

NFPA® 170

Standard for Fire Safety and Emergency Symbols

2024 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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NFPA® 170

Standard for

Fire Safety and Emergency Symbols

2024 Edition

This edition of NFPA 170, *Standard for Fire Safety and Emergency Symbols*, was prepared by the Technical Committee on Fire Safety and Emergency Symbols. It was issued by the Standards Council on May 25, 2023, with an effective date of June 14, 2023, and supersedes all previous editions.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See “Codes & Standards” at www.nfpa.org for more information.

This edition of NFPA 170 was approved as an American National Standard on June 14, 2023.

Origin and Development of NFPA 170

The 1994 edition of NFPA 170 represented the completion of an effort to combine four previously separate documents that covered fire safety symbols for different purposes. These documents were the following:

1. NFPA 171, *Public Firesafety Symbols*
2. NFPA 172, *Fire Protection Symbols for Architectural and Engineering Drawings*
3. NFPA 174, *Fire Protection Symbols for Risk Analysis Diagrams*
4. NFPA 178, *Symbols for Fire Fighting Operations*

The Technical Committee on Fire Safety Symbols believed that placing all the fire safety symbols in one document would make it easier for users of symbols to find the one(s) most appropriate for their application. The consolidation also eliminated duplication between these and eventually other NFPA documents.

The first edition of NFPA 170, released in 1991, placed these four documents in one document but did not combine them, except for the definitions that were in multiple documents.

For the second edition of NFPA 170, released in 1994, the Technical Committee on Fire Safety Symbols completely restructured the text into a logical and cohesive arrangement. The duplication of symbols that occurred during the aforementioned consolidation of documents was eliminated. New symbols added included those for campfire prohibitions, smoke barriers, illuminated exit signs, and belowground tanks.

For the 1996 edition of NFPA 170, changes included the following: (1) Upgrading recommendations on preincident planning to requirements; (2) Adding new symbols for pull station, area of refuge, and cooking prohibition; (3) Clarifying the symbols for smoke detectors, battery-powered emergency lights, and fire service/emergency telephone station; and (4) Recognizing the phaseout of Halon and the introduction of clean agents.

The 1999 edition further recognized the introduction of clean agents by adding new symbols for clean agent and water mist systems. A new appendix (Appendix C) was added to include symbols that can be used for life safety planning.

The 2002 edition was reformatted to conform to the *Manual of Style for NFPA Technical Committee Documents*. Symbols for fire alarm system components were added for consistency with NFPA 72®, *National Fire Alarm and Signaling Code*®.

In 2004, the scope of the committee was expanded to include emergency symbols to allow emergency mapping symbols to be added in a new Chapter 8.

The 2006 edition of NFPA 170 included the refinement of exit symbology for better recognition of exit, arrow, and flame symbols for consistency with international standards.

A new Chapter 8, Symbolology for Emergency Management Mapping, was added to assist the user in the preparation for, prevention of, protection against, response to, and recovery from threats to the nation's population centers and critical infrastructure from terrorist, criminal, accidental, or natural sources.

The symbols in Chapter 8 were the result of efforts by the Federal Geographic Data Committee — Homeland Security Working Group. The symbols were included in the 2006 edition so that they could be processed through an accredited standards-writing organization and made available to the public.

The 2009 edition of NFPA 170 included a new chapter (Chapter 9) that provided guidance on the development of emergency evacuation diagrams and plans.

The 2012 edition of NFPA 170 included a new Chapter 7 and a new Chapter 8 made up of information previously contained in the old Chapter 6. This affected symbol details for devices such as fire alarms, fire sprinklers, electronic fire and smoke detection systems, and so forth. This was done to better organize existing symbols in the standard for the user.

The 2015 edition revised several symbols for consistency and clarity. For example, “wisp of smoke” was replaced by an “S” to simplify the symbol when viewed on plans. Many tables were reorganized for clarity and ease of use as well.

In the 2018 edition, the tornado symbol was added, and several references were updated. The term *smoke barrier* was changed to *smoke rated*, and the term *fire barrier* was changed to *fire rated*. More details were added to the symbols for a fire department connection. In addition, a distinction was made between water-driven and electric-driven water flow alarms.

The 2021 edition of NFPA 170 included a new symbol for dry hydrants/drafting ports to illustrate the significant distinction between hydrants connected to a pressurized water system and hydrants connected to a static source of water. In addition, signage for fire station apparatus bay doors was addressed and new tables were created for fire pump type symbols and fire pump device symbols. Lastly, a symbol for a radio communication enhancement system was added to be consistent with its use other codes.

The 2024 edition of NFPA included new symbols for hybrid (water and inert) fire-extinguishing systems that is part of a new NFPA standard, NFPA 770, *Hybrid Extinguishing Systems*. Other new symbols including oxygen and fuel gas detectors as well as new symbols in for piping, valves, control devices and hangers were added. A new table of symbols for Emergency Communication Radio Enhancement Systems (ERCRES) was added. This new table consolidated symbols related to ERCRES throughout the standard into a single easily accessible table.

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Committee Scope: This Committee shall have primary responsibility for documents on fire safety and emergency symbols including those for building design plans, investigation diagrams, maps, and for public fire safety and emergency. It shall coordinate its work with NFPA technical committees and other groups dealing with subjects to which fire safety symbols apply.

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NFPA 170

Standard for

Fire Safety and Emergency Symbols

2024 Edition

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced and extracted publications can be found in Chapter 2 and Annex E.

Chapter 1 Administration

1.1 Scope. This standard presents symbols used for fire safety, emergency, and associated hazards.

1.2 Purpose. The purpose of this standard is to standardize the symbols used in representing fire safety, emergency, and associated hazards.

1.3 Retroactivity. The provisions of this standard reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this standard at the time the standard was issued.

1.3.1 Unless otherwise specified, the provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard shall be retroactive.

1.3.2 In those cases where the authority having jurisdiction determines that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permit-

ted to apply retroactively any portions of this standard deemed appropriate.

1.3.3 The retroactive requirements of this standard shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction, and only where it is clearly evident that a reasonable degree of safety is provided.

1.4 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard.

1.4.1 Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

1.4.2 The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.

1.5 Units. Metric units of measurement used in this standard shall be in accordance with the International System of Units (SI). One unit (liter), outside of but recognized by SI, is commonly used in international fire protection. For conversion factors, see Table 1.5.

Table 1.5 Metric Conversion Factors

Name of Unit	Unit Symbol	Conversion Factor
Liter	L	1 gal = 3.785 L
Cubic decimeter	dm ³	1 gal = 3.785 dm ³
Pascal	Pa	1 psi = 6894.757 Pa
Meter	m	1 ft = 0.3048 m
Millimeter	mm	1 in. = 25.4 mm

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2022 edition.

2.3 Other Publications.

2.3.1 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 4th Floor, New York, NY 10036.

ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities*, 2017.

ANSI Z535.1, *American National Standard for Safety Colors*, 2017.

2.3.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM E2072, *Standard Specification for Photoluminescent (Phosphorescent) Safety Markings*, 2014.

ASTM E2073, *Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings*, 2019.

2.3.3 FAMA Publications. Fire Apparatus Manufacturers Association, P.O. Box 397, Lynnfield, MA 01940.

FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*, 2012, revised 2015.

2.3.4 NECA Publications. National Electrical Contractors Association, 3 Bethesda Metro Center, Suite 1100, Bethesda, MD 20814.

NECA NEIS 100, *Symbols for Electrical Construction Drawings*, 2013.

2.3.5 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

UL 325, *Door, Drapery, Gate, Louver, and Window Operators and Systems*, 2020.

UL 924, *Emergency Lighting and Power Equipment*, 2016, revised 2020.

UL 1994, *Luminous Egress Path Marking Systems*, 2020.

2.3.6 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2020.

2.4 References for Extracts in Mandatory Sections.

NFPA 10, *Standard for Portable Fire Extinguishers*, 2022 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates

compliance with appropriate standards or performance in a specified manner.

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

3.2.6 Should. Indicates a recommendation or that which is advised but not required.

Δ 3.2.7 Standard. An NFPA standard, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and that is in a form suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA manuals of style. When used in a generic sense, such as in the phrases “standards development process” or “standards development activities,” the term “standards” includes all NFPA standards, including codes, standards, recommended practices, and guides.

3.3 General Definitions.

3.3.1 Photoluminescent. Having the property of emitting light that continues for a length of time after excitation by visible or invisible light has been removed. [UL 924:Section 4.42]

3.3.2 Preincident Planning. A written document resulting from the gathering of general and detailed information/data to be used by public emergency response agencies and private industry for determining the response to reasonable anticipated emergency incidents at a specific facility.

3.3.3* Referent. An object or concept (message) represented by a symbol.

3.3.4 Self-Luminous Exit Sign. A sign with an integral legend that is powered continuously by a self-contained energy source other than a battery, such as radioactive tritium gas. Operation of a self-luminous sign is independent of external power supplies or other external forms of energy. This definition does not include exit signs dependent upon photoluminescent materials. [UL 924:Section 4.52]

3.3.5* Supplementary Indicators. Figures, numbers, subscripts, or letter abbreviations used to enhance the effectiveness of symbols.

3.3.6* Symbol. A graphic representation of a referent.

Chapter 4 Symbols for General Use

4.1 Introduction.

4.1.1 This chapter presents general referents and symbols for fire prevention and visual alerting that shall be used for fire and related life safety emergencies.

4.1.2 Purpose.

4.1.2.1 This chapter shall provide uniform fire safety symbols to improve communication wherever signs and symbols are employed to provide fire safety information.

4.1.2.2 This chapter provides uniformity in the selection of symbols that shall be designed to assist in locating exits, fire safety alerting equipment, and safe areas.

4.1.2.3* The fundamental imagery for symbols, as well as their background color and shape, shall be designated in this chapter.

4.1.3* Symbol Presentation.

4.1.3.1 The orientation for prohibition symbols shall not be altered from that shown in this chapter.

4.1.3.2 The symbol background shape shall be as specified in Table 4.2.

4.1.3.2.1* For prohibition symbols, a circle and diagonal slash (at 45 degrees from upper left to lower right) shall be used.


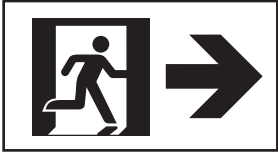





4.1.3.3 The symbol color shall meet the requirements of ANSI Z535.1, *American National Standard for Safety Colors*.

4.1.3.4* Symbols shall be permitted to be used in combination with other symbols, either vertically or horizontally, on the same sign or on separate signs adjacent to each other.

4.2* Symbols for General Use. The symbols for general use shall be as given in Table 4.2.

