

# 04

## STRUCTURAL TRIAGE AND THE INSARAG MARKING SYSTEM

Lecture-03, Practical-02 . Total 05 Periods

### LESSON OBJECTIVES

**Upon completion of this lesson,  
you will be able to:**

1. Describe Sectorization, its identification and five ASR levels.
2. List four categories of Worksite Triage.
3. List at least eight factors to consider in Worksite Triage.
4. Define the INSARAG Marking System, list and describe the eight categories of INSARAG Marking System.

#### Instructor Activity

► **PPT 4-1 to 4-3**

Introduce yourself and your assistant.

Present the lesson topic, explain the relevance of the lesson to the course, state the duration, and describe scheduled activities and method of evaluation.

This lesson is important because structural triage is a system which identifies buildings which have a greater probability of having live victims. The marking system provides a clear and uniform system indicating the building's structural status and work done by CSSR team, live or dead victims located, etc.

Present lesson objectives.  
Ask a participant to read them aloud from the workbook.

Ensure that the objectives are clear to all participants.

## **United nations Office for the Coordination of Humanitarian Affairs (UN-OCHA).**

The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) is a United Nations (UN) body established in December 1991 by the General Assembly to strengthen the international response to complex emergencies and natural disasters. It is the successor to the Office of the United Nations Disaster Relief Coordinator (UNDRO).

The Department of Humanitarian Affairs (DHA) was established shortly thereafter by the Secretary-General, but in 1998 was merged into OCHA, which became the UN's main focal point on major disasters.

OCHA's mandate was subsequently broadened to include coordinating Humanitarian response, policy development and humanitarian advocacy. Its activities include organizing and monitoring humanitarian funding, advocacy, policy - making and information exchange to facilitate rapid - response teams for emergency relief. OCHA is led by the Under - Secretary - General for Humanitarian Affairs and Emergency Relief Coordinator (USG/ERC), appointed for a five-year term.

## **INTERNATIONAL SEARCH AND RESCUE ADVISORY GROUP (INSARAG)**

INSARAG is global network of more than 90 countries and organizations under the United Nations umbrella. INSARAG deal with urban search and rescue (USAR) related issues, aiming to establish minimum international standards for USAR teams and methodology for international coordination in earthquake response based on the INSARAG Guidelines endorsed by the United Nations General Assembly Resolution 57/150 of 2002, on "Strengthening the Effectiveness and Coordination of International Urban Search and Rescue Assistance

**1****Sectorization**

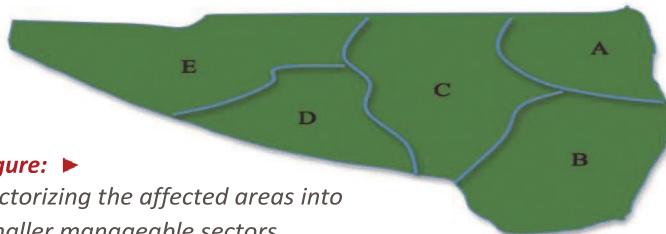
In case of large-scale events, effecting large area or numerous cities, or even more than one country, sectorization done to allow effective co-ordination of Search and Rescue efforts for better operational planning and effective deployment of search and rescue teams.

**1.1 Creation of Sectors**

Areas of large-scale destruction are geographically divided into smaller areas / sectors to ensure effective coordination of search and rescue teams. It improves operational planning and effective deployment of search and rescue teams. Sectorization should be undertaken at the **earliest** possible stage of a disaster response to ensure its effectiveness.

**1.2 Sector Identification**

A simple lettering system is used to code each sector, like A, B, C, D and so on and a local **name** or description can also be added to ensure clarity. e.g. sector A, Kashmir etc. **If the LEMA has its own a coded sector identification system in place e.g. Sector 1, 2, 3, or Red, Blue, Green etc., it should be adopted and allow for it in any documentation or markings.**

**Figure:** ►

Sectorizing the affected areas into smaller manageable sectors.

**Instructor Activity**

► PPT 4-4

► PPT 4-5 to 4-6

**INDIA •**

**Sectorization (Cont.)****1.3 Worksite Identification**

It is defined as “any site where significant Urban Search & Rescue operations are carried out”. **Significant USAR operations normally only take place when there is thought to be the potential for a live rescue.** It can range from a single site in a building to much larger area or complex of buildings. Each worksite should be allocated its own worksite ID using following protocols:

- 1.3.1 The first part is the sector letter allocated to the area the site is in e.g. A.
- 1.3.2 As a worksite is identified, a number is then sequentially allocated; 1, 2, 3 etc.

So, the Sector letter and allocated number produces a unique Worksite ID e.g., A-1, A-2, A-3 etc. **If more than one team is in the same sector, then the UCC will instruct teams on which numbers to use e.g. Team 1 uses 1 to 20, Team 2 uses 21 to 40 etc.**

**If the LEMA uses a different sector code, e.g. numbers, then this should be used as the first part of the Worksite ID, e.g. 1-1 rather than A-1. In either case the sector code must be separated from the worksite number by a hyphen to prevent any possible confusion.**

A Worksite can further be subdivided into smaller sites and identification can be done by adding suffix letter to the original single Worksite ID, e.g. A-1a, A-1b etc

**1****Sectorization (Cont.)****Instructor Activity****1.4 Team Identification Code:**

Each USAR Team is identified by a unique Team Identification Code, and it is done in the following manner:

- (1) The three letter Olympic code of the country
- (2) A number to differentiate team from the same country e.g. JPN-1, AUS-1, PAK-1,

**For IEC classified teams the number will be decided by the home country at the time of classification and registered in the INSARAG USAR Team Directory. For non-IEC classified teams, the same country code system will be used; however, the number will be assigned by the RDC based upon sequence of arrival, starting from the number ten. Under this process the issue of a Team ID is temporary and is retained only for the duration of that specific deployment.**

If the team does not want 3 lettered country codes, the following process shall be used:

- The letters “SAR” will be used to replace the country code
- Followed by a number starting at 10, e.g. SAR-10 (Country 1), SAR-11 (Country). **This is also the method for non-IEC country.**

**2****Assessment, Search and Rescue Levels**

The key element of INSARAG Co-ordination is to clearly identify and define every level / type of work, usually needed during major USAR operation. This can range from initial assessment to the deconstruction of a building to recover the last deceased person.

