DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

National
Urban Search and Rescue
Response System

A Component of the National Response Framework
Emergency Support Function 9

FEMA US&R MARKING STANDARDS HANDBOOK

August 2013

The content and update of this document is the responsibility of the National US&R Response System's US&R Branch Operations Chief in cooperation with the Search Subgroup.

> **Document Name:** FEMA US&R Marking Standards Handbook
> **FEMA US&R Document Number:** US&R 340
> **Revision Cycle:** As required, at a minimum every 4 years
> **Next Revision:** August 2017
> **Issued to FEMA US&R System:** Program Directive 2013-014 on August 20, 2013

All recommendations and questions related to the content of this document should be submitted:

By email to: fema-usr@fema.dhs.gov

Or by mail to:
Federal Emergency Management Agency
Response Directorate
Operations Division
Urban Search and Rescue Branch
500 C Street SW
Washington, DC 20472

c/o US&R Branch Chief, Operations

This document supersedes previous versions and incorporates all other applicable FEMA US&R documents, policies, and procedures.

Table of Contents

INDEX OF FIGURES

CHAPTER 1: SEARCH MARKING SYSTEM

1-1.   Introduction

Search markings must be easy to make, easy to read, and easy to understand. The search mark must be large and of a contrasting color to the background surface so that it can be seen clearly. A number of paint colors can be easily seen on most backgrounds. A blaze orange or other fluorescent color should be considered. Holding the spray can upright during application creates more precise paint marks. However, when writing information inside the search mark itself, a lumber-marking device may be used rather than spray paint to produce well-defined lettering. In addition to spray paint and lumber markers, "peel and stick" search marking labels are also used when several structures must be marked. Information is written onto this type of prepared label, which will be placed on a glass area of the structure (window or door.)

When considering your main entrance search markings, as well as other elements of the search, you must abide by the parameters stated in the Incident Action Plan (IAP) as defined by the Authority Having Jurisdiction (AHJ.) In the case of the IAP prohibiting entry into a structure (forced or unforced,) a search can be considered (and marked) COMPLETE without actually entering the structure. The search was completed up to the level specified by the AHJ. The level of search (in this case no entry) should be included with your search marking.

1-2.   Main Entrance Search Markings

A. Entering a Structure

Upon entering a structure, the following main entrance search markings must be made and shall include the following symbols and information:

A-1.   Distinct marking at the entrance (slash from left to right)

A-2.   Two-foot slash made upon start of search

A-3.   Search team identifier, date, and time entered marked to left of slash
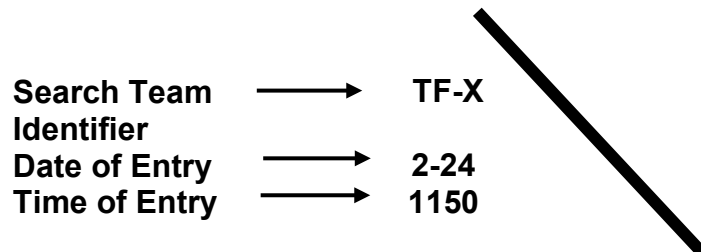

FIGURE 1: Search Markings Made Upon Entering a Structure

B. Exiting a Structure – Completed Searches

Upon completing the search of a structure, additional search markings must be made to the main entrance when exiting and shall include the following symbols and information:

B-1. At the top of the "X", enter date and time team exited.

B-2. On the right side quadrant of the "X", note hazards located.

B-3. In the bottom quadrant of the "X", enter the number of live (L) or deceased (D) victims inside the structure. If no victims are inside the structure enter "0".