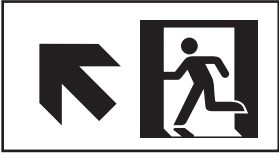



4.3 Class of Fire Symbols. The symbols for class of fire shall be as given in Figure 4.3(a) and Figure 4.3(b).

Table 4.2 Symbols for General Use

Symbol	Characteristics	Application	Example
Emergency Exit 	Square field Background green Door opening white Image in green	The identification and location of an emergency exit	The location of exit for use in a fire emergency
Emergency Exit Use of Arrows — Rectangular Field 	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress to the right
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress up and to the right
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress down and to the right
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress forward
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress down
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress to the left






(continues)

Table 4.2 *Continued*

Symbol	Characteristics	Application	Example
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress up and to the left
	Painted version: Background color white Arrows red or black Backlit version: Doorway, arrows, and lettering in green or red	The identification and location of a route to an emergency exit	Progress down and to the left
Emergency Exit Route (Combination of Two Symbols) 	Square field Background green Door opening white Image in green For arrows: Square field Green arrow on white background or white arrow on green background	The identification and location of a route to be used in an emergency	The direction to a fire exit
Accessible Emergency Exit (Combination of Two Symbols) 	Square field Background green Door opening white Image in green International symbol of accessibility per ICC/ANSI A117.1, <i>Accessible and Usable Buildings and Facilities</i>	The identification of a route that leads to an emergency exit that is accessible to disabled users, as specified by ICC/ANSI A117.1, <i>Accessible and Usable Buildings and Facilities</i>	The location of a route toward a fire exit that is accessible to disabled users







(continues)

Table 4.2 Continued

Symbol	Characteristics	Application	Example
Accessible Emergency Exit Route (Combination of Three Symbols) 	Square field Background green Door opening white Image in green International symbol of accessibility per ICC/ANSI A117.1, <i>Accessible and Usable Buildings and Facilities</i> For arrows: Square field Green arrow on white background or white arrow on green background	The identification of a route that leads to an emergency exit that is accessible to disabled users	The location of the route toward a fire exit that is accessible to disabled users
Not an Exit 	Circular field Red prohibition symbol Background white Door frame green Door opening white Image in black	The identification of doors that do NOT lead to an exit	The location of an interior door such as one leading to a closet, an interior courtyard, or a basement
Use Stairs in Case of Fire 	Square field Red flame Black figure White background	An instruction to the user to use stairs (downward egress) in case of fire	The identification that stairs are to be used in case of fire
Use Stairs in Case of Fire 	Square field Red flame Black figure White background	An instruction to the user to use stairs (upward egress) in case of fire	The identification that stairs are to be used in case of fire
Do Not Use Elevator in Case of Fire 	Rectangular field Red flame Black figures White background Red circle and slash	An instruction not to use elevators in case of fire	Posted near elevator call button

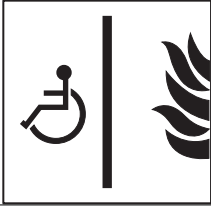





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Table 4.2 *Continued*

Symbol	Characteristics	Application	Example
No Open Flame — Flame 	Circular field Red circle and slash Black image White background	The identification of areas in which open flame is prohibited	The identification of areas, such as combustible storage areas, gas stations, and hazardous areas
No Open Flame — Lighted Match 	Circular field Red circle and slash Black image White background	An instruction not to use lighted matches	Where posted, the use of matches is prohibited
No Smoking 	Circular field Red circle and slash Black image White background	The identification of areas in which smoking is prohibited	The identification of areas, such as those for flammable liquid storage, where smoking could lead to fire or explosion
No Campfires 	Circular field Red circle and slash Black image White background	The identification of areas where campfires are not permitted	The identification of areas, such as municipal parks, where campfires are not permitted
Manual Station — Pull Station/Fire Alarm Box 	Rectangular field Red background White flame White hand White box White horn	An instruction to actuate an alarm-initiating device in a fire emergency	Posted above a manually activated initiating device
No Cooking 	Square field White background Red flame Black pot and steam Red circle and slash	An instruction not to cook food in an area	Posted inside a guest room in a hotel or a student room in a college dormitory

(continues)

Table 4.2 Continued

Symbol	Characteristics	Application	Example
Area of Refuge 	Square field White background Red flame	The identification of an area of refuge	A designated area of refuge to be used in a fire emergency
Severe Weather Shelter Area 	Background yellow Figures black Black storm symbol	The identification for a severe weather shelter. Include appropriate symbol for type of storm anticipated (e.g., cyclone, tornado)	Tornado shelter
No Hanger 	Red circle and slash Black image	To prohibit hanging clothes or other items from sprinklers	Where posted
Automated External Defibrillator (AED) 	Square field White background Red heart White bolt through the heart Black lettering	To identify the location of AEDs	Posted in airports and other places of assembly
Fire Extinguisher 	Square field Red background White symbol	For everyday use in workplaces and public areas; supplementary text sign can be used to increase comprehension	Fire safety signage, manuals, and notices
Fire Hose or Standpipe 	Square field Red background White symbol	For everyday use in workplaces and public areas; supplementary text sign can be used to increase comprehension	Fire safety signage, manuals, and notices

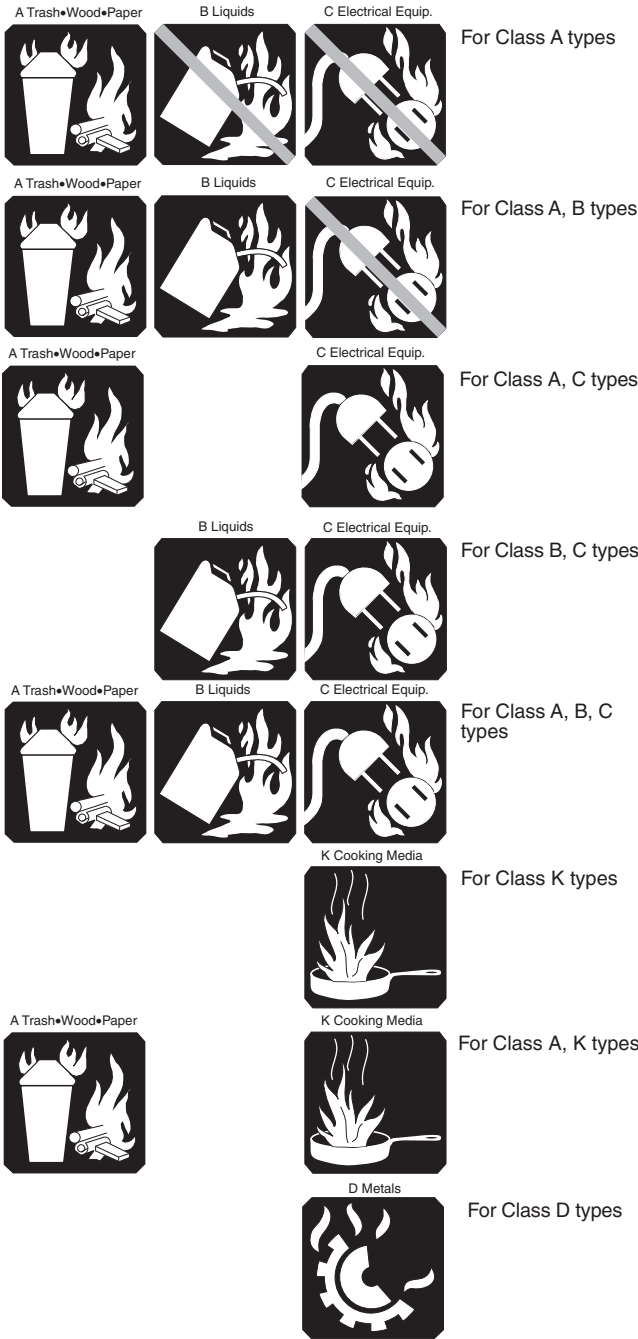
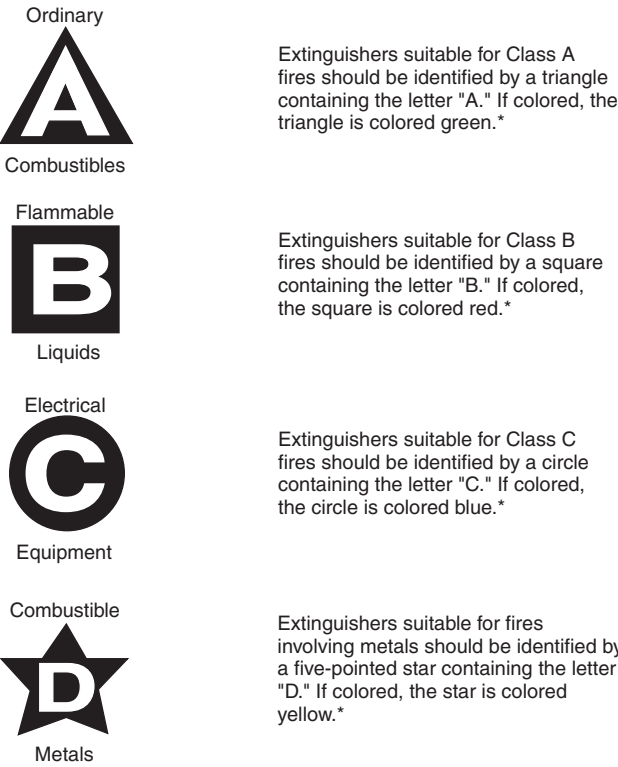


FIGURE 4.3(a) Recommended Marking System. [10:Figure B.1.1]



* Recommended colors, per PMS (Pantone Matching System) include the following:
GREEN — Basic Green
RED — 192 Red
BLUE — Process Blue
YELLOW — Basic Yellow

FIGURE 4.3(b) Letter-Shaped Symbol Markings. [10:Figure B.2.2]

Chapter 5 Symbols for Use by the Fire Service

5.1 Introduction.

5.1.1* This chapter presents standard referents and symbols that shall be used for visually alerting firefighters and other emergency responders during fire and related emergencies.

5.1.2* Fundamental shapes of symbols, as well as the background color and shape, shall be as designated in this chapter.

5.1.3* Symbol Presentation.

5.1.3.1* **Symbol Shapes.** The shape of symbols shall be as illustrated in Section 5.2.

5.1.3.2 Symbol Background.

5.1.3.2.1 The symbol background shall be as specified in Table 5.2.

5.1.3.2.2 The symbol background color shall be red, white, or blue as designated and shall meet the requirements of ANSI Z535.1, *American National Standard for Safety Colors*, for safety red, white, or blue.

5.1.3.3 Symbol Color. The symbol color shall be safety white or blue and shall meet the requirements of ANSI Z535.1, *American National Standard for Safety Colors*, for safety white or blue.

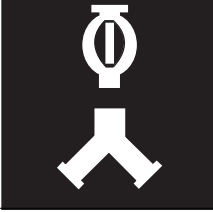

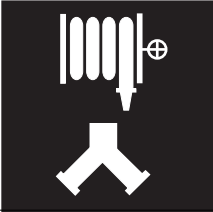


5.1.3.4 Symbol Orientation. Symbol orientation shall not be altered from that shown in this chapter.

5.2* Symbols for Use by the Fire Service. The symbols for use by the fire service shall be as given in Table 5.2.

5.3 Fire Apparatus Safety Symbols. Safety signs referenced in this standard beginning with the letters FAMA shall conform to the text and graphics of the referenced safety sign number found in FAMA TC010, *Standard Product Safety Sign Catalog for Automotive Fire Apparatus*.



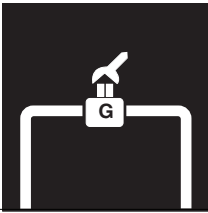
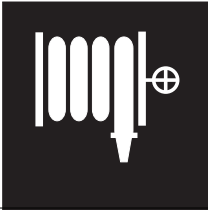


5.4 Fire Station Apparatus Bay Door Safety Signage and Symbols. Safety signage provided for fire station apparatus bay door areas for warning of entrapment and injury for occupants shall be in accordance with Section 62.2 and Figure 62.1 of UL 325, *Door, Drapery, Gate, Louver, and Window Operators and Systems*.

Table 5.2 Symbols for Use by the Fire Service

Symbol	Characteristics	Application	Examples
Fire Department Automatic Sprinkler Connection — Siamese 	Square field Red background White symbol	The identification and location of a fire department automatic sprinkler connection	The location of a siamese automatic sprinkler connections on buildings The location of siamese freestanding automatic sprinkler connections
Fire Department Automatic Sprinkler Connection — Single 	Square field Red background White symbol	The identification and location of a fire department automatic sprinkler connection	The location of a single automatic sprinkler connection on buildings The location of a single freestanding automatic sprinkler connection
Fire Department Standpipe Connection 	Square field Red background White symbol	The identification and location of a fire department standpipe connection	The location of standpipe connections on buildings and structures The location of freestanding standpipe connections
Fire Department Combined Automatic Sprinkler/Standpipe Connection 	Square field Red background White symbol	The identification and location of a fire department combined automatic sprinkler/standpipe connection	The location of combined sprinkler/standpipe connections on buildings The location of freestanding combined sprinkler/standpipe connections
Fire Hydrant (All Types) 	Square field Red background White symbol	The identification and location of a fire hydrant	The location of fire hydrants, wall hydrants, underground hydrants, or other firefighting water supplies


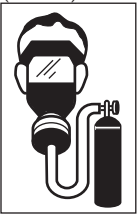
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Table 5.2 *Continued*

Symbol	Characteristics	Application	Examples
Automatic Sprinkler Control Valve 	Square field Red background White symbol	The identification and location of an automatic sprinkler control valve	The location of control valves for automatic sprinkler systems On doors of rooms containing control valves
Electric Panel or Electric Shutoff 	Square field Blue background White symbol	The identification and location of an electrical panel or other electric shutoff device	The location of electric panels or other electric control devices that can be located in basements or mechanical rooms
Gas Shutoff Valve 	Square field Red background White symbol Red letter G	The location of a gas shutoff valve	The location of gas shutoff valves On doors of rooms containing gas shutoff valves
Firefighting Hose or Standpipe Outlet 	Square field Red background White symbol	The location of a firefighting hose or a standpipe outlet	The location of interior firefighting hose stations and standpipe outlets in buildings and structures The location on bridges or elevated highways
Fire Extinguisher 	Square field Red background White symbol	The location of a fire extinguisher	The location of fire extinguishers in buildings and exterior locations
Directional Arrow 	Square field Background to correspond to accompanying sign White symbol	Direction to the location of firefighting equipment or utility; always used in conjunction with, and adjacent to, another symbol indicating the particular equipment or utility	

(continues)

Table 5.2 *Continued*

Symbol	Characteristics	Application	Examples
Diagonal Directional Arrow 	Square field Background to correspond to accompanying sign White symbol	Direction to the location of firefighting equipment or utility; always used in conjunction with, and adjacent to, another symbol indicating the particular equipment or utility	
Childcare Center 	Square field Blue infant and hands White background	The identification and location of childcare centers	On the door opening into childcare centers At a fire department command or access point indicating presence and location of childcare centers
Emergency Telephone 	Square field Red background White phone	The identification and location of fire service or emergency telephone system	
No Firefighting 	Red prohibition symbol Circular field White background Black truck within black octagonal outline	To be posted on, near, or on the approach to buildings where firefighting is not to occur	Explosives bunkers, frangible buildings, or contaminated buildings
Self-Contained Breathing Apparatus (SCBA) 	Rectangular field White symbol Green background	To indicate the location of SCBA, breathing air connections, or refill location	For SCBA fill locations in high-rise buildings
Dry Hydrant / Drafting Port 	Square field Red background White symbol	The identification and location of a dry hydrant / drafting port	The location of a dry hydrant / drafting port from a static source of water

Chapter 6 Symbols for Use in Architectural and Engineering Drawings and Insurance Diagrams

6.1* Introduction.

