

# URBAN SEARCH & RESCUE

## **Capability Definition**

Urban Search & Rescue is the capability to coordinate and conduct urban search and rescue (US&R) response efforts for all hazards, including searching affected areas for victims (human and animal) and locating, accessing, medically stabilizing, and extricating victims from the damaged area.

## **Outcome**

The greatest numbers of victims (human and animal) are rescued and transferred to medical or mass care capabilities, in the shortest amount of time, while maintaining rescuer safety.

## **Relationship to National Response Plan Emergency Support Function (ESF)/Annex**

This capability supports the Emergency Support Function (ESF) #9: Urban Search and Rescue.

## **Preparedness Tasks and Measures/Metrics**

Activity: Develop and Maintain Plans, Procedures, Programs and Systems		
Critical Preparedness Tasks		
Res.B4a 1.1.1	Incorporate Urban Search and Rescue (US&R) plans, procedures into jurisdiction's Emergency Operations Procedures (EOP) or EOP Annexes	
Res.B4a 1.3.2	Pre-identify typed US&R resources	
Res.B4a 1.3.3	Develop resource allocation processes and procedures for US&R capable resources that are also support other capabilities/functions	
Res.B4a 1.3.4	Identify resources from other agencies or capabilities that may assist with US&R, and plan to integrate such additional resources as necessary	
Res.B4a 1.2.1	Develop plan to incorporate nationally certified US&R volunteers	
Res.B4a 1.2.2	Develop a management plan to address uncertified volunteers	
Res.B4a 1.1.2	Develop plan for US&R teams that will be deployed out-of-region to be self-sustaining for 72 hours	
Preparedness Measures		Metrics
Scale of jurisdiction's urban search and rescue capability is related to risk/threat analysis		Yes/No
Team is equipped in accordance with the National Incident Management System (NIMS) Resource Typing System		Yes/No

Federal, State, regional, and local US&R Capabilities are NIMS Compliant		Yes/No
<b>Activity: Develop and Maintain Training and Exercise Programs</b>		
<b>Critical Preparedness Tasks</b>		
Res.B4a 2.1.1	Establish training and exercise program for US&R personnel as per EOP	
Res.B4a 2.1.2	Train and equip US&R personnel to the appropriate standards commensurate with their mission	
<b>Preparedness Measures</b>		<b>Metric</b>
Training and exercises program established		Ongoing, annual
US&R personnel trained and equipped as per EOP and SOPs		Yes/No

### ***Performance Measures and Metrics and Critical Tasks***

<b>Activity: Direct Urban Search &amp; Rescue Tactical Operations</b>		
<b>Definition: In response to notification of entrapment, provide management and coordination of US&amp;R capability, through demobilization for single or multiple teams.</b>		
<b>Critical Tasks</b>		
Res.B4a 3.1	Receive and accept Urban Search and Rescue (US&R) request/activation order	
Res.B4a 3.2	Participate in US&R planning process and operational briefings	
Res.B4a 3	Direct and coordinate US&R tactical operations	
Res.B4a 3.4.1	Direct Urban Search & Rescue (US&R) resources according to the National Incident Management System (NIMS), the Incident Command System (ICS), and consensus-level technical rescue standards.	
Res.B4a 3.4.3	Determine need for deployment of additional US&R resources	
Res.B4a 3.6.1	Provide timely situational and resource awareness and response information	
Res.B4a 3.6.2	Document and collect US&R operations information, including chronological log of events in the field	
Res.B4a 3.7.3	Re-assign/rotate technical specialists, as needed	
Res.B4a 3.2.1	Identify logistics capability of incident site to determine whether deployed US&R teams must be self-sustaining	
Res.B4a 3.7	Develop demobilization/reassignment plan which includes long-term follow-up on personnel for exposure, psychological, or emotional issues resulting from the incident	
<b>Performance Measures</b>		<b>Metric</b>
Situation and resource status information received		Every 30 minutes and after a significant change
Number of US&R personnel injured during US&R efforts		Less than (1) loss-time injury per deployment

Time in which tactical plan is developed and implemented by State, regional, and/or local US&R, based on the incident action plan (IAP)	Within 2 hrs of arrival on-scene
Time in which tactical plan is developed and implemented by Federal US&R resource(s) based on the incident action plan (IAP)	Within 4 hrs of arrival on-scene
Demobilization/reassignment plan is developed and takes into account long-term personnel follow-up	Yes/No

