



First Revision No. 93-NFPA 2500-2025 [Global Input]

Wherever NFPA 1550 (previously 1561 in the 2022 edition) is referenced, replace with "1550 or other applicable safety policies, laws, or regulations".

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Sun Mar 02 20:55:41 EST 2025

Committee Statement

Committee Statement: In some situations, there are other safety policies, laws, or regulations that may supersede NFPA 1550.

Response Message: FR-93-NFPA 2500-2025



First Revision No. 3-NFPA 2500-2025 [Sections 3.3.81, 3.3.82]

3.3.81* FEMA Task Force Structure/Hazard Evaluation Marking System:

Distinct markings made with international orange spray paint, after performing a building hazard identification, near a collapsed structure's most accessible point of entry.

A.3.3.81 FEMA Task Force Structure/Hazard Evaluation Marking System:

Markings are made by drawing a 2 ft × 2 ft (0.6 m × 0.6 m) square box and denoting in and around the box specific relevant hazard information (e.g., general level of operation safety, direction of safest entry, time and date of search, hazards found, team involved). Figure F.3(a) illustrates the structure/hazard evaluation marking system. For more information, see "FEMA National Urban Search and Rescue (US&R) Response System."

3.3.82* FEMA Task Force Structure Marking System, Structure Identification Within a Geographic Area:

Distinct markings made with international orange spray paint to label buildings with their street number so that personnel can differentiate one building from another.

A.3.3.82 FEMA Task Force Structure Marking System, Structure Identification Within a Geographic Area:

The primary method of identification includes the existing street name, hundred block, and building number. Structure identification within a geographic area is used to differentiate buildings by groups, such as by block(s) or by jurisdictional area. Figure F.4(a) illustrates the building ID and location marking system. For more information see "FEMA National Urban Search and Rescue (US&R) Response System," Appendix C, "Task Force Building Marking System."

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Tue Jan 07 17:27:00 EST 2025

Committee Statement

Committee Statement: These terms are not used within the body of the standard, and this revision is in alignment with changes to Annex F wherein the technical committee is more broadly pointing to FEMA and INSARAG as resources for the users of this standard for marking systems.

Response Message: FR-3-NFPA 2500-2025



First Revision No. 89-NFPA 2500-2025 [Section No. 4.1.1.1]

4.1.1.1*

Chapters 4 through 23 shall identify and establish levels of functional capability for ~~conducting operations at~~ organizations providing search and rescue services at technical search and rescue incidents while minimizing threats to rescuers.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Sun Mar 02 19:51:01 EST 2025

Committee Statement

Committee Statement: Proposed by TEC-AAA. This revision broadens the applicability of the requirements beyond only conducting operations, so that it includes all technical search and rescue activities, including training. The revision emphasizes the applicability of NFPA 2500 to organizations and aligns with the change to the title. The added Annex material further explains the differences in applicability of NFPA 2500 and NFPA 1006.

Response Message: FR-89-NFPA 2500-2025

**First Revision No. 5-NFPA 2500-2025 [New Section after 4.6.4]****4.6.5* Watermanship Test.**

Any organization intending to perform technical search and rescue at the technician level in a water environment shall provide for and require a watermanship test applicable for the environment.

A.4.6.5

Requiring a watermanship test for organizations ensures that all technicians demonstrate competence and aptitude in water environments. Water is one of the few environments that is always IDLH for the rescuer and therefore deserves special consideration.

It is intended that the watermanship test be required for the organization's members that perform entry-based search and rescue.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Tue Jan 07 19:04:30 EST 2025

Committee Statement

Committee Statement: This revision ensures that organizations provide that all technicians achieve comfort and aptitude in water environments in addition to the existing requirements for dive search and rescue. Water is one of the few environments that is always immediately dangerous to life and health of the rescuer and therefore deserves special consideration.

Response Message: FR-5-NFPA 2500-2025



First Revision No. 15-NFPA 2500-2025 [Section No. 5.4.2]

5.4.2*

Organizations operating at the technician level for rope rescue incidents shall develop and implement procedures, commensurate with the identified needs of the organization, for the following:

- (1)* Accessing a patient using techniques that require rescuers to climb ~~up~~ vertically or ~~down~~ horizontally on natural or man-made structures, which can expose the climber to a significant fall hazard

A.5.4.2(1)

These techniques typically rely on the rescuer's ability to climb or rest on a structure or natural terrain that presents a significant fall hazard and requires specialized tools or training to protect the rescuer from the effects of a fall. These might include, but are not limited to, conventional lead climbing with a bottom belay, ~~use of~~ double lanyards, positioning ~~belts~~ systems, shepherd's hooks or click sticks, and top belay methods.

- (2)* Using rope rescue systems to move a rescuer and a patient along a horizontal path above an obstacle or projection

A.5.4.2(2)

This procedure is meant to encompass systems such as, but not ~~restricted~~ limited to, those using high lines, two-rope offsets, deflection, tracking, and guiding lines. A rope or similar line that is connected directly to the load being raised or lowered (often referred to as a tag line) and effectively managed by a rescuer to pull the load out and away from simple inline projections or obstructions is not intended to be a technician-level function.

- (3)* Performing a high-angle rope rescue of a person suspended from, or stranded on, a structure or landscape feature

A.5.4.2(3)

This requirement is intended to address situations such as a patient suspended from a piece of fall protection or a piece of functional or nonfunctional climbing equipment; or a patient entangled in, or clinging to, some part of a structure or landscape feature.