The following five operational levels can define the phases of potential USAR related work. It is not necessary that a single team will always carry out all these levels.

## 2

### Assessment, Search and Rescue Levels (Cont.)

### Instructor Activity

#### 2.1 – Level 1 Wide Area Assessment

- ▶ The preliminary survey of effected or assigned area, usually by a vehicle, helicopter, boat etc. for initial fast visual check of the damaged or assigned area.
- ▶ For the purpose of determining scope, magnitude of incident, urgent resource requirement, development of sectorization, identification of general hazard **and potential BoO locations.**

#### 2.2 – Level 2 Worksite Triage Assessment

- ▶ The main purpose is to identify specific and viable live rescue sites within the allocated sector to allow assignment prioritization and make a plan of action. **It needs to be a fast paced but methodical assessment.**  
**This can be done by LEMA or else usually carried out by a small mobile assessment/search element of the USAR team.**

#### 2.3 – Level 3 Rapid Search and Rescue

- ▶ **Usually applies in the early stages of a large scale event when a relatively small number of teams are available.** Fairly rapid progress needed to ensure the allocated structure are all searched relatively quickly to maximize the lifesaving opportunities. This can be done **by modest commitment** of physical, canine and technical search techniques, debris removal, limited shoring, breaking and breaching, limited penetration etc. **Team should be able to work simultaneously at more than one worksite.**

#### 2.4 – Level 4 Full Search and Rescue

- ▶ Search and Rescue work to identify, locate and rescue the small number of heavily trapped or entombed survivors, that were not rescued by the in the ASAR Level-3. **Teams will usually be at a single worksite or a small number of worksites. Teams will penetrate into most or all of the survivable voids.**

#### 2.5 – Level 5 Total Coverage Search and Recovery

- ▶ This usually means operation carried out at a worksite to recover the deceased victims, normally after the Rescue phase has been exhausted.

## Worksite Triage

The objective of ASR 2 Worksite Assessment is to assess collapsed structures and identify viable sites for live rescues. The UCC will use this information to list sites in order of priority and decide which teams to assign to which sites. One of the considerations for the prioritisation of worksites is the triage category.

The objective of a triage process is to evaluate triage factors to compare collapsed structures and decide the order of priority. The key to triage is consistency in the comparison of triage factor.

### Triage Categories with Victim Information

► PPT 4-7

The level of prioritisation of worksites is based on victim information: number of confirmed alive victims, number of possibilities of live victims, and if there are only dead victims in the structure. All worksites with confirmed live victims are complete before the structures with possible live victims. The worksites with the greatest number of victims are the highest priority. Buildings with dead only may be assigned to USAR Teams as part of ASR5.

In order to assist deciding which team goes to which site, the triage teams are requested to estimate how long the operations will take. The duration can only be estimated if the assessors have an idea of where the victim is located. Duration will depend on the structure, e.g., building material and size, and on equipment and expertise. The estimate should be based on general capability of a team and will always be a rough estimate. Duration estimates will allow the UCC to assign the larger teams to the more difficult or larger sites that take longer to complete. The UCC collects information on all confirmed and possible live victims. It does not collect victims on all deceased, only information that is deemed relevant.

## Worksite Triage (Cont.)

The above triage strategy leads to following four triage categories:

### TRIAGE CATEGORIES

Triage Categories	Expected Duration of Operation	Expected Duration of Operation
<b>A</b>	Confirmed live victims	Less than 12 hours
<b>B</b>	Confirmed live victims	Longer than 12 hours
<b>C</b>	Possible live victims	Not assessed
<b>D</b>	Deceased only	Not assessed

