Designation: E2030 – 09a

An American National Standard

Standard Guide for Recommended Uses of Photoluminescent (Phosphorescent) Safety Markings[1]

This standard is issued under the fixed designation E2030; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This guide describes recommended uses and information on installation of photoluminescent safety markings. This guide does not establish a standard practice to follow. Required markings shall be installed in accordance with applicable building codes.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E284 Terminology of Appearance

E2072 Specification for Photoluminescent (Phosphorescent) Safety Markings

E2238 Guide for Evacuation Route Diagrams

2.2 *ICC/ANSI Standard:*[3]

ICC/ANSI A117.1 Standard on Accessible and Usable Buildings and Facilities

3. Terminology

3.1 Definitions of terms in Terminology E284 are applicable to this guide.

4. Significance and Use

4.1 Photoluminescent safety markings may be used to indicate the direction of the means of egress (escape route).

NOTE 1—Specification E2072 covers photometric requirements for photoluminescent (phosphorescent) safety materials.

4.2 Photoluminescent safety markings can be divided into the following categories:

4.2.1 *Floor Mounted Markings*—These markings include floor tiles, stair treads, stair nosings, floor inserts, tactile warning strips, coatings, epoxy casting resins, and other markings attached to the floor.

4.2.2 *Wall Mounted Markings*—These markings include coatings, wall bases, tapes, corner guards, signage, evacuation route diagrams, guidance strips, and other markings attached to walls, doors, handrails, columns, and other obstructions.

5. Recommended Applications

5.1 *Floor Proximity Egress Path Marking*—This provides a continuous delineation of the means of egress (escape route) from the occupied area to any exit doors that lead directly to the public way, except as interrupted by intersecting corridors. Floor proximity egress path markings should be at least 4-in. (100-mm) wide in all locations. If narrower widths are used, the luminance shall increase, as indicated in Specification E2072, section on Installation Site, On-Site Luminance. Floor proximity egress path markings should be applied to the floor surface or installed on the wall, close to the floor (see Figs. 1-5).

5.2 *Continuous Wall and Floor Markings in Corridors:*

5.2.1 Corridors 78¾-in. (2000-mm) or wider should be marked on both sides.

5.2.2 In dead end corridors only, the direction of travel should be indicated by directional indicators pointing in the direction of the means of egress (escape route). The maximum spacing between the individual directional indicators should be 39⅜-in. (1000-mm).

5.3 *Marking of Exit Doors and Emergency Exits*—Exit doors and emergency exits in the course of the egress path should be marked with high and floor proximity exit signs. On fire rated doors, the floor proximity exit sign should be placed

[1] This guide is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.13 on Photoluminescent Safety Markings.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from International Code Council (ICC), 500 New Jersey Ave., NW, 6th Floor, Washington, DC 20001-2070, http://www.iccsafe.org.