6.1.1 This chapter presents symbols that shall be used in drawings and diagrams.

6.1.2* Symbol Presentation.

6.1.2.1* **Symbol Shapes.** The shape of symbols shall be as illustrated in Sections 6.2 through 6.3.

6.1.2.2 **Screened Lines.** Screened lines in the chapter shall not be considered part of the symbol but shall be used to represent the piping, wiring, or mounting surface associated with the symbol.

6.1.2.3 **Symbol Scale.** All scales for symbols on any one drawing shall be the same relative size.

6.1.2.4* **Symbol Orientation.** Symbols shall be oriented to the walls, piping, electrical lines, and so forth, to which they are attached.

6.2 Symbols for Site Features.

6.2.1 Buildings.

6.2.1.1 The exterior walls of buildings shall be outlined in single thickness lines if other than fire rated and double thickness lines if fire rated.

6.2.1.2* The perimeter of canopies, loading docks, and other open-walled structures shall be shown by broken lines.

6.2.2 **Railroad Tracks.** Railroad tracks shall be shown by a single line with cross dashes, as shown in Figure 6.2.2.

6.2.3* **Streets.** Streets shall be shown.

6.2.4* **Bodies of Water.** Rivers, lakes, and so forth, shall be outlined.

6.2.5 Fences.

6.2.5.1 Fences shall be shown by lines with x's evenly spaced.

6.2.5.2* Gates shall be shown.

6.2.6 **Property Lines.** The notation given in Figure 6.2.6 shall indicate property lines.

6.2.7 **Fire Department Access.** The symbol for fire department access shall be as shown in Figure 6.2.7.

6.2.8 **Other Site Features.** For other fire protection site features, Section 7.2 shall be viewed.



FIGURE 6.2.2 Symbol for Railroad Tracks.

FIGURE 6.2.6 Notation Indicating Property Lines.



FIGURE 6.2.7 Symbol for Fire Department Access.

6.3 Symbols for Building Construction.

6.3.1* **Types of Building Construction.** Types of construction shall be shown narratively.

6.3.2* **Height.** Height shall be shown to indicate number of stories above ground, number of stories below ground, and height from grade to eaves.

6.3.3* **Symbols for Walls and Parapets.** Symbols for walls and parapets shall be as given in Table 6.3.3.

6.3.4 **Symbols for Floor Openings, Wall Openings, Roof Openings, and Their Protection.** Symbols for floor openings, wall openings, roof openings, and their protection shall be as given in Table 6.3.4.

6.3.5* **Special Symbols for Cross-Sections.** The symbols shown in Table 6.3.5 shall be used to indicate features of cross-sections. It is recognized that descriptive notes often are required.

6.3.6 **Miscellaneous Features.** A number of features related to fire protection that do not fall under 6.3.1 through 6.3.5 shall be as given in Table 6.3.6.

Table 6.3.3 Symbols for Walls and Parapets

Symbol	Description
	Wall — basic shape
	Smoke-rated wall
	1/2-hour fire-rated wall
	1/2-hour fire/smoke-rated wall
	3/4-hour fire-rated wall
	3/4-hour fire/smoke-rated wall
	1-hour fire-rated wall
	1-hour fire/smoke-rated wall
	2-hour fire-rated wall
	2-hour fire wall
	2-hour fire/smoke-rated wall
	3-hour fire-rated wall
	3-hour fire wall
	3-hour fire/smoke-rated wall
	4-hour fire-rated wall
	4-hour fire wall
	4-hour fire/smoke-rated wall
	Parapet — one cross for each 150 mm (6 in.) parapet that extends above roof (shown is plan view of symbol)

Table 6.3.4 Symbols for Floor Openings, Wall Openings, Roof Openings, and Their Protection and Life Safety Plans

Symbol	Description	Comments
	Opening in wall	
	Rated fire door in wall (less than 3 hours)	
	Fire door in wall (3-hour rated)	
	Elevator in combustible shaft	
	Elevator in noncombustible shaft	
	Open hoistway	
	Escalator	
	Stairs in combustible shaft	
	Stairs in fire-rated shaft	
	Stairs in open shaft	
	Skylight	
E: __	Egress component identifier	Specify egress component: EX# = Exit number HE = Horizontal exit EP = Exit passageway CP = Common path of travel PD = Public discharge RD = Room door ES = Escape
< __ >	Egress component capacity	Specify allowable number of persons through egress component (e.g., < 25 >)
<< __ >>	Governing component capacity	Specify maximum capacity of the egress path

(continues)

Table 6.3.4 Continued

Symbol	Description	Comments
-- > --	Travel distance	Left side: Distance to egress component Right side: Egress component identifier
	Occupancy capacity	Top: Specify capacity Middle: Specify area [square feet (square meters)] Bottom: Specify occupant load factor
	Fire door	
	Non-rated fire door	
	Non-rated smoke-resistant fire door	
	20-minute fire-rated fire door	
	20-minute fire-rated, smoke-resistant fire door	
	1/2-hour fire-rated fire door	
	1/2-hour fire-rated, smoke-resistant fire door	
	3/4-hour fire-rated fire door	
	3/4-hour fire-rated, smoke-resistant fire door	
	1-hour fire-rated fire door	

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Table 6.3.4 Continued

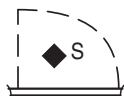





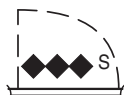



Symbol	Description	Comments
	1-hour fire-rated, smoke-resistant fire door	
	1 1/2-hour fire-rated fire door	
	1 1/2-hour fire-rated, smoke-resistant fire door	
	2-hour fire-rated fire door	
	2-hour fire-rated, smoke-resistant fire door	
	3-hour fire-rated fire door	
	3-hour fire-rated, smoke-resistant fire door	
	Exit	Wide, black, solid line
	Exit access	Wide, black, dashed line
	Exit discharge	Wide, black, short, dashed line

Table 6.3.5 Special Symbols for Cross-Sections


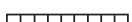
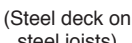












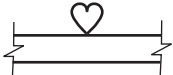
Symbol	Description	Comments
	Fire-resistive floor or roof	
	Wood-joisted floor or roof	
	Other floors or roofs	Note construction
	Floor/ceiling or roof/ceiling assembly	Details indicated, as necessary
	Floor on ground	
	Truss roof	Note construction

Table 6.3.6 Miscellaneous Features

Symbol	Description	Comments
	Boiler	
	Chimney	Describe height and construction
	Fire escape	
	Horizontal aboveground tank	Indicate type, dimensions, construction, capacity, pressurization, and content
	Vertical aboveground tank	Indicate type, dimensions, construction, capacity, pressurization, and content
	Belowground tank	Indicate type, dimensions, construction, capacity, pressurization, and content
	Class I, Division 1 or 0	Hatch patterns for electrically classified locations
	Class I, Division 1 or Zone 1	Hatch patterns for electrically classified locations
	Class I, Division 2 or Zone 2	Hatch patterns for electrically classified locations
	Designates the location of automated external defibrillators (AEDs) on plans	

Chapter 7 Symbols for Use in Water Supply, Extinguishing, and Sprinkler System Drawings and Insurance Diagrams

7.1* Introduction.

7.1.1 This chapter presents symbols that shall be used in drawings and diagrams.

7.1.2* Symbol Presentation.

7.1.2.1* Symbol Shapes. The shape of symbols shall be as illustrated in Sections 7.2 through 7.9.

7.1.2.2 Screened Lines. Screened lines in the chapter shall not be considered part of the symbol but shall be used to represent the piping, wiring, or mounting surface associated with the symbol.

7.1.2.3 Symbol Scale. All scales for symbols on any one drawing shall be the same relative size.

7.1.2.4* Symbol Orientation. Symbols shall be oriented to the walls, piping, electrical lines, and so forth, to which they are attached.

7.2* Water Supply and Distribution Symbols. Water supply and distribution symbols shall be as given in Table 7.2.

7.3 Reserved.

7.4 Symbols Related to Means of Egress. Symbols related to means of egress shall be as given in Table 7.4.

7.5 Indicating Appliances. Symbols for indicating appliances shall be as given in Table 7.5.

7.6* Symbols for Fire Extinguishing Systems.

7.6.1 Various Types of Fire Extinguishing Systems.

7.6.1.1 Water-Based Systems. Symbols for water-based systems shall be as given in Table 7.6.1.1.

7.6.1.2 Dry Chemical Systems. Symbols for dry chemical systems shall be as given in Table 7.6.1.2.

7.6.1.3 Systems Utilizing a Gaseous Medium. Symbols for systems utilizing a gaseous medium shall be as given in Table 7.6.1.3.

7.6.1.4 Supplementary Symbols. Supplementary symbols shall be as given in Table 7.6.1.4.

7.6.1.5 Fire Pump-Type Symbols. Supplementary symbols shall be as given in Table 7.6.1.5.

7.6.1.6 Fire Pump Device Symbols. Supplementary symbols shall be as given in Table 7.6.1.6.

7.6.2 Symbols for Fire Sprinklers. Symbols for fire sprinklers shall be as given in Table 7.6.2.

7.6.2.1* For sprinklers shown in Table 7.6.2, the temperature rating of the sprinkler and other characteristics shall be shown via legends or noted on drawings where a limited number of an individual type of sprinkler is called for by the design.

7.6.3* Symbols for Piping, Valves, Control Devices, and Hangers. Symbols for piping, valves, control devices, and hangers shall be as given in Table 7.6.3.

7.7 Symbols for Portable Fire Extinguishers. Symbols for portable fire extinguishers shall be as given in Table 7.7.

7.8 Symbols for Firefighting Equipment. Symbols for firefighting equipment shall be as given in Table 7.8.

7.9* Miscellaneous Symbols. Miscellaneous symbols shall be as given in Table 7.9.