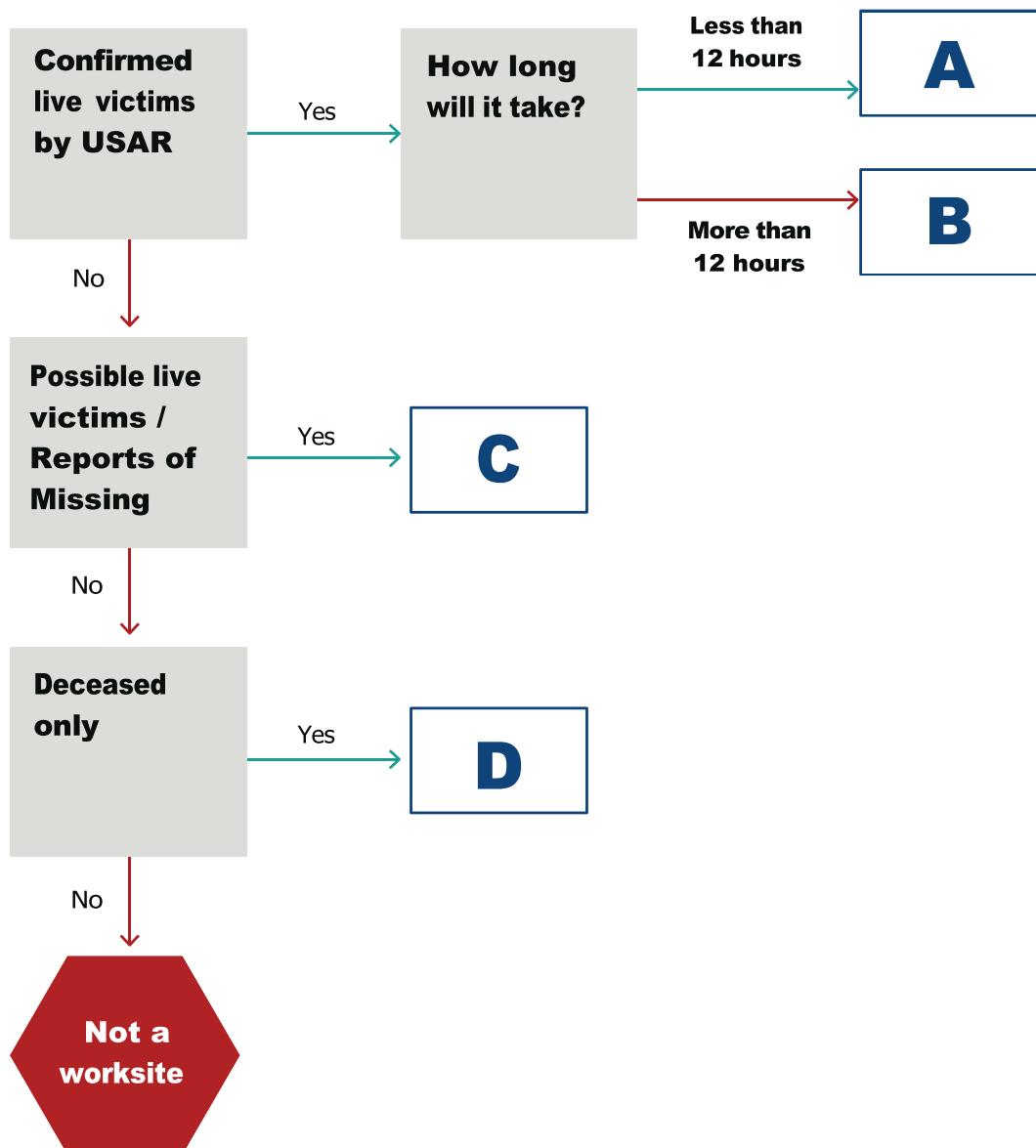
- **Confirmed live victims:** Means that the USAR assessment team knows that there are people alive in the collapsed structure.
- **Possible live victims:** Means that there is a possibility that people are alive in the structure, but the assessment team cannot confirm whether people are alive or even in the structure. Examples of possible live victims is when by-standers report missing people, or a collapse of a school that was in session.
- **Deceased only:** Means that there are not live victims, but the LEMA may want to send teams to the site to recover the bodies.

**The objective of a triage process is to evaluate the triage factors in order to compare collapsed structures and decide the order of priority.**

**The key to triage is consistency in the comparison of triage factors (bigger or smaller, less or more stable, less or more time), not the exact size of voids or level of shoring.**

**3****Worksite Triage (Cont.)****SECTOR ASSESSMENT  
WORKSITE TRIAGE CATEGORY FLOWCHART****Instructor Activity**

► PPT 4-8



### 3

#### Worksite Triage (Cont.)

##### 3.1 Factors in worksite Triage

##### Instructor Activity

► PPT 4-9 to 4-10

When performing structural triage, it is necessary to gather as much information as possible. The following factors must be considered:

- Occupancy type
- Type of structure
- Condition of the structure
- Mechanism of collapse
- Day, date and time of collapse
- Prior intelligence
- Availability of resources
- Location of utility shut-offs
- Possible presence of hazardous materials.

### 4

#### INSARAG Marking System

► PPT 4-11

The International Search and Rescue Advisory Group (INSARAG) Marking System uses **symbols** to **identify** the condition of structures, the presence of hazards and the status of victims in a standardized, simple and clear fashion that can be understood by all local, national and international rescue personnel. **The INSARAG Marking System consists of three principle Marking elements, these being:** Worksite Marking, Victim Marking and Rapid Clearance Marking.



► PPT 4-12

All markings must be conspicuous, using a high-contrast, durable, fluorescent colour.

## INSARAG Marking System (Cont.)

### 4.1 Marking System Information Categories

The CSSR marking system can be divided into the following eight categories:

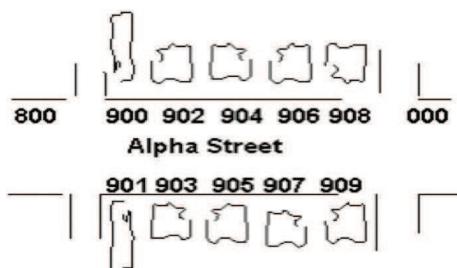
- 4.1.1 General Area Marking
- 4.1.2 Structure Orientation
- 4.1.3 Cordon Markings
- 4.1.4 Worksite Marking
- 4.1.5 Victim Marking
- 4.1.6 Rapid Clearance Marking (RCM)
- 4.1.7 Facilities and Vehicle Markings
- 4.1.8 Team and Function Markings

#### 4.1.1 General Area Marking

At times some general marking will be required to be applied to assist in navigation and coordination. This should be limited to essential information only and be as concise as possible.

- ▶ General area marking can be applied using spray paint, builders crayon, stickers, waterproof card etc. as determined by the team.
- ▶ The colour should be highly visible and contrasting to the background.
- ▶ It may include:
  - Address or physical location
  - Landmark or code name (e.g. sugar factory building 1)
  - Assigned area or worksites are to be identified individually (see Worksite Marking)

#### Street & Number Identification



#### Instructor Activity

▶ PPT 4-13 to 4-14

## 4

### INSARAG Marking System (Cont.)

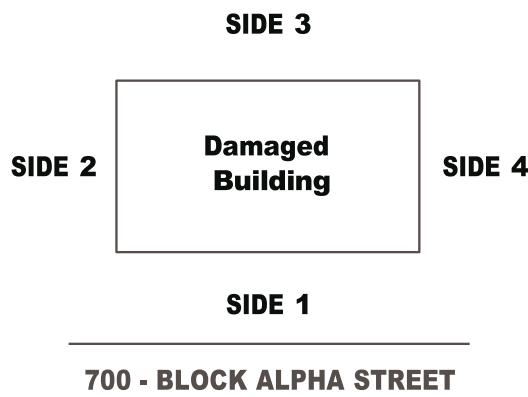
#### 4.1.2 Structure Orientation

Structure orientation includes both an exterior and interior identification:

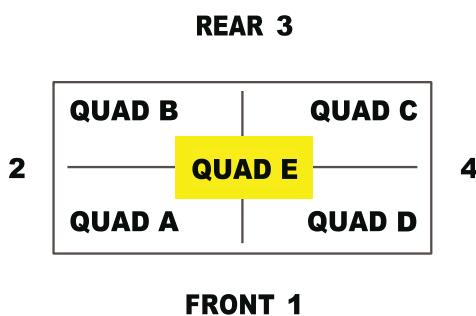
- ▶ **Exterior Identification:** The street address side (FRONT) of the structure shall be defined as "1". Other sides of the structure shall be assigned numerically in a clockwise manner from "1" (see graphic).
- ▶ **Interior Identification:** The interior of the structure will be divided into QUADRANTS. The quadrants shall be identified ALPHABETICALLY in a clockwise manner starting at the corner where Side 1 (FRONT) and 2 meet. Quadrant E (central lobby, elevators, staircases, etc) applies to buildings with multiple storeys. (See graphic).

#### Instructor Activity

► PPT 4-16



▲ **Figure 2 :** Exterior Location References of a Structure



## 4

### INSARAG Marking System (Cont.)

Multi-storey structures must have each floor clearly identified. If not obvious, the floors should be numbered as viewed from the exterior. The ground level floor would be designated the “ground floor” and, moving upward the next floor would be “Floor 1”, etc. Conversely, the first floor below ground level would be “Basement 1”, the second “Basement 2”, and so on. (See graphic).

► **Figure 3**

<b>Floor 3</b>
<b>Floor 2</b>
<b>Floor 1</b>
<b>Ground Floor</b>
<b>Basement 1</b>
<b>Basement 2</b>

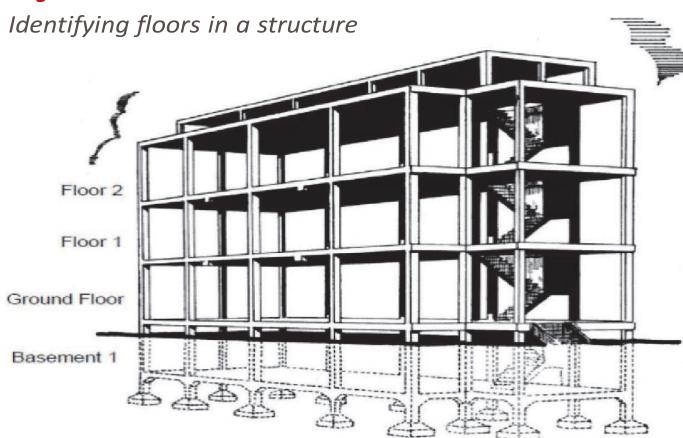
#### ► Identifying Floors

Multi-story structures must have each floor clearly identified. If not clearly identifiable, floors should be numbered in relation to ground level. The **grade-level** floor is designated as the **ground** floor. The floors above are numbered as **Floor 1, Floor 2**, etc. Conversely, the floors below the ground floor are **Basement 1, Basement 2**, etc. If possible, floors should be permanently marked at each landing of accessible stairways. If not obvious, floor should be numbered as viewed from the exterior

Refer to Figure 4.

► **Figure 4**

*Identifying floors in a structure*



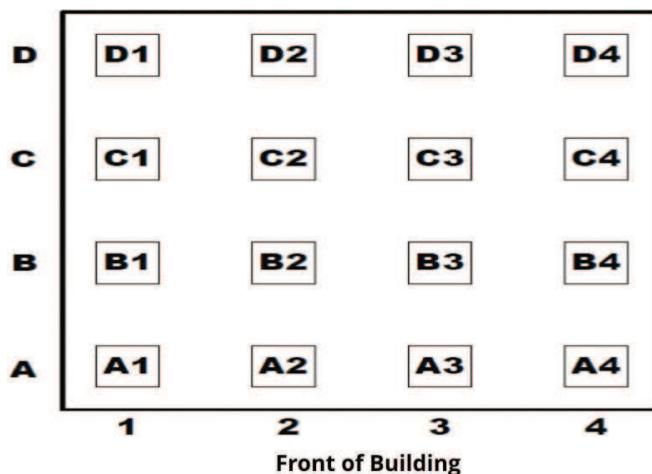
### Instructor Activity

#### ► PPT 4-17

Discuss identifying floors in a building. Stress the importance of keeping the same standard among search teams in order to promote coordination and organization.

## INSARAG Marking System (Cont.)

### ► Identifying Columns (Pillars)



### ▲ Figure 5

Identifying columns in a structure

## Instructor Activity

### ► PPT 4-18

Discuss location of columns in a building.

Point out that numbering of columns is organised from right to left, and from the front of the building to the back.

This system is very important for indicating the location of hazards, victims, bodies, etc. within the structure.

Use examples.

Questions/Comments?

### ► PPT 4-19 to 4-20

### 4.1.3 Cordon Markings

Cordon markings are used to identify operational work zones as well as hazardous areas in order to restrict access and warn of dangers.

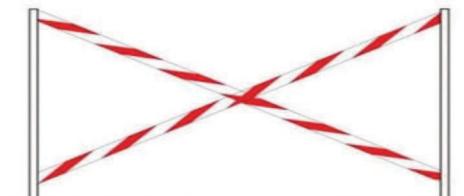
#### Operational Work Zone



### ► Figure:

Operational Work Zone

#### Exclusion Zone



### ► Figure:

Exclusion Zone

## INSARAG Marking System (Cont.)

### Instructor Activity

#### 4.1.4 Worksite Triage Marking

Worksite marking is intended to uniquely identify specific and potential live rescue sites and is therefore an essential part of the coordination system. It displays critical information and is simple to understand and apply. It allows Worksites to be easily recognized and 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.