- (4) Applying the principles of the physics involved in constructing rope rescue systems, including system safety ~~factors~~, ~~critical angles~~ force distribution, and the causes and ~~effects~~ management of force ~~multipliers~~ within a system
- (5) Performing a high-angle rope rescue with a litter using a tender(s) to negotiate obstacles, manipulate or position the patient, or provide medical care while being raised and lowered
- (6) Performing rope rescue operations where the subject is in emotional or psychological crisis or distress

Supplemental Information

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
2500_FR-15_5.4.2.docx		

Submitter Information Verification

Committee: TEC-AAA
Submittal Date: Wed Jan 08 15:40:32 EST 2025

Committee Statement

Committee Statement:	Some rescues require both vertical and horizontal access. Horizontal access was not addressed in previous language. The belt information in the associated Annex was edited to support the addition of horizontal movement on a rescue.
Response Message:	Regarding the changes to (4), this revision creates the opportunity to consider, understand, and use evolving modern concepts in rope rescue, such as spanned anchors, dynamic testing, and force-limiting devices. FR-15-NFPA 2500-2025



First Revision No. 4-NFPA 2500-2025 [Section No. 6.2.2]

6.2.2

Organizations operating at the awareness level for structural collapse incidents shall implement procedures for the following:

- (1) Initiating size-up to ascertain immediate response needs at a structural collapse search and rescue
- (2)* Identifying the resources necessary to conduct structural collapse search and rescue operations
- (3)* Initiating the emergency response system for structural collapse incidents
- (4)* Initiating site control and scene management
- (5)* Recognizing the general hazards associated with structural collapse incidents, including the recognition of applicable construction types and categories and the expected behaviors of components and materials in a structural collapse
- (6)* Identifying all types of collapse patterns and potential victim locations
- (7)* Recognizing the potential for secondary collapse
- (8)* Conducting visual and verbal searches at structural collapse incidents, ~~while~~ using approved methods for the specific type of collapse
- (9)* Recognizing and implementing a ~~search and rescue/search assessment marking system; building marking system (structure/hazard evaluation); victim location marking system; and structure marking system (structure identification within a geographic area), such as the ones used by the "FEMA National Urban Search and Rescue (US&R) Response System" marking system for the status and location of buildings, the progress of the search, and the status and location of victims~~
- (10) Removing readily accessible victims from structural collapse incidents
- (11*) Identifying and establishing a collapse safety zone
- (12*) Conducting reconnaissance (recon) of the structure(s) and surrounding area
- (13) Supporting an organization at the operations or technician level while functioning within an IMS

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Tue Jan 07 17:35:43 EST 2025

Committee Statement

Committee Statement: This revision aligns with changes made to Annex F and Chapter 3 wherein the technical committee is more broadly pointing to FEMA and INSARAG as resources in the Annex for the users of this standard for marking systems.

Response Message: FR-4-NFPA 2500-2025



First Revision No. 17-NFPA 2500-2025 [Section No. 7.3.1]

7.3.1

Organizations operating at the operations level for confined space search and rescue incidents shall meet the requirements specified in Sections ~~5.3~~, ~~7.2~~, and 7.3.

7.3.1.1

Organizations operating at the operations level for confined space search and rescue incidents that use rope systems shall meet the requirements specified in Section ~~5.3~~.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 17:02:32 EST 2025

Committee Statement

Committee Statement: Rope operations are not always required at an operations level confined space search and rescue incident. This revision allows for alternate systems.

Response Message: FR-17-NFPA 2500-2025

**First Revision No. 9-NFPA 2500-2025 [Section No. 8.2.3]****8.2.3**

Organizations operating at the awareness level for vehicle emergencies shall implement procedures for the following:

- (1) Initiating size-up to ascertain immediate response needs at a vehicle search and rescue incident
- (2)* Identifying the resources necessary to conduct operations
- (3)* Initiating the emergency response system for vehicle search and rescue incidents
- (4)* Initiating site control and scene management in accordance with NFPA 1091
- (5)* Recognizing general hazards associated with vehicle search and rescue incidents, including potential hazards associated with emerging technologies
- (6) Initiating traffic control and implementing a traffic incident management area (TIMA) as defined in NFPA 1091
- (7) Establishing that individuals responsible for implementing the TIMA do so in accordance with NFPA 1091
- (8) Supporting an organization at the operations or technician level while functioning within an IMS

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 12:44:23 EST 2025

Committee Statement

Committee Statement: Given the emergence of autonomous vehicles and machinery systems as well as other emerging technologies, it is critical that responders are aware of their concurrent hazards and additional render-safe procedures.

Response Message: FR-9-NFPA 2500-2025

**First Revision No. 11-NFPA 2500-2025 [Section No. 9.2.3]****9.2.3**

Organizations operating at the awareness level for animal rescue incidents shall develop and implement procedures for the following:

- (1) Initiating size-up to ascertain immediate response needs at an animal rescue incident
- (2) Identifying resources necessary to conduct animal rescue operations
- (3) Carrying out the emergency response system where animal rescue operations are required
- (4) Carrying out site control and scene management; ~~to include~~ , including mitigating hazards presented by animals ~~and~~ , knowing how to contain ~~them~~ such hazards in all phases of the incident; ~~to include~~ , and using portable fencing, cages, traps, or other equipment as available
- (5) Recognizing general hazards associated with animal rescue operations and the procedures necessary to mitigate these hazards
- (6) Identifying and using PPE assigned for use at an animal rescue incident
- (7) Requesting the appropriate assistance to determine if a technical rescue vs. recovery will be conducted
- (8) Recognizing and identifying the special equipment and personnel used in animal rescue incidents
- (9) Understanding the social, political, and public safety issues related to effective animal rescue services
- (10) Recognizing hazmat and biosecurity considerations involving animal rescue and requesting resources to deal with those issues
- (11) Supporting an organization at the operations or technician level while functioning within an IMS

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 13:04:01 EST 2025

Committee Statement

Committee Statement: Addition of biosecurity addresses zoonotic disease concerns which may be present, particularly with respect to animals on commercial agricultural properties, production animals involved in trailer accidents, etc.