B-4. When multiple floors have been searched, draw a box under the marking as illustrated in the figure below. In that box, indicate which floors have been searched.
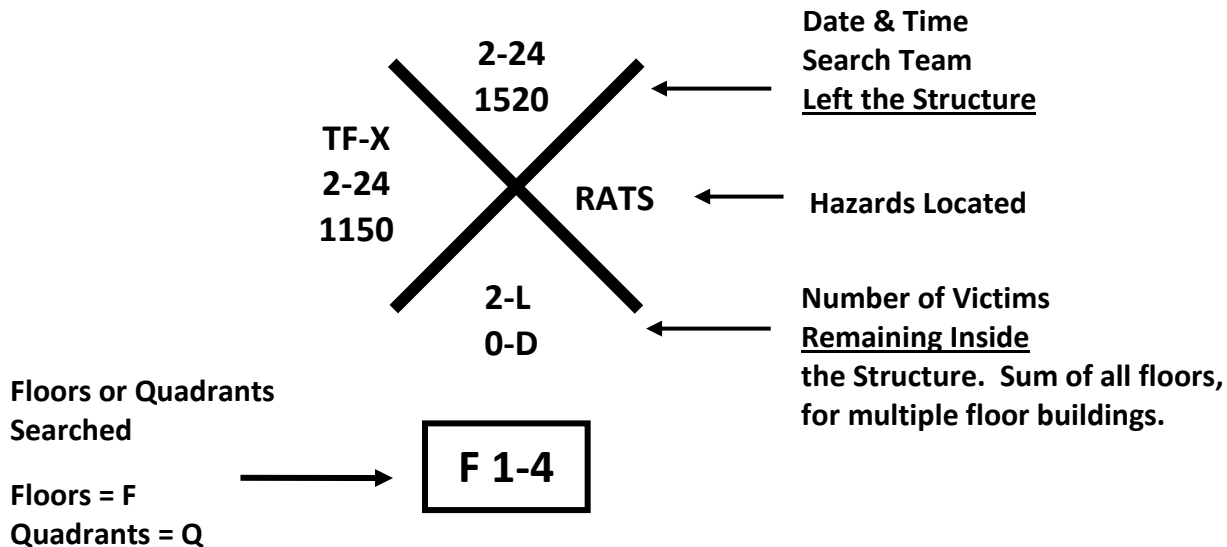
FIGURE 2: Search Markings Indicating a Completed Search

C. **Exiting a Structure – Incomplete Searches**

When exiting a structure prior to completing a search, the following main entrance exterior search markings must be made and shall include the following symbols and information:

C-1. A large, spray-painted dot at the midpoint of the slash

C-2. Completed quadrant information

NOTE: The incomplete search marking is used only if the level of search in the IAP/TAP cannot be completed for any reason. A cross slash must not be applied in this situation.
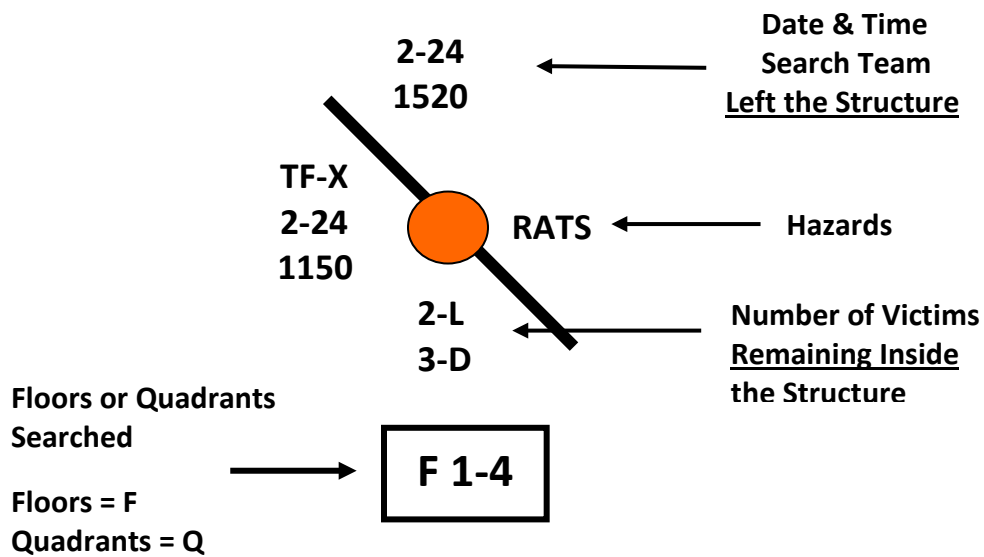