#### Marking Method

The marking should be applied to the front, (or as close as possible) or main entry to the worksite. The following method should be used when applying worksite marking:

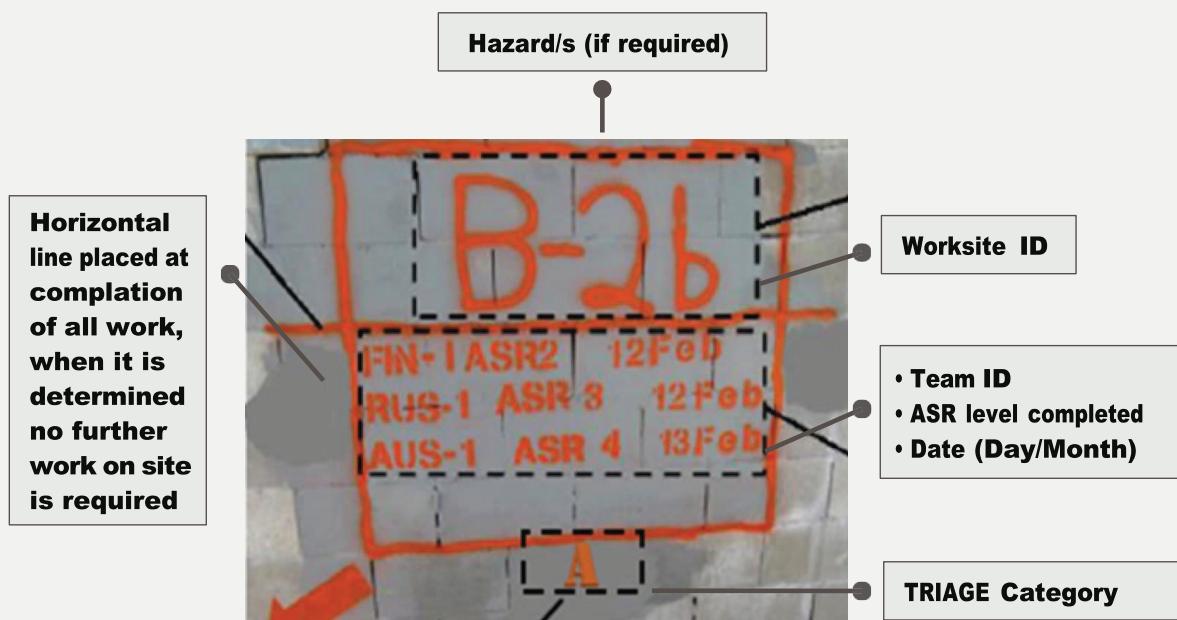
- ▶ Draw a 1.2 meter x 1.0 meter (approximately) box.
- ▶ May draw a directional arrow to confirm exact location of worksite/worksite entry.
- ▶ Inside box – displays:
  - Worksite ID
  - Team ID
  - ASR Level completed
  - Date.
- ▶ Outside of box – displays:
  - Any hazard requiring identification e.g. Asbestos (top).
  - Triage category (bottom).
- ▶ Updated with Team ID, ASR Level completed and date as further levels of work (ASR) are completed.
- ▶ Updated missing persons, victims rescued and deceased victims extricated as these occur.
- ▶ Material used can be spray paint, builders crayon, stickers, waterproof card etc. as determined by the team.
- ▶ The Worksite ID should be approximately 40 cm high.

**4****INSARAG Marking System (Cont.)**

- The Team ID, ASR Level and date should be smaller, e.g. approximately 10cm.
- The color should be highly visible and contrasting to the background.
- After all work on the worksite has been completed and it is determined no further work is required a horizontal line is to be drawn through the centre of the entire worksite marking.

**Instructor Activity**

▼ PPT 4-25



## 4

## INSARAG Marking System (Cont.)

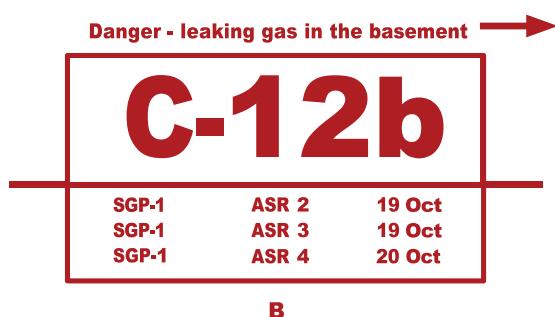
## Progressive Examples



▲ **Above:** Charlie Sector, Worksite 5, Australia 1 completed ASR 2 Sector Assessment on 19th October. Asbestos was identified as a hazard. Triage category determined as "B".



▲ **Above:** Here the Turkey 2 team were assigned to rescue operations on the C5 Worksite following the Sector Assessment completed by Australia 1. Turkey 1 completed ASR 3 Rapid SAR operations on 19th October.



▲ **Above:** Here the Singapore 1 team has completed work at the specific Worksite C-12b within Worksite C-12. An arrow has been added to the marking to make it clear that C-12b is to the right of the marking. A hazard warning about gas leaking into the basement has been added in plain language. Triage category determined as "B". Operations to ASR 2 and ASR 3 were completed on 19<sup>th</sup> October. Operations to ASR 4 Full SAR were completed on 20<sup>th</sup> October. No further operations are required on this worksite. Marking has been updated with horizontal line through the center.

## Instructor Activity

- ▶ PPT 4-26
- ▶ PPT 4-27

- ▶ PPT 4-28

- ▶ PPT 4-26 to 4-29

#### 4.1.5 Victim Marking

Victim marking is required to identify potential or known casualty (Live or Dead) locations that are not obvious to rescuers e.g. below debris/entombed.

##### Method

The following method should be used when applying victim marking:

- When teams (e.g. Search teams) are not remaining on site to immediately commence operations.
- At incidents involving multiple casualties or where any confusion on exact location from search operations is possible.
- Markings are done as close as physically possible to the actual surface point identified as the location of the casualty.
- Material used can be spray paint, builder's crayon, stickers, waterproof card etc. as determined by the team.
- The size should approximately 50cm.
- The color should be highly visible and contrasting to the background.
- Not intended for use when rescue operations are completed.
- Not to be applied to the front of a structure with the Worksite ID unless that is where the casualties are located.