Response Message: FR-11-NFPA 2500-2025

**First Revision No. 10-NFPA 2500-2025 [Section No. 12.2.3]****12.2.3**

Organizations operating at the awareness level for machinery emergencies shall implement procedures for the following:

- (1)* Initiating size-up to ascertain immediate response needs at a machinery rescue incident
- (2)* Recognizing the need for a machinery search and rescue
- (3)* Identifying the resources necessary to conduct operations
- (4)* Initiating the emergency response system for machinery search and rescue incidents
- (5)* Initiating site control and scene management
- (6)* Recognizing general hazards associated with machinery search and rescue incidents, including potential hazards associated with emerging technologies
- (7)* Supporting an operations- or technician-level machinery rescue incident while functioning within an IMS

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 12:47:09 EST 2025

Committee Statement

Committee Statement: Given the emergence of autonomous vehicles and machinery systems as well as other emerging technologies, it is critical that responders are aware of their concurrent hazards and additional render-safe procedures.

Response Message: FR-10-NFPA 2500-2025



First Revision No. 12-NFPA 2500-2025 [Section No. 23.3.1.2]

23.3.1.2*

Organizations at the awareness level shall be responsible for removal or retrieval of the subject only in cases where climbing the tower is not required and fall hazards are ~~eliminated~~ controlled .

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 13:56:29 EST 2025

Committee Statement

Committee Statement: Fall hazards are not eliminated in certain search and rescue situations, like aerial work platforms or on a ladder, but they are controlled.

Response Message: FR-12-NFPA 2500-2025



First Revision No. 13-NFPA 2500-2025 [Section No. 23.4.2]

23.4.2

Operations-level organizations ~~are restricted~~ shall be limited to tower rescue response where all of the following conditions are true:

- (1) ~~Where a~~ A climbing ladder, integrated tower safety system, or both, are present, and rescuers can access the subject using available PPE and tower climbing techniques consistent with the requirements set forth ~~within in~~ in this chapter.
- (2) ~~Where the~~ The tower is not structurally compromised.
- (3) ~~Where the~~ The climb path is not obstructed.
- (4) ~~Where a~~ A rescue preplan exists for that particular tower site and advance preparation/planning has been performed with the tower owner/operator.
- (5) ~~Where the~~ The subject can be reached and evacuation can be performed in accordance with the preplan ~~in such a manner so as to avoid such that~~ additional hazards, entanglement, or restrictions to the rescue effort are avoided.
- (6) ~~Where the~~ The tower can accommodate two or more rescuers in addition to the victim.
- (7) ~~Where all~~ All hazards in and around the tower have been identified, isolated, and controlled.
- (8) ~~Where the~~ The operation is feasible using the equipment or systems with which the organization has been trained.
- (9) ~~Where the~~ The height and configuration of the tower does not ~~exceed 300 ft (91.44 m)~~ require the use of multi-pitch operations to remove the subject to the ground.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 14:20:30 EST 2025

Committee Statement

Committee Statement: This revision clarifies the distinction between operations level and technician level. The committee did not find where the 300 ft limit is relevant to these skillsets, nor is the limit addressed in or aligned with requirements in NFPA 1006, and was therefore modified.

Response Message: FR-13-NFPA 2500-2025



First Revision No. 14-NFPA 2500-2025 [Section No. 23.5.2]

23.5.2

Technician-level tower rescue capabilities ~~are~~ shall be required for tower rescues where any one or more of the following conditions exist:

- (1) ~~Where a~~ A climbing ladder or climbing pegs are not present.
 - (2) ~~Where an~~ An integrated tower safety system is not present.
 - (3) ~~Where the~~ The tower is structurally compromised.
 - (4) ~~Where the~~ The site is affected by hazards other than those directly related to the tower or fall protection.
 - (5) ~~Where the~~ The climb path is obstructed.
 - (6) ~~Where a~~ A rescue preplan does not exist, has been compromised, is infeasible, and/or is not sufficient to resolve the problem at hand.
 - (7) ~~Where the~~ The tower cannot accommodate more than one rescuer in addition to the victim.
 - (8) ~~Where the~~ The use of standard subject packaging devices, systems, and/or procedures is infeasible.
 - (9) ~~Where the~~ The capabilities of operations-level skills are exceeded.
- ~~Where the height of the tower exceeds 300 ft (91.44 m)~~

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 14:22:08 EST 2025

Committee Statement

Committee Statement: The requirement in previous (10) is already covered by the content in (9), and this revision reduces redundancy. This change aligns with the modified requirement in 23.4.2(9).

