

FEDERAL EMERGENCY MANAGEMENT AGENCY

***NATIONAL  
URBAN SEARCH AND RESCUE  
RESPONSE SYSTEM***

**A Component of the National Response Plan  
Emergency Support Function # 9**



**FEMA**

**STRUCTURES SPECIALIST  
POSITION DESCRIPTION**

**National Urban Search & Rescue Response System  
Structures Specialist Position Description**

**General Requirements**

1. Must be able to meet the physical requirements of the sponsoring agency with or without accommodations.
2. Must be available on short notice to mobilize within six hours of request and be self-sufficient for at least 72 hours for a response assignment of up to 10 days in austere environments.
3. Must be capable of improvising and functioning for long hours under adverse conditions.
4. Must maintain current inoculations for Diphtheria/Tetanus (or Tetanus only if there is a contra-indication to Diphtheria), Hepatitis A & B, Measles/Mumps/Rubella (if born after 1957), and Polio.
5. Must be able to function safely at heights and on or around rubble.
6. Must be aware of the signs, symptoms and corrective measures of critical incident stress syndrome.
7. Must understand and adhere to safe working practices and procedures as required in the urban disaster environment.
8. Must have a working knowledge of FEMA's US&R Response System, organizational structure, operating procedures, safety practices, terminology, knowledge of all task force equipment, and communications protocols.
9. Must have successfully completed the First Responder Operations Level for Hazardous Materials as per OSHA Standard 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response.
10. Must be currently certified in America Heart Association (or equivalent) Cardiopulmonary Resuscitation - Basic Life Support.
11. Must have a working knowledge of the Incident Command System including successful completion of the IS-100, IS-200, IS-700 and IS-800 on-line courses.
12. Successful completion of the DHS/FEMA US&R Orientation Course or equivalent.
13. Successful completion of Respiratory Protection training and quantitative fit test per 29 CFR 1910.134
14. Successful completion of the DOJ Emergency Response to Terrorism, Basic Concepts or equivalent.
15. Successful completion of the FEMA/US&R WMD Enhanced Operations
16. Successful completion of Awareness Level training per NFPA 1670 including;
  - Confined Space Operations
  - Water Rescue Operations
  - Structural Collapse Operations

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17. Successful completion of GPS Awareness Level course (Garmin V or comparable)
18. Must understand the needs of and provide support to their counterparts within the task force for specific operations, techniques and application of tools and equipment.
19. Must possess training and experience in personal safety in US&R environments.
20. The authority having jurisdiction shall assure that the individual meets or exceeds the required knowledge, skills, and abilities (KSA's).

**Position Specific Requirements**

**STRUCTURES SPECIALIST**

The Structures Specialist is responsible for performing the various structural assessments for the task force during incident operations. The Structures Specialist reports directly to the Planning Team Manager.

**Description of Duties**

The Structures Specialist is responsible for:

- Assessing the structural condition within the area of task force operations, which includes identifying structure types and specific damage and structural hazards.
- Recommending the appropriate type and amount of structural hazard mitigation in order to minimize risks to task force personnel.
- Assisting in the development of task force action plans
- Adhering to all safety procedures.
- Cooperating with and assisting other search and rescue resources.
- Providing accountability, maintenance, and minor repairs for all issued equipment.
- Performing additional tasks or duties as assigned during a mission.
- Monitoring assigned structure for condition changes while rescue and recovery operations are proceeding.
- Assuming an active role in implementing approved structural hazard mitigation as a designer, inspector, and possibly a supervisor.
- Coordinating and communicating the structural related hazard mitigation with US&R IST/IMT Structural Unit Leader.