Table 7.2 Water Supply and Distribution Symbols

Symbol	Description	Comments
	City or county public water main	Indicate pipe size and material
	Private fire line water main	Indicate pipe size and material
	Water main under building	Indicate pipe size and material
	Suction pipe	Indicate pipe size and material
	Thrust block	
	Riser	
	Wet riser	
	Dry riser	
	Precision riser	
	Nitrogen-filled dry riser	
	Nitrogen-filled preaction riser	
	Pipe elbow up or down	Height on either side indicated by pipe height tags
	Pipe tee up or down	Height of crossed pipes indicated by pipe height tags
	Valves (general)	Basic shape; indicate valve size
	Valve in pit	Indicate valve size
	Post-indicator valve	Indicate valve size
	Key-operated valve	Indicate valve size

(continues)

Table 7.2 Continued

Symbol	Description	Comments
	OS&Y valve (outside screw and yoke, rising stem)	Indicate valve size
	Indicating butterfly valve	Indicate valve size
	Nonindicating valve (nonrising-stem valve)	Indicate valve size
	Check valve	Basic shape; indicate valve size, direction of flow
	Backflow preventer — double check type	Also referred to as a double check valve assembly
	Backflow preventer — reduced pressure zone (RPZ) type	
	Pressure-regulating valve	
	Pressure relief valve	
	Float valve	
	Meter	Indicate type
	Private hydrant, one hose outlet	Indicate size, type of thread, or connection
	Public hydrant, two hose outlets	Indicate size, type of thread, or connection
	Public hydrant, two hose outlets and pumper connection	Indicate size, type of thread, or connection
	Wall hydrant, two hose outlets	Indicate size, type of thread, or connection

(continues)

Table 7.2 Continued

Symbol	Description	Comments
	Private housed hydrant, two hose outlets	Indicate size, type of thread, or connection
	Single fire department connection	Specify type, size, thread, and angle
	Siamese fire department connection	Specify type, size, and angle
	Wall flush 2 inlet fire department connection	Specify type, size, and connections
	Wall flush 3 inlet fire department connection	Specify type, size, and connections
	Wall flush 4 inlet fire department connection	Specify type, size, and connections
	Freestanding siamese fire department connection	Sidewalk or pit type; specify size
	Freestanding 3 inlet fire department connection	Specify type, size, and connections
	Freestanding 4 inlet fire department connection	Specify type, size, and connections
	Screen/strainer	
	Riser air compressor	Specify size
	Tank air compressor	Specify size
	Tank nitrogen generator	Specify size

Table 7.4 Symbols Related to Means of Egress

Symbol	Description	Comments
	Emergency light, battery-powered	Number of lamps on unit to be indicated; indicate whether light head(s) [lamp(s)] is remote from battery
	Illuminated exit sign, single face	Indicate direction of flow for the face
	Illuminated exit sign, double face	Indicate direction of flow for each face
	Combined battery-powered emergency light and illuminated exit sign	Number of lamps on unit to be indicated; indicate whether light head(s) [lamp(s)] is remote from battery; indicate direction of flow for the face
	Exit lighting	Exit lighting fixture, arrows, and exit face as indicated on drawings (mounting heights to be determined by job specifications) — from NECA NEIS 100, <i>Symbols for Electrical Construction Drawings</i> , symbol 2.005
	Luminaire providing emergency illumination (filled in)	From NECA NEIS 100, symbol 2.300
	Directional sounder — exit marking audible appliance, wall mounted	Applied from NECA NEIS 100, symbol 9.109
	Directional sounder — exit marking audible appliance, ceiling mounted	Applied from NECA NEIS 100, symbol 9.110
	Directional exit indicating strip lighting appliance	Applied from NECA NEIS 100, symbol 2.002

Table 7.5 Symbols for Indicating Appliances



Symbol	Description	Comments
	Water motor alarm (water motor gong)	Shield optional, specify size
	Electric bell	Specify size

Table 7.6.1.1 Symbols for Water-Based Systems

















Symbol	Description
	Wet charged system — automatically actuated
	Wet charged system — manually actuated
	Dry system — automatically actuated, air filled
	Dry system — manually actuated, air filled
	Dry system — automatically actuated, nitrogen filled
	Dry system — manually actuated, nitrogen filled
	Preaction dry system — automatically actuated, air filled
	Preaction dry system — manually actuated, air filled
	Preaction dry system — automatically actuated, nitrogen filled
	Preaction dry system — manually actuated, nitrogen filled
	Foam system — automatically actuated
	Foam system — manually actuated
	Water mist extinguishing system — automatically actuated
	Water mist extinguishing system — manually actuated
	Hybrid (water and inert gas) fire-extinguishing system — automatically actuated
	Hybrid (water and inert gas) fire-extinguishing system — manually actuated

Table 7.6.1.2 Symbols for Dry Chemical Systems





Symbol	Description
	For liquid, gas, and electrical fires — automatically actuated
	For liquid, gas, and electrical fires — manually actuated
	For fires of all types (except metals) — automatically actuated
	For fires of all types (except metals) — manually actuated

Table 7.6.1.3 Symbols for Systems Utilizing a Gaseous Medium







Symbol	Description
	Carbon dioxide system — automatically actuated
	Carbon dioxide system — manually actuated
	Halon system or clean agent extinguishing system — automatically actuated
	Halon system or clean agent extinguishing system — manually actuated
	Hybrid (water and inert gas) fire-extinguishing system — automatically actuated
	Hybrid (water and inert gas) fire-extinguishing system — manually actuated

Table 7.6.1.4 Supplementary Symbols





Symbol	Description
	Fully sprinklered space
	Partially sprinklered space
	Nonsprinklered space
	Water spray system

Table 7.6.1.5 Fire Pump—Type Symbols



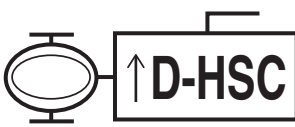

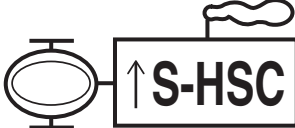

	Vertical in-line pump (VIP)	Specify psi, gpm, and flow direction.
	Horizontal split case — electric	Specify rotation, psi, gpm, and flow direction.
	Horizontal split case — diesel	Specify rotation, psi, gpm, and flow direction.
	Vertical turbine pump	Specify psi, gpm, and flow direction.
	Steam turbine drive pump	Specify psi, gpm, and flow direction.
	Jockey pump	Specify psi, gpm, and flow direction.

Table 7.6.1.6 Fire Pump Device Symbols



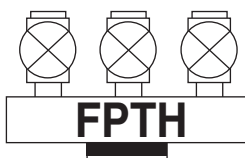


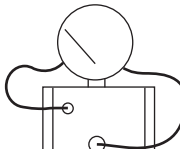




	Eccentric reducer	One side of the reducer maintains flat elevation to the reduced size. Indicate sizes.
	Concentric reducer	Reducer is conical to the center of the reduced size. Indicate sizes.
	Wall-mounted test header	Mounts to a wall. Indicate number of hose connections, sizes, and gpm output for fire pump.
	Freestanding test header	Mounts to a freestanding flange. Indicate number of hose connections, sizes, and gpm output for fire pump.
	Suction control valve	Modulates and maintains the pump discharge in relation to the suction head available. Indicate size.
	Fire meter	Grooved fire meter for flow testing of fire pumps. Indicate size.
	Bypass — Consists of two butterfly valves and one check valve (<i>See Table 7.2 for individual components.</i>)	Fire pump city bypass. Indicate sizes and direction.
	Fire pump control panel	Panel controls fire pump operation.
	Jockey pump control panel	Panel controls jockey pump operation.
	Transfer switch panel	Panel controls transfer of fire pump power to alternate source.

Table 7.6.2 Symbols for Fire Sprinklers

Symbol	Description	Comments
	Upright sprinkler	
	Pendent sprinkler	Note “DP” on drawing and/or in specifications where dry pendent sprinklers are employed
	Upright sprinkler; on sprig	
	Upright sprinkler on top of riser nipple	
	Upright sprinkler on sprig on top of riser nipple	
	Pendent sprinkler; on drop nipple	
	Sidewall sprinkler	
	Upright on sprig — extended coverage	‘X’ behind a head denotes extended coverage type
	Pendent drop — extended coverage	‘X’ behind a head denotes extended coverage type
	Upright on sprig — extended coverage with guard	‘G’ next to a head denotes head guard installed
	Pendent drop — extended coverage with guard	‘G’ next to a head denotes head guard installed
	Dry upright on sprig	
	Dry pendent drop	

(continues)

Table 7.6.2 Continued

Symbol	Description	Comments
	Dry upright on sprig — extended coverage	
	Dry pendent drop — extended coverage	
	Dry horizontal sidewall	
	Dry horizontal sidewall	Alternate symbol
	Dry horizontal sidewall — extended coverage	
	Dry horizontal sidewall — extended coverage	Alternate symbol
	Dry vertical sidewall sprinkler	
	Dry vertical sidewall sprinkler	Alternate symbol
	Attic upright sprinkler	
	Attic upright sprinkler	Alternate symbol
	Attic upright sprinkler (on sprig)	
	Attic upright sprinkler (on sprig)	Alternate symbol
	Attic back to back	
	Attic back to back	Alternate symbol
	Attic single directional	
	Attic single directional	Alternate symbol
	Attic hip single directional	
	Attic hip single directional	Alternate symbol

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Table 7.6.2 Continued







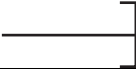


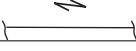




Symbol	Description	Comments
	Attic back to back (on sprig)	
	Attic back to back (on sprig)	Alternate symbol
	Attic single directional (on sprig)	
	Attic single directional (on sprig)	Alternate symbol
	Attic hip single directional (on sprig)	
	Attic hip single directional (on sprig)	Alternate symbol
	Vertical sidewall sprinkler	
	Vertical sidewall sprinkler	Alternate symbol
	Concealed space sprinkler	
	Concealed space sprinkler	Alternate symbol
	Concealed space sprinkler (on sprig)	
	Concealed space sprinkler (on sprig)	Alternate symbol
	Outside sprinkler	Specify type, orifice size; for example, open sprinkler (window or cornice)
	Open sprinkler on branch line	

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Table 7.6.2 Continued











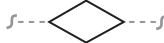




Symbol	Description	Comments
	Open sprinkler on branch line with sprig	
	Open upright sprinkler	
	Open pendent sprinkler	
	Open upright sprinkler on sprig	
	Open pendent sprinkler on drop	
	Open directional spray nozzle	
	Open directional spray nozzle on sprig	
	Open directional spray nozzle on drop	
	Water spray nozzle	
	Window sprinklers	

Table 7.6.3 Symbols for Piping, Valves, Control Devices, and Hangers

Symbol	Description	Comments
	Sprinkler piping and branch line	Indicate pipe size
	Existing sprinkler piping and branch line	Indicate pipe size
	Demo sprinkler piping and branch line	Indicate pipe size
	Underground sprinkler supply piping	Indicate pipe size
	Pipe trace heater	See NECA NEIS 100, <i>Symbols for Electrical Construction Drawings</i> , symbol 5.106
	Mechanical coupling	
	Pipe cap	Specify size
	Pipe hanger	Diagonal stroke imposed on the pipe that the hanger supports
	Lateral brace	
	Longitudinal brace	
	Four-way brace	Only used to brace risers
	Vertical rise brace	Indicate pipe size
	Branch line cable restraint	Indicate pipe size
	Angle valve (angle hose valve)	Indicate size, type, and other required data

(continues)

Table 7.6.3 Continued

Symbol	Description	Comments
	Angle valve (angle hose valve) within cabinet	Specify size, type, and other required data
	Floor/zone control valve assembly	Specify size
	Check valve (general)	
	Riser check valve (general)	Specify size
	Alarm check valve	Specify size
	Water flow indicator	Specify size and type
	Dry pipe valve	Specify size
	Dry pipe valve with quick opening device (accelerator or exhaustor)	Specify size and type
	Dry pipe valve — nitrogen charged	Specify size
	Dry pipe valve with quick opening device — nitrogen charged	Specify size
	Deluge valve	Specify size and type
	Preaction valve	Specify size and type
	Preaction valve — nitrogen charged	Specify size
	Air vent	Specify size and type
	Test and drain with site glass	Specify size and type

(continues)

Table 7.6.3 *Continued*



Symbol	Description	Comments
	Site glass	Specify size and type
	Pressure gauge	Specify size and type

Table 7.7 Symbols for Portable Fire Extinguishers









Symbol	Description	Comments
	Portable fire extinguisher	Basic shape
	Water extinguisher	
	Foam extinguisher	
	Dry chemical extinguisher for liquid, gas, or electrical fires	BC type
	Dry chemical extinguisher for fires of all types (except metals)	ABC type
	CO ₂ extinguisher	
	Halon or clean agent extinguisher	
	Extinguisher for metal fires	

Table 7.8 Symbols for Firefighting Equipment


















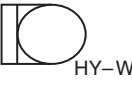




Symbol	Description	Comments
	Firefighting equipment	Basic shape
	CO ₂ reel station	
	Dry chemical reel station	
	Fire hose valve connection	Specify thread size
	Foam reel station	
	Hose station, dry standpipe	
	Hose station, wet standpipe	
	Monitor nozzle, dry	Specify orifice size
	Monitor nozzle, charged	Specify orifice size

Table 7.9 Miscellaneous Symbols

Symbol	Description	Comments
	Agent storage container	Specify type of agent and mounting
	Agent storage container — foam	
	Agent storage container — Halon	
	Agent storage container — carbon dioxide	
	Agent storage container — clean agent	
	Agent storage container — dry chemical	
	Agent storage container — water mist	
	Agent storage container — wet chemical	
	Agent (water) storage container — hybrid (water and inert gas) fire-extinguishing systems	
	Agent (inert gas) storage container — hybrid (water and inert gas) fire-extinguishing systems	
	Special spray nozzle	Specify type, orifice, size, other required data (shown here on pipe)
	Fusible link	Specify degrees
	Fusible link with electrothermal feature	Specify degrees

Chapter 8 Symbols for Use in Electronic Fire and Smoke Detection and Notification System Drawings and Insurance Diagrams

8.1* Introduction.

