

A 30x30 grid of 900 small images. The images are related to emergency services and disaster response. They include: medical equipment like stethoscopes and syringes; close-ups of people's faces, some appearing distressed or in pain; emergency vehicles like ambulances and fire trucks; scenes of disasters like fires, floods, and earthquakes; people in uniform, likely emergency responders; and various symbols and signs, including a prominent green exit sign with a white running figure. The grid is a visual representation of the scope of emergency services.

Emergency Lighting Introduction

When the electricity supply fails and the lights go out, it is essential that emergency lighting is automatically activated to provide adequate illumination for normal activities to continue and for safe evacuation of the building. Instant illumination is required when the supply fails and for this reason only, fluorescent or tungsten light sources are used.

Emergency lighting is demanded mainly because of legislation. This legislation itself is a direct result of public and political pressure to safeguard life and to ensure uniform standards in places where the public gather.

The existing U.K. legislation will be amended or replaced by European Directives, some of which will be retrospective. Consideration given now to the standards which the Directives evoke, will provide substantial savings in the future.

BS 5266: 1999 gives a 'standards tree' for the different types of emergency lighting covered, and a definition for each form of lighting.

Standby Lighting

This is the part of emergency lighting which may be provided to enable normal activities to continue in the event of failure of the normal mains supply. For long back-up periods (in excess of three hours), it is normal for central battery systems, uninterruptible power supplies or standby generators to be used.

Emergency Escape Lighting

This is the part of emergency lighting which is provided to ensure all means of escape can be safely and effectively used at all times. Emergency escape lighting may be subdivided into three areas:

1. Escape Route Lighting

The emergency lighting on a route forming part of the means of escape from a point in a building to final exit.

2. Open Area (Anti-panic) Lighting

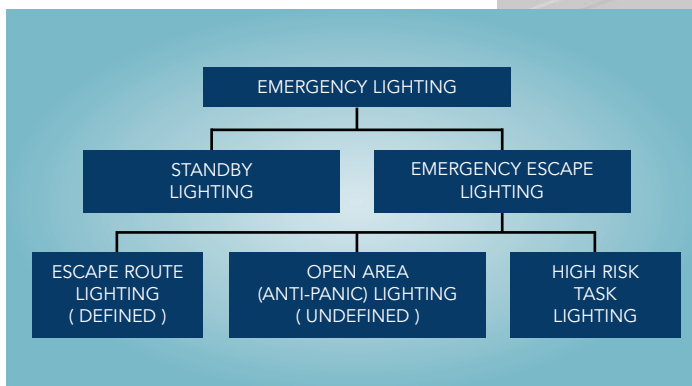
The part of emergency lighting provided to avoid panic and provide illumination allowing people to reach a place where an escape route can be identified.

3. High Risk Area Lighting

A new category provided to ensure the safety of people involved in a potentially dangerous process or situation and to enable proper shut down procedures for the safety of the operator.



Escape route lighting.



Emergency lighting standards tree.

To ensure the system is well designed and as reliable as possible, Gent stresses the importance of planning through all the phases of the project, from considering legal requirements to final commissioning and maintenance.

Consultation between all interested parties at an early stage of design cannot be overstressed to avoid expensive modifications to a completed system.

The first stage of system design is to gather the information needed on the project, normally by consultation with the Regulatory Authority and the user. This should cover legislative and likely operational requirements and customer preferences.

Emergency Lighting Initial Considerations

The Check List

- ✓ The duration of the battery system is decided by:
 - Three hour duration is required in places of entertainment and for buildings where people may be sleeping.
 - Three hour duration is required if evacuation is not immediate, or early re-occupation is likely to occur.
 - One hour duration may be acceptable, in some premises, if evacuation is immediate and re-occupation is delayed until a full recharge of the system has occurred.
In practice it is normally preferable to choose a three hour system.
- ✓ Escape routes should be established and potential hazards investigated.
- ✓ Building plans need to be assembled showing the locations of fire alarm call points, the position of fire fighting equipment and fire and safety signs.
- ✓ Open areas (anti-panic) larger than 60m² floor area should be identified.
- ✓ High risk task areas should be identified and normal lighting levels established.
- ✓ External illumination outside exit doors should be determined.
- ✓ Other areas which need illumination although not part of the escape route, should be located, e.g. lifts, moving stairways and walkways, plant rooms and toilet accommodation over 8m² gross area.
- ✓ All emergency luminaires should be wired from the unswitched side of each local lighting circuit.
- ✓ Areas of low fire risk (if a central system is being used), and the locations of central battery units and cable runs should be established.
- ✓ Standby lighting requirements should be established if activities need to continue during a failure of the normal lighting supply.
- ✓ The customer's preference and operating considerations should be ascertained.

Design of New Installations

When referring to the provision of escape lighting, BS 5266: Part 1: 1999 requires that "When the supply to the normal lighting, or parts of the normal lighting to occupied premises fails, escape lighting is required to fulfil the following functions:

1. To indicate clearly and unambiguously the escape routes.
2. To provide illumination along such routes to allow safe movement towards and through the exits provided.
3. To ensure that fire alarm call points and fire fighting equipment provided along escape routes can be readily located.

Stage 1. Locate luminaires at mandatory points of emphasis

Decide upon the emergency escape routes together with the points of exit and locate luminaires at points of emphasis (these are mandatory locations) along these routes.

Initial design is conducted by the siting of luminaires to cover specific hazards and to highlight safety equipment and signs.

This should be performed regardless of whether the area is an emergency escape route or defined as an open area. Only when this is accomplished should the type of luminaire or its light output be considered.

The points of emphasis where it is mandatory to site escape lighting luminaires are as follows:

- At each intersection of corridors.
- At each exit door.
- At each change of direction (other than on a staircase).
- On each staircase so that each flight of stairs receives direct light.
- At any other change of floor level.
- Outside each final exit and close to it.
- At each fire alarm call point.
- At fire fighting equipment.
- At each first aid post.
- To illuminate exit and safety signs required by the enforcing authority.