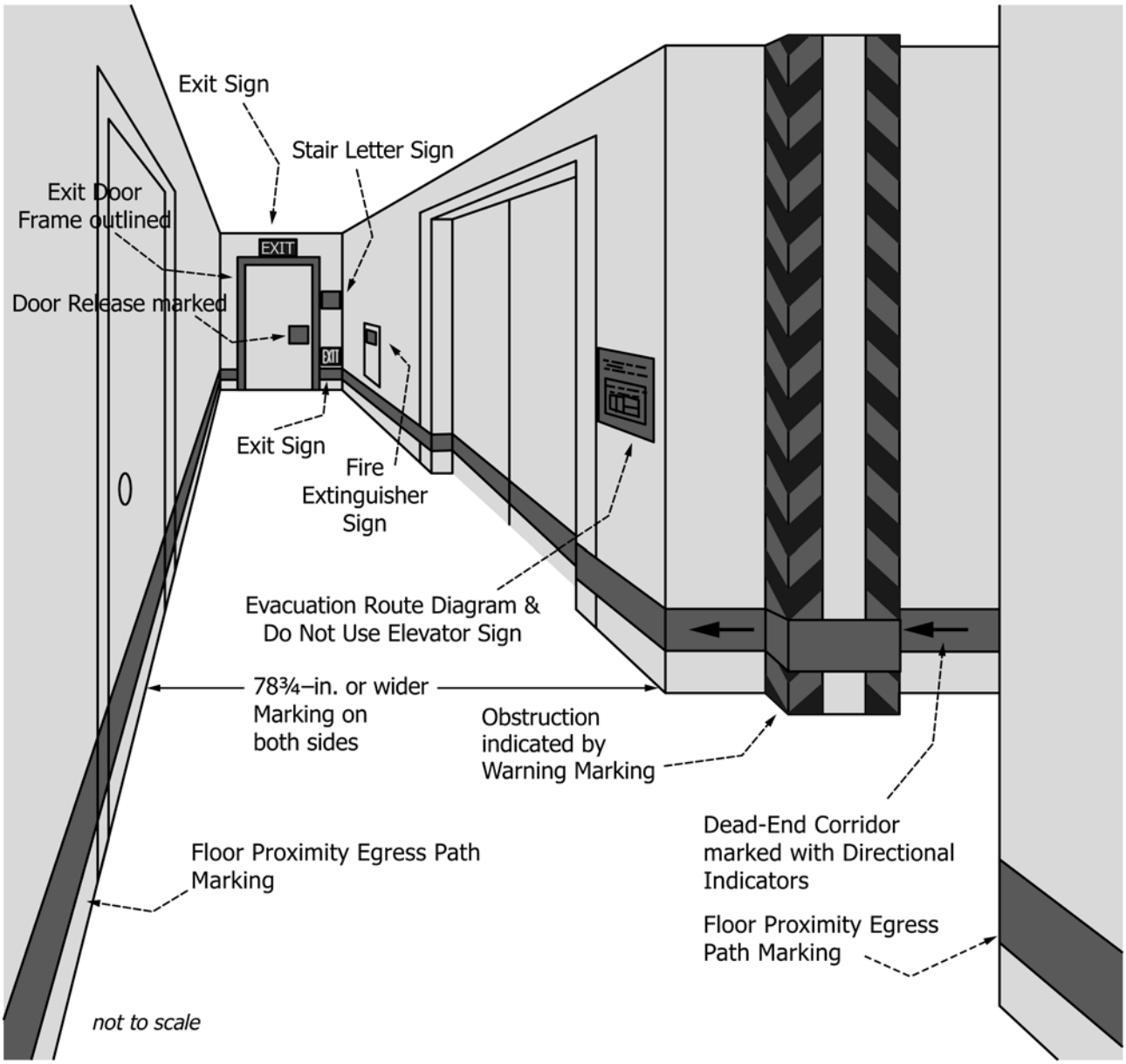

FIG. 1 Corridor Markings

next to the door with the nearest edge of the sign within 4-in. (100-mm) of the door frame with the bottom of the sign not less than 6-in. (150-mm), but not more than 18-in. (455-mm), above the floor. On non-fire rated doors, exit signs can be mounted directly on the door with the bottom of the sign not less than 6-in. (150-mm), but not more than 18-in. (455-mm), above the floor. Such doors should also either be marked all around by highlighting their entire frames or by leading the floor-proximity egress path marking up to the level of the door handle on the side of the door where the handle is located (see Figs. 1-3). To aid in locating the door release, its knob/lever/handle/latch/bar and other operating devices should be marked by placing photoluminescent material behind it or on it (see Fig. 2 and Fig. 3).

5.3.1 Doors inside an enclosed exit stairway that do not allow re-entry into the building should be marked by photoluminescent material connecting the wall markings at the same height (see Fig. 4 and Fig. 5).

5.4 *Marking of Stairs and Ramps*—Photoluminescent markings on stairs, ramps, and landings should clearly indicate their beginning, course, and end. Markings should be applied to the tread, the landing, and, where present, to the side(s) of the stairs (see Fig. 4 and Fig. 5).

5.5 *Handrails* should be marked as part of the exit guidance process. The marking should be a solid and continuous stripe having a minimum width of 1 in. (25 mm) on the top surface of the handrail for the entire length of the handrail (see Fig. 4 and Fig. 5).

5.6 *Obstacles, Protrusions and Other Hazards* should be identified with photoluminescent warning markings to be clearly visible in a blackout condition (see Fig. 1).