FIGURE 3: Search Markings Indicating an Incomplete Search
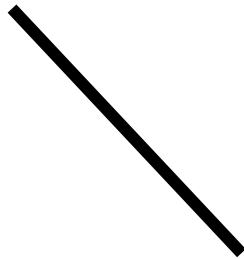
1-3.   Interior Search Markings

A. When searching the interior of large structures, such as high rise buildings, the following markings should be used when each room and/or floor is searched:

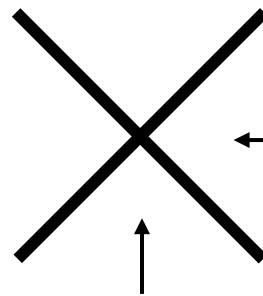**A-1.**   Upon entry to a room and/or floor – a single, top left to bottom right slash

A-2.   Upon completion of the search– a second slash to complete the "X" and the identification of any hazards or victims present

NOTE: When searching a building with multiple floors, each floor should be marked at the stairwell door(s) or nearest access point as well as each individual room. This marking should represent the sum of the search findings for that floor.

Made Upon Entering   **Made Upon Exiting**

Identify Any ←

↑
Identify Any
Victims

FIGURE 4: Interior Search Markings for Each Room or Area of a Structure

B. As when conducting the structure and hazards evaluation, the markings used during an interior search must be specific to each area of entry or separate part of the building. If an area is searched and no victims are found, the area must be marked with a zero (0). Situation updates must be noted as they are available to reduce needless duplication of search efforts. Previous search markings are crossed out, and new markings are applied to indicate the most recent information that has come available.

B-1.   A victim location mark will be placed near each victim within each confined space at this time to better identify that person's specific location and condition.

B-2.   Personnel using the marking system will be inundated with additional information relative to the incident. Although such information should be acknowledged and appropriately disseminated, in most cases this information would not be noted on the structure marking.

B-3.   Generally, the Search Team Manager will convey additional information received to the appropriate element—rescue, command, medical, technical, etc.

NOTE: Each separate structure within an area must be clearly identified when important information is being disseminated to other operational entities. The primary type of identification should be the existing street name and building number. However, such identification is not always possible due to site conditions. If the street name and building number cannot be determined, task force supervisory personnel must establish a workable identification method for each specific structure.

1-4. Search Marking Sticker

A. The search marking sticker (Figure 5) is part of a marking system that provides users with information to apply consistent FEMA search markings and is used as an alternative to spray-paint.

    A-1. It is a high-visibility, peel and stick label that can be applied to structures (preferably on windows) to display the appropriate search markings. Sticker color is not mandated but must be easily visible (i.e., "high-vis" in nature). Green should be avoided if possible as it may lead to confusion with structure occupancy placards.

    A-2. This peel and stick label can be produced at the task force level depending on need.

    A-3. To increase consistency when using search sticker markings, the word describing the type of search completed (i.e., primary, secondary) should be written inside the box marked "additional information." If no entry is made into the structure, the words "No Entry" should be written inside the box. This box can also be used for any additional, critical information.

    A-4. The incomplete search marking is **only** used if the level of search in the Incident Action Plan (IAP)/Tactical Action Plan (TAP) cannot be completed for any reason.