Response Message: FR-14-NFPA 2500-2025

**First Revision No. 1-NFPA 2500-2025 [Section No. A.4.1.1.1]****A.4.1.1.1**

Chapters 4 through 23 were developed to define levels of preparation and operational capability that should be achieved by any ~~authority having jurisdiction (AHJ)~~ that has responsibility for technical search and rescue operations . These defined levels provide an outline of a system used to manage an incident efficiently and effectively, to maximize personnel safety, and to bring about the successful rescue of victims and the eventual termination of the event. The system should be followed to increase the capabilities of the AHJ to deal successfully with even the most complex incident. The system progresses from the simple basic awareness level to the operations level; and, finally, to the technician level. It should be understood that, as the system expands, the requirements for training, operational skills, management ability, and types and amounts of equipment also expand.

Submitter Information Verification**Committee:** TEC-AAA**Submittal Date:** Tue Jan 07 13:52:49 EST 2025**Committee Statement**

Committee Statement: This revision broadens the applicability of the requirements beyond only conducting operations, so that it includes all technical search and rescue activities, including training. The revision emphasizes the applicability of NFPA 2500 to organizations and aligns with the change to the title.

Response Message: FR-1-NFPA 2500-2025



First Revision No. 18-NFPA 2500-2025 [Section No. A.7.1.2]

A.7.1.2

While much of this chapter applies to confined space rescue in industrial settings, it is intended for all incidents involving confined spaces as defined within this standard.

The requirements in this chapter are not intended to supersede or replace any requirements in existing or future codes, standards, and regulations applicable to confined space activities.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 17:51:34 EST 2025

Committee Statement

Committee Statement: This revision explains that users can apply rules and regulations that are not specified within NFPA 2500 as long as they supersede the requirements for confined space search and rescue.

Response Message: FR-18-NFPA 2500-2025



First Revision No. 7-NFPA 2500-2025 [Section No. A.8.2.3(5)]

A.8.2.3(5)



General hazards associated with operations at vehicle search and rescue incidents can present the AHJ with uniquely challenging situations. The AHJ should consider the following potential hazards when providing training to its members:

- (1) Fire or explosion
- (2) *Utilities.* Control of the utilities in and around a vehicle search and rescue incident is critical to ensure the safety of responding personnel and victims. The AHJ should provide its members with training in the control of these services to provide a safe environment in which to operate and to ensure the safety of victims. The following utilities should be considered when providing training:
 - (a) Electrical services (primary and secondary)
 - (b) Gas, propane, fuel oil, or other alternative energy sources (primary systems)
 - (c) Water
 - (d) Sanitary systems
 - (e) Communications
 - (f) Secondary service systems (~~such as e.g.,~~ compressed, medical, or industrial gases)
- (3) *Hazardous Materials.* Vehicle rescue incidents might include various materials that, when released during an incident, could pose a hazard to victims and responders. The AHJ should provide members with training in the recognition of potential hazardous material releases, the determination of an existing hazard, and the methods used to contain, confine, or divert hazardous materials to conduct operations safely and effectively.
- (4) *Personal Hazards.* At the site of any vehicle search and rescue incident, there are many dangers that pose personal injury hazards to the responders. The AHJ should train members to recognize the personal hazards they encounter and to use the methods needed to mitigate these hazards to help ensure their safety. Every member should be made aware of hazards such as trips, falls, blows, cuts, abrasions, punctures, and impalement, ~~and so forth~~.
- (5) *Movement of Vehicle(s).* Uncontrolled movement of vehicle(s) can cause extremely hazardous and potentially fatal situations. Responding personnel should be familiar with and trained in techniques for stabilizing and removing the potential for movement of vehicle(s).
- (6) *Release of High-Pressure Systems.* Vehicles often include high-pressure systems (e.g., hydraulic, pneumatic) that can fail without warning. Such failure can cause extremely hazardous conditions, injury, and death of victims and responders. The AHJ should provide members with training in the recognition of potential high-pressure system hazards, the determination of an existing hazard, and the methods used to contain, confine, or divert such hazards to conduct operations safely and effectively.
- (7) *Blood and Body Substances.* Vehicle incidents typically result in injury to occupants of the vehicle or those in the vicinity. The AHJ should train its members on procedures and equipment used to protect the responder from communicable diseases that are known to be transmitted through blood and other body substances. This equipment usually includes the use of fluid impervious gloves, goggles, masks, and gowns/coveralls.
- (8) *Hybrid, Electric, and Alternative Propulsion Systems.* Vehicles that use power sources separate from and in addition to conventional internal combustion engines can present hazards to untrained responders even if the vehicle is not compromised. The AHJ should provide training to its members on recognition of these propulsion systems and how to safely operate in and around them.
- (9) *Other Hazards.* There are numerous other hazards ~~associated~~, including new and emerging vehicle technologies (e.g., autonomous, semi-autonomous, remotely operated, sustainable manufacturing) associated with vehicle search and rescue incidents. The AHJ should make every effort to identify the hazards types of vehicles that might be encountered within the jurisdiction and should provide members with training and awareness of these ~~other hazards vehicles~~ to allow them to perform search and rescue operations safely and effectively.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 12:28:13 EST 2025

Committee Statement

Committee Statement: Given the emergence of autonomous vehicles and machinery systems as well as other emerging technologies, it is critical that responders are aware of their concurrent hazards and additional render-safe procedures.

Response Message: FR-7-NFPA 2500-2025



First Revision No. 8-NFPA 2500-2025 [Section No. A.12.2.3(6)]

A.12.2.3(6) [🔗](#)

General hazards associated with operations at machinery search and rescue incidents can present the AHJ with uniquely challenging situations. The AHJ should consider the following potential hazards when providing training to its members:

- (1) *Utilities.* Control of the utilities in and around a machinery search and rescue incident is critical to ensure the safety of responding personnel and victims. The AHJ should provide its members with training in the control of these services to provide a safe environment in which to operate and to ensure the safety of victims. The following utilities should be considered when providing training:
 - (a) Electrical services (primary and secondary)
 - (b) Gas, propane, fuel oil, or other alternative energy sources (primary systems)
 - (c) Water
 - (d) Sanitary systems
 - (e) Communications
 - (f) Secondary service systems (~~such as e.g.,~~ compressed, medical, or industrial gases)
- (2) *Hazardous Materials.* Machinery rescue incidents might include various materials that, when released during an incident, could pose a hazard to victims and responders. The AHJ should provide members with training in the recognition of potential hazardous material releases, the determination of an existing hazard, and the methods used to contain, confine, or divert hazardous materials to conduct operations safely and effectively.
- (3) *Personal Hazards.* At the site of any machinery search and rescue incident, there are many dangers that pose personal injury hazards to the responders. The AHJ should train members to recognize the personal hazards they encounter and to use the methods needed to mitigate these hazards to help ensure member's safety. Every member should be made aware of hazards such as trips, falls, blows, cuts, abrasions, punctures, and impalement, ~~and so forth~~.
- (4) *Movement of Machinery.* Uncontrolled movement of machinery components can cause extremely hazardous and potentially fatal situations. Responding personnel should be familiar with and trained in techniques for stabilizing and removing the potential for movement of machinery components.
- (5) *Release of High-Pressure Systems.* Machinery often includes high-pressure systems (e.g., hydraulic, pneumatic) that can fail without warning. Such failure can cause extremely hazardous conditions, injury, and death of victims and responders. The AHJ should provide members with training in the recognition of potential high-pressure system hazards, the determination of an existing hazard, and the methods used to contain, confine, or divert such hazards to conduct operations safely and effectively.
- (6) *Other Hazards.* There are numerous other hazards ~~associated~~, including new and emerging machinery technologies (e.g., autonomous, semi-autonomous, remotely operated, sustainable manufacturing) associated with machinery search and rescue incidents. The AHJ should make every effort to identify the hazards types of machines that might be encountered within the jurisdiction and should provide members with training and awareness of these ~~other hazards~~ machines to allow them to perform search and rescue operations safely and effectively.

Submitter Information Verification

Committee: TEC-AAA

Submittal Date: Wed Jan 08 12:39:23 EST 2025

Committee Statement

Committee Statement: Given the emergence of autonomous vehicles and machinery systems as well as other emerging technologies, it is critical that responders are aware of their concurrent hazards and additional render-safe procedures.

Response Message: FR-8-NFPA 2500-2025



First Revision No. 2-NFPA 2500-2025 [Chapter F]

Annex F ~~Structural~~ Marking Systems (NFPA 1670)

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

Annex F is extracted from the Army Corps of Engineers.

See US&R-23-FG, "Rescue Field Operations Guide," and "INSARAG Guidelines, Volume II: Preparedness and Response," for guidelines for marking systems.

F.1 General:

~~One of the initial strategic concerns for personnel is the need to analyze the structure(s) involved in any collapse situation. This is especially true where there is more than one structure involved, as in cases of devastating earthquakes, hurricanes, or other natural or man-made disasters. The determination of the condition of the structure, hazards, and occupancy prior to the event will affect the overall search and rescue strategy.~~

~~A uniform building marking system has been developed by the "FEMA National Urban Search and Rescue (US&R) Response System." There are 4 categories of FEMA US&R Markings:~~

~~Structure Identification Marking~~

~~Structure/Hazards Evaluation Marking~~

~~Search Assessment Marking~~

~~Victim Location Marking~~

~~The building marking system was established to ensure:~~

~~Differentiation of structures within a geographic area.~~

~~The structural condition and status of rescue operations within the structure are communicated.~~

~~Identification markings on structures may be made with International Orange spray paint (or construction crayon), placed on the building surface. In the case of hurricanes where many structures are involved, a system using a "Stick-on" Label should be used. Markings should be placed on normal address side of the structure.~~

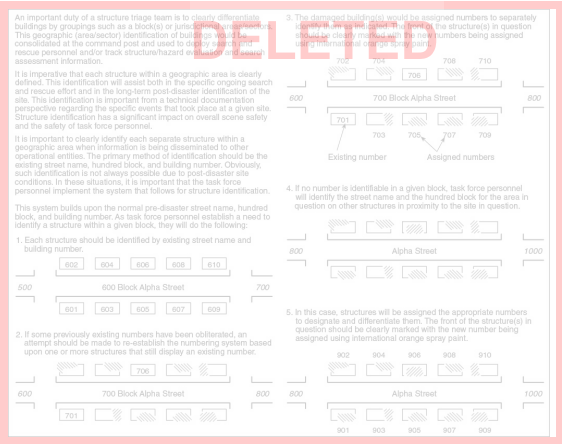
F.2 Structure Identification Marking Within a Geographic Area.

Structure identification within a geographic area is used to differentiate buildings by groups, such as by block(s) or jurisdictional area. It is imperative that personnel clearly identify each structure within a geographic area. This identification will assist both in the specific ongoing search and rescue effort and the long-term, post disaster identification of the site.

International orange spray paint or construction crayon is used to mark buildings with their street number so that personnel can differentiate one building from another. Existing numbers should be used to fill in any unknown numbers. If all numbers are unknown, arbitrary numbers can be used (odd and even used on opposite sides of the street). The primary method of identification should include the existing street name, hundred block, and building number. Such identification is not always possible due to post disaster conditions. [See Figure F.2(a) .]