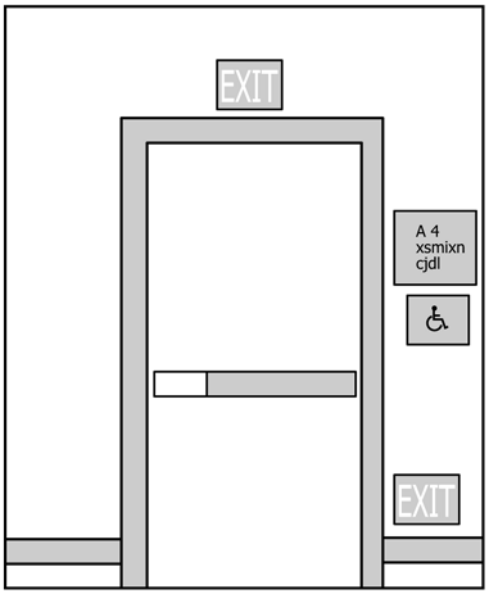

FIG. 2 Floor Proximity Exit Sign Mounted Adjacent to Fire Rated Exit Door

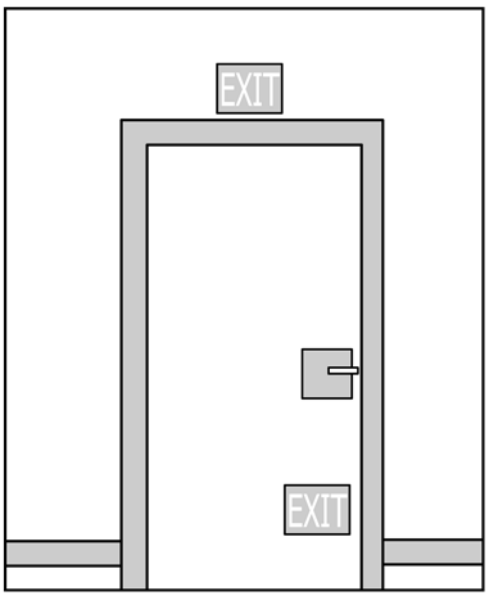

FIG. 3 Floor Proximity Exit Sign Mounted on Non-fire Rated Exit Door

5.7 *Fire Fighting Equipment* should be marked by a sign (for example, hose station) or by placing photoluminescent material behind it (for example, a fire extinguisher) to aid in finding such equipment in darkness situations (see Figs. 1-5).

5.8 *Evacuation Route Diagrams* should be provided on each floor, located next to the elevators that do not serve as a means of egress, if present, or in the corridors, if no elevators are present (see Fig. 1, Fig. 6, and Fig. 7, Fig. 8, and Fig. 9).

5.9 At any exit door leading to a stair, a sign should be provided that identifies the stair (see Fig. 1 and Fig. 10).

5.10 In enclosed stairs, a stairway identification sign (see Fig. 11) should be provided on each floor landing that identifies the following (see Fig. 4, Fig. 5 and Fig. 7).

(A) The stair enclosure—The stairway identification letter should be located at the top of the sign in minimum 1-in. (25-mm) high lettering.

(B) The floor level—The floor level number should be located in the middle of the sign in minimum 5-in. (125-mm) high numbers. Mezzanine levels should have the letter “M” or other appropriate identification letter preceding the floor number, while basement levels should have the letter “B” or other appropriate identification letter preceding the floor level number. The floor level designation should also be tactile in accordance with ICC/ANSI A117.1 Standard on Accessible and Usable Buildings and Facilities.

(C) The signage should indicate the terminus of the top and bottom of the stair enclosure. Identification of the lower and upper terminus of the stairway should be located at the bottom of the sign in minimum 1-in. (25-mm) high letters or numbers and should be in accordance with the visual character requirements of ICC/ANSI A117.1.

(D) The signage should indicate the floor level of, and the direction to, exit discharge.

(E) The signage should be located inside the enclosure approximately 60-in. (1525-mm) above the floor landing in a position that is visible when the door is in the open or closed position.

(F) The signage should comply with the visual character and background requirements of ICC/ANSI A117.1.

(G) Roof access or the lack thereof should be designated by a sign that reads ROOF ACCESS or NO ROOF ACCESS and located under the stairway identification letter. Lettering should be a minimum of 1-in. (25-mm) high and should be in accordance with the visual character requirements of ICC/ANSI A117.1.

5.11 *Exit Signs*—High and floor proximity photoluminescent exit signs may be used. Exit signs should be listed in accordance with UL924, Standard for Emergency Lighting and Power Equipment (see Figs. 1-3)(Fig. 12).

