

3.2. Requirements for Central Battery Emergency Lighting

3.2.1. The requirements of Central Battery emergency lighting shall be as per **Table 6.2.**

Table 6.2: Specifications of Central Battery Emergency Lighting

ITEMS	REQUIREMENTS
1. TYPE OF POWER	<ul style="list-style-type: none"> i. The type of power available from central battery systems shall be at least Type 10, Class 1.5, Level 1 in accordance with NFPA 111, Standard on Stored Electrical Energy Emergency and Standby Power Systems. ii. The power System of the central battery system shall be of Type 10 which cut-in within 10 seconds of the failure of the mains. iii. The duration of the back-up of central battery power shall be of Class 3, that is for 3 hours (180 Minutes) iv. Power supply shall be of level 1 category which is installed where failure of the equipment to perform could result in loss of life. (Threat to building Life Safety)
2. BATTERIES	<ul style="list-style-type: none"> i. Batteries shall be central battery systems as follows. <ul style="list-style-type: none"> a. Open-rack type. b. Console or package type. c. a combination of a and b. ii. The (ECE) energy conversion equipment shall be restricted to <ul style="list-style-type: none"> a. UPS (Uninterruptible Power Supply) b. Central Battery System iii. The equipment, ECE, Battery Unit shall be certified by the manufacturer with test certificates, stating the compliance with required output voltages, wave-form, frequency, operating temperature range etc. iv. Operating temperature for indoor unit shall be 10⁰C TO 40⁰C. v. For outdoor units, operating temperature shall be -34⁰C to 50⁰C. (or the maximum forecast outdoor temperature) vi. The ECE shall be designed to function at humidity from 5% to 95%. vii. The ECE shall have the capacity to supply energy for 180 minutes, uninterrupted. viii. Following a full discharge after 180 minutes of full rated operation, ECE shall be capable of automatically resupplying the full rated load and full duration within 48 hours and of resupplying 60% of duration at full rated load within 24 hours. ix. Batteries shall be tested and approved for central battery emergency lighting system.
3. BATTERY ROOM VENTILATION	<ul style="list-style-type: none"> i. Vented batteries, such as nickel cadmium and flat plate lead acid emit potentially explosive gases under charge conditions. Therefore it is important when selecting rooms for emergency lighting central battery systems with these types of battery, to calculate the amount of ventilation (Air Changes per Hour) required. ii. The required number of air changes per hour (A) is given by the following formula: $A = 0.045 \times N \times I \times V$ Where: N = Number of cells in the battery V = Volume of room in cubic meters I = Charge rate in Amperes iii. This formula will give the number of air changes per hour required during boost charge conditions. On float charge (systems are on float charge for most of their service life), the amount of gas emitted is approximately 1.5% of that liberated whilst on boost charge and under most circumstances this will be dissipated by natural ventilation, and will not present a hazard. However, the boost charge condition shall be allowed for at the design stage to ensure the appropriate decision on ventilation requirements is made.