8.1.1 This chapter presents symbols that shall be used in drawings and diagrams.

8.1.2* Symbol Presentation.

8.1.2.1* **Symbol Shapes.** The shape of symbols shall be as illustrated in Sections 8.2 through 8.6.

8.1.2.2 **Screened Lines.** Screened lines in the chapter shall not be considered part of the symbol but shall be used to represent the piping, wiring, or mounting surface associated with the symbol.












8.1.2.3 **Symbol Scale.** All scales for symbols on any one drawing shall be the same relative size.

8.1.2.4* **Symbol Orientation.** Symbols shall be oriented to the walls, piping, electrical lines, and so forth, to which they are attached.

N 8.1.2.5* Where additional subscript identifiers are necessary, they shall be included with a forward-slash after the primary subscript.

























8.2* **Symbols for Control Panels.** Symbols for control panels shall be as given in Table 8.2.

Table 8.2 Symbols for Control Units (Panels)

Symbol	Description
	Basic shape
	Air sampling detection panel
	Amplifier rack
	Area of refuge emergency communication system — master unit
	Area of refuge emergency communication system — remote unit
	Autonomous control unit
	Auxiliary equipment panel
	Battery cabinet
	Cathode ray tube
	Control panel for heating (H), ventilation (V), air conditioning (AC), exhaust (E), stairwell pressurization (P)
	Digital alarm communicator receiver









(continues)

Table 8.2 Continued














Symbol	Description
	Digital alarm communicator transmitter
	Elevator status/recall
	Emergency communications control unit
	Fire alarm annunciator
	Fire alarm communicator
	Fire alarm control panel (legacy symbol for FACU)
	Fire alarm control unit; include a 'D' subscript if it is a dedicated unit
	Fire alarm documentation cabinet
	Fire alarm system workstation
	Fire alarm terminal cabinet
	Fire alarm transponder <i>n</i> = transponder number
	Firefighter interface
	Fire suppression control panel (legacy symbol for FSCU) xx denotes suppression type
	Fire suppression control unit xx denotes suppression type
	Graphic annunciator panel
	LCD annunciator/display
	Master fire alarm control unit
	Notification circuit power booster, extender panel <i>n</i> = unit number
	Power panel
	Preaction system/control unit
	Printer
	Protected premises control unit (local)
	Purge panel
	Relay panel

(continues)

Table 8.2 Continued


Symbol	Description
	Releasing service fire alarm control unit
	Remote voice evacuation microphone
	Remotely located evacuation amplifier cabinet
	Smoke control panel
	Sprinkler alarm panel
	Uninterruptible power supply
	Voice evacuation control unit
	Wireless control unit

Fire Suppression/Releasing Service Control Unit Types:

	Aerosol
	Carbon dioxide
	Clean agent
	Deluge fire sprinkler
	Dry chemical
	Fire alarm control interface
	Fire pump controller
	Foam
	Halon
	Hybrid (water and inert gas) fire-extinguishing systems
	Mass notification system interface
	Operating control unit
	Water mist













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Table 8.2 Continued

Symbol	Description
	Wet chemical

















8.3* Symbols for Fire Alarms, Detection, and Related Equipment — Signal Initiating Devices and Activation Switches. Symbols for signal initiating devices and activation switches shall be as given in Table 8.3.

Table 8.3 Symbols for Signal Initiating Devices and Activation Switches

Symbol	Description
Abort Switch Types:	
	Abort switch — basic shape
	Abort switch
	Aerosol release abort station
	Clean agent
	Deluge fire sprinkler
	Dry chemical
	Foam
	Halon
	Hybrid (water and inert gas) fire-extinguishing systems
	Manual releasing station
	Preaction
	Water mist






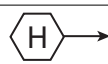














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Table 8.3 Continued

Symbol	Description
	Wet chemical
Addressable Modules:	
	Addressable input monitor module
	Addressable input/output module; # denotes number of inputs and outputs
	Addressable output control module
	Isolation module
Automatic Detection Type:	
	Automatic detection and supervisory devices — basic shape
Flame Detection Types:	
	Flame detector basic shape XX = detection type
	Combination ultraviolet/infrared
	Infrared detector
	Ultraviolet detector
	Visible radiation detector
Gas Detection Types:	
	Gas detector/sensor basic shape XX = gas type
	Carbon dioxide detector
	Carbon monoxide detector
	Fuel gas detector
	Hydrogen chloride detector

(continues)

Table 8.3 Continued

Symbol	Description
	Methane detector
	Oxygen detector
Heat Detection Types:	
	Heat detector/sensor — XX = type basic shape
	Combination rate of rise/fixed temperature
	Fixed temperature
	Heat detector — line type
	Heat detector/sensor (thermal detection)
	Rate compensation
	Rate of rise only
Interface and Supervisory Devices:	
	End of line device — capacitor
	End of line device — diode
	End of line device — relay
	End of line device — resistor
	Flow detector/switch
	High temperature switch
	Level detector/switch
	Low temperature switch
	Main/reserve
	Maintenance/disconnect switch
	Non-addressable output relay

(continues)

Table 8.3 Continued

Symbol	Description
	Pressure detector/switch
	Solenoid valve
	Supervised solenoid valve
	Surge suppressor
	Temperature supervisory switch
	Transfer switch — automatic with handle
	Transfer switch — manual with handle
	Valve supervisory switch
	Valve with integral supervisory switch
	Water detector

Manual Fire Alarm Box Types:

	Manual station — basic shape
	Aerosol
	Carbon dioxide
	Clean agent
	Deluge fire sprinkler
	Drill key
	Dry chemical
	Fire alarm master box
	Foam
	Halon
	Hybrid (water and inert gas) fire-extinguishing systems

(continues)

Table 8.3 Continued

Symbol	Description
	Preaction
	Pull station/fire alarm box
	Water mist
	Wet chemical

Smoke Detection/Sensor Types:

	Smoke detector/sensor — basic shape orientation not to be changed
	Air sampling
	In duct
	Ionization
	Photoelectric
	Relay base
	Smoke/heat detector/carbon monoxide detector
	Smoke/heat detector/sensor combination
	Smoke alarm (single station)
	Smoke detector/sensor — beam receiver
	Smoke detector/sensor — beam transmitter
	Smoke detector/sensor — XX = type
	Smoke detector/sensor for duct
	Sounder base

8.4 Notification Appliances.

8.4.1 Notification Appliance Subscripts. Notification appliance subscripts shall be applied to symbols as required for clarification (*see Table 8.4.1*).

Table 8.4.1 Notification Appliance Subscripts

Subscript	Meaning
C	Ceiling mount
H	High audible setting
L	Low audible setting
MNS	Mass notification system
P	Pendent
RI	Remote indicator
SL	Signal light
nW	Wattage setting (<i>n</i> = speaker tap)
WP	Weatherproof
WG	Wire guard

8.4.2 Notification Appliance Symbols. Symbols for notification appliances shall be as given in Table 8.4.2.

Table 8.4.2 Symbols for Notification Appliances

Symbol	Description
	Audible appliance — basic shape
	Bell — single stroke
	Bell — trouble
	Bell — vibrating
	Ceiling mount indicator
	Chime
	Chime — electronic
	Combination horn/visible CD = candela rating/setting
	Combination speaker/visible W = wattage CD = candela rating/setting

(continues)

Table 8.4.2 Continued

Symbol	Description
	Gong
	Horn only
	Mini-horn
	Remote alarm indicating and test switch
	Remote indicator
	Rotating beacon
	Speaker only, ceiling mount — denote wattage tap
	Speaker only, wall mount — denote wattage tap
	Visible only (strobe) — ceiling mount CD = candela rating/setting
	Visible only (strobe) — wall mount CD = candela rating/setting

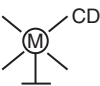
8.4.3 Emergency Communications Notification Appliances. Symbols for emergency communication appliances shall be as given in Table 8.4.3.

Table 8.4.3 Symbols for Emergency Communications Notification Appliances

Symbol	Description
	Combination speaker/visible — ceiling mount CD = candela rating/setting, W = wattage
	Combination speaker/visible — wall mount CD = candela rating/setting, W = wattage
	Emergency textual visible appliance
	Visible only (strobe) — ceiling mount CD = candela rating/setting














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Table 8.4.3 Continued

Symbol	Description
	Visible only (strobe) — wall mount CD = candela rating/setting


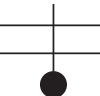
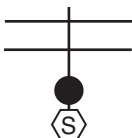
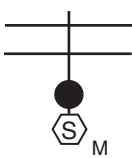
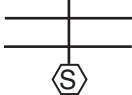








8.5 Related Equipment. Symbols for related equipment shall be as given in Table 8.5.

Table 8.5 Symbols for Related Equipment

Symbol	Description
	Air sampling detector piping
	Door closer
	Door holder
	End of line resistor
	Fire service or emergency phone station — accessible
	Fire service or emergency phone station — basic shape
	Fire service or emergency phone station — handset
	Fire service or emergency phone station — jack
	Floor warden station
	Integrated smoke sensor and door closer
	Junction box
	Sync adapter module (strobe synchronization)
	Watchman's tour station











8.6 Symbols for Smoke/Pressurization Control. Symbols for smoke/pressurization controls shall be as given in Table 8.6.

Table 8.6 Symbols for Smoke/Pressurization Controls

Symbol	Description	Comments
	Dampers — barometric	
	Dampers — fire	
	Dampers — fire/ smoke	
	Dampers — motorized fire/ smoke	
	Dampers — smoke	
	Fans — duct	Arrow indicates direction of flow
	Fans — general	Arrow indicates direction of flow
	Fans — roof	Arrow indicates direction of flow
	Fans — wall	Arrow indicates direction of flow
	Hand (manual)/ off-automatic	
	Pressurized stairwell	Orient as required for base or head injection
	Purge controls — manual control	
	Ventilation openings	Orient as required for intake or exhaust

N 8.7 Symbols for Emergency Communication Radio Enhancement Systems. Symbols for emergency communication radio enhancement systems shall be as given in Table 8.7.

N Table 8.7 Symbols for Emergency Communication Radio Enhancement Systems

	In-building auxiliary radio communication system
	Emergency responder communication enhancement system (ERCES)
	Emergency responder communications enhancement system (ERCES) fiber repeater
	Emergency responder communications enhancement system (ERCES) annunciator
	Ceiling-mounted antenna
	Wall-mounted antenna
	Wall-mounted antenna (donor)
	Directional antenna
	Omnidirectional antenna
	Splitter

Chapter 9 Symbols for Use in Preincident Planning Sketches

9.1 Introduction.

9.1.1* This chapter presents symbols that shall be used in preincident planning sketches.

9.1.2* Symbol Shapes. The symbol shapes shall be chosen for their ease of reproduction by either freehand drawing or with the use of templates.

9.2* Access Features, Assessment Features, Ventilation Features, and Utility Shutoffs. Symbols for access features, assessment features, ventilation features, and utility shutoffs shall be as given in Table 9.2.