**Activity: *Activate Urban Search & Rescue***

**Definition:** In response to notification, mobilize and arrive at the incident scene to begin operations.

**Critical Tasks**

Res.B4a 4.3	Participate in Urban Search and Rescue (US&R) planning process and operational briefings
Res.B4a 4.2	Initiate mobilization procedure
Res.B4a 4.2.1	Assemble personnel and equipment at Incident Command-designated location
Res.B4a 4.1.2	Deploy Federal, State, regional or local US&R resources commensurate with request
Res.B4a 4.2.2	Transport team (personnel and equipment) to Incident Command-designated location
Res.B4a 4.2.3	Collect and analyze incident information to assist US&R capability deployment decisions

**Performance Measures**

**Metric**

Time for local US&R capability to arrive on-scene	Within 2 hours of notification
Time for regional US&R capability to arrive on-scene	Within 12 hours of notification
Time from request to deployment of federally designated US&R capable resources	Within 6 hours of task force notification
Time for first activated Federal US&R resources to arrive on-scene	Within 24 hours of activation

**Activity: *Provide Materiel and Other Support***

**Definition:** Upon arriving on scene, provide, track, and maintain equipment and supplies as well as support base of operations.

**Critical Tasks**

Res.B4a 4.3	Participate in US&R planning process and operational briefings
Res.B4a 5.1	Integrate into base of operations
Res.B4a 5.2	Maintain accountability of team equipment/supplies
Res.B4a 5.1.1	Coordinate medical care for US&R personnel, including service animals

**Performance Measures**

**Metric**

Time to establish functional Base of Operation and be ready to support initial	Within 60 minutes of arrival
--------------------------------------------------------------------------------	------------------------------

US&R operations	at incident site
Percentage of accountability for team equipment/supplies is maintained	100%
Duration of time for which US&R capability can sustain its own operations without additional resources	Deployable US&R capability up to 72 hours Local US&R as per SOP
Percentage of US&R personnel and service animals whose health is monitored at least once per work cycle	100%

**Activity: Conduct US&R Reconnaissance**

**Definition: Once on scene and equipped, provide rapid assessment of assigned US&R work areas and recommend search priorities/tactics to management.**

**Critical Tasks**

Res.B4a 6.1.1	Assess stability of incident site to determine urban search and rescue tactical options in accordance with SOP
Res.B4a 6.1.2	Assess the incident site for hazardous materials (hazmat) and other dangerous conditions
Res.B4a 6.1.3	Develop sketch map of assigned area
Res.B4a 6.3	Communicate findings and recommend priorities to US&R Division Supervisor/Branch Director

**Performance Measures**

**Metric**

Time for reconnaissance team to provide preliminary recommendation on search priorities and strategy	Less than 1 hour
------------------------------------------------------------------------------------------------------	------------------

**Activity: Search**

**Definition: Upon being assigned search area, begins search operations.**

**Critical Tasks**

Res.B4a 4.3	Participate in US&R planning process and operational briefings
Res.B4a 7.1	Ensure scene/site safety (security, shoring, debris)
Res.B4a 7.2	Conduct area search for victims
Res.B4a 7.2.1	Search for victims using canine, physical, and technological search capabilities
Res.B4a 7.2.2	Identify and record potential/actual victim locations (live and dead)
Res.B4a 7.3	Direct ambulatory victims to safe assembly point
Res.B4a 7.4	Provide periodic progress reports while searching
Res.B4a 7.5	Maintain accountability for search personnel, equipment, and supplies

**Performance Measures**

**Metric**

Percentage of assigned area searched	100%
Time in which systematic search of an area affected by a large-scale emergency is initiated	Within 30 minutes after operations briefing

Percentage of ambulatory victims directed to safe assembly point	100%
Updated situation and resource status report	Every 30 minutes and after major change in conditions

**Activity: *Extricate***

**Definition: Upon notification of location of victim, perform extrication.**

**Critical Tasks**

Res.B4a 4.3	Participate in US&R planning process and operational briefings
Res.B4a 7.1	Ensure scene/site safety
Res.B4a 8.1.1	Coordinate extrication strategy with medical personnel
Res.B4a 8.1	Extricate trapped victims
Res.B4a 8.2	Provide periodic progress reports while rescuing
Res.B4a 8.3	Maintain accountability of extrication personnel, equipment, and supplies