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### **Position Requirements and Criteria**

Individuals who meet the following requirements and criteria will be eligible to become Structures Specialists in the FEMA US&R Response System. The intent of these requirements is to select personnel fully capable of providing competent assessments and advice to task force personnel in the urban disaster environment. The requirements and criteria for the position are identified in the following categories:

- Knowledge
- Skills
- Abilities

### **Knowledge**

The Structures Specialist must have:

1. Completed the FEMA/USACE Structural Specialist Course.(StS1)
2. Completed Basic Rescue Module (Appendix A) consisting of Confined Space (entrant), Basic Rope Rescue, and Trench awareness.
3. Knowledge of Garmin GPS (or compatible) including Computer Interface - the down-loading and up-loading of maps.
4. Knowledge of how Rescue Specialists are trained to perform Breaking and Breaching, Lifting and Moving, and Shoring Construction. It is recommended that Structure Specialists complete Structural Collapse Technician course, as presented by own Task Force, in order to obtain this knowledge
5. Knowledge of the appropriate types of structural hazard reduction methods for various types of collapsed structures
6. Knowledge of victim access methods, and of safe rescue practices and procedures
7. Comprehensive knowledge of building materials, to include:
  - Current and past design and construction techniques for wood, masonry, concrete, and steel.
  - Knowledge of the behavior of structures under adverse loading conditions.

### **Skills**

The Structures Specialist must be/have:

1. Currently licensed as a Professional Engineer specialization in structures or Equivalent as Sanctioned by the FEMA US&R Technical Sub-committee.
2. A minimum of 5 years experience in structure design and analysis to include evaluation of existing structures, field investigation or construction observation experience.
3. Capable of setting up and using various monitoring and other tools available in the US&R equipment cache

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### **Abilities**

The Structures Specialist must be:

1. Able to identify features that allow for the determination of the condition of structures subjected to adverse loading from natural and man-made disasters.
2. Able to identify vertical load and lateral force resisting framing systems and identify the critical elements within those systems.
3. Able to identify failure indications of building materials.
4. Able to identify building features that could provide entry or access to victims such as ducts, shafts, etc.
5. Able to recommend practical solutions for US&R operations in compromised structures.

### **General Operational Checklist**

#### **UPON ACTIVATION / AT TASK FORCE ASSEMBLY POINT**

- Receive notification of assignment and instructions from the initiating organization.
- Establish communications with the appropriate supervisor.
- Monitor mission-related information from local sources such as radio and television.
- Review the personal equipment checklist.
- Ensure that you have personal daypack, ear plugs, and warm clothes for flight.
- Report to the assigned Assembly Point at the prescribed time.
- Forward an accurate Responder Information Sheet to the Medical Team Manager.
- Complete check-in procedures to include medical screening.
- Ensure that you receive any appropriate issue of gear (radio, functional vest, etc.) pertinent to the position.
- Participate in task force briefings and meetings as requested.
- Carry out assignments as directed.
- Must not be under the influence of illegal substances or alcohol for the duration of the deployment.

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**AT POINT OF DEPARTURE**

- ❑ Participate in task force briefings and meetings as requested.
- ❑ Carry out assignments as directed.
- ❑ Ensure that electronic equipment is turned off prior to boarding aircraft.

**IN TRANSIT**

- ❑ Review the FEMA US&R Field Operations Guide for information pertinent to your position description, operational checklist, operational procedures, and safety procedures.
- ❑ Monitor mission-related information from local sources such as radio and television.
- ❑ Review disaster related information, as it becomes available.
- ❑ Take advantage of available travel time for rest prior to arrival.
- ❑ Carry out assignments as directed.

**ARRIVAL AT MOBILIZATION CENTER**

- ❑ Participate in task force briefings and meetings as requested.
- ❑ Carry out assignments as directed.

**ON-SITE OPERATIONS**

- ❑ Ensure your physical readiness through proper nutrition, water intake, rest, and stress control techniques.
- ❑ Participate in the task force daily briefings and meetings as requested.
- ❑ Ensure use of all safety practices and procedures.
- ❑ Ensure proper equipment needs are met and equipment is operational prior to each work period.
- ❑ Carry out assignments as directed.
- ❑ Report any signs/symptoms of incident stress, injury, fatigue, or illness in yourself/coworkers to your immediate supervisor.
- ❑ Brief your shift replacement fully on all ongoing operations when relieved at work cycle rotations.
- ❑ Prepare appropriate reports (i.e. Unit Logs ICS-214, etc.).

