

PERIODIC TESTING OF EMERGENCY AND EXIT LIGHTS

INTRODUCTION

Emergency and exit lights provide illumination for safe exit during power outages. Fermilab has in excess of 4000 emergency lights in 400 + buildings and enclosures. Fermilab uses a testing program to assure proper light function during emergencies.

RESPONSIBILITIES

Divisions/Sections are responsible for assuring that emergency and exit lights in areas for which they have landlord responsibility are tested periodically according to the procedure outlined below.

Emergency lights are to be tested on a monthly and annual basis as described below. Exit lights are to be tested monthly as described below. Those exit lights powered by an Uninterruptible Power Supply (UPS) are to be tested on an annual basis as well.

The Fermilab Fire Department shall perform random tests of emergency lights and exits lights during scheduled fire prevention inspection.

The ESH Fire Protection Engineer shall provide guidance to divisions/sections regarding emergency lights and exit lights and use upon request.

REFERENCE

NFPA 101-7.9, Emergency Lighting National Fire Protection Association 101 Life Safety Code, 2009 edition, Section 7.8 and 7.9.

FESHM 2050 Building Manager Program.

DEFINITIONS

Monthly – Test conducted a minimum of 3 weeks and a maximum of 5 weeks intervals. The nominal interval of testing should be 30-days, however, the minimum of 3 weeks and a maximum of 5 weeks takes into account 31-day months and avoids a testing interval on weekends.

Annual – Test conducted on a yearly basis.

PROCEDURE

1. Tests

- a. *Monthly Tests.* All emergency/exit lights shall be visually tested monthly for at least 30 seconds by activation of the test mechanism, unplugging the unit, or activating the local circuit breaker*. The light passes the test if it emits a plainly visible light for the duration of the test. If the emergency/exit light is a self testing/self diagnostic battery operated unit it shall indicate failures by a status indicator.

**In accordance with FESHM 5040*

- b. *Annual Tests.* All emergency lights (and appropriate exit lights) shall be tested annually by activation of the test mechanism or unplugging the unit for at least 90 minutes, or if self testing/self diagnostic battery operated emergency lighting equipment is provided. The light passes the test if it emits a plainly visible light at the end of the test.
- c. *Exception.* Emergency lighting units located in beamlines generally inaccessible to personnel due to beamline operation are exempted from the requirements of 1.a and 1.b above. Units in such areas shall be tested as follows:
 - (i) Operating Periods (Generally inaccessible to personnel) - no testing required.

- (ii) Shutdown Periods (Generally accessible to qualified personnel), Duration of Less Than 10 Days - no testing required.
- (iii) Shutdown Periods, Duration of 10 Days to 30 Days - one-30 second test during the shutdown period.
- (iv) Shutdown Periods, Duration of 30 Days to 1 Year - one 90 minute test during the shutdown period and 30 second tests at 30 day intervals for the duration of the shutdown period.
- (v) Shutdown Periods, Duration Greater Than 1 Year - follow the requirements of 1.a and 1.b above.

2. Documentation

- a. *Inventories.* Each division/section is responsible for keeping a comprehensive inventory of emergency lights in its areas. Light locations will be recorded in a fashion that allows maintenance personnel to quickly locate the lights.
- b. *Monthly Tests.* A record of each test shall be maintained in one of two ways:
 - (i) An *Emergency Light Inspection Record* tag attached to each light and filled in after each test (the inspection tags are available from the ES&H Section), or
 - (ii) A division/section central record showing the date of each test, the tester's initials, and a mark denoting either *pass* or *fail*. The tester can also include the use of an automated system which records the tested units unique identification number, testers ID number, time and date of test, test results, and any comments of problems found.
- c. *Annual Tests.* Each annual test shall be documented in the same fashion as the monthly test. Card replacement shall occur at the time of the annual test.

- d. *Archives.* All used emergency light cards or records shall be kept in an auditable fashion by the division/section for a period of three years.

3. Repair

Requests for light repair/alteration/replacement should be placed with Facilities Engineering Services Section through Work Central, x-3434. Lights should be repaired, altered or replaced as follows:

- a. *Test Failure.* If a light fails any test, it should be promptly repaired or replaced as needed.
- b. *Lack of Convenient Means of Testing.* An emergency light lacking both a test button and an external plug/socket combination should be altered or replaced.
- c. *Inconvenient Light Placement.* Emergency lights mounted out of reach should have their testing mechanisms (i.e., test buttons and/or wall sockets) lowered to facilitate testing.