Performance Measures	Metric
Degree to which dangerous conditions affecting extrication were mitigated to allow worker and victim safety in accordance with SOP	100%
Updated situation and resource status report	Every 30 minutes and after major change in conditions
Percentage of located victims extricated	100%

**Activity: *Provide Medical Treatment***

**Definition: Upon access to victim, coordinate with medical personnel to treat and transfer victim to more definitive medical care.**

**Critical Tasks**

Res.B4a 4.3	Participate in US&R planning process and operational briefings
Res.B4a 9.1.1	Coordinate medical treatment with extrication and medical personnel
Res.B4a 9.2	Res.B.4 4.3.4.4 – Transfer victims to more definitive medical care
Res.B4a 9.1.2	Provide periodic progress reports while medically stabilizing victim
Res.B4a 9.3	Maintain accountability of medical personnel, equipment, and supplies

Performance Measures	Metric
Percent of victims whose standard of care is maintained according to local medical protocols	100%
Percent of time resources were identified to transfer patient to more definitive medical care	100% of the time

**Activity: *Demobilize/Redeploy US&R*****Definition:** Upon completion of assigned mission, disengage from incident site, and debrief personnel.**Critical Tasks**

Res.B4a 10.2.1	Repackage equipment cache
Res.B4a 10.2	Demobilize base of operations
Res.B4a 10.1.1	Arrange transportation for personnel and equipment
Res.B4a 10.1.2	Debrief US&R capability personnel before leaving the scene

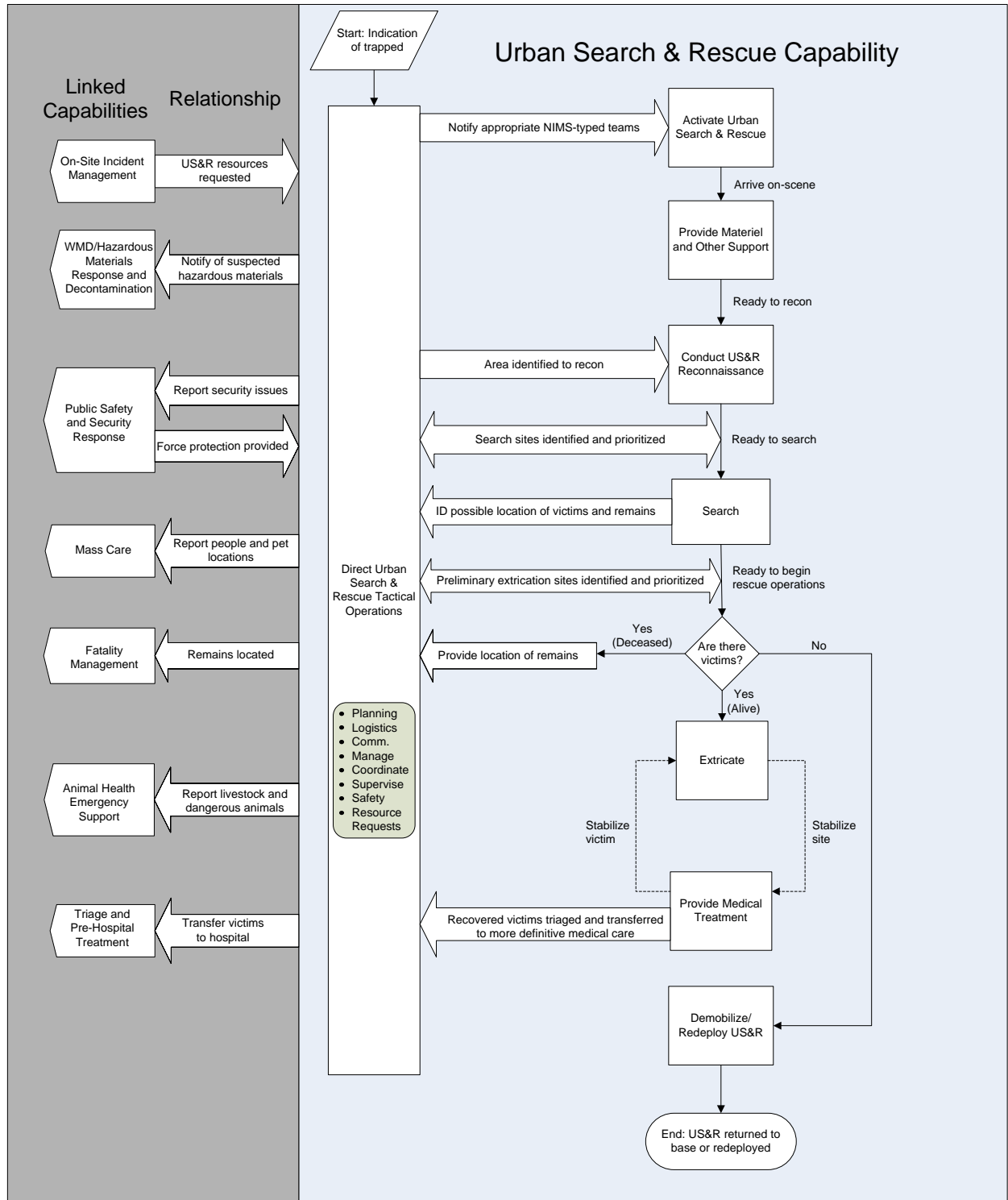
**Performance Measures****Metric**

Time in which equipment cache is re-inventoried and packaged for transport	Within 12 hours of start of demobilization
Time in which base of operations is returned to original conditions	Within 12 hours of start of demobilization process
US&R task force is debriefed before leaving the scene	Yes/No

***Linked Capabilities***

<b>Linked Capability</b>	<b>Relationship</b>
Onsite Incident Management	US&R capability management integrates itself into the local Incident Command/Unified Command system.
WMD/Hazardous Materials Response and Decontamination	US&R capability coordinates with WMD/Hazardous Materials Response and Decontamination to identify hazardous conditions, ensure US&R members have appropriate protective clothing and equipment, and ensure US&R personnel and equipment are appropriately decontaminated.
Triage and Pre-Hospital Treatment	US&R capability coordinates with Triage and Pre-Hospital Treatment to ensure medical care of victims during and after extricated
Public Safety and Security Response	US&R capability relies upon Public Safety and Security Response assistance to secure search and rescue sites, safely divert public from the area, and to provide security support for the US&R Base of Operations.
Mass Care	US&R capability notifies Mass Care of location of people and companion animals encountered during course of search and rescue operations.
Animal Health Emergency Support	US&R capability notifies Animal Health Emergency Support of location of livestock, dangerous animals, and injured wildlife encountered during course of search and rescue operations.
Fatality Management	US&R capability notifies Fatality Management of location of remains encountered during search and rescue operations.
Responder Health & Safety Capability	US&R capability relies upon responder health and safety for site hazards to help ensure that appropriate precautions are identified and that personnel protective equipment/supplies are available to protect US&R personnel.

# Capability Activity Process Flow



### **Capability Element Description Details**

Capability Elements	Components and Description
Type I US&R Task Force (TF)	Per NIMS
Type II Collapse Search and Rescue Team	Per NIMS
Type II Heavy Rescue Strike Team	Per NIMS
Type II Heavy Rescue Squad	Per NIMS
Type I Large Animal Rescue Strike Team	Per NIMS
Type I Small Animal Rescue Strike Team	Per NIMS

### **Planning Assumptions**

#### **General**

- Although applicable to several of the 15 National Planning Scenarios, the capability planning factors were developed from an in-depth analysis of the Toxic Industrial Chemical scenario. Other scenarios were reviewed to identify required adjustments or additions to the planning factors and national targets.
- This capability applies to a wide range of incidents and emergencies, including improvised nuclear devices, toxic industrial chemical scenarios, major earthquakes or hurricanes, and radiological dispersal devices. The primary condition affecting the performance of the capability is whether the incident requires an urban search and rescue or water search and rescue. For urban search and rescue, conditions affecting the performance include the number and size of collapsed structures, number of trapped persons in collapsed structures, and any risks involved for the rescuers (including fire and potential hazardous materials (hazmat) exposure).
- Local response time: 0–2 hours
- Regional response time: 2–17 hours
- State response time: 12–24 hours
- Federal response time: 24+ hours
- Given that US&R is extremely time-sensitive, initial operations will be undertaken by State and local responders and those volunteer personnel willing to assist in locating victims. If the catastrophic incident involves collapsed buildings, national US&R task force response assets will immediately deploy in accordance with the Catastrophic Incident Response Execution Schedule (Annex 1).
- All injuries and fatalities need to be extricated.
- All locations need hazmat assessment for proper personal protective equipment (PPE).
- Typical fire and hazmat response has PPE to extricate lightly trapped victims.
- US&R strike teams begin to extricate moderately trapped victims.
- US&R task forces extricate heavily trapped victims.



- Trapped victims surviving the initial exposure will be viable.
- Trapped victims have the best chance of survival if they are rescued within 72 hours. They may survive up to 14 days if provided drinking water.
- The doctrine of “do no additional harm” will apply to all US&R operations. Urban search and rescue personnel will take into consideration the dangers of contamination and unstable physical structures before entering into an area that may contain surviving victims and will take appropriate safety and protective measures before commencing operations.
- The size of the jurisdiction and the risks/threats present will determine how extensive the US&R capability needs to be.
- Jurisdictions may be able to obtain US&R resources that are sufficient to meet that jurisdiction’s needs from elsewhere.
- Training should be commensurate with population and risk.
- US&R resource may not be available due to other incidents or activities in the area.
- Location, distance, available transportation, and weather affect how quickly US&R resources can reach the scene.
- Type of US&R resource deploying will affect what type of equipment it has and how long it can conduct US&R operations without re-supply.
- When there is a base camp with sufficient resources US&R teams may not need to be self-sustaining
- Hazardous conditions, weather, size of area, scope, access, criminal activity (hazard) determines level of work-area access and efficiency with which areas can be searched for victims.
- Complexity and circumstances of the entrapment affects the amount of time required to safely access, stabilize, and extricate victim.
- Not all US&R resources have integrated confined space medical components thus the care available to the victim will depend on the type of US&R team providing treatment throughout the extrication process.
- Intensity of equipment and personnel utilization will increase or decrease duration each US&R capability is able to work.
- The level of effort required to restore (or replace) equipment cache items will depend on how heavily they were used and the extent to which they need to be decontaminated/cleaned

***Planning Factors from an In-Depth Analysis of a Scenario with Significant Demand for the Capability (Toxic Industrial Chemical)***

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
Type I US&R Task Force	Extrication of victims in 24 hrs: Heavy construction (HC): Entombed: 4 Structurally trapped: 12 Nonstructurally trapped: 20 Light construction (LC): Entombed: 8 Structurally trapped: 24 Nonstructurally trapped: 40	HC: 20 maximum rescued per day LC: 40 maximum rescued per day	1350 victims trapped 50% trapped in HC (675) 675 victims/3 day optimum rescue = 225 225 victims/20 maximum = 11.25 Type I US&R Teams for 3 days 1350 victims trapped 50% trapped in LC (675) 675 victims/3 day optimum

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
			rescue = 225 225 victims/40 maximum = 5.6 Type I US&R Teams for 3 days
Type II Collapse Search and Rescue Team	Extrication of victims in 12 hrs: HC: Entombed: 1 Structurally trapped: 3 Nonstructurally trapped: 5 LC: Entombed: 2 Structurally trapped: 6 Nonstructurally trapped: 10	HC: 18 maximum rescued per 24 hours  LC: 36 maximum rescued per 24 hours	Requires 2 teams, each having 1 12-hour operational period
Type II Heavy Rescue Strike Team	Extrication of victims in 12 hrs: HC: Nonstructurally trapped: 6 LC: Structurally trapped: 6 Nonstructurally trapped: 9	HC: 12 maximum rescued per day  LC: 30 maximum rescued per day	Requires 2 teams, each having 1 12-hour operational period
Type II Heavy Rescue Squad	Extrication of victims in 12 hrs: LC: Structurally trapped: 2 Nonstructurally trapped: 3	LC: 10 maximum rescued per day	Requires 2 teams, each having 1 12-hour operational period
Type I Large Animal Rescue Strike Team	This six-member team should be capable of completing an average of one rescue every 30 minutes in a suburban setting and one rescue every hour in rural settings. These times would be semi-dependent on uncontrollable factors such as terrain, weather, road conditions, and distance between rescue sites.		Number of teams ordered will be based on number of rescues anticipated.
Type I Small Animal Rescue Strike Team	This six-member team should be capable of completing an average of one rescue every 30 minutes in a suburban setting and one rescue every hour in rural settings. These times would be semi-dependent on uncontrollable factors such as terrain, weather, road conditions, and distance between rescue sites.		Number of teams ordered will be based on number of rescues anticipated.

### ***Approaches for Large-Scale Events***

- During incidents, licensing and certifications need to be national and not restricted by State borders. A border should not determine the location of a resource.
- Basic disaster training should be standard, such as that sanctioned by NIMS and the National Response Plan (NRP), to allow more personnel to be used on the day of the incident
- Training must be coordinated at the Federal level
- FEMA, in coordination with the Department of State (DOS), will coordinate the use and employment of international urban search and rescue assets/resources if the level of response will overwhelm our national capability

### ***National Targets and Assigned Levels***

Responsible	Element Resource Unit	Type of Element	Number of Units	Unit Measure (number per x)	Capability Activity supported by Element
DHS	Type I US&R Task Force (TF)	Resource Organization	1	Per each pre-determined location	All US&R Activities
City	Type II Collapse Search and Rescue Team	Resource Organization	1	Per population > 100k	All US&R Activities
City	Type II Heavy Rescue Squad	Resource Organization	1	Per population >25k but <100k	All US&R Activities

### ***References***

1. Homeland Security Presidential Directive/HSPD-8, "National Preparedness". December 2003.  
<http://www.whitehouse.gov/news/releases/2003/12/20031217-6.html>
2. National Response Plan (NRP). Department of Homeland Security. December 2004.
3. National Incident Management System (NIMS). Department of Homeland Security. March 2004.  
<http://www.dhs.gov/interweb/assetlibrary/NIMS-90-web.pdf>
4. Homeland Security Exercise and Evaluation Program (HSEEP), Volume II: Exercise Evaluation and Improvement. Office for Domestic Preparedness, Department of Homeland Security. October 2003.  
<http://www.ojp.usdoj.gov/odp/docs/HSEEPv2.pdf>
5. Urban Search and Rescue (US&R) Incident Support Team (IST) In Federal Disaster Operations, Operations Manual. Federal Emergency Management Agency. January 2000.  
<http://www.fema.gov/pdf/usr/usristops.pdf>
6. National Urban Search and Rescue Response System Field Operations Guide. Federal Emergency Management Agency. September 2003.  
[http://www.fema.gov/pdf/usr/usr\\_fog\\_sept\\_25\\_2003\\_color\\_final.pdf](http://www.fema.gov/pdf/usr/usr_fog_sept_25_2003_color_final.pdf)
7. National Urban Search and Rescue Response System Operations Manual: 2003-2004 Task Force Equipment Cache List. Federal Emergency Management Agency. August 2003.  
[http://www.fema.gov/pdf/usr/task\\_force\\_documents equip\\_cach\\_list\\_intro.pdf](http://www.fema.gov/pdf/usr/task_force_documents equip_cach_list_intro.pdf)

8. Urban Search and Rescue Task Force Equipment Cache List. Federal Emergency Management Agency. 2004. [http://www.fema.gov/pdf/usr/usr equip\\_cache\\_list.pdf](http://www.fema.gov/pdf/usr/usr equip_cache_list.pdf)
9. NFPA 1670- Standard on Operations and Training for Technical Search and Rescue Incidents. National Fire Protection Association. 2004 Edition.  
<http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1670>
10. NFPA 1006- Standard for Rescue Technician Professional Qualifications, National Fire Protection Association, 2003 Edition. <http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1006>
11. NFPA 1951- Standard on Protective Ensemble for US&R Operations, National Fire Protection Association, 2001 Edition. <http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1951>
12. NFPA 1500- Standard on Fire Department Occupational Safety and Health Program, National Fire Protection Association, 2002 Edition.  
<http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1500>
13. Inventory of Navy Laboratory Rescue & Diving Equipment Available for Emergency Undersea Operations, NOSC TD 112. U.S. Navy. 1983.
14. Rescue and Survival Systems Manual, COMDTINST M10470.10 (Series). U.S. Coast Guard. 2003.
15. SARSAT Users Manual for Use by Coast Guard Search and Rescue Personnel. U.S. Coast Guard, 1982.
16. Standard First Aid Training Course, NAVEDTRA 10081-C. U.S. Navy.

United States National Search and Rescue Supplement to the International Aeronautical and Maritime Search and Rescue Manual, National Search and Rescue Committee, Washington DC. May 2000