

EMERGENCY AND BACKUP POWER**GENERAL INFORMATION**

- 1.1 Columbia University Facilities supports two separate types of emergency power systems – emergency and optional backup. All Columbia University buildings and spaces shall be connected to an emergency power system as outlined in this section. Systems and equipment requiring backup power that is not legally required (optional backup) are at the discretion of the end user, but are not connected to emergency power systems unless the system has been designed for handling optional loads. Where systems have not been designed to supply optional loads, additional generation may be required – procured as part of the project. Emergency power generation will be operated and maintained by CU Operations.
- 1.2 Emergency power systems shall be designed in accordance with the New York City Building Code, New York City Electrical Code, EPA emissions, and CU Facilities Standards.
- 1.3 Backup power is to be provided on an as-needed basis, and is generally expected to be self-supporting within each specific project.
- 1.4 Systems and devices to be connected to an emergency power source are those that support life safety, and are generally as follows:
 - a. Stair & Exit Lighting, egress illumination, corridor and selected lights in Public Assembly areas.
 - b. Fire Alarm Systems.
 - c. Door Access (Coordinate with CU Public Safety).
 - d. BMS systems.
 - e. IT equipment (Coordinate with CUIT).
 - f. Elevators (3 at a time with manual transfer to others).
 - g. Handicapped lifts.
 - h. Fire and Jockey pumps.
 - i. Sump and Ejector pumps.
 - j. Domestic water pressure booster systems.
 - k. Heating system components to maintain stable building conditions for extended outages.
 - l. BMS air compressors.
 - m. Laboratory fume hoods.
 - n. Exhaust fans for critical ventilation.
 - o. Lighting for electrical and mechanical rooms

- 1.5 Systems and devices that do not support life safety, but are critical to other functions shall be supported by a backup power source, if available. These systems generally include:
- a. Computer facilities
 - b. Server Rooms
 - c. Telecom and CUIT equipment rooms
 - d. UPS systems
 - e. Lab equipment
 - f. Refrigerators
- 1.6 For all projects, emergency power requirements shall be evaluated in relation to the overall Campus Emergency Power Generation Strategy.

DESIGN REQUIREMENTS

- 2.1 At the schematic design phase, the Consultant shall determine 1) the project requirements, and 2) the emergency power capacity existing in the building or available elsewhere on campus. Close coordination with CU Operations is required to connect to any existing emergency power source. Trend metering will be required to justify that sufficient capacity is available on existing generator systems. Consultant's recommendations for emergency and backup power are to be included in the Schematic Design Phase Basis of Design Report.

This requirement for evaluation of the existing system is critical to the ongoing CU emergency power program and may only be waived by CUF Operations and Design & Compliance through the CUF project manager.

- 2.2 New generator systems must be designed based on maximum reliability, longer service intervals, best acoustics, best emissions and ease of maintenance together with adequate capacity to handle future loads. Generator designs shall be in accordance with CU Facilities Standards.
- 2.3 Emergency lighting circuits shall be connected to generator power systems via emergency lighting panels on each floor. If such panels do not exist on a project floor, CU Operations will designate a location for the installation of an emergency power panel to be included in the project scope.

- 2.4 If it is determined during the schematic design phase that there is no emergency power capacity available on existing systems, and there is not a significant quantity of fixtures, battery type units (battery ballasts or battery packs) may be used for individual light fixtures.
- 2.5 Where there is no generator source, and the number of fixtures is significant, a central inverter may be used to centralize the maintenance function to a single system. These systems are costly to operate and maintain and will only be used where specifically approved by CU operations.
- 2.6 All systems and devices connected to emergency and/or backup power shall be commissioned in accordance with CUF commissioning requirements.

REFERENCE

- 3.1 NYCEC Article 700/701, NYCEC Article 702, NYCEC Article 700.10(E), NYCEC Article 695, NFPA 70, NFPA 110.

END OF SECTION