BS 5266: 1999 requires a minimum of 1.0 lux at these points of emphasis except fire alarm call points and fire fighting equipment where the minimum required is 5.0 lux.



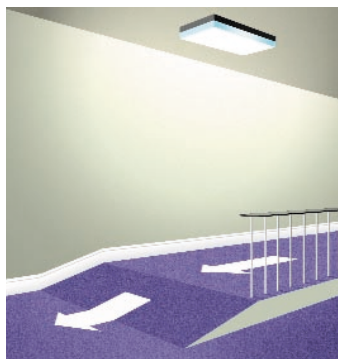
At each corridor intersection.



At each exit door.



On each staircase.



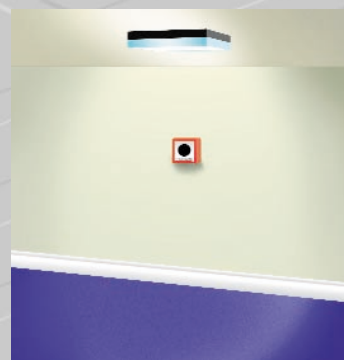
At each change of floor level.



Outside each final exit.



At fire fighting equipment.



At fire alarm call points.



To illuminate exit and safety signs.

Stage 2. Consider other locations

Consider providing additional escape lighting at these locations:

- Lift cars. Although only in very exceptional circumstances will they be part of the escape route, they do present the problem that people may be trapped in them in the event of a supply failure.

Lift manufacturers are legally obliged to fit emergency lighting.

- Toilets with facilities exceeding 8m² floor area and all toilets for the disabled. Large tiled areas such as changing rooms also fall under this category.

This should be considered an open (anti-panic) area.

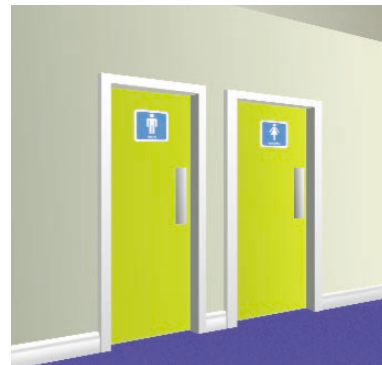
- Escalators, to enable users to get off them safely. This should be considered an open (anti-panic) area.

- Motor generator control or plant rooms require battery supplied emergency lighting to assist any maintenance or operating personnel in the event of failure. It is also necessary to install self-contained emergency lighting in areas adjacent to central battery systems in case of failure.

- Covered car parks, the normal pedestrian routes should be provided with non-maintained luminaires of at least one hour duration.

- First aid rooms, the room together with the area immediately outside.

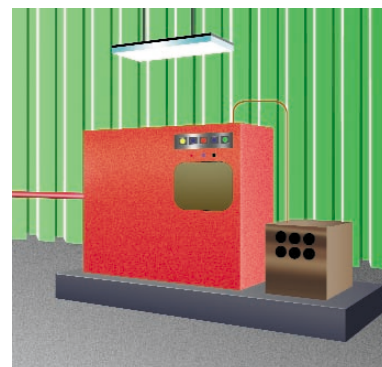
- Lighting compartments, where provision has been made for a single luminaire to cater for a room or corridor, this must be increased to a minimum of two, to prevent the area from being plunged into darkness, if the luminaire fails.



Toilets exceeding 8m² floor area.



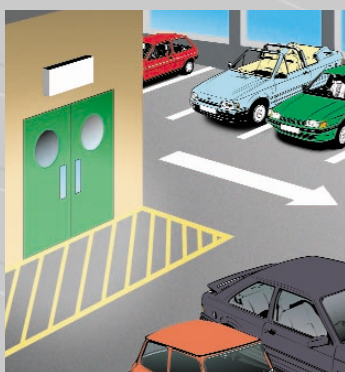
Escalators.



Plant rooms.



Lifts.



Covered car parks.



Stage 3. Check minimum illuminance levels

When the points of emphasis have been covered, it is essential to provide any additional luminaires that might be necessary to ensure that minimum illuminance levels are met.

BS 5266: Part 1: 1999 calls for a minimum of 0.2 lux at floor level on the centre line of permanently unobstructed escape routes. Points of emphasis should be illuminated to a minimum of 1.0 lux.

There is no guarantee that obstructions will never occur, therefore it is advisable that 1.0 lux minimum is used throughout.



Escape routes require minimum levels of illuminance.

1. Decide upon the defined and open area (anti-panic) routes.
2. Check that the preferred luminaires can be used on defined escape routes.
3. Place exit signs at each final exit.
4. Position luminaires outside each final exit and any others required to aid dispersal. Note: These will probably be of the weatherproof variety.
5. Place extra directional exit signs where the final exit sign is obscured.
6. Illuminate all other 'points of emphasis' as defined in BS 5266: Part 7: 1999. These are:
 - Change of direction and level.
 - Fire fighting equipment.
 - Hazardous processes.
 - First-aid and plant rooms.
 - Tiled areas.
 - Escalators.
 - Signs.
7. Place luminaires along the defined escape route using the spacing data. Note: Remember to add extra luminaires so that each lighting compartment is covered by at least two luminaires.
8. Position luminaires into the open (anti-panic) areas using the current standard 0.5 lux min.