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**REASSIGNMENT/DEMOBILIZATION**

- ❑ Participate in the task force daily briefings and meetings as requested.
- ❑ Prepare personal belongings for demobilization.
- ❑ Carry out assignments as directed.
- ❑ Ensure the return of all items issued to you during the mobilization phase.
- ❑ Upon return, participate in the task force mission critique and incident stress management activities.
- ❑ Submit comments to your supervisor for inclusion in the after-action reports. This should include reviewing pertinent position descriptions, operational checklists, and procedures for recommended changes.

**Position Specific Operational Checklist**

**STRUCTURES SPECIALIST**

The purpose of this checklist is to define the duties and responsibilities of the Structures Specialist during a mission assignment. The list is intended to be a general summary of actions. It should be understood that:

- 1) Some required actions may not be listed, but must be identified and assumed by this position.
- 2) Some actions may be the primary responsibility of another task force position, but may require assistance and coordination from this position.
- 3) The actions are listed in a general chronological order, but may require deviation.

**UPON ACTIVATION / AT TASK FORCE ASSEMBLY POINT**

- ❑ Gather data on building construction, damage assessments, relevant data in the disaster area for the purposes of formulating action plans.
- ❑ Brief task force personnel on building construction and considerations to be anticipated in the affected area.

**AT POINT OF DEPARTURE** (see general operational checklist)

**IN TRANSIT** (see general operational checklist)

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**ARRIVAL AT MOBILIZATION CENTER**

- ❑ Identify cache supplies and equipment that should receive priority for initial movement to the assigned area. Assist as necessary in the departure to the assigned jurisdiction or incident site.
- ❑ Brief Rescue Manager, Search Manager, Safety Officer, and Heavy Rigging Specialists on relevant structural concerns.
- ❑ Determine coordination and communication protocol with the US&R IST/IMT Structural Unit Leader.

**ON-SITE OPERATIONS**

- ❑ Conduct structural triage of assigned structures in accordance with the US&R Field Operations Guide.
- ❑ Participate in search operations and/or search and reconnaissance deployments as directed. Brief reconnaissance team on structural considerations.
- ❑ Mark buildings in accordance with the Structure/Hazards Evaluation and Search Assessment procedures.
- ❑ Gather appropriate building plans, etc. as available and coordinate with building representative if available.
- ❑ Contact local structural engineers, contractors, and/or building department officials to determine construction data.
- ❑ Provide assessment to task force team managers, Safety Officer, and Heavy Rigging Specialists, including:
  - Recommendation for areas requiring hazard mitigation with respect to shoring and bracing (using available materials) and/or the removal of structural components, hazards, and debris.
  - Discuss the most productive methods of access relative to probable location of victims.
- ❑ Work with search and rescue personnel to determine the most appropriate course of action to gain access to victims. This would include:
  - Most appropriate routes to conduct searches.
  - Determine what structural materials are likely to be found while gaining access.
  - Effects of rescue operations on other building elements.
  - Special precautions required during breaching operations.
  - Special considerations of buildings with basements.
  - Advice on the placement of shoring and bracing material.
- ❑ Make recommendations for, and provide required structure monitoring of the assigned structures for changing conditions.
- ❑ Coordinate and communicate all activities with US&R IST/IMT Structural Unit Leader per established protocols.
- ❑ Keep the Planning Team Manager apprised of any tactical accomplishments or conflicts, supplies deficiencies, or equipment malfunctions.

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**REASSIGNMENT/DEMOBILIZATION**

- Notify the assigned supervisor of the loss or potential maintenance requirements of any assigned tools and equipment

**Appendix A**

**Technical Rescue Skill Sets**

Minimum skill set recommendations for Task Force Personnel who enter the hazard zone, i.e. forward deployment:

- General Requirements of NFPA 1670
- Rope Rescue awareness per NFPA 1670\*
- Trench Rescue awareness per NFPA 1670
- Confined Space Rescue awareness per NFPA 1670
- Structural collapse awareness, NFPA 1670
- Duties of the Entrant per 29 CFR 1910.146
- \* Additional Required Rope Rescue skills;
  - Safety considerations during rope rescue operations
  - Characteristics of life safety rope and webbing
  - Application of rope rescue hardware specific to a lowering operation
  - Application of rope rescue hardware and software specific to a belay line
  - Assemble and apply a Class III harness
  - Assