

EMERGENCY LIGHTING

Emergency lighting shall be provided in strict accordance with BS 5266, BS EN 1838, BS EN 62034, BS EN 7010, ICEL 1006 and CIBSE Lighting Guide 12: Emergency Lighting Design Guide.

The installation shall comply with relevant clauses on the IET Wiring Regulations. The mode of operation i.e. non-maintained and maintained shall be in full compliance with the current British Standards.

A 3-hour duration system shall be provided throughout.

The Contractor shall employ the system manufacturer to validate the design for the entire emergency lighting system.

This shall include calculations to check that illumination levels and uniformity limits recommended by BS 5266 will be achieved in both horizontal and vertical planes on all:

- Escape routes
- Hazard locations
- Open plan areas
- Fire alarm panels
- Fire Extinguishers
- Disabled Refuges
- Reception areas
- Points of emphasis
- All other key areas listed in BS 5266.

Luminous intensity and mounting heights shall be checked to ensure that the limits given BS 1838 are not exceeded in larger open areas the emergency luminaires shall have open area optics and in circulation routes then the corridor optics shall be used.

At least one self-contained emergency luminaire shall be provided at each external muster point around the building/site and along the access route to the same.

Commissioning shall be carried out in accordance with the recommendations of the standards listed above and the system manufacturer.



This shall include:

- Illumination levels check based on authenticated design data
- Visual check that a luminaire is provided close to all points of emphasis listed in BS 5266
- Functional test of all luminaires on failure of local circuit
- Duration test for all luminaires

At a date to be agreed the Contractor shall repeat the full test on the emergency lighting installation in the presence of the Employer and the consulting engineer.

For the escape routes, exit signage is to be internally illuminated such that viewing distances are increased compared to non-self-illuminated signage. These shall be provided in accordance with the signage requirements detailed on the agreed Fire Plan and fully conform to BS EN 7010.

Emergency lighting shall be provided to all areas using Self Contained Luminaires and where feasible, dedicated emergency luminaires. All emergency luminaires shall be provided within a clearly visible light to indicate that the fitting is in a healthy condition. In the case of luminaires containing conversion units, this shall be securely fitted to the flange or other location such that it is clearly visible when the luminaire is normally energised.

Where conversion units are used, these shall be factory assembled by the Specialist Emergency Lighting Supplier. It shall not be permissible for the units to be made up on site. Interconnections between remote conversion units and light fittings shall be via factory made looms, not by loose wiring.

Manufacturer's recommendations / restrictions regarding distances between luminaires and remote conversion units are to be strictly adhered to, as are all other manufacturers' recommendations relating to cabling, etc.

The Contractor shall be responsible for ensuring compatibility of conversion units to luminaires prior to tendering. Any discrepancies shall be reported to the Engineer.

The Contractor shall perform emergency lighting calculations for every area of the project which shall be verified with the Specialist Emergency Lighting Supplier for the project Ventilux UK, and these calculations shall be provided to the Engineer for comment and approval. The calculations shall use measured photometric performance data. Such data shall also be made available to the Engineer.



TESTING FACILITIES

The contractor will install an automatic standalone wired DALI self-contained emergency lighting testing and monitoring system shall be provided as part of the emergency lighting system.

This standalone system shall be capable of testing and monitoring self-contained emergency luminaires in compliance with the latest European Standards including BS5266 and EN62034.

The wired DALI system shall be a PERC Type system as defined in the latest standard EN60234, and individual self-contained luminaires shall be capable of TYPE S “self-test” functionality when not connected to a respective DALI Controller.

The system shall provide a central interface which will provide control and monitoring for the entire emergency lighting system.

The central interface shall be hosted on a cloud platform to allow multi-access functionality and reduce dedicated control equipment.

No dedicated PC shall be provided, and the head end software shall be capable of being accessed from any PC or mobile device.

This cloud platform shall in turn communicate to individual DALI Controllers via the MAC address of the DALI Controller via a private or public site network.

Each DALI controller shall be capable of supporting up to 120 individual wireless DALI devices and communicating with the cloud based front end software.

Each intelligent luminaire shall have a DALI emergency module compliant to EN62386 and shall also have a bi-directional LED (RED/GREEN) to charging, health and fault status.

Individual compatible DALI luminaires shall communicate to their respective DALI controllers via a wired network which shall be wired with mains rated 1.5mm² cable to achieve a maximum cable distance of 300m.

The system shall have built in redundancy so that if the head end cloud software is not operational, local control is provided by each DALI controller which will continue to test and



monitor all the self-contained luminaires connected to that DALI controller. Upon reconnecting to the cloud, the system shall have the ability to upload all test data to the front-end software.

In turn if a DALI Controller was then to fail each individual DALI luminaire shall revert to a “self-test” or TYPE S functionality and continue to test locally in accordance with EN50172 testing parameters.

Upon reconnecting to a wireless DALI controller, the individual luminaire shall have the ability to update the DALI controller with its individual health status.

Individual luminaires shall have at a minimum a location description and associated address to facilitate long term maintenance.

The default system shall automatically test the installation daily, monthly, and annually in accordance with the latest requirements of EN50172.

Failure of any testing or monitoring function shall not impede the emergency lighting function of the self-contained luminaires.

The system shall allow up to 16 test groups across the entire site.

The system shall allow for a dedicated test group to inhibit or isolate self-contained luminaires from their test schedule.

The system shall allow reporting on individual luminaires, groups of luminaires or the entire site.

The system shall allow for these results to be downloaded from the cloud front end or sent via email.

The email function shall send monthly and annual status reports and details of any failures.

The system shall allow for floor plans to be integrated into the cloud front end software.

The system shall allow for these floor plans to allow full functionality of the system showing luminaire location and health status of each individual luminaire and DALI Controllers.

The system shall have a BMS interface functionality. This interface shall be via a volt free contact that shall initiate in the event of any luminaire failure connected to that DALI Controller. The system shall also have the facility to connect to a BMS over IP by either MODBUS or BACnet.

The individual DALI controllers and cloud-based system shall be password protected.

The system shall allow for multiple users which can log into the system via any PC or mobile device.

The system shall identify a fault including details relating to the device which failed and the nature of that fault. A fault on a self-contained Emergency Luminaire shall be narrowed to one of the following four:

- Communications fault
- Lamp fault
- Battery fault
- Charger module fault



COMMISSIONING

The Specialist Supplier of the automated testing system shall be responsible for commissioning the automated and emergency lighting testing system. Upon completion of commissioning the commissioning body will hand over a set of marked up drawings showing DALI Controller locations and identifier and individual luminaire locations and addresses. These will be replicated in the front-end software.

The Specialist Supplier will also perform onsite training for end users once the project is completed.

Emergency Lighting and Automatic Testing System, as Ventilux UK DALI Connect System.

Contact Details.

Marcus Walsh

Email: marcus@ventilux.co.uk

Tel: 0151 546 4155

Mob: 07542 850 991