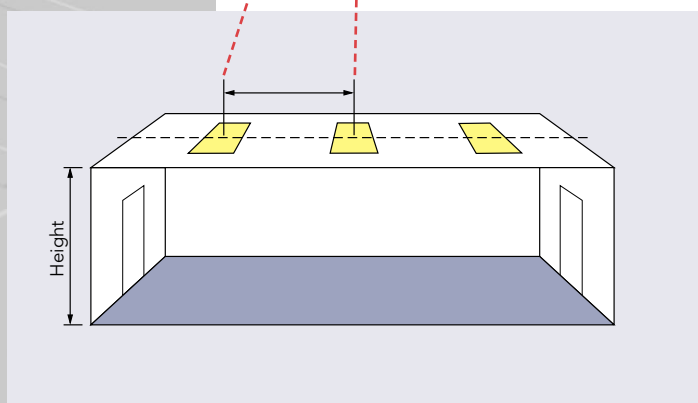
It should be noted that transverse to transverse installation enhances the performance of the luminaires.

Stage 3 (cont).

Spacing Tables.

BS 5266: Part 1: 1999 recommends using a larger number of low power luminaires rather than a few high power units, so that no part of the escape route is lit by just one luminaire. Thus, if a luminaire fails, the route will not be plunged into darkness and the uniformity of light distribution will be maintained.

		Maximum permitted spacing (in metres) to achieve 0.2 lux			
	Height (m)	Tr-Tr	Ax-Ax	Tr-Wall	Ax-Wall
LUM8/NM	2.5	11.8	6.9	4.5	2.7
	3	12.3	7.3	4.5	2.8
	4	12.6	7.6	4.4	2.6
	6	11.9	7.0	1.1	0.8
	8	5.2	3.2		



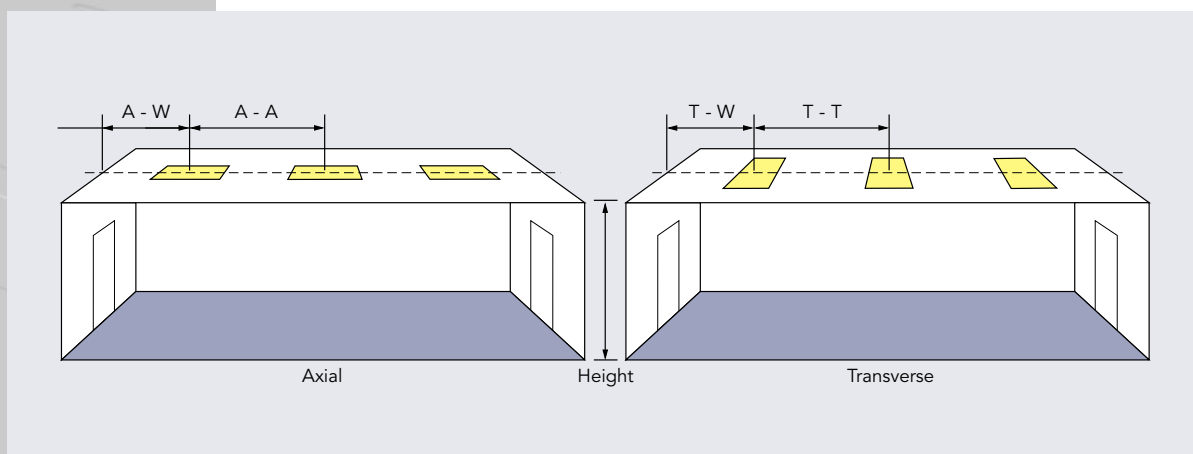
Using spacing tables.

Gent has calculated the maximum spacings for all Gent luminaires to ensure a given design illuminance for routes up to 2m wide.

How to Use Spacing Tables:

1. Choose the appropriate lux level required.
2. Establish the plane/axis of the selected luminaire along the escape route (i.e. transverse or axial).
3. Establish the mounting height of the luminaire above the floor.
4. On the table for the relevant luminaire, select the appropriate lux level table. From the established mounting height, choose the maximum permissible spacing between luminaires (or from the luminaire to a wall) for the plane /axis previously chosen.

See Photmetric data at end of product section.

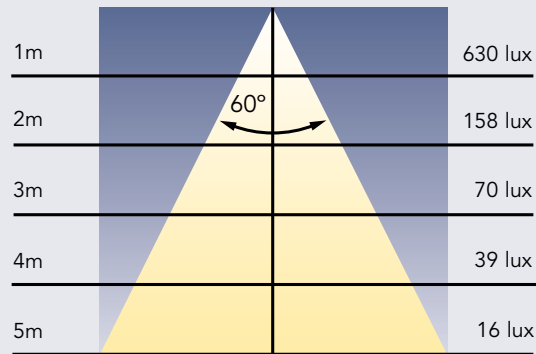


Siting emergency luminaires along an escape route.

Stage 3 (cont).**Special Considerations for Escape Routes and Open (Anti-Panic) Areas.****Low Voltage Downlighters.**

Tungsten-Halogen downlighters are often used in 'decorative' and open (anti-panic) areas.

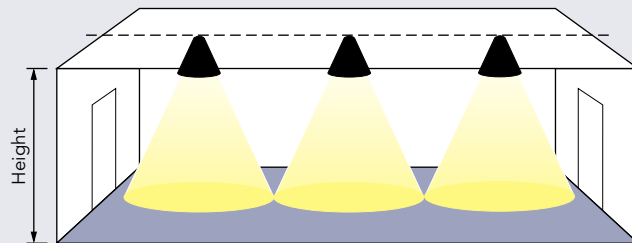
For either application 'cone diagrams' are used to calculate the spacing. A particular lamp is described by the 'watts' and an included beam angle.



Typical cone diagram for a 50W, 60° Dichroic lamp.

Position the beams so that they just touch, this will maintain uniformity.

Note: The light levels achieved are far higher than those normally required.