Date of Exit

Time of Exit

Task Force

Date of Entry

Hazards

Time of Entry

-L

-D

Additional information

Primary   No Entry   Secondary

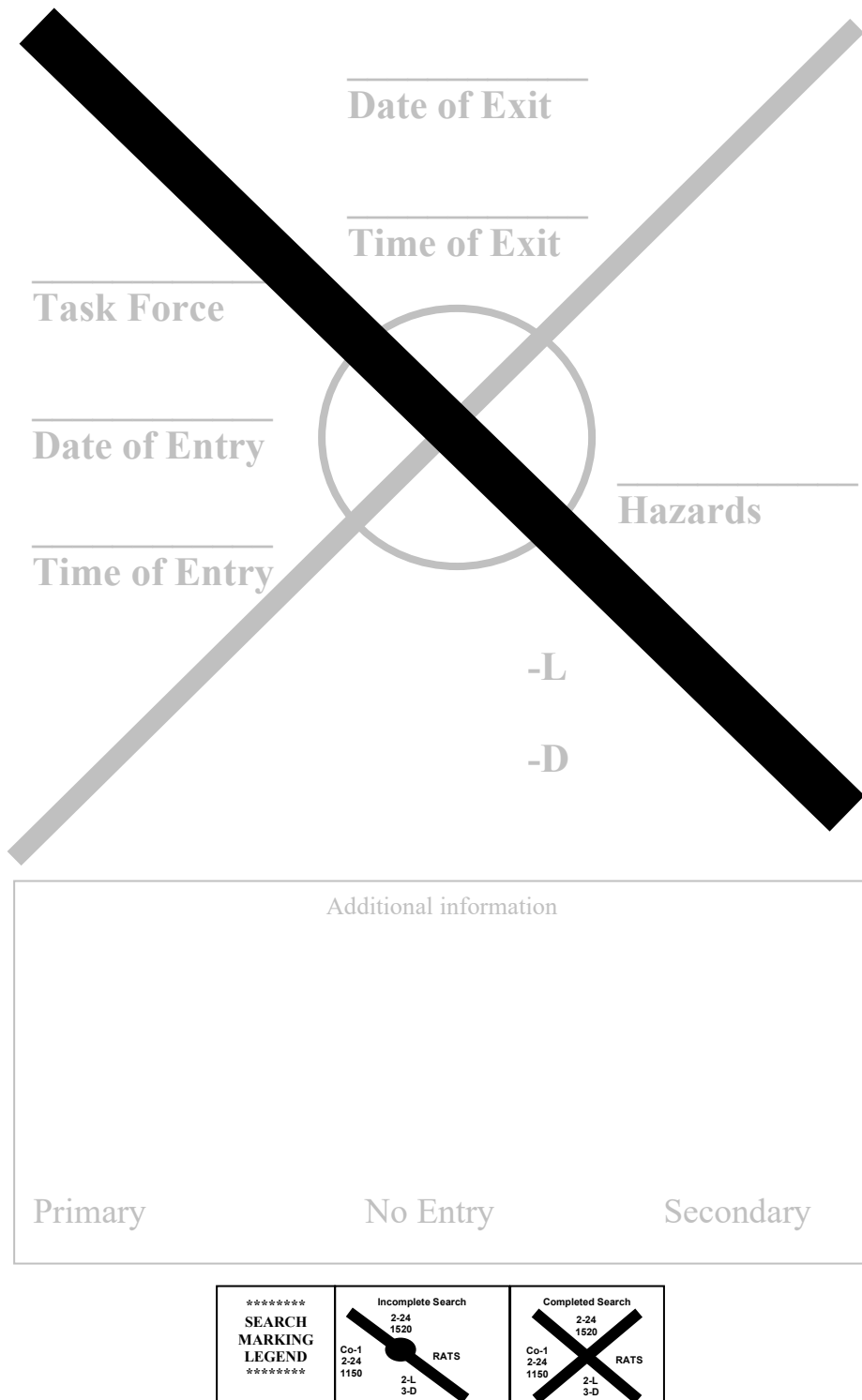| ********	Incomplete Search	Completed Search
SEARCH MARKING LEGEND ********	2-24 1520 Co-1 2-24 1150 RATS 2-L 3-D	2-24 1520 Co-1 2-24 1150 RATS 2-L 3-D

FIGURE 5: Search Marking Sticker

CHAPTER 2: VICTIM MARKING SYSTEM

2-1.   Introduction

During the search function, the location of potential and known victims must be identified—even if their location is completely covered or obstructed by debris.