9.3 Detection/Extinguishing Equipment. Symbols for detection/extinguishing equipment shall be as given in Table 9.3.

Table 9.2 Symbols for Access Features, Assessment Features, Ventilation Features, and Utility Shutoffs


















Symbol	Description	Comments
	Access features, assessment features, ventilation features, and utility shutoffs	Basic shape
	Access feature — fire department access point	
	Access feature — fire department key box	
	Access feature — roof access	
	Assessment feature — fire alarm annunciator panel	
	Assessment feature — fire alarm reset panel	
	Assessment feature — fire alarm voice communication panel	
	Assessment feature — smoke control and pressurization panel	
	Assessment feature — sprinkler system water flow bell	
	Ventilation feature — skylight	
	Ventilation feature — smoke vent	
	Utility shutoff — electric	
	Utility shutoff — domestic water	
	Utility shutoff — gas	
	Specific variations — LP-Gas shutoff	
	Specific variations — natural gas shutoff	
	Specific variations — compressed natural gas shutoff	

Table 9.3 Symbols for Detection/Extinguishing Equipment

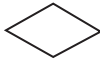

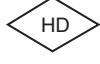
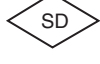



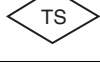
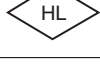

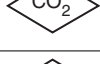

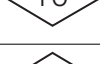
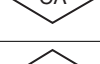
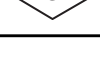













Symbol	Description	Comments
	Detection/ extinguishing equipment	Basic shape
	Duct detector	
	Heat detector	
	Smoke detector	
	Flow switch (water)	
	Fuel gas system	
	Manual station — pull station/fire alarm box	
	Tamper switch	
	Halon system	
	Dry chemical system	
	Carbon dioxide system	
	Wet chemical system	
	Foam system	
	Clean agent system	
	Beam smoke detector	

Table 9.4 Symbols for Water Flow Control Valves and Water Sources









Symbol	Description	Comments
	Water flow control valves and water sources	Basic shape
	Post-indicator valve	
	Riser valve	
	Sprinkler zone valve	
	Sectional control valve	
	Hose cabinet or connection	
	Wall hydrant	
	Test header (fire pump)	
	Inspector's test connection	
	Fire hydrant	
	Fire department connection	
	Drafting site	
	Water tank	

9.4 Water Flow Control Valves and Water Sources. Symbols for water flow control valves and water sources shall be as given in Table 9.4.

9.5 Equipment Rooms. Symbols for equipment rooms shall be as given in Table 9.5.

9.6* Identification of Hazardous Materials. NFPA 704 shall be permitted to be used to identify the location of hazardous materials within a structure.

Table 9.5 Symbols for Equipment Rooms

Symbol	Description	Comments
	Equipment rooms	Basic shape
	Air-conditioning equipment room	AHUs = air-handling units
	Elevator equipment room	
	Emergency generator room	
	Fire pump room	
	Telephone equipment room	
	Boiler room	
	Electrical/transformer room	

Chapter 10 Symbology for Emergency Management Mapping

10.1 Damage Operational Symbols. Table 10.1 shall be used to cross-reference the damage operational symbols with their definitions.

10.2 Operations Symbology.

10.2.1 Organizations, services, capabilities, or resources available during or implemented due to an emergency management situation.

10.2.2 Table 10.2.2 shall be used to cross-reference the operations symbols with their definitions.

10.3 Incidents Symbology.

10.3.1 Table 10.3.2 shall be used to depict 8 themes and 42 features that symbolize a “cause of action” or a “source of disaster.”

10.3.2 Table 10.3.2 shall be used to cross-reference the incidents symbols with their definitions.

10.4 Natural Events Symbology.

10.4.1 A natural event shall be a phenomenon found in or created by naturally occurring conditions.

10.4.2 Table 10.4.2 shall be used to cross-reference the natural events symbols with their definitions.

10.5 Infrastructures Symbology.

10.5.1 Infrastructure shall be the basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions, including schools, post offices, and prisons.

10.5.2 Table 10.5.2 shall be used to cross-reference the infrastructures symbols with their definitions.

Table 10.1 Damage Operational Symbology Reference

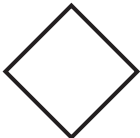
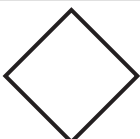
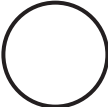
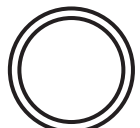
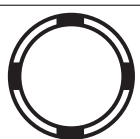
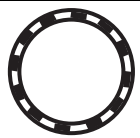


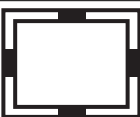
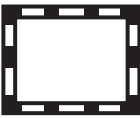




































































































Symbol Types and Terms	Symbols	Definitions
Incident (No levels) (violet)		Not applicable
Natural Event (No levels) (black)		Not applicable
Operation (Level 1) (green)		Fully operational/open
Operation (Level 2) (blue)		Operational, but filled to capacity or otherwise closed
Operation (Level 3) (orange)		Operational, but partially damaged or partially incapacitated
Operation (Level 4) (red)		Destroyed or totally incapacitated
Infrastructure (Level 1) (green)		Fully operational/open
Infrastructure (Level 2) (blue)		Operational, but filled to capacity or otherwise closed
Infrastructure (Level 3) (orange)		Operational, but partially damaged or partially incapacitated
Infrastructure (Level 4) (red)		Destroyed or totally incapacitated

Table 10.2.2 Operations Symbolgy Reference

Symbol Types and Terms	Symbols	Keystroke	Definitions
Operations Background Symbol (Background)	   	!	The background fill shape for the Operations symbol, Level 1
Operations Frame Symbol (Frame)	   	#	The frame shape for the Operations symbol, Level 1
Emergency Medical Operation (Theme)	   	A	Urgent and unexpected medicinal treatment and/or transport during serious situations that require immediate action ¹
Ambulance (Emergency Medical Feature)	   	B	A vehicle for taking sick or wounded people to and from a hospital
EMT Station Locations (Emergency Medical Feature)	   	C	The locus of an emergency medical team
Medical Evacuation Helicopter Station (Emergency Medical Feature)	   	D	The locus of an emergency helicopter landing pad, utilized to transport severely injured persons
Health Department Facility (Emergency Medical Feature)	   	E	The locus of a facility operated by a public institution that is dedicated to promotion of health and prevention of disease at the community, county, state, or national level ²
Hospital (Emergency Medical Feature)	   	F	The locus of an institution where the sick or injured are given medical or surgical care
Hospital Ship (Emergency Medical Feature)	   	G	The locus of a ship where the sick or injured are given medical or surgical care
Medical Facilities Outpatient (Emergency Medical Feature)	   	H	The locus of a facility providing medical treatment to patients whose sickness or injury does not require hospitalization
Morgue (Emergency Medical Feature)	   	I	The locus of a place where the bodies of persons found dead are kept until identified and claimed by relatives or released for burial ³
Pharmacies (Emergency Medical Feature)	   	J	The locus of a place where medicines are compounded or dispensed ³
Triage (Emergency Medical Feature)	   	K	The locus of a place where sorting and allocation of treatment to patients (especially victims of war or disaster) are performed according to a system of priorities designed to maximize the number of survivors ³

























































(continues)

Table 10.2.2 Continued

Symbol Types and Terms	Symbols	Keystroke	Definitions
Emergency Operation (Theme)	   	L	Those actions taken during the emergency period to protect life and property, care for the people affected, and temporarily restore essential community services ⁴
Emergency Collection/Evacuation Point (Emergency Operation Feature)	   	M	A designated place where displaced persons or victims of war or disaster are assembled and/or evacuated from
Emergency Incident Command Center (Emergency Operation Feature)	   	N	The physical location from which an incident commander manages an incident ⁵
Emergency Operations Center (Emergency Operation Feature)	   	O	The physical location where an organization comes together during an emergency to coordinate response and recovery actions and resources and make management decisions ⁶
Emergency Public Information Center (Emergency Operation Feature)	   	P	No definition
Emergency Public Service Center (Emergency Operation Feature)	   	Q	No definition
Emergency Shelters (Emergency Operation Feature)	   	R	The locus of a designated emergency/relief shelter
Emergency Staging Areas (Emergency Operation Feature)	   	S	A designated place where emergency response forces, equipment, and supplies are assembled prior to engagement in operations
Emergency Teams (Emergency Operation Feature)	   	T	The locus of an emergency response team
Emergency Water Distribution Center (Emergency Operation Feature)	   	U	A place where potable water is distributed to displaced persons or victims of war or disaster
Emergency Food Distribution Centers (Emergency Operation Feature)	   	V	A place where food is distributed to displaced persons or victims of war or disaster
Fire Suppression Operation (Theme)	   	W	The extinguishing of a burning (and flaming) object by means of applying an agent, such as water ⁷

































(continues)

Table 10.2.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Fire Hydrant (Fire Suppression Feature)	   	X	A discharge pipe with a valve and spout from which water can be drawn from a water main in sufficient volume and at sufficient pressure for firefighting purposes ⁸
Other Water Supply Location (Fire Suppression Feature)	   	Y	Any source of water other than a fire hydrant that is sufficient for the purpose of firefighting
Fire Station (Fire Suppression Feature)	   	Z	A facility housing firefighting equipment and/or personnel
Law Enforcement Operation (Theme)	   	a	Act of ensuring obedience to the laws ⁹
ATF (Law Enforcement Feature)	   	b	A locus of US Bureau of Alcohol, Tobacco, and Firearms facilities, equipment, or personnel
Border Patrol (Law Enforcement Feature)	   	c	A locus of US Border Patrol facilities, equipment, or personnel
Customs Service (Law Enforcement Feature)	   	d	A locus of US Customs Service facilities, equipment, or personnel
DEA (Law Enforcement Feature)	   	e	A locus of US Drug Enforcement Administration facilities, equipment, or personnel
DOJ (Law Enforcement Feature)	   	f	A locus of US Department of Justice facilities, equipment, or personnel
FBI (Law Enforcement Feature)	   	g	A locus of Federal Bureau of Investigation facilities, equipment, or personnel
Police (Law Enforcement Feature)	   	h	A locus of federal, state, or local police facilities, equipment, or personnel
Prison (Law Enforcement Feature)	   	i	A facility for the confinement of persons convicted of serious crimes ³
Secret Service (Law Enforcement Feature)	   	j	A locus of US Secret Service facilities, equipment, or personnel
TSA (Law Enforcement Feature)	   	k	A locus of US Transportation Security Administration facilities, equipment, or personnel

(continues)

Table 10.2.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
US Coast Guard (Law Enforcement Feature)	   	l	A locus of US Coast Guard facilities, equipment, or personnel
US Marshals Service (Law Enforcement Feature)	   	m	A locus of US Marshals Service facilities, equipment, or personnel
Sensor Operation (Theme)	   	n	A device that receives and responds to a signal or stimulus ⁹
Biological Sensor (Sensor Operation Feature)	   	o	A device designed to respond to the presence of one or more biological substances and to transmit a resulting impulse ¹⁰
Chemical Sensor (Sensor Operation Feature)	   	p	A device designed to respond to the presence of one or more chemicals and to transmit a resulting impulse ¹⁰
Intrusion Sensor (Sensor Operation Feature)	   	q	A device designed to respond to physical penetration of, or attempts to physically penetrate, a protected area or spatial volume and to transmit a resulting impulse ¹⁰
Nuclear Sensor (Sensor Operation Feature)	   	r	A device designed to respond to one or more decay product(s) of one or more radioactive nuclides and to transmit a resulting impulse ¹¹
Radiological Sensor (Sensor Operation Feature)	   	s	A device designed to respond to one or more decay product(s) of one or more radioactive nuclides and to transmit a resulting impulse ¹¹

¹Source: www.dictionary.com; combined definition of *emergency* and *medical*.

²Source: Based on the APHA public health mission statement.

³Source: Merriam-Webster Online.

⁴Source: Adapted from San Diego State University Emergency Plan glossary, <http://bfa.sdsu.edu/emergencyplan/glossary.htm>.

⁵Source: Commonwealth of Virginia ICS, www.vdvp.state.va.us/components.htm.

⁶Source: EMS website, www.emsresponder.com.

⁷Source: Adapted from www.firewise.org glossary of terms.











⁸Source: Adapted from Merriam-Webster Online definition of *hydrant*.

⁹Source: www.dictionary.com.

¹⁰Source: Adapted from Merriam-Webster Online definition of *sensor*.














¹¹Source: Adapted from Merriam-Webster Online definition of *sensor* and knowledge of the process, detection, and measurement of radioactivity.