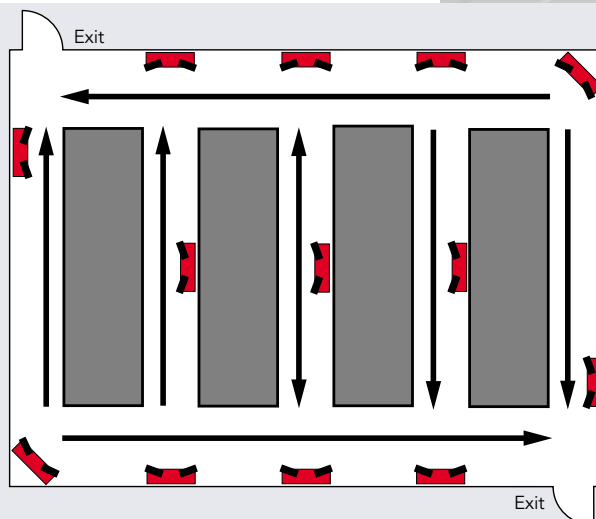
Low voltage down lighters.

Twinspots

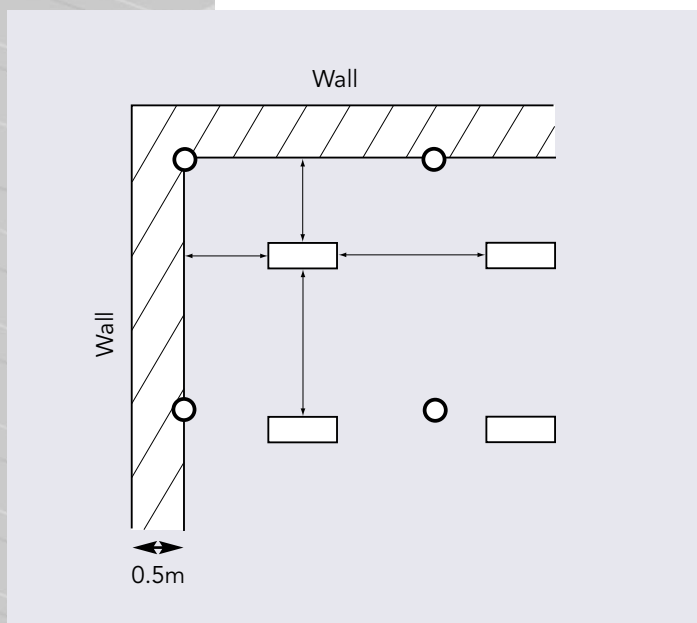
A typical application for a twinspace is a warehouse.

It is only necessary to cover the gangways in these circumstances.

See Photometric data at end of product section.



Warehouse application using twinspots.

Stage 3. (cont). Designing for 0.5 lux minimum

BS 5266: 1999 allows for a perimeter of 0.5m to be neglected. Spacing tables provide simple and accurate data that can easily be used.

The spacing tables for 0.5 lux are derated to cover diagonal points.

○ Minimum points for obtaining 0.5 lux

Designing for 0.5 lux minimum.

The table below shows the typical spacing for an 8W fitting, assuming a regular layout to give a minimum of 0.5 lux anywhere on the floor (excluding perimeter of 0.5m).

	Height (m)	Maximum permitted spacing (in metres) to achieve 0.2 lux				Maximum permitted spacing (in metres) to achieve 0.5 lux				Maximum permitted spacing (in metres) to achieve 1 lux			
		Tr-Tr	Ax-Ax	Tr-Wall	Ax-Wall	Tr-Tr	Ax-Ax	Tr-Wall	Ax-Wall	Tr-Tr	Ax-Ax	Tr-Wall	Ax-Wall
LUMHI8/NM	2	12.2	7.5	5.8	3.1	11.3	5.9	4.6	2.2	9.3	4.4	3.7	1.5
	2.5	14.8	8.0	6.2	3.3	12.1	6.2	5.2	2.2	10.4	4.5	3.3	1.4
	3	17.2	9.0	7.1	3.6	13.6	6.4	5.3	2.2	10.6	4.4	2.7	1.1
	4	19.3	9.9	8.2	3.5	15.1	6.2	4.0	1.7	8.1	3.5		
	6	23.7	10.1	6.9	2.9	10.7	4.5						
	8	20.9	8.9										
	10	11.1	5.7										

Stage 4. High risk task area

BS 5266: Part 7: 1999 requires that higher levels of emergency lighting shall be provided in areas of particular risk, although no values are defined.

The British standard states that the average horizontal illuminance on the reference plane shall be as high as the task demands in areas of high risk. It shall not be less than 10% of the normal lighting level, or 15 lux, whichever is the greater. (In practice this minimum is unlikely ever to be a problem as it would only be valid if the risk area had a normal illumination level less than 150 lux).

Design Procedures

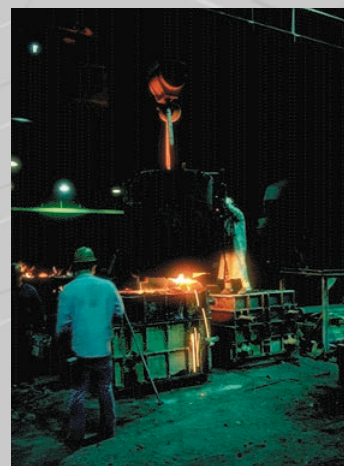
For a conversion unit, a direct ratio is obtained by using its ballast lumen factor (BLF). To achieve 10% of normal lighting use a minimum BLF of 0.1.

To provide 10% of normal lighting, it is advisable to use either high output single point units (Twinspots) or the conversion of the installed mains luminaires to emergency operation.

Consideration can also be given to the use of a central battery system.