## 4

## INSARAG Marking System (Cont.)

## Instructor Activity

## Progressive Examples

► PPT 4-30

Description	Example
Large “V” applied to location of all potential victims – live or deceased.	
Optional arrow from “V” to clarify location if required.	
Under the “V” either: <ul style="list-style-type: none"> <li>• An “L” indicating confirmed live victim, followed by a number (e.g. “2”) indicating the number of live victims at that location – “L-2”, “L-3” etc. and/or</li> <li>• A “D” indicating confirmed deceased victim, followed by a number (e.g. “3”) indicating the number of deceased victims at that location – “D-3”, “D-4” etc.</li> </ul>	 
On removal of any casualty the relevant marking is crossed out and updated (if required) below; e.g. “L-2” may be crossed out and an “L-1” applied indicating only one Live victim remaining.	
When all “L” and/or “D” markings are crossed out, all known victims have been removed.	

#### 4.1.6 Rapid Clearance Marking (RCM)

The Worksite ID system is only used at potential live rescue sites, with other sites, where no rescues are possible, or required normally remaining unmarked. This allows teams to move faster, maximize life-saving opportunities and simplifies coordination. However there are situations where it is beneficial to have a marking that can be left at sites where teams have established there are no live victims or 'deceased' only. Leaving a recognized '**clear**' marking will prevent duplication and have other advantages. When it is decided this level of coordination and marking is necessary the Rapid Clearance Marking (RCM) system can be used.

##### Method

The process for applying RCM is as follows:

- Decision for RCM marking
- RCM can only be used when sites can be fully searched quickly or there is strong evidence confirming no live rescues are possible.
- Two RCM marking options are available, they are: Clear and Deceased Only.

	<p><b>Clear:</b> Equivalent to ASR Level 5 search completion – indicating that the area/structure is clear of all Live and Deceased casualties.</p>
	<p><b>Deceased Only:</b> Indicates same level of comprehensive search has been completed but only <b>Deceased Casualties</b> remain in-situ. <b>Note:</b> When deceased are removed, apply "clear" RCM adjacent to original mark.</p>

## 4

## INSARAG Marking System (Cont.)

## Instructor Activity

- Can be applied to structures that are able to be searched rapidly or where information confirms there are no live victims or only deceased remain.
- Can be applied to non-structural areas – cars/objects/outbuildings/debris piles etc. – that have been searched to standards indicated above.
- Applied in the most visible/logical position on the object/area to provide the greatest visual impact.
- Diamond shape with a large “C” inside for “Clear,” or with a large “D” inside for “Deceased Only.” Immediately below, the following is applied:
  - (1) Team ID: \_ \_ \_ \_ e.g. AUS-01.
  - (2) Date of Search: \_ / \_ \_ e.g. 19/Oct.
  - (3) Material to be used can be spray paint, builders’ crayon, stickers, waterproof card etc. at the discretion of the teams.
  - (4) Size: Approximately 20 cm x 20 cm.
  - (5) Colour: Bright, contrasting colour to background.

## Progressive Examples

EXAMPLES	
<p>Rapid clearance marking indicating Level 5 ASR complete on object/area applied.</p> <p>Applied by Australian Taskforce 1 on 7 July.</p>	
<p>Rapid clearance marking indicating comprehensive search complete on object/area applied, only deceased casualties remain in-situ.</p> <p>Victim Marking would be applied as required.</p> <p>Applied by Australian Taskforce 1 on 7 July.</p>	

## INSARAG Marking System (Cont.)

### 4.1.7 Facilities and Vehicle Markings

**Facilities:** Iconic flags, banners, balloons, or other must be used to identify the team, team medical facility, the Command Post, etc.

**Vehicles:** Vehicles must be marked with team name and function by a flag, magnetic sign, etc.



### Instructor Activity

► PPT 4-31 to 4-32

### 4.1.8 Team and Function Markings

The following information must be clearly displayed on all emergency personnel:

- ▶ Response team identity (country and team name) by uniform, patch, etc.
- ▶ Personnel positions must be color-coded and labeled in **English** plain text (using vests, arm bands, helmets, etc.), as follows:
  - Management position(s): white
  - Medical position(s): red cross/crescent
  - Safety/security position(s): orange



## Instructor Activity

## ► REVIEW

Lesson objectives and other main points. Ensure that lesson objectives have been met.

## ► EVALUATION

Remind participants to study for interim-Test.

## ► CLOSING

Thank class for their participation and announce the next lesson.

## Table Top Exercise

Correct Answer



A

## Abbreviation of Lesson 04

Sl. no.	Abbreviation	Full Form	Sl. no.	Abbreviation	Full Form
1	ASR	Assessment Search and Rescue	14	INSARAG	International Search And Rescue Advisory Group
2	BoO	Base of Operations	15	IEC	INSARAG External Classification
3	ERC	Emergency Relief Coordinator	16	OCHA	Office for the Coordination of Humanitarian Affairs
4	ECHA	Executive Committee on Humanitarian Affairs	17	OSOCC	On-Site Operations Coordination Centre
5	EMTCC	Emergency Medical Team Coordination Cell	18	RDC	Reception Departure Centre
6	FCSS	Field Coordination Support Section	19	SCC	Sector Coordination Cell
7	FAO	Food & Agriculture Organization	20	USAR	Urban Search and Rescue
8	FACT	Field Assessment and Coordination Team	21	UNHCR	United Nations Human Right Council
9	FCSS	Field Coordination Support Section	22	UNICEF	United Nations Children's Emergency Fund
10	GDACS	Global Disaster Alert and Coordination System	23	UNDAC	United Nations Disaster Assessment and Coordination
11	HuMOCC	Humanitarian-Military Operations Coordination Concept	24	UNDP	United Nations Development Programme
12	ISDR	International Strategy for Disaster Reduction	25	UCC	USAR Coordination Cell
13	IASC	Inter Agency Steering Committee	26	VO	Virtual - OSOCC

# LESSON 4

## — PPT's

4-1



PPT 4-1

4-2

### OBJECTIVES

Upon completing this lesson,  
you will be able to:

- 1 Define Sectorization, its identification and five ASR Levels.
- 2 List four categories of Worksite Triage.
- 3 List at least 8 factors to consider in worksite triage.