If at all possible, the existing street name and building number will be used. If some numbers have been obliterated, an attempt should be made to reestablish the numbering based on nearby structures. If no numbers are identifiable on a given block, rescue personnel will assign and identify the street name and numbers based on other structures in the proximity. The structures should then be numbered to differentiate them (using paint or crayon).

Figure F.2(a) Structure Identification Marking System Within a Geographic Area.



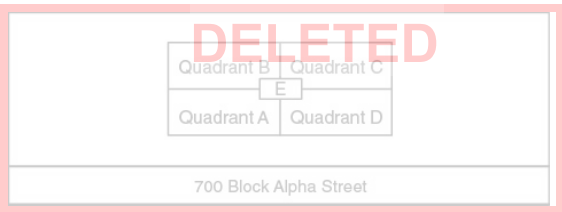
It is also important to identify locations within a single structure. The address side of the building is side A. Other sides of the structure are assigned alphabetically in a clockwise manner from side A around the building. [See Figure F.2(b) .]

Figure F.2(b) Structure Identification Marking System Within a Geographic Area — Sides of a Single Structure.



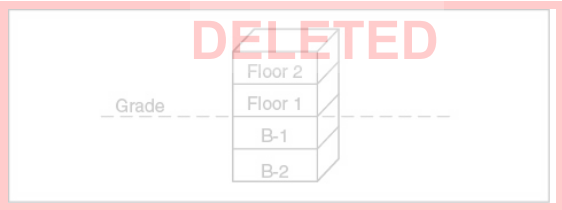
The interior of the structure can be divided into quadrants. The quadrants are identified alphabetically in a clockwise manner starting from where the side A and side B perimeter meet. The center core, where all four quadrants meet is identified as quadrant E (i.e., central core lobby, etc.). [See Figure F.2(c) .]

Figure F.2(c) Structure Identification Marking System Within a Geographic Area — Quadrants of a Single Structure.



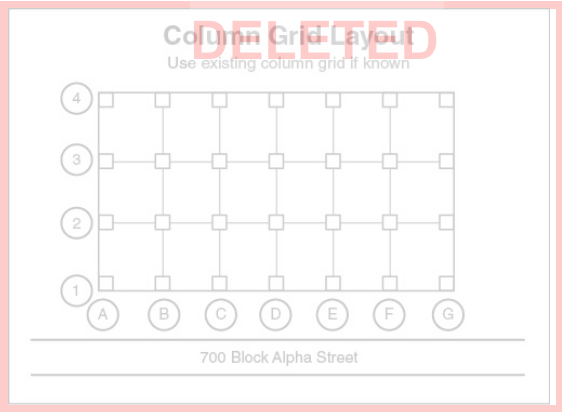
Multistory buildings must have each floor clearly identified. If not clearly discernable, the floors should be numbers as referenced from the exterior. The grade (or street) level floor is designated floor 1, and moving upward the second floor would be floor 2, etc. Conversely, the first floor below grade (or street) level would be B-1, the second B-2, etc. For buildings where the street slopes, all at the incident must be informed as to which level will be called the first floor. [See Figure F.2(d) -.]

Figure F.2(d) Structure Identification Marking System Within a Geographic Area — Floors in a Single Structure:



If a structure contains a grid of structural columns, they should be marked with 2 foot high, orange letters/numbers to further identify enclosed areas. If plans are available, use the existing numbering system. If plans are not available, letter the columns across the long side (side A in the example) starting from the left, and number the columns along the short side (side B in this example) starting from the front, side A. The story level should be added to each marked column, and be placed below the column locator mark. Example: “FL-2” = Floor 2. [See Figure F.2(e) -.]

Figure F.2(e) Structure Identification Marking System Within a Geographic Area — Column Grid Layout:



F.3 Structure/Hazards Evaluation Marking:

This system is designed to identify specific hazards associated with any collapsed structure. Personnel should be cognizant of the nationally accepted marking system and should be proficient in the use of the system.

After performing a building hazard identification, the responder makes a 2 ft × 2 ft (0.6 m × 0.6 m) square box on the building adjacent to the most accessible point of entry into any compromised structure. Paint sticks, lumber crayons or international orange aerosol spray paint can be used for this marking system. Peel and stick labels or stiff paper placards may be used to avoid paint damage. It is important that an effort is made to mark all normal entry points (side A if possible) to a building under evaluation to ensure that rescue personnel approaching the building can identify that it has been evaluated.

Materials and methods used for marking should be coordinated with the AHJ in order to avoid confusion with search and other marking.

The specific markings will be made inside the box to indicate the condition of the structure at the time of the assessment. Any identified hazards will be indicated, outside of the box, on the right side. Placards have space below the box for comments on hazards.

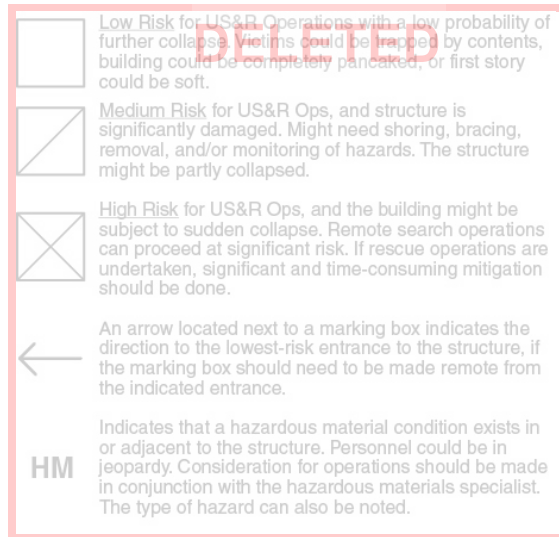
Normally the marking (or placards) would, also, be made immediately adjacent to the entry point identified as lowest risk. An arrow will be placed next to the box indicating the direction of the lowest risk entrance if the structure/hazard evaluation marking must be made somewhat remote from this entrance.