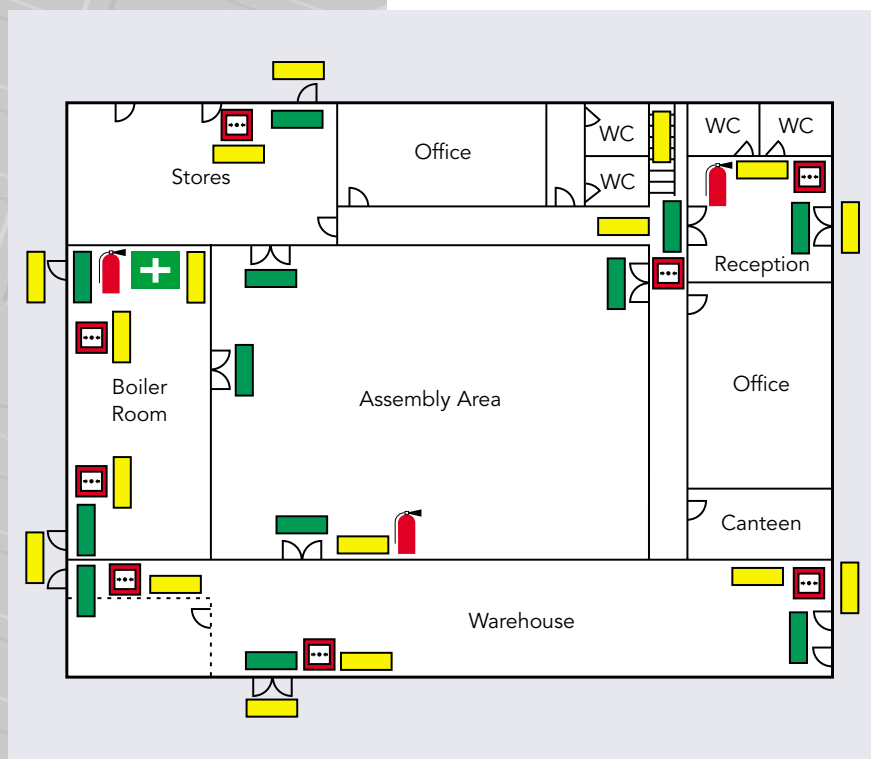
High risk task area.



High risk task area.

This summary selection illustrates the previous stages in a pictorial format.

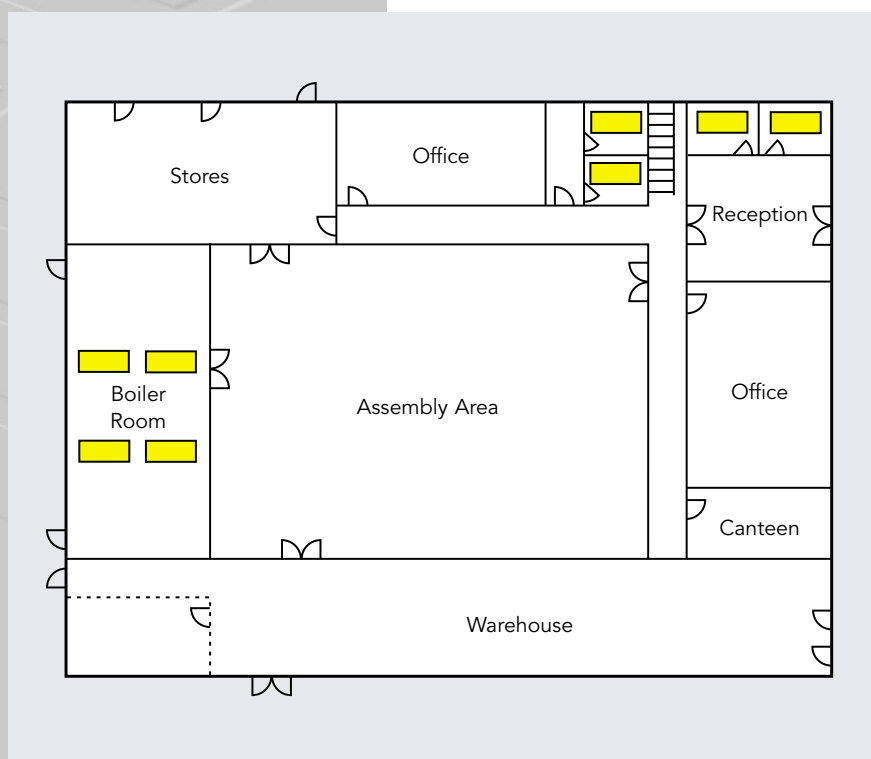
Stage 1. Locate luminaires at mandatory points of emphasis



- Final exits with exit signs.
- Where the final exit is obscured, locate exit direction signs along the escape route such that a person following them is moved towards the exit.
- Outside each final exit, and the immediate vicinity, to allow for dispersal.
- Intersections of corridors.
- Change of direction.
- Change of floor levels (steps or ramps).
- Staircases, such that each flight receives direct illumination.
- Fire alarm call points.
- Fire fighting equipment.
- Safety signs required by the enforcing authority.

- Self-Contained Luminaires
- Exit Signs
- + Manual Call Points

Stage 2. Consider other locations



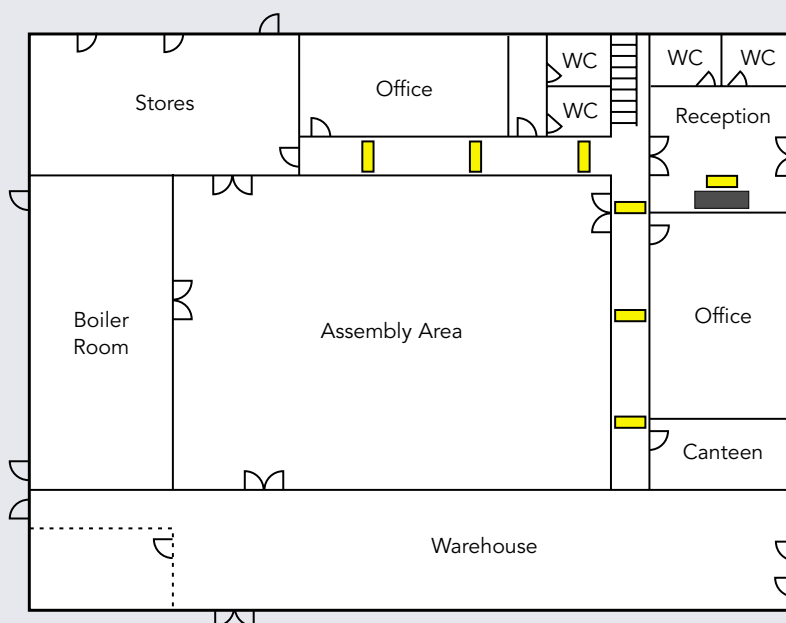
- Toilets and tiled areas e.g. changing rooms greater than 8m².
- Lift cars.
- Escalators.
- Motor generators, control or plant rooms.
- Covered car parks.
- First-aid rooms.