Victim location marks are made by the search team or others aiding the search and rescue operation whenever a known or potential victim is located and not immediately removed. The victim location marking symbols ("V" and circle) should be made with high-visibility spray paint. However, when writing information inside the victim mark itself, a lumber-marking device may be used rather than spray paint to produce well-defined lettering. The victim location marking symbols and numbers of victims, if known, must be kept on the developing site map during the search of the structure or area.

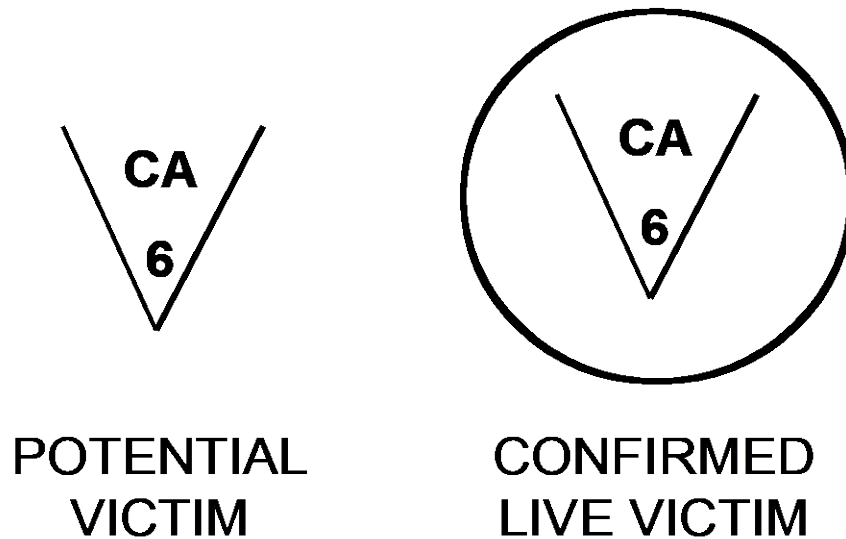Figure 6 illustrates the victim marking system.

POTENTIAL
VICTIM

CONFIRMED
LIVE VICTIM

FIGURE 6: The Victim Marking System

2-2. Potential Victim Marking

A. Potential Victim Markings should be made as follows:

A-1. Paint a large "V" (one to two feet high) near the location of the potential victim.

A-2. Paint an arrow next to the "V" that points toward the victim's location if the individual is not clearly visible or is not in the immediate area.

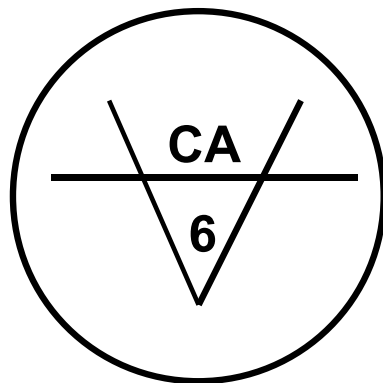**A-3.** Indicate the US&R task force identifier in the top portion of the "V".

NOTE: A canine alert is considered a detection of a potential victim and should **only** be interpreted as a **highly probable** indicator of victim location.

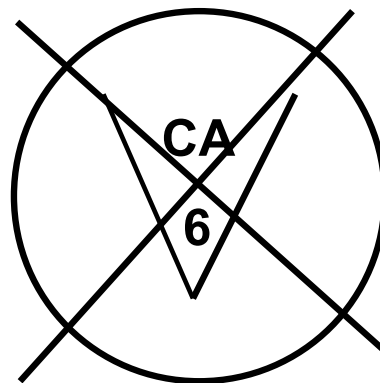**2-3. Confirmed Live Victim Marking**

Confirmation of the presence of a live victim is made by touching, seeing, or communicating with a survivor. Technical search equipment such as video cameras and listening equipment may be used to confirm victims.

