to reduce reflections, shadows and glare

EMERGENCY LIGHTING

Emergency lighting must be provided for the safe evacuation of people in the event of an emergency. The following emergency lighting requirements must be followed:

- Escape lighting must come on within 5 seconds of the failure of normal lighting and provide at least 1 lux illuminance at floor level – refer to AS 2293 Emergency Lighting series
- The area immediately outside the final exit must be illuminated
- Emergency lighting levels should be assessed periodically for adequacy of emergency access
- Back-up lighting is to be considered where temporary lighting systems, e.g. daymakers, are being used (as determined by risk assessment)
- Refer to the WorkSafe Victoria guide Evacuation lighting on construction sites

INSPECTION AND MAINTENANCE OF LIGHTING

Supervisors, Managers and Safety Advisors have the responsibility to report on the adequacy of site lighting on their respective H & S inspection sheets.

Lighting must be inspected, tested and maintained to ensure adequate working order:

- Upon installation
- As construction proceeds each time electrical installations are moved and altered
- Regular intervals during normal inspection regimes determined at the workplace

- Including those located in temporary areas such as site offices, toilets, change rooms, dormitories, canteens, meeting rooms and temporary power distribution boards

The above inspection and tests apply only to electrical supplies, not lighting levels.

REGULATIONS, CODES AND STANDARDS

SafeWork Australia Code of Practice, Managing the Work Environment and Facilities