This summary selection illustrates the previous stages in a pictorial format.

Stage 3. Check minimum illuminance levels

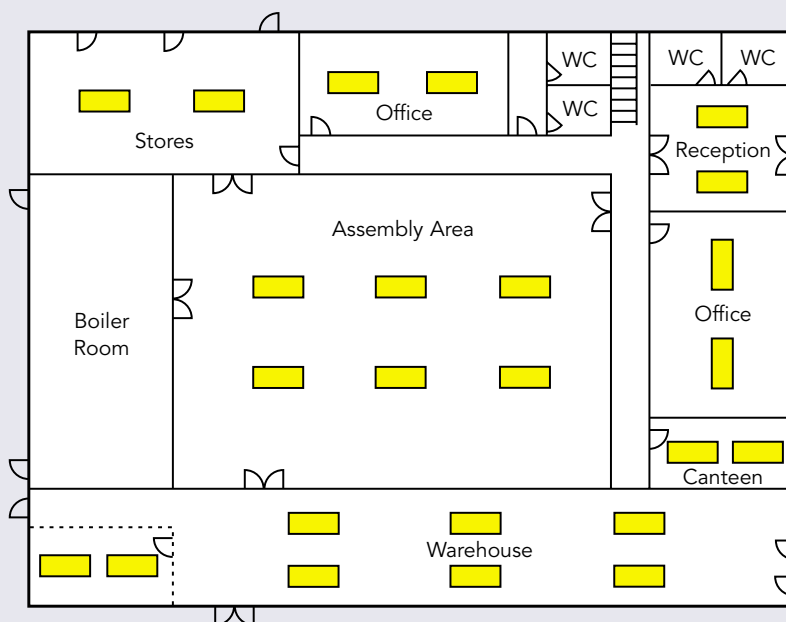
- Place luminaires along the defined escape route using the spacing data.
- Ensure a minimum of 2 luminaires per lighting compartment.

■ Fire Panel.



Stage 4. Open areas (anti-panic)

- Areas $>60\text{m}^2$ or open areas with an escape route passing through them.
- Light level required:
- 0.5 lux minimum anywhere (British Standard).



DESIGN TIP!

For new buildings the pictogram format is recommended. This may be supplemented with a directional arrow.



However, BS 5499: Part 1 pictogram with text is deemed acceptable.



BS 5499: Part 1
Not recommended for new installations.



HSE Signs
Directive format.

Stage 6. Locate exit signs and directions

BS 5266 states that:

"Signs are required at all exits, emergency exits and escape routes, such that the position of any exit or route to it is easily recognised and followed in an emergency. Where direct sight of an exit or emergency exit is not possible and doubt may exist as to its position, a directional sign (or series of signs) should be provided, placed such that a person moving towards it will be progressed towards an exit or emergency exit".

It is also likely that this requirement will be expanded by future European legislation which, it is proposed, will require exit signs to be visible from anywhere on an escape route.

The Format of Signs

Exits must be identified by the sign. Other information such as 'Fire Exit for Emergency Use Only' is now considered as a building management sign that can be displayed if needed but is not part of the safety system.

Where signs are being installed as a replacement for existing signs, or in an extension to an existing building, old style signs (i.e. BS 5499) can continue in use, subject to the approval of the Regulatory Authority.

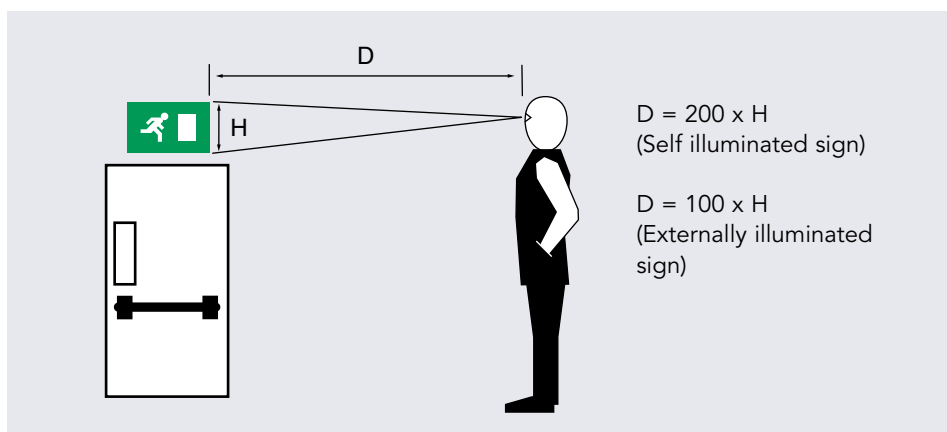
Note: It is essential that styles of sign are not mixed.

Maximum Viewing Distance

Viewing distances are given in BS 5266: part 7: 1999 as $200 \times H$ for a self illuminated sign, and $100 \times H$ for externally illuminated signs where H is the height of the pictogram.

Signs Directive

Implemented as a legal requirement in the U.K. by Statutory Instrument 1996 No. 341 on 1st April 1996.



Viewing distances for exit signs.