A. Confirmed live victim markings should be made as follows:

A-1. Paint a circle around the "V" when a victim has been confirmed.

A-2. Indicate the US&R task force identifier in the top portion of the "V".

A-2.1 Beneath the task force identifier, write the number of persons located if more than one victim is found in the same location.

A-3. Draw a horizontal line through the middle of the "V" when the victim is **confirmed** to be deceased.

A-4. Paint an "X" over the confirmed victim marking after the victim is removed.

CONFIRMED
DEAD VICTIM

REMOVED
VICTIM

FIGURE 7: Victim Location Markings Indicating Victim Confirmed Deceased or Removed

CHAPTER 3: BUILDING MARKING SYSTEM

3-1.   Structure/Hazards Evaluation Marking

A. To eliminate confusion while searching and marking, the materials used and the methods implemented shall be coordinated between the FEMA Incident Support Team (IST) and the local Authority Having Jurisdiction (AHJ).

The Structures Specialist (or other appropriate TF member) will outline a 2' x 2' square at any accessible entrance to a compromised structure. Paint sticks, lumber crayons, or aerosol spray-paint (in any fluorescent color) will be used for this marking system. Peel and stick labels or stiff paper placards may be used to avoid building damage from paint.

An effort must be made to mark all normal entry points (side A if possible) on a building under evaluation to ensure that task force personnel approaching the building know with certainty if the structure has been evaluated.

Specific markings, which indicate the condition of the structure at the time of the assessment**,** will be made inside the square that has been painted near the building's entry point**.** Any identified hazards will be indicated outside and to the right of the box. (Placards allow space below the box where comments regarding hazards may be written.)

Markings are generally made immediately adjacent to the entry point that has been identified as posing the lowest amount of risk. An arrow is drawn next to the box indicating the direction safest entry point if the structure/hazards evaluation marking has to be located at a distance from this entrance.

All task force personnel must continually look for other structure/hazards evaluation markings that have been made on the interior of the building. As each subsequent assessment is performed throughout the course of the mission, either a new TIME, DATE, and TASK FORCE ID entry will be made below prior entries, or a completely new marking will be made if the original information needs to be updated.

Structure/hazard markings are depicted as follows:
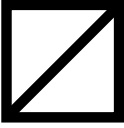
☐	**Low Risk** for US&R Operations, with low probability of further collapse. Victims could be trapped by contents, or building could be completely pancaked or soft 1st story.
◩	**Medium Risk** for US&R Ops, and structure is significantly damaged. May need shoring, bracing, removal, and/or monitoring of hazards. The structure may be partly collapsed.
⊠	**High Risk** for US&R Operations and may be subject to sudden collapse. Remote search operations may proceed at significant risk. If rescue operations are undertaken, significant and time-consuming mitigation should be done.
←	Arrow located next to a marking box indicates the direction of the safest entry point to the structure. This arrow is added when the marking box must be drawn at a distance from the indicated entrance.
HM	Hazardous Material condition exists in or adjacent to the structure. Personnel may be in jeopardy. Consideration for operations should be made in conjunction with the HazMat Specialist. Type of hazard may also be noted.

FIGURE 8: Structure/Hazards Evaluation Markings

B. Structure/hazards evaluation markings require that the TIME, DATE, and TF ID, are noted outside the box on the right-hand side. This information is written with a paint stick or lumber crayon. Paper (or cardboard), placards that have adhesive backing may need to be attached using duct tape as well to ensure proper and secure positioning.

8/12/16 1310 hrs.
HM – natural gas
PA-TF1

FIGURE 9: Structure/Hazards Evaluation Marking Indicating a Medium Risk Building

Figure 9 illustrates an example of markings indicating a medium risk building. The arrow indicates the direction of the lowest risk entry point (possibly a window, upper floor, etc.). Assessment was made on August 12, 2016 at 1:10 PM. The presence of natural gas is indicated in the structure. The evaluation was made by Pennsylvania Task Force One.