PPT 4-2

4-3

### OBJECTIVES

Upon completing this lesson,  
you will be able to:

- 4 Define the INSARAG marking system, list and describe 8 categories of INSARAG Marking System

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PPT 4-3

4-4

### SECTORIZATION

In case of large scale events, effecting large area or numerous cities, or even more than one country, Sectorization is done to allow effective co-ordination of Search and Rescue efforts for better operational planning and effective deployment of search and rescue teams.

PPT 4-4

4-5

### SECTOR IDENTIFICATION

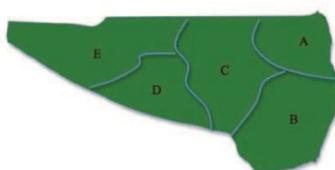
A simple lettering system is used to code each sector, like A, B, C, D and so on and a local name or description can also be added to ensure clarity.  
e.g. sector A, Kashmir etc.

PEER | CSSR | INDIA

PPT 4-5

4-6

### SECTOR IDENTIFICATION



PPT 4-6

# LESSON 4

## — PPT's

4-7

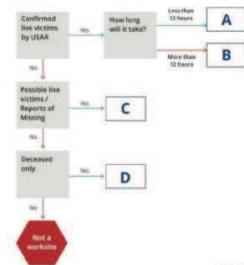
### WORKSITE TRIAGE

Triage categories	Expected duration of operation	Expected duration of operation
A	Confirmed live victims	Less than 12 hours
B	Confirmed live victims	Longer than 12 hours
C	Possible live victims	Not assessed
D	Deceased only	Not assessed

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4-8

### SECTOR ASSESSMENT WORKSITE TRIAGE CATEGORY FLOWCHART



PPT 4-8

4-9

### FACTORS IN WORKSITE TRIAGE

- » Occupancy type
- » Type of structure
- » Condition of the structure
- » Mechanism of collapse
- » Day, date, and time of collapse

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4-10

### FACTORS IN WORKSITE TRIAGE (CONT.)

- » Prior intelligence
- » Availability of resources
- » Location of utility shut-offs
- » Possible presence of hazardous materials

PPT 4-10

4-11

### INSARAG MARKING SYSTEM

The International Search and Rescue Advisory Group (INSARAG) Marking System uses symbols to identify the condition of structures, the presence of hazards and the status of victims in a standardized, simple and clear fashion that can be understood by all local, national and international rescue personnel.

The INSARAG Marking System consists of three principle Marking elements, these being:

- Worksite Marking
- Victim Marking
- Rapid Clearance Marking

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### CLEAR MARKINGS

All markings must be conspicuous and made using a high contrast, durable, fluorescent colour.



PPT 4-12

## LESSON 4

# — PPT's

4-13

### MARKING SYSTEM INFORMATION CATEGORIES

- 1 General Area Marking
- 2 Structure Orientation
- 3 Cordon Markings
- 4 Worksite Marking

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4-14

### MARKING SYSTEM INFORMATION CATEGORIES (CONT.)

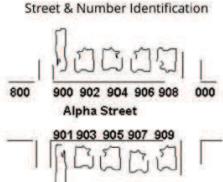
- 5 Victim Marking
- 6 Rapid Clearance Marking (RCM)
- 7 Facilities and Vehicle Markings
- 8 Team and Function Markings

PPT 4-14

4-15

### GENERAL AREA MARKING

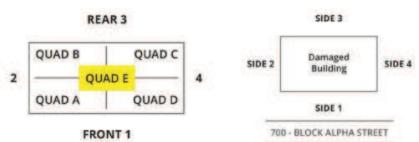
#### Street & Number Identification



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4-16

### LOCATION REFERENCES — EXTERIOR AND INTERIOR



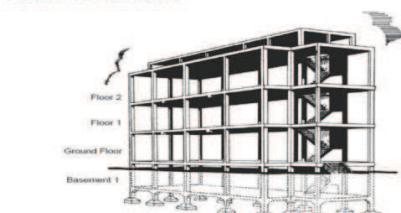
PPT 4-15

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PPT 4-16

4-17

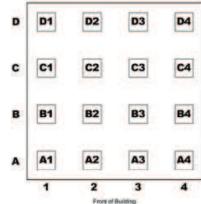
### IDENTIFYING FLOORS



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4-18

### IDENTIFYING COLUMNS/ PILLARS



PPT 4-17

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PPT 4-18

## LESSON 4

# — PPT's

4-19

OPERATIONS WORK ZONE



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4-20

COLLAPSE / HAZARD ZONE



PPT 4-20

4-21

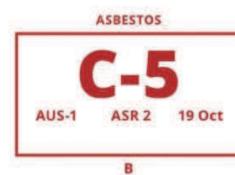
Place the mark at the primary access point into the structure.



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4-22

MARKING FORMAT



PPT 4-22

4-23

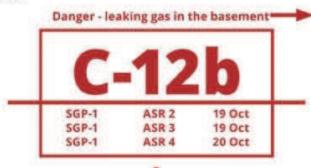
SAMPLE MARKING:  
"WORK IN PROGRESS"



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4-24

SAMPLE MARKING:  
"WORK COMPLETED"

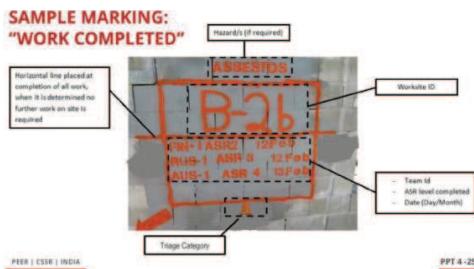


PPT 4-24

## LESSON 4

# — PPT's

4-25



4-26

### POTENTIAL VICTIM LOCATION

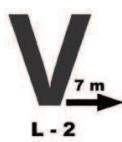
Draw a large "V" as close as possible to the location of known or potential victim(s).