Stage 7. Duration of emergency lighting system

BS 5266 Part 1: 1999 states:

"It is considered that a design period of operation of emergency lighting system of 1 hour should be the absolute minimum of even the smallest premises considered in this code".

For most applications a duration of between 1 hour and 3 hours should meet all normal requirements.

Type of System: Mode of Operation

The type and category of system used depends on the size and function of the premises. The system should provide for the safe movement of people along the escape routes and through the exits.

The emergency lighting design should take account of individual lamp luminaire failure, mounting height, spacing, additional escape lighting and emergency signs.

Self-contained luminaires contain their own battery charger, control gear and lamp, so that if the mains supply fails, the emergency lighting will operate for the design duration. For central battery systems, the luminaire (known as a 'slave' luminaire) derives emergency lighting supply from a central power source, which may be a standby generator or a central battery system.

Either type of luminaire can be 'maintained' or 'non-maintained'. With maintained operation all emergency lighting lamps are in operation at all times. For non-maintained emergency lighting, all the emergency lighting lamps are in operation only when the supply to the normal lighting fails, the lamps are then illuminated from the battery and control gear. When the mains is restored the lamps are switched off and the battery is recharged ready for the next failure.

BS 5266 recommends a maintained mode of operation for premises where the normal lighting can be dimmed or reduced below the levels required for the identification and illuminance of escape routes while the premises are occupied e.g. theatres and cinemas.

A non-maintained mode of operation may be suitable for all other premises.



Stage 8. Commissioning, testing and maintenance

Control

Once the design has been completed it becomes apparent that the performance of the luminaire depends as much on the light distribution as it does the light output available. Consequently it becomes essential that luminaire types specified for a particular design are not changed without a reappraisal of the photometric design.

Testing and Log Book

The system should include adequate facilities for testing and recording the system condition. These need to be appropriate for the specific site. It may well be desirable to test the installation in an office block by isolating the total supply, but this would be inappropriate in a hotel which is occupied 24 hours a day, seven days a week. For a hotel, a test system able to be tested by zone would be more suitable as the risks of having all the luminaires discharged while the building is occupied can be eliminated.

Commissioning Certificate

BS 5266 Part 1: 1999 requires written declaration of compliance to be available on site for inspection. These consist of:

1. Installation quality.

This means that IEE regulations, HD384-5, must have been conformed to; with suitable cable, adequate support and protection having been used. The requirement in BS 5266, that non-maintained fittings are fed from the final circuit from the normal lighting in the area, must have been complied with.

2. Photometric performance.

Evidence of compliance with design criteria must be obtained. Gent registered fittings are independently photometrically tested and their spacing data registered by the ICEL scheme. Copies of this data present the verification required provided that the spacings are not exceeded.

3. Declaration of a satisfactory test of operation.

A declaration of satisfaction test of operation is also needed.

4. Log book.

A log book should be kept and be readily available for inspection.

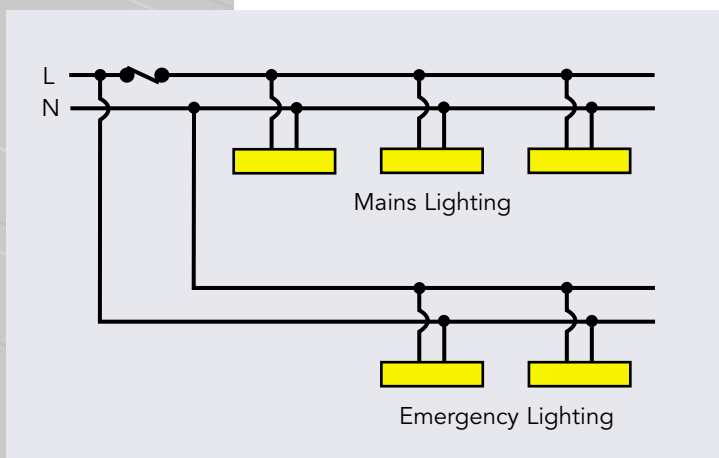
It should record the date and brief details of completion, any alterations, periodic inspections and test certificates, each service, inspection or test carried out, defect and remedial action.

Maintenance

Finally to ensure that the system remains at full operational status, essential servicing should be defined. This normally would be performed as part of the testing routine, but in the case of consumable items, such as replacement lamps, spares should be provided for immediate use.



Keep an up to date log book.



Emergency lighting wiring diagram.

Checklist for Assessment

Records

	Yes	No
■ Are the entries made in the log book correct?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are up to date drawings available and correct?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are routine tests completed according to requirements in BS 5266?	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Luminaires and Escape Route Signs

■ Are the emergency luminaires and signs suitable for use on escape routes?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the fittings supplied with the correct operating voltage?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the fittings clean and sited in their correct operating environment e.g. for temperature and I.P. rating?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the fittings operating in the correct mode e.g. maintained for sleeping accommodation?	<input type="checkbox"/>	<input type="checkbox"/>
■ Do the fittings operate for the required emergency duration?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the batteries being charged?	<input type="checkbox"/>	<input type="checkbox"/>

Signs

■ Are there signs which clearly indicate the emergency escape route from any position within the premises?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are all exits marked and directions of travel indicated?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are signs illuminated internally or from an external source when the normal lighting supply fails?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the size of signs correct for the viewing distance?	<input type="checkbox"/>	<input type="checkbox"/>
■ Do the sign legends comply with the signs directive?	<input type="checkbox"/>	<input type="checkbox"/>

Luminaires

■ Are emergency luminaires positioned at all points of emphasis?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the emergency luminaires positioned along the escape routes at the correct spacings to ensure that the required illuminance levels are achieved?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are emergency luminaires positioned in open areas (anti-panic) at the correct spacing to ensure that the minimum illuminance level is achieved?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are the non-maintained luminaires fed from final circuits?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are there at least two luminaires in each "lighting compartment", thus ensuring that the area is not plunged into darkness if a luminaire fails?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are additional luminaires provided in lift cars, escalators, toilets etc?	<input type="checkbox"/>	<input type="checkbox"/>
■ Are hazardous areas illuminated at 10% of normal illuminance?	<input type="checkbox"/>	<input type="checkbox"/>