Table 10.3.2 Incidents Symbolgy Reference

Symbol Types and Terms	Symbols	Keystroke	Definitions
Incidents Stage 01 Background Symbol (Background)		!	The background fill shape for the Incidents symbol, Level 1
Incidents Stage 01 Frame Symbol (Frame)		#	The frame shape for the Incidents symbol, Level 1
Civil Disturbance Incident (Theme)		A	Human activities resulting in the disrupting of services or requiring varying levels of support, law enforcement, or attention
Civil Demonstrations (Civil Disturbance Feature)		B	A public display of group feelings toward a person or cause ¹
Civil Displaced Population (Civil Disturbance Feature)		C	Persons or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, violations of human rights, or natural or human-made disasters ²
Civil Rioting (Civil Disturbance Feature)		D	A public disturbance involving (1) an act or acts of violence by one or more persons part of an assemblage of three or more persons, which act or acts shall constitute a clear and present danger of, or shall result in, damage or injury to the property of any other person or to the person of any other individual, or (2) a threat or threats of the commission of an act or acts of violence by one or more persons part of an assemblage of three or more persons having, individually or collectively, the ability of immediate execution of such threat or threats, where the performance of the threatened act or acts of violence would constitute a clear and present danger of, or would result in, damage or injury to the property of any other person or to the person of any other individual ³
Criminal Activity Incident (Theme)		E	An unlawful pursuit or action in which an individual participates ⁴
Bomb Threat (Criminal Activity Feature)		F	A warning of the possible presence of a bomb or expression of the intention to detonate a bomb
Bomb (Criminal Activity Feature)		G	An explosive device fused to detonate under specific conditions ⁵
Bomb Explosion (Criminal Activity Feature)		H	A violent outburst resulting from detonation of a chemical or nuclear explosive or from the loss of a high pressure vessel's integrity












(continues)

Table 10.3.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Looting (Criminal Activity Feature)		I	Burglary committed within an affected area during an emergency ⁶
Poisoning (Criminal Activity Feature)		J	Use of a poisonous substance to injure or kill ¹
Shooting (Criminal Activity Feature)		K	Use of a firearm to kill or injure or to damage property ¹
Fire Incident (Theme)		L	The destructive act of something burning, caused by electrical or technological malfunction, lightning, arson, human error, or human negligence
Hot Spot (Fire Incident Feature)		P	An area of intensified fire activity and increased heat or a particularly active part of a fire
Non-Residential Fire (Fire Incident Feature)		Q	A fire that originates at or affects a non-residential or commercial facility, resulting in partial damage or total destruction of the structure and/or bodily injury, smoke inhalation, or death
Origin (Fire Incident Feature)		R	Location of where the fire started ⁷
Residential Fire (Fire Incident Feature)		S	A fire affecting a home or housing complex, resulting in partial or total destruction of the structure and/or bodily injury, smoke inhalation, or death
School Fire (Fire Incident Feature)		T	A fire that originates at or affects an educational facility, resulting in partial or total destruction of the structure and/or bodily injury, smoke inhalation, or death
Smoke (Fire Incident Feature)		U	The visible products of combustion rising above the fire ⁸
Special Needs Fire (Fire Incident Feature)		V	A fire that affects special treatment facilities, such as nursing homes or assisted living centers, resulting in partial or total destruction of the structure and/or bodily injury, smoke inhalation, or death
Wild Fire (Fire Incident Feature)		W	An uncontrolled fire in a wooded area ⁹
Hazardous Incident (Theme)		X	See footnote ¹⁰













(continues)

Table 10.3.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Chemical Agent (Hazardous Incident Feature)		Y	A chemical substance that is intended for use in military operations to kill, resulting in psychological disorientation, serious injury, incapacitation, or death ¹¹
Corrosive Material (Hazardous Incident Feature)		Z	Uncontrolled or potentially dangerous presence of a liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time
Dangerous When Wet (Hazardous Incident Feature)		a	Uncontrolled or potentially dangerous presence of a material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 L/hr per kilogram of the material per hour (0.48 qt/hr/lb)
Explosive (Hazardous Incident Feature)		b	Uncontrolled or potentially dangerous presence of any substance or article, including a device that is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion
Flammable Gas (Hazardous Incident Feature)		c	Uncontrolled or potentially dangerous presence of any material that is a gas at 20°C (68°F) or less and 101.3 kPa (14.7 psia) of pressure [a material that has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psia)], that is ignitable at 101.3 kPa (14.7 psia) when in a mixture of 13 percent or less by volume with air, or that has a flammable range at 101.3 kPa (14.7 psia) with air of at least 12 percent regardless of the lower limit
Flammable Liquid (Hazardous Incident Feature)		d	Uncontrolled or potentially dangerous presence of a liquid having a flash point of not more than 60.5°C (141°F)
Flammable Solid (Hazardous Incident Feature)		e	Uncontrolled or potentially dangerous presence of desensitized explosives that when dry are explosives of Class 1, which are wetted with sufficient water, alcohol, or plasticizer to suppress explosive properties
Nonflammable Gas (Hazardous Incident Feature)		f	Uncontrolled or potentially dangerous presence of any material (or mixture) that exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20°C (68°F) and is not classified as a flammable gas
Organic Peroxides (Hazardous Incident Feature)		g	No definition
Oxidizers (Hazardous Incident Feature)		h	Uncontrolled or potentially dangerous presence of a material that can, generally by yielding oxygen, cause or enhance the combustion of other materials
Radioactive Material (Hazardous Incident Feature)		i	Uncontrolled or potentially dangerous presence of any material having a specific activity greater than 70 Bq/g (17 µCi/oz)





(continues)

Table 10.3.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Spontaneously Combustible (Hazardous Incident Feature)		j	Uncontrolled or potentially dangerous presence of a liquid or solid that, even in small quantities and without an external ignition source, can ignite within 5 minutes after coming in contact with air or a material that, when in contact with air and without an energy supply, is liable to self-heat
Toxic Gas (Hazardous Incident Feature)		k	Uncontrolled or potentially dangerous presence of a gas that presents a hazard to human health
Toxic and Infectious (Hazardous Incident Feature)		l	Uncontrolled or potentially dangerous presence of a poisonous substance that is a specific product of the metabolic activities of a living organism and is usually very unstable and can easily be transferred between organisms
Unexploded Ordnance (Hazardous Incident Feature)		m	Uncontrolled or potentially dangerous presence of an unexploded weapon or ammunition
Air Incident (Theme)		n	An event involving aircraft resulting in damage, bodily injury, death, or the disruption of transportation service
Air Accident (Air Incident Feature)		o	A sudden, unexpected event involving aircraft resulting in fuselage damage, bodily injury, death, and/or the disruption of transportation service, prompting emergency landing procedures or uncontrolled impact with the ground
Air Hijacking (Air Incident Feature)		p	The unexpected, unlawful, and forceful seizure of control aboard an aircraft by an individual or group of individuals resulting in passenger and crew endangerment, injury or death, and/or the redirection of flight destination ¹²
Marine Incident (Theme)		q	An event involving a boat or ship and resulting in damage, bodily injury, death, or the disruption of transportation service
Marine Accident (Marine Incident Feature)		r	A sudden, unexpected event involving a boat or ship and resulting in vessel submerging, damage, bodily injury, death, and/or the disruption of transportation service
Marine Hijacking (Marine Incident Feature)		s	The unexpected, unlawful, and forceful seizure of control aboard a boat or ship by an individual or group of individuals resulting in passenger and crew endangerment, injury or death, and/or the redirection of destination ¹²
Rail Incident (Theme)		t	An event involving a train and resulting in damage, bodily injury, death, or the disruption of transportation service
Rail Accident (Rail Incident Feature)		u	A sudden, unexpected event involving a wheeled or tracked vehicle resulting in derailment, damage, bodily injury, death, and/or the disruption of transportation service

(continues)

△ Table 10.3.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Rail Hijacking (Rail Incident Feature)		v	The unexpected, unlawful, and forceful seizure of control aboard a wheeled or tracked vehicle by an individual or group of individuals resulting in passenger and crew endangerment, injury or death, and/or the redirection of destination ¹²
Vehicle Incident (Theme)		w	An event involving a wheeled or tracked vehicle and resulting in damage, bodily injury, death, or the disruption of transportation service
Vehicle Accident (Vehicle Incident Feature)		x	A sudden, unexpected event involving a vehicle and resulting in damage, bodily injury, death, and/or the disruption of transportation service
Vehicle Hijacking (Vehicle Incident Feature)		y	The unexpected, unlawful, and forceful seizure of control aboard a vehicle by an individual or group of individuals resulting in passenger and crew endangerment, injury or death, and/or the redirection of destination ¹²

Notes:

¹Source: Merriam-Webster Online Dictionary.

²Source: United Nations *Guiding Principles on Internally Displaced Persons*, 1998.

³Source: 18 USC Section 2102.

⁴Source: www.dictionary.com; combined definitions of *criminal* and *activity*.

⁵Source: International military definition.

⁶Source: <http://peace-officers.com/glossary>.

⁷Source: US Department of Agriculture, Forest Service, www.fs.fed.us.

⁸Source: www.firewise.org












⁹Source: www.realdictionary.com.

¹⁰ All the proposed definitions for *hazardous incident* are from the Office of Hazardous Materials Safety, Hazmat Regulations and Interpretations.

¹¹Source: Adapted from NATO definition, www.nato.int/docu/stanag/aap006/aap6.htm.












¹²Source: www.dictionary.com, definition of *hijack*.

Table 10.4.2 Natural Events Symbology Reference

Symbol Types and Terms	Symbols	Keystroke	Definition
Natural Events Stage 01 Background Symbol (Background)		!	The background fill shape for the Natural Events symbol, Level 1
Natural Events Stage 01 Frame Symbol (Frame)		#	The frame shape for the Natural Events symbol, Level 1
Geologic (Theme)	Reserved		
Aftershock (Geologic Feature)		A	An earthquake that follows a larger earthquake and originates at or near the latter's focus ¹
Avalanche (Geologic Feature)		B	A large mass of snow, ice, soil, or rock, or mixtures of these materials, falling, sliding, or flowing very rapidly under the force of gravity ¹
Earthquake Epicenter (Geologic Feature)		C	The point on the earth's surface directly above the focus of an earthquake ¹
Landslide (Geologic Feature)		D	A general term for a wide variety of processes and landforms involving the down slope movement under the force of gravity of masses of soil and rock material ¹
Subsidence (Geologic Feature)		E	Sinking or downward settling of the Earth's surface ¹
Volcanic Eruption (Geologic Feature)		F	The ejection of volcanic materials (lava, pyroclasts, and volcanic gases) from a vent or fissure in the Earth's crust ¹
Volcanic Threat (Geologic Feature)		G	A vent or fissure in the Earth's crust where volcanic eruption is believed to be imminent ²
Hydro-Meteorologic (Theme)	Reserved		
Drizzle (Hydro-Meteorologic Feature)		H	Sometimes called <i>mist</i> ; very small, numerous, and uniformly dispersed water droplets that appear to float while following air currents and that, unlike fog droplets, fall to the ground
Drought (Hydro-Meteorologic Feature)		I	A period of abnormally dry weather sufficiently prolonged for the lack of water to cause a serious hydrologic imbalance across the affected area. Drought severity depends upon the degree of moisture deficiency, the duration, and (to a lesser extent) the size of the affected area. In general, the term should be reserved for periods of moisture deficiency that are relatively extensive in both space and time.