C. It should be understood that this building would not be entered until the hazardous material (natural gas) had been mitigated. When the hazardous material no longer poses a danger, a line should be drawn through the HM, the name of the task force that mitigated the situation should be added, and the time should be noted. An entirely new mark could also be added when the mitigation has been completed, or after any change in conditions occurs, such a change created by an aftershock. To indicate a change in conditions when using labels or placards, a responder may either cross-out the hazard, if mitigated, or simply replace the label/placard if appropriate.

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

In some situations, structure/hazards marks might not be made. For example:

C-1. In buildings in which a Structures Specialist is present at all times during the incident

C-2. In very simple structures (ie, backyard shed) that have been damaged by a hurricane

3-2.   Structure/Hazards Placard

Placards should be printed on adhesive-backed, 8.5" x 11" heavy white paper, Rite-on Rain paper, or light cardboard. An 8.5" x 11" sheet can be cut in half to create two placards.

The color white has been selected to avoid being confused with the green, yellow, or red placards that are used during safety evaluations of structures by non-US&R engineers.
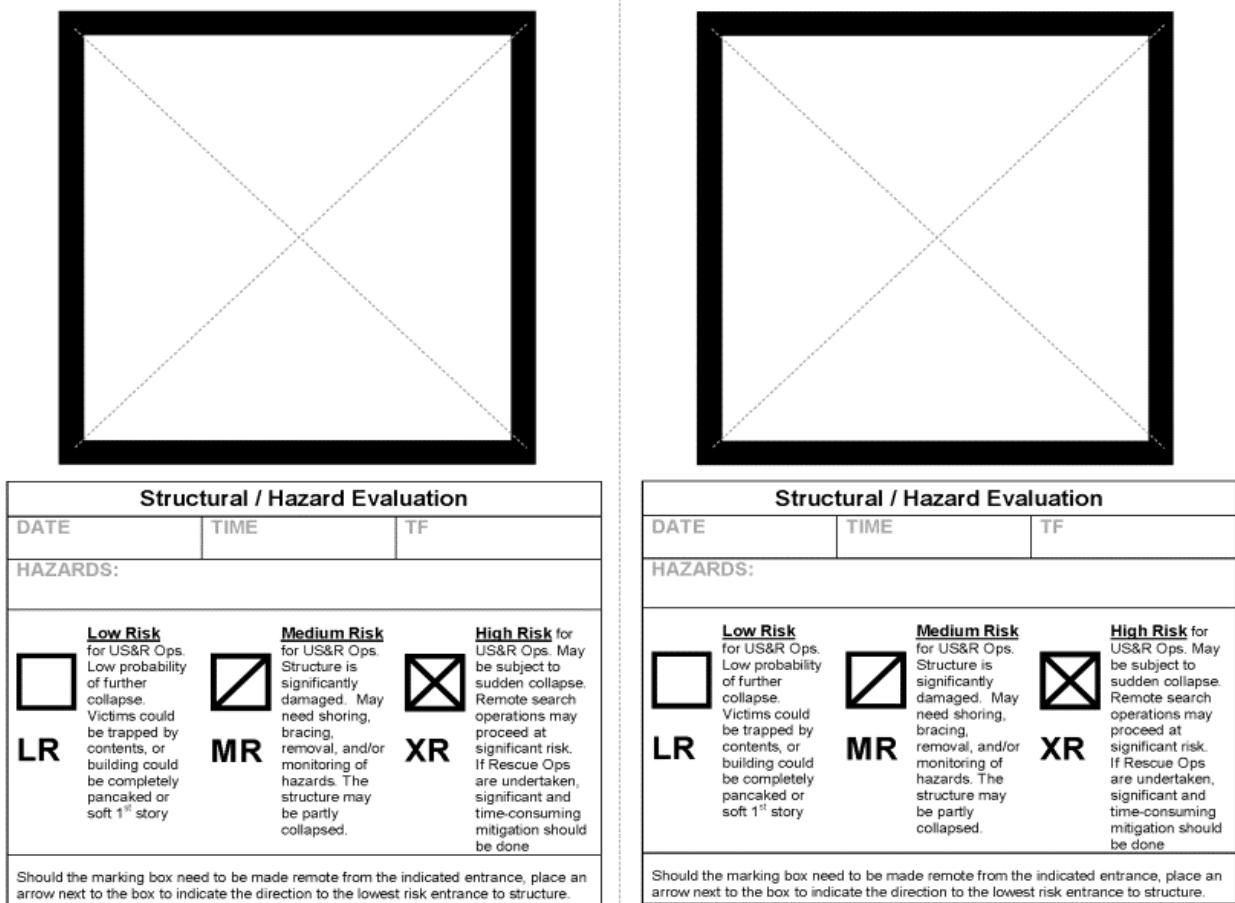