6. Keywords

6.1 low location lighting; photoluminescent safety markings; emergency lighting

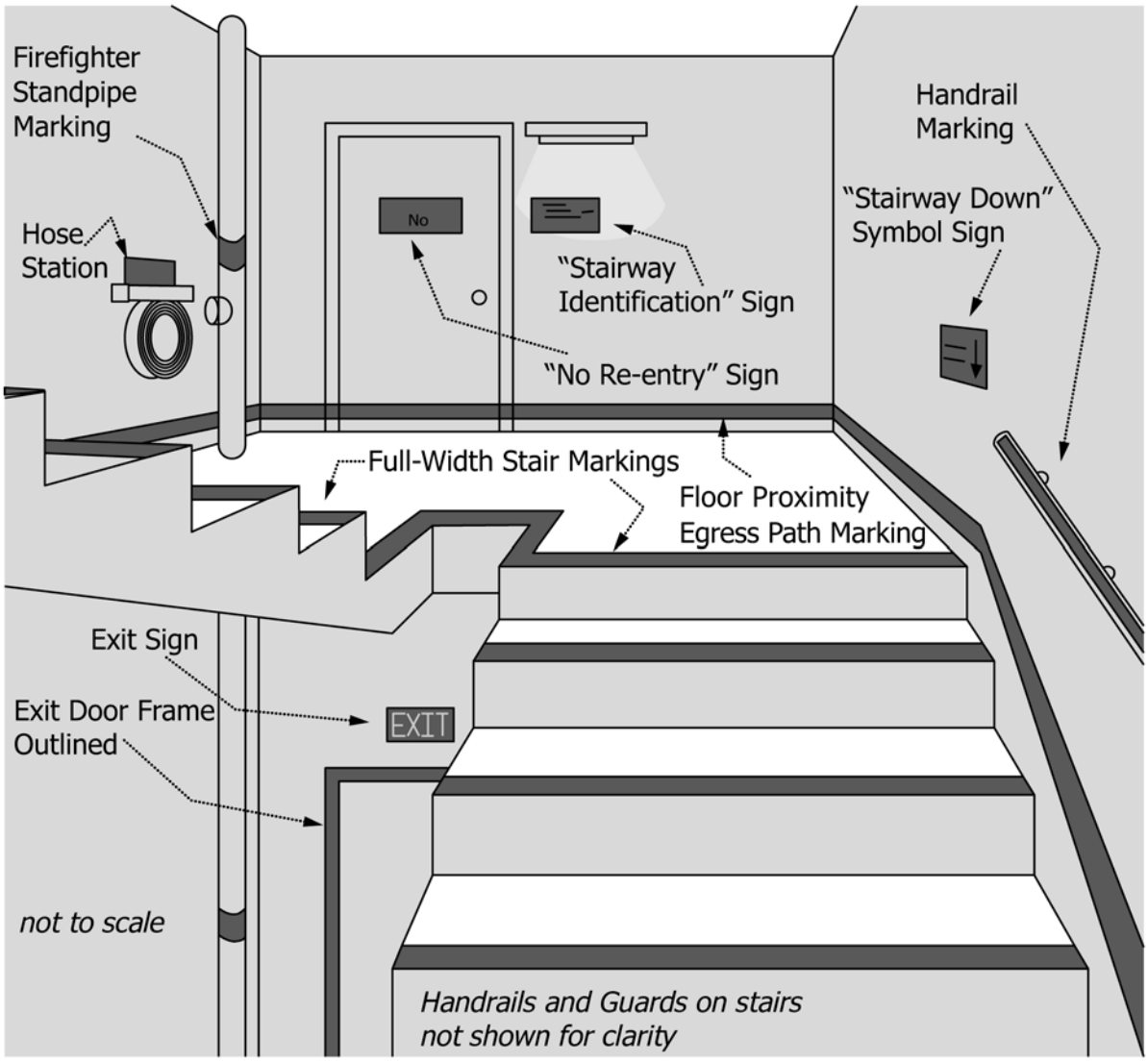

FIG. 4 Wall and Floor Markings in an Enclosed Stairway

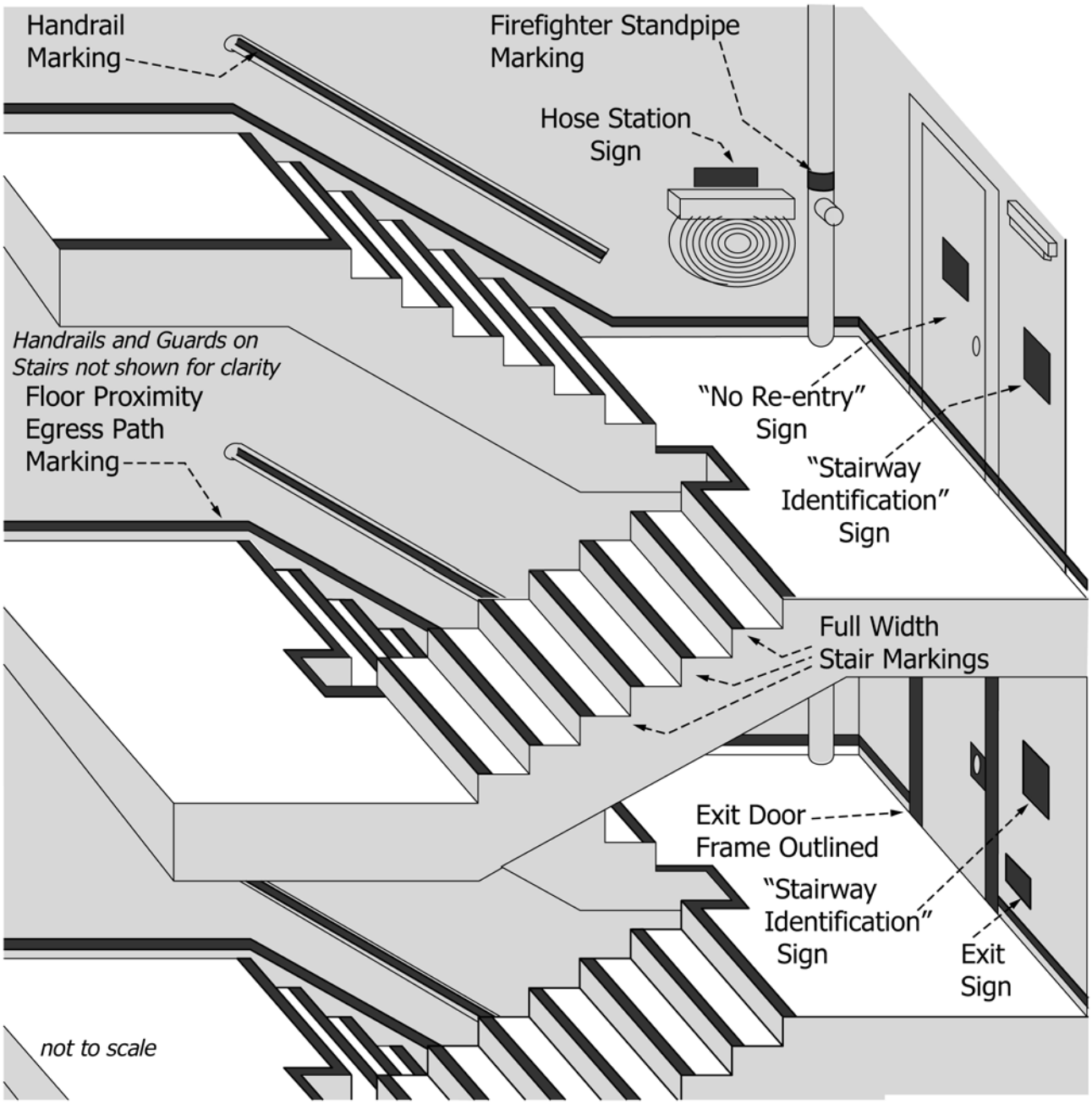

FIG. 5 Stair Markings in an Enclosed Exit Stairway

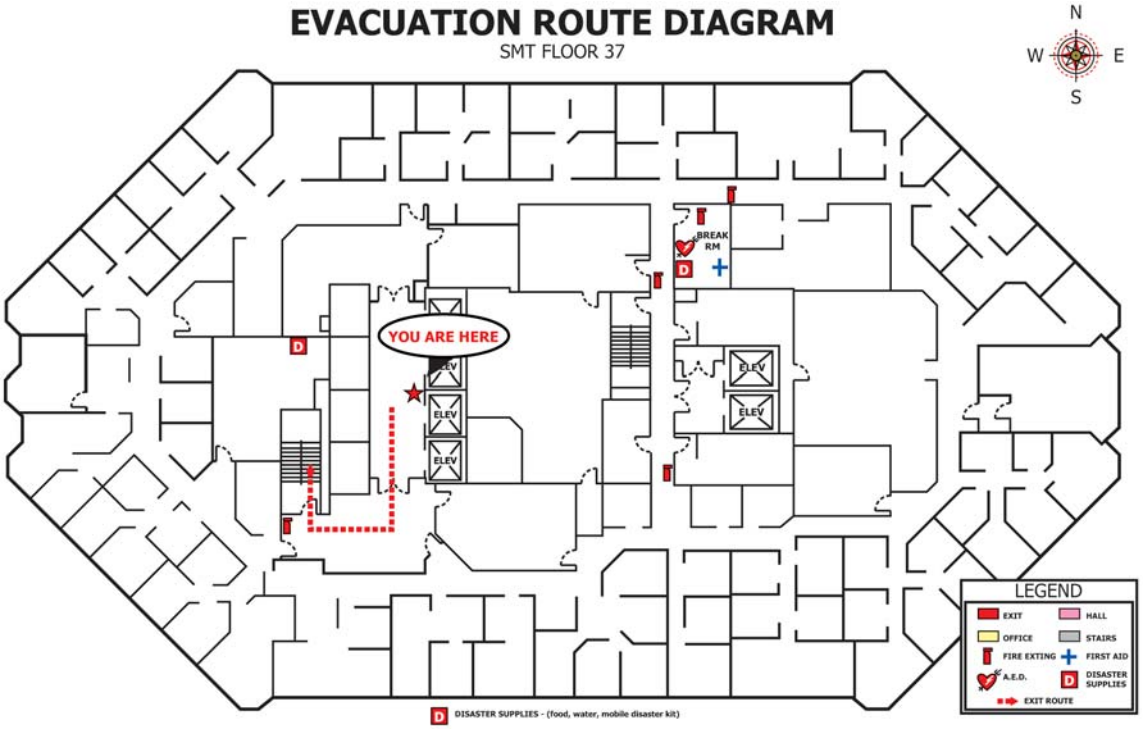

FIG. 6 Evacuation Route Diagram

No Re-entry on this Floor.
Nearest Re-entry on the
4th and 8th Floors

FIG. 7 No Re-entry Sign

ELEVATOR –
USABLE IN
EMERGENCIES

FIG. 8 Usable Elevator Sign where Elevators are Part of Means of Egress

FIG. 9 Do Not Use Elevator Sign

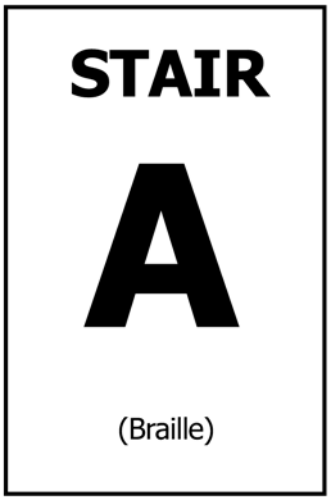

FIG. 10 Identification Sign for Stairs

FIG. 11 Stairway Identification Sign

FIG. 12 Area of Refuge Sign

APPENDIX

(Nonmandatory Information)