All rescue personnel must be aware of the possibility of, and look for other structure/hazards evaluation marking must be made somewhat remote from this entrance.

As each subsequent assessment is performed throughout the course of the mission, a new time, date, and unit (task force) ID entry will be made below the previous entry, or a completely new marking made if the original information is now incorrect.

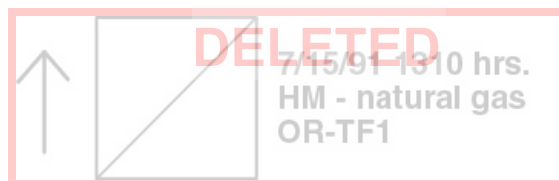
The depiction of the various markings is as follows *[see Figure F.3(a)]* :

Figure F.3(a) Risk Markings:



The time, date, and unit ID, are noted outside the box at the right-hand side. This info is made with paint stick or lumber crayon. The paper (or cardboard), stick-on placards may need to be attached using duct tape to assure their positioning. *[See Figure F.3(b)]* .]

Figure F.3(b) Structure Hazards Evaluation Markings:



This example is for a medium risk building, and the arrow indicates the direction to the lowest risk entry (possibly a window, upper floor, etc.). Assessment was made on July 15, 1991, at 1:10 PM. There is an indication of natural gas in the structure. The evaluation was made by the #1 TF from the State of Oregon.

It should be understood that this building would not be entered until the hazmat (natural gas) has been mitigated. When that mitigation is performed, this mark should be altered by placing a line through the HM and adding the time and unit who performed the mitigation. An entirely new mark could also be added when the mitigation is done, or after any change in conditions such as an aftershock. To indicate changed conditions when using labels or placards, one may cross out the hazard if mitigated or just replace the label/placard if appropriate.

Marking boxes may also be placed in each of the specific areas within the structure (i.e., rooms, hallways, stairwells, etc.) to denote hazardous conditions in separate parts of the building.

It should also be noted that the structure/hazards mark might not be made in many situations, such as structures in which rescuers are present at all times during the incident and after hurricanes for very simple structures.

F.3.1 Structure/Hazards Placard:

This placard should be printed on adhesive backed, 8.5 inch x 11 inch heavy white paper, Rite in the Rain® (or equivalent) paper, or light cardboard. Cut in half to obtain two placards. (See Figure F.3.1 -)

White color was selected to avoid being confused with the Green-Yellow-Red Placards that are placed during safety evaluation of structures by non-US&R engineers.

Figure F.3.1 Structure/Hazards Placard:

DELETED

Structural / Hazard Evaluation		
DATE	TIME	TF
HAZARDS:		
☐ Low Risk for US&R Ops. Low probability of further collapse. Victims could be trapped by contents, or building could be completely paralysed or soft 1 st story	☒ Medium Risk for US&R Ops. Structure is significantly damaged. May need shoring, bracing, removal, and/or monitoring of hazards. The structure may be partly collapsed	☐ High Risk for US&R Ops. May be subject to subtle collapse. Rescue search operations may proceed at significant risk. If Rescue Ops are undertaken, significant and time-consuming mitigation should be done
LR	MR	XR

Should the marking box need to be made remote from the indicated entrance, place an arrow next to the box to indicate the direction to the lowest risk entrance to structure.

DELETED

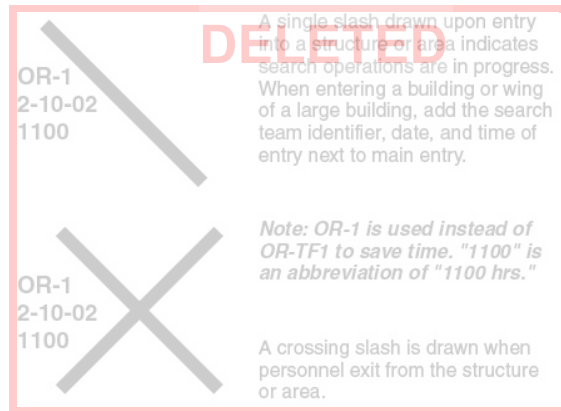
Structural / Hazard Evaluation		
DATE	TIME	TF
HAZARDS:		
☐ Low Risk for US&R Ops. Low probability of further collapse. Victims could be trapped by contents, or building could be completely paralysed or soft 1 st story	☒ Medium Risk for US&R Ops. Structure is significantly damaged. May need shoring, bracing, removal, and/or monitoring of hazards. The structure may be partly collapsed	☐ High Risk for US&R Ops. May be subject to subtle collapse. Rescue search operations may proceed at significant risk. If Rescue Ops are undertaken, significant and time-consuming mitigation should be done
LR	MR	XR

Should the marking box need to be made remote from the indicated entrance, place an arrow next to the box to indicate the direction to the lowest risk entrance to structure.