Central Battery Systems

■ Does the central battery system comply with prEN 50171 and HD 384?	<input type="checkbox"/>	<input type="checkbox"/>
■ Is the battery charger functioning?	<input type="checkbox"/>	<input type="checkbox"/>
■ Where applicable, are the battery electrolyte levels and specific gravities satisfactory?	<input type="checkbox"/>	<input type="checkbox"/>

Glossary

Ballast - controls the operation of a fluorescent lamp from a specified low or high voltage AC or DC source (typically between 12 and 240 volts). It can also include an element for starting the lamp and sometimes for power factor correction or radio interference suppression.

Ballast Lumen Factor (BLF) - is the ratio of the light output of the lamp when the ballast under test is operated at its design voltage compared with the light output of the same lamp operated with the appropriate reference ballast supplied at its rated voltage and frequency.

Battery - secondary cells providing the source of power during mains failure.

Battery Sealed (recombination) - a battery that is totally sealed, or constructed so that no provision is made for replacement of electrolyte.

Battery Unsealed (vented) - a battery that requires replacement of electrolyte at regular periods.

Battery Capacity - is the discharge capability of a battery being a product of average current and time expressed as Ampere hours over a stated duration. Note: A shorter total discharge period gives rise to a smaller available capacity.

Central Battery System - is a system in which the batteries for a number of luminaires are housed in one location, usually for all emergency luminaires in one lighting sub-circuit sometimes for all emergency luminaires in a complete building.

Combined Emergency Luminaire (sustained) - contains two or more lamps at least one of which is energised from the emergency supply and the remainder from the normal supply.

Design Voltage - is the voltage declared by the manufacturer to which all the ballast characteristics are related.

Emergency Lamp Design Lumen (ELDL) - is the claimed output of the lamp measured at the end of the declared lamp life, multiplied by the Ballast Lumen Factor (BLF) of the specific emergency lighting circuit.

Emergency Lighting - is the lighting provided for use when the supply to normal lighting fails.

Escape Route Lighting - is provided to ensure that the means of escape can be effectively identified and safely used when a location is occupied.

Emergency Exit - is a way out which is intended to be used at any time whilst the premises are occupied.

"F" Mark - shows the luminaire can be mounted on combustible surfaces.

Final Exit - is the terminal point of an escape route, beyond which point persons are no longer in danger from fire or any other hazard requiring evacuation of the building.

High Risk Task Area Lighting - is that part of emergency lighting provided to ensure the safety of people involved in a potentially dangerous process or situation and to enable proper shutdown procedures for the safety of the operator and other occupants of the premises.

Glow Wire - 850°C Test - all emergency luminaires on escape routes must pass this test. Self-extinguishing grades of polycarbonate, PVC or glass and steel are needed.

Illuminance - is the luminous flux density at a surface i.e. the luminous flux incident per unit area. The unit of illuminance is lux, that is, lumens per square metre.

K Factor - is the amount that the lamp output will reduce because of the effect of battery discharge. This factor will vary dependent on the control gear characteristics. The final applied minimum voltage and type of lamp. Values can vary from 0.55 for tungsten lamp to a factor of about 0.75 to 0.85 for a fluorescent circuit.

Lighting Design Lumens (LDL) - is the claimed lamp light output measured on a standard reference circuit at the end of the declared lamp life.

Luminaires - are apparatus which distribute, filter and transform the lighting given by a lamp or lamps and which include all the items necessary for fixing and protecting these lamps and for connecting them to the supply circuit. Note: Internally illuminated signs are a special type of luminaire.

Maintained Emergency Luminaire - is a luminaire containing one or more lamps all of which operate from the normal supply or from the emergency supply at all material times.

Mounting Height - is the vertical distance between the luminaire and the working plane. Note: For emergency lighting the floor is taken to be the working plane.

Non-Maintained Emergency Luminaire - is a luminaire containing one or more lamps which operate from the emergency supply only upon failure of the normal mains supply.

Normal Lighting - is all permanently installed artificial lighting operating from the supply in normal use, which in the absence of adequate daylight is intended for use during the whole time that the premises are occupied.

Open Area (Anti-panic) Lighting - is that part of emergency escape lighting provided to avoid panic and provide illumination allowing people to reach a place where an escape route can be identified.

Rated Duration - is the manufacturer's declared duration for a battery operated emergency lighting unit, specifying the time for which it will operate after mains failure. This may be for any reasonable period, but is normally one or three hours (when fully charged).

Rated Load - is the maximum load which may be connected to the system which will be supplied for the rated duration.

Re-Charge Period - is the time necessary for the batteries to regain sufficient capacity to achieve their rated duration.

Room Index - defines the relationship between the height, length and width of a room used for illuminance calculations.

Self-Contained Emergency Luminaire - is a luminaire or sign providing maintained or non-maintained emergency lighting in which all the elements such as battery, the lamp and the control unit are contained within the housing or within one metre of the housing.

Service Factor (SF) - is the ratio of the illuminance provided by an aged system with dirty luminaires to the illuminance of the same system when new.

Single Point Luminaire - (see self-contained emergency luminaire).

Slave or Centrally Supplied Luminaire - is an emergency luminaire without its own batteries that is designed to work in conjunction with a central battery system.

Standby Lighting - is the part of emergency lighting which may be provided to enable normal activities to continue in the event of a mains supply failure.

Uniformity - is the ratio of average illuminance to the minimum illuminance measured at the working plane.

Utilisation Factor (UF) - is the proportion of light emitted by the lamp in the emergency lighting luminaire that reaches the working plane.



NOTES