FIGURE 10: Structure/Hazards Placard

CHAPTER 4: INTERNATIONAL (INSARAG) MARKING SYSTEM

The INSARAG Guidelines have developed a standardized format of marking assessed and searched sites. International US&R teams are required to use the INSARAG marking, signaling and identification system to communicate assessment and rescue results with other actors and to ensure standardized communication at the site.

4-1.   Structural Marking

A. Structural marking should be applied on collapsed structures assessed by US&R 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.

> **A-1.**   The marking consists of:
>
> > **A-1.1**   1 X 1 meter square box
>
> **A-2.**   Inside the box:
>
> > **A-2.1**   Go or No Go
> >
> > **A-2.2**   Team identification
> >
> > **A-2.3**   Date and time start
> >
> > **A-2.4**   Date and time finish
>
> **A-3.**   Outside the box:
>
> > **A-3.1**   Hazard information (top)
> >
> > **A-3.2**   Missing persons (bottom)
> >
> > **A-3.3**   Live victims extricated (left)
> >
> > **A-3.4**   Dead victims removed (right)
>
> **A-4.**   Additional information:
>
> > **A-4.1**   When the US&R team has completed work on the structure to its capacity, a circle is to be drawn around the entire marking.
> >
> > **A-4.2**   After the entire completion of work on the structure and confirmed information that there are no more rescue opportunities, a horizontal line is to be drawn through the entire marking.

International Search and Rescue Advisory Group (INSARAG)
Marking System
- **Point of Entry, Exterior—Visibility**
- **Marking consists of a 1X1 meter square box**

Inside the box:
- **Go if deemed safe to enter;**
- **No Go if it is deemed unsafe to enter;**
- **Team identification;**
- **Date and time start;**
- **Date and time finish.**

Outside the box:
- **Hazard information (top);**
- **Missing persons (bottom);**
- **Live victims extricated (left);**
- **Dead victims removed (right).**
- **Additional information:**

Circle once work completed
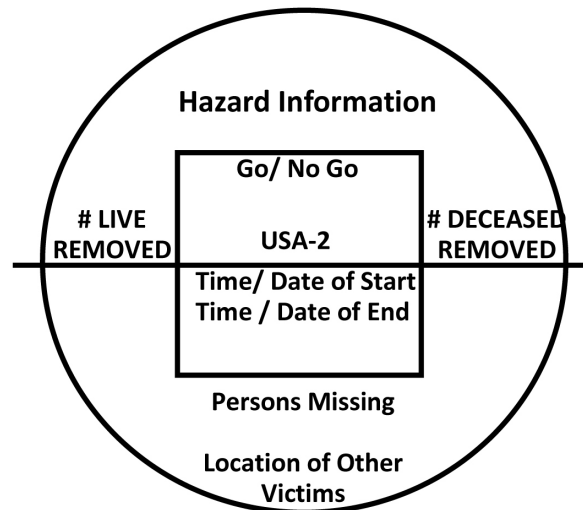**Horizontal line drawn across once confirmed there are no more victims**

FIGURE 11: International Search and Rescue Advisory Group Marking System