(continues)

Table 10.4.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definition
Flood (Hydro-Meteorologic Feature)		J	A relatively high stream flow that overtops the stream banks in any part of its course, covering land that is not normally under water ¹ ; a condition that occurs when water overflows the natural or artificial confines of a stream or other body of water, or accumulates by drainage over low-lying areas
Fog (Hydro-Meteorologic Feature)		K	A visible aggregate of minute water droplets suspended in the atmosphere near the Earth's surface [According to international definition, fog reduces visibility to less than 1 km (5/8 mi). Fog differs from clouds only in that the base of the fog is at the Earth's surface, while clouds are above the surface.]
Hail (Hydro-Meteorologic Feature)		L	Precipitation in the form of circular or irregular-shaped lumps of ice ³
Inversion (Hydro-Meteorologic Feature)		M	A departure from the standard decrease or increase with altitude of value of an atmosphere property; almost always used to mean temperature inversion
Rain (Hydro-Meteorologic Feature)		N	Precipitation in the form of liquid water drops that have diameters greater than 0.5 mm (0.2 in.)
Sand Dust Storm (Hydro-Meteorologic Feature)		O	A strong wind carrying sand through the air, the diameter of most of the particles ranging from 0.08 mm to 1 mm (0 to 0.04 in.); in contrast to a dust storm, sand particles mostly confined to the lowest 0.6 m (2 ft) and rarely rising more than 15.2 m (50 ft) above the ground
Snow (Hydro-Meteorologic Feature)		P	Precipitation composed of white or translucent ice crystals, chiefly of complex branched hexagonal form and often agglomerated into snowflakes
Thunderstorm (Hydro-Meteorologic Feature)		Q	A consequence of atmospheric instability that constitutes an overturning of layers in order to achieve a more stable atmosphere; generally produces lightning, thunder, strong gusts of wind, heavy rain, and sometimes hail
Tornado (Hydro-Meteorologic Feature)		R	A violently rotating column, or funnel, of air in contact with the ground and extending from the base of a thunderstorm ³
Tropical Cyclone (Hydro-Meteorologic Feature)		S	The general term for a cyclone that originates over the tropical oceans
Tsunami (Hydro-Meteorologic Feature)		T	A great sea wave produced by an earthquake or volcanic eruption, characterized by high speed of propagation, long wavelength, long period, and low observable amplitude on the open ocean ¹ ; can reach enormous dimensions and has sufficient energy to travel across entire oceans; no connection with tides, as can be inferred from the commonly used term <i>tidal wave</i>
Infestation (Theme)	Reserved		

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























































Table 10.4.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definition
Bird Infestation (Infestation Feature)		U	A harassing or troublesome invasion of birds ⁴
Insect Infestation (Infestation Feature)		V	A harassing or troublesome invasion of insects
Microbial Infestation (Infestation Feature)		W	A harassing or troublesome invasion of microbes
Reptile Infestation (Infestation Feature)		X	A harassing or troublesome invasion of reptiles
Rodent Infestation (Infestation Feature)		Y	A harassing or troublesome invasion of rodents

Notes:













































¹Source: *Dictionary of Geological Terms*, 3rd edition.²Source: Logical extension of *volcanic eruption*.³Source: Adapted from National Weather Service glossary, www.nws.noaa.gov/glossary.htm.⁴Source: Derived from the definition of *infestation* in FactMonster.com dictionary.

Table 10.5.2 Infrastructure Symbolgy Reference

Symbol Types and Terms	Symbols	Keystroke	Definitions
Infrastructures Background Symbol (Background)	   	!	The background fill shape for the Infrastructures symbol, Level 1
Infrastructures Frame Symbol (Frame)	   	#	The frame shape for the Infrastructures symbol, Level 1
Agriculture and Food Infrastructure (Theme)	   	\$	Production and retail services of foodstuffs
Agricultural Laboratory (Agriculture and Food Feature)	   	%	Facilities used for scientific research in farming
Animal Feedlot (Agriculture and Food Feature)	   	&	Area designated for feeding livestock
Commercial Food Distribution Center (Agriculture and Food Feature)	   	(Facility used for the disbursement of marketable foodstuffs
Farm/Ranch (Agriculture and Food Feature)	   )	A piece of land on which crops or animals are raised
Food Production Center (Agriculture and Food Feature)	   	*	The locus where foodstuffs are produced
Food Retail (Agriculture and Food Feature)	   	+	Facility where foodstuffs are sold for a profit
Grain Storage (Agriculture and Food Feature)	   	'	Facility used for the housing of cereal seeds such as corn, wheat, or barley
Banking, Finance, and Insurance Infrastructure (Theme)	   	–	The management of money and other assets and their protection ¹
ATM (Banking, Finance, and Insurance Feature)	   	.	An unattended machine commonly located at a bank's exterior that dispenses money when a personal coded card is inserted ²
Bank (Banking, Finance, and Insurance Feature)	   	/	A business establishment in which money is kept for saving for commercial purposes or is invested, supplied for loans, or exchanged ¹
Bullion Storage (Banking, Finance, and Insurance Feature)	   	0	A facility used to deposit and warehouse gold or silver bars or ingots ³
Federal Reserve Bank (Banking, Finance, and Insurance Feature)	   	1	One of twelve regional banks that monitor and act as depositories for banks in their region ²





















































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Table 10.5.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Financial Exchange (Banking, Finance, and Insurance Feature)	   	2	A marketplace in which shares, options, and futures on stocks, bonds, commodities, and indexes are traded ⁴
Financial Service Other (Banking, Finance, and Insurance Feature)	   	3	A business establishment, other than a bank, for the provision of financial or monetary-related products and services; a location that deals with money management business
Commercial Infrastructure (Theme)	   	4	The locus of where a business enterprise is undertaken ²
Chemical Plant (Commercial Infrastructure Feature)	   	5	An industrial site where chemical substances and/or compounds are produced ²
Firearm Manufacturer (Commercial Infrastructure Feature)	   	6	A location where hand weapons of explosive force when shot are mass produced ⁵
Firearm Retailer (Commercial Infrastructure Feature)	   	7	A location where hand weapons of explosive force when shot are sold ⁶
Hazardous Material Production (Commercial Infrastructure Feature)	   	8	The locus of where hazardous chemicals and/or substances are produced and stored under regulated conditions
Hazardous Material Storage (Commercial Infrastructure Feature)	   	9	A storing location for a substance or combination of substances that, because of quantity, concentration, or physical, chemical, radiological, explosive, or infectious characteristics, poses a potential danger to humans and/or the environment ⁷
Industrial Site (Commercial Infrastructure Feature)	   	:	The locus of an industrial facility or facilities used for the commercial production and selling of manufactured goods ¹
Landfill (Commercial Infrastructure Feature)	   	;	An area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile ⁸
Pharmaceutical Manufacturer (Commercial Infrastructure Feature)	   	=	The location where medicinal drugs are mass produced ⁹





























































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Table 10.5.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Superfund Site National Priorities List (Commercial Infrastructure Feature)	   	?	A location in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency as a candidate for cleanup because it poses a risk to human health and/or the environment ¹⁰
Toxic Release Inventory (Commercial Infrastructure Feature)	   	@	The location according to a publicly available database of chemical and other toxic waste releases ¹⁰
Educational Facilities Infrastructure (Theme)	   	A	A building or collection of buildings or places in which knowledge is provided ¹¹
College/University (Educational Facilities Feature)	   	B	An institution of higher learning offering courses of studies leading to bachelor's, master's, or doctoral degrees ¹²
School (Educational Facilities Feature)	   	C	A facility for the primary and secondary education of children ¹³
Energy Facilities Infrastructure (Theme)	   	D	A building or collection of buildings and/or places that generates and provides electrical power
Generation Station (Energy Facilities Feature)	   	E	A facility equipped with special equipment used for the production of heat or electricity ¹⁴
Natural Gas Facility (Energy Facilities Feature)	   	F	A location equipped with special equipment used to generate natural gas power
Nuclear Facility (Energy Facilities Feature)	   	G	A location equipped with special equipment used to generate nuclear power
Petroleum Facility (Energy Facilities Feature)	   	H	A building or place that provides and distributes petroleum gas
Propane Facility (Energy Facilities Feature)	   	I	A building or place that provides and distributes propane gas
Government Site Infrastructure (Theme)	   	J	The locus of where executive, legislative, and/or judicial activities take place in the service of the government
Military Infrastructure (Theme)	   	K	Refers collectively to the four major branches of the United States' armed forces as associated with armed services as contrasted with civilians





















































(continues)

Table 10.5.2 Continued

Symbol Types and Terms	Symbols	Keystroke	Definitions
Military Armory (Military Feature)	   	L	A military structure where arms and ammunition and other military equipment are manufactured and stored, and also where training is given in the use of arms ²
Military Base (Military Feature)	   	M	The locus of where military personnel, weapons, and supplies are located and also where attacks and other operations are coordinated and launched
Postal Service Infrastructure (Theme)	   	N	The system whereby letters and other parcels are transmitted and delivered via the post office
Postal Distribution Center (Postal Feature)	   	O	A US Postal Service (USPS) facility where mail is sorted and routed
Post Office (Postal Feature)	   	P	A USPS facility that directly delivers postal services to the public
Public Venue Infrastructure (Theme)	   	Q	An unrestricted place or places and events for a large gathering of people ¹
Church (Public Venues Feature)	   	R	A building for public and especially Christian worship ¹³
Enclosed Facility (Public Venues Feature)	   	S	A roofed facility with walls
Mosque (Public Venues Feature)	   	T	A building used for public worship by Muslims ¹³
Open Facility (Public Venues Feature)	   	U	An open-air facility with or without walls, for example, a stadium or a parking lot
Recreational Area (Public Venues Feature)	   	V	A place dedicated to the refreshment of strength and spirits after work ¹³
Religious Institution (Public Venues Feature)	   	W	Any place of worship where religious services are held or prayers are said by a congregation loyal to a belief
Synagogue (Public Venues Feature)	   	X	The house of worship and communal center of a Jewish congregation ¹³
Temple (Public Venues Feature)	   	Y	A building for Mormon sacred ordinances ¹³
Special Needs Infrastructure (Theme)	   	Z	Of or relating to people who have specific needs, such as those associated with a disability ¹





















































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Table 10.5.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Adult Day Care (Special Needs Feature)	   	[The locus of a nonresidential facility that provides supervision and assisted living services to adults, typically during the daylight hours
Child Day Care (Special Needs Feature)	   ]	A service involving care for other people's children ¹
Elder Care (Special Needs Feature)	   	^	The locus of a nursing home or a residential assisted-living facility in which full-time care is provided for the chronically ill, disabled, and elderly
Telecommunications Infrastructure (Theme)	   	‘	The electronic systems used in transmitting messages, as by telegraph, cable, telephone, radio, television, or computer ¹
Telecommunications Facility (Telecommunications Feature)	   	a	Any facility housing telecommunications equipment, studios, control rooms, or personnel
Telecommunications Tower (Telecommunications Feature)	   	b	A structure typically higher than its diameter and high relative to its surroundings to which telecommunications antennae are affixed ¹³
Transportation Infrastructure (Theme)	   	c	Infrastructure, means of transport, and equipment necessary for the movement of passengers and/or goods
Air Traffic Control Facility (Transportation Feature)	   	d	A facility operated by the appropriate authority to promote the safe, orderly, and expeditious flow of air traffic ⁸
Airport (Transportation Feature)	   	e	An area of land or other hard surface, excluding water, that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any ⁸
Bridge (Transportation Feature)	   	f	A structure built over a gap to connect and maintain transportation flow between both sides of the gap ¹⁵
Bus Station (Transportation Feature)	   	g	A terminal that serves bus passengers ²
Ferry Terminal (Transportation Feature)	   	h	The location of a vehicle-carrying and commuter boat line terminus ¹
Helicopter Landing Site (Transportation Feature)	   	i	A site within a landing zone that contains one or more points for helicopters to land ¹⁶

(continues)

Table 10.5.2 *Continued*

Symbol Types and Terms	Symbols	Keystroke	Definitions
Lock (Transportation Feature)	   	j	An enclosed part of a canal or river equipped with gates for raising or lowering the level of water so that boats and other vessels can pass ¹⁵
Maintenance Facility (Transportation Feature)	   	k	A location where vehicles, machines, or any other mechanical devices are serviced for inspection or repair ²
Port (Transportation Feature)	   	l	A location on a waterway with facilities for loading and unloading ships and other vessels ¹
Rail Station (Transportation Feature)	   	m	A depot where tracked transport vehicles or trains load and/or unload passengers or goods ¹⁷
Rest Stop (Transportation Feature)	   	n	A roadside facility at which motorists can purchase refreshments, use restrooms, and/or acquire area information
Ship Anchorage (Transportation Feature)	   	o	A location suitable for securely anchoring ships and other vessels ¹
Toll Facility (Transportation Feature)	   	p	A gate or booth at which money is collected before and/or after motorists enter or exit a toll road (turnpike) ¹⁵
Traffic Control Point (Transportation Feature)	   	q	The location of absolute signals controlled by an operator to regulate and maintain transportation flow
Traffic Inspection Facility (Transportation Feature)	   	r	Permanent facility equipped with scales where motor (shipping) vehicles transporting goods on public highways are required to stop and obtain gross vehicle and/or axle weights ¹⁸
Tunnel (Transportation Feature)	   	s	An underground passageway used to connect and maintain transportation flow between physical or human-built obstructions ¹⁵
Water Supply Infrastructure (Theme)	   	t	The storage, disinfection, filtration, and provision of drinking water to the consumer/ community by means of pipelines, pumps, water towers, wells, and other appurtenances ¹⁹
Critical Valve (Water Supply Feature)	   	u	A valve that regulates the speed, flow, or pressure of a fluid ²⁰
Dam (Water Supply Feature)	   	v	A barrier constructed across a waterway to control the flow or raise the level of water ¹

(continues)