F.4 Search Assessment Marking:

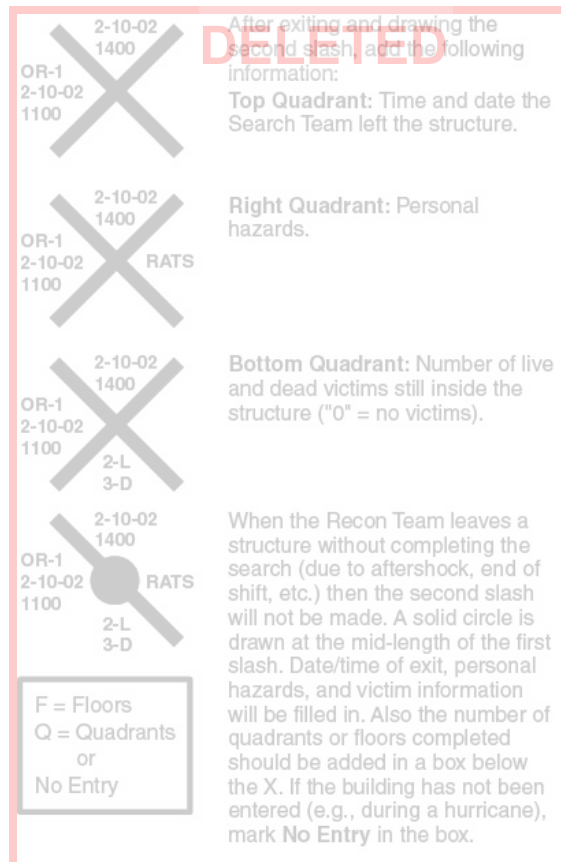
A separate and distinct marking system is necessary to denote information relating to the victim location determinations in the areas searched. This separate search assessment marking system is designed to be used in conjunction with the structure and hazards evaluation marking system. The canine search specialist, technical search specialists, and/or search team manager (or any other search and rescue team member performing the search function) will draw an "X" that is 2 ft × 2 ft (0.6 m × 0.6 m) in size with international orange paint stick, lumber crayon or color spray paint (note that K9 may be adversely effected by the fumes from the spray paint). This X will be constructed in two operations—one slash drawn upon entry into the structure (or room, hallway, etc.) and a second crossing slash drawn upon exit [see Figure F.4(a) -].

Figure F.4(a) Search Assessment Marking System.



Distinct markings will be made inside the remaining quadrants of the X to clarify denote the search status and findings at the time of this assessment. The marks will be made with carpenter chalk or lumber crayon. The following illustrations define the search assessment marks [see Figure F.4(b)] :

Figure F.4(b) Example of Structural Evaluation Markings.



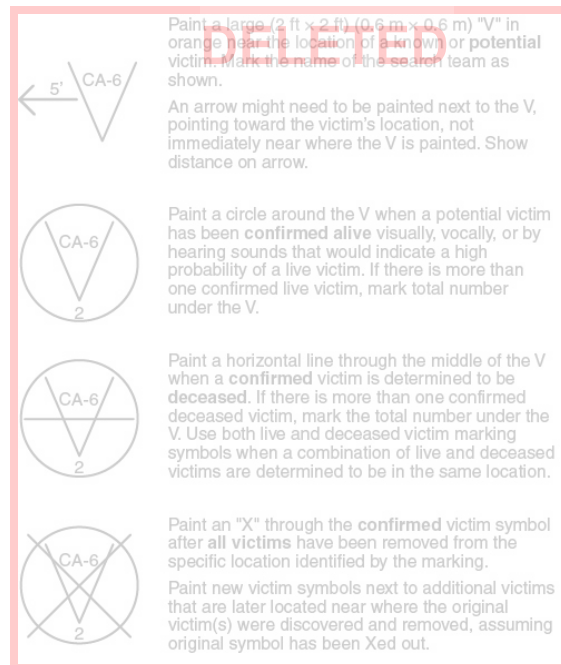
In most cases, extemporaneous information will not be conveyed using the marking system. This type of communication will usually take place as a result of face-to-face meetings between search, rescue, and other components of the search and rescue team.

Search markings should be made at each area within a structure, such as rooms, voids, etc., but only information related to the results of the search will be marked upon exiting each space (no time or unit designation):

F.5 Victim Location Marking:

During the search function, it is often necessary to identify the location of potential and known victims because debris in the area could completely cover, obstruct, or hide the location of any victims. When a known or potential victim is located and not removed immediately, victim location marking symbols are made by the search team or others aiding the search and rescue operation. These symbols should be made with orange spray paint or orange crayon (see Figure F.5 that illustrates the marking system) :

Figure F.5 Victim Location Marking System:



F.6 The United Nations International Search and Rescue Advisory Group (INSARAG):

The search marking system used by the United Nations includes the following:

Structural marking should be applied on collapsed structures assessed by USAR teams:

The marking should be placed near the point of entry on the exterior of the collapsed structure that offers the best visibility:

All assessment results are to be reported to the OSOCC immediately.

The marking consists of a 3.3 ft × 3.3 ft (1 m × 1 m) square box:

Inside the box, mark the following:

Go" if deemed safe to enter

No-Go" if deemed unsafe to enter

Team identification

Date and time start

Date and time finish

Outside the box, mark the following:

Hazard information (top)

Missing persons (bottom)

Live victims extricated (left)

Dead victims removed (right)

Additional information

When the USAR team has completed work on the structure to its capacity, a circle is drawn around the entire marking.

After all work on the structure has been completed and it is confirmed there are no more victims, a horizontal line is drawn through the entire marking. (See Figure F.6 -.)

Figure F.6 INSARAG Marking System:



Supplemental Information