X1. RELATED INFORMATION

X1.1 Further information on photoluminescent markings can be found in the following materials:

DIN 67510 Parts 1-4, Beuth Verlag GmbH, 10772 Berlin, Germany, http://www.en.din.de

IBC International Building Code, available from International Code Council, http://www.iccsafe.org

IMO Resolution A.752(18), available from International Maritime Organization, Publications Section, 4 Albert Embankment, London SE1 7SR, England

ISO 15370 Ships and Marine Technology: Low-Location Lighting on passenger ships, available from International Organization for Standardization, http://www.iso.org

ISO 16069 Graphical Symbols, Safety Signs, Safety Way Guidance Systems (SWGS), available from International Organization for Standardization, http://www.iso.org

ISO 17398 Safety colours and safety signs, Classification, performance and durability of safety signs, available from International Organization for Standardization, http://www.iso.org

JIS-Z9107, available from Japanese Standards Association, 1- 24, Akasaka 4, Minato-ku, Tokyo 107, Japan

MSC62/QP.17, Maritime Safety Committee of IMO

NFPA 101 Life Safety Code, available from National Fire Protection Association, http://www.nfpa.org

NFPA 170 Standard for Fire Safety and Emergency Symbols, available from National Fire Protection Association, http://www.nfpa.org

PSPA Standard 002 Part 2, 1993, PSPA, United Kingdom, http://www.pspa.org.

UL 924 and UL 1994 (Underwriters Laboratories standards, available from Global Engineering Documents, Boulder, Colorado)