PPT 4-26

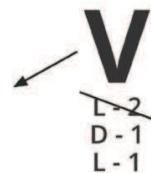
4-27

### CONFIRMED LIVE VICTIMS



4-28

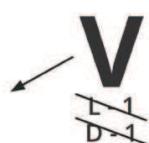
### UPDATE OF VICTIMS



PPT 4-28

4-29

### EXTRICATED ALL VICTIMS



4-30

### RAPID CLEARANCE MARKING (RCM)

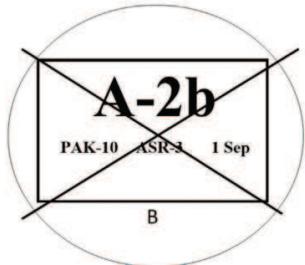


## LESSON 4

### — PPT's

4-31

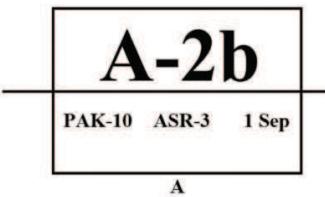
BLE TOP EXERCISE



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4-32

BLE TOP EXERCISE



PAK-10 ASR-3 1 Sep

A

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## LESSON 4

# — FLIP CHARTS

FC4-1

FC4-2



### BASIC RULES FOR STRUCTURAL TRIAGE

1

Three or more structures

2

Team of structural and hazardous materials specialists

3

Group of buildings:  
within two hours, 15 minutes per building

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More >  
FC 4-1

### BASIC RULES FOR STRUCTURAL TRIAGE

4

Many buildings:  
Two assessment groups can be formed.

5

Too hazardous: "No Go"

6

Building prioritised →  
Detailed → Structures marked

More >  
FC 4-2

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FC4-3

FC4-4



### BASIC RULES FOR STRUCTURAL TRIAGE

7

Triage completed — begin search and rescue

- ▶ Victims removed — repeat structural triage
- ▶ Aftershock / heavy equipment usage — repeat structural triage

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FC 4-3



### FACTORS IN STRUCTURAL TRIAGE

- ▶ Occupancy type
- ▶ Type of structure
- ▶ Condition of the structure
- ▶ Mechanism of collapse
- ▶ Day, date, and time of collapse

More >  
FC 4-4

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# LESSON 4

## — FLIP CHARTS

FC4-5



\*Continued



### FACTORS IN STRUCTURAL TRIAGE

- ▶ Prior intelligence
- ▶ Availability of resources
- ▶ Location of utility shut-offs
- ▶ Possible presence of hazardous materials

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FC 4-5

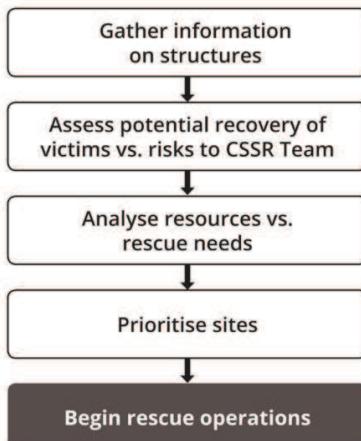
FC4-6



\*Continued



### BASIC DECISION-MAKING PROCESS



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FC 4-6

FC4-7



### STANDARD SYMBOL SHAPES

Facilities: circles



Zones: irregular shapes



Command function: box



Reference point: triangle



Time notation:  
(with arrow pointing to activity site)

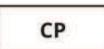
22/11 0700 Hrs.  
23/11 1900 Hrs.

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FC 4-7



### Additional Examples



Command Post



Emergency Operations Centre



Base of Operations



Office of Scene Operations Coordination Centre



Reception Area



Work Site

More

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FC 4-8

# LESSON 4

## — FLIP CHARTS

**FC4-9**



\* continued



### Additional Examples



Airport



Landing Zone



Hospital



Fuel



Emergency Medical



Reference Point  
(include description)

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FC 4-9 ■■■

— INSTRUCTOR'S COPY

## POST-TEST | LESSON 4

### Structural Triage and the Insarag Marking System

**1. Define structural triage.**

A \_\_\_\_\_ assessment of buildings during a CSSR operation, for the purpose of \_\_\_\_\_ those structures in which there is a greater likelihood of finding, accessing, and \_\_\_\_\_ victims.

**2. In the following list, mark the items that are considered to be among the basic rules for structural triage:**

- Search and rescue operations can only begin after triage is completed and priorities are established.
- Structural triage is conducted initially by local residents.
- Triage may be re-evaluated once live victims are found.
- Structural triage is performed when three or more structures are assigned to a single CSSR squad.
- Structural triage should take no more than 15 minutes per building or structure.
- The objective is to recover bodies during the search for victims.

**3. Complete the following list of factors to consider in structural triage:**

Type of structure

---

Mechanism of collapse

---

Prior intelligence

---

Location of utility shut-offs

Possible presence of hazardous materials

4. INSARAG is the acronym for the International Search and Rescue Advisory Group. The INSARAG Marking System was established for what purpose?

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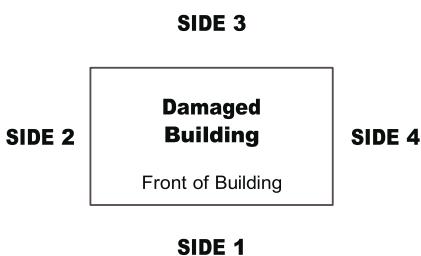


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5. Match each marking type in the list with the graphics below. Write the corresponding number (circled) in the corresponding space.

- for marking vehicles and installations
- for identifying personnel and team member functions
- for marking general hazards
- for marking work sites and assigned areas
- for marking structural evaluation and victim location

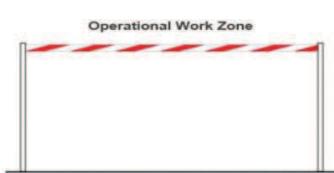
01



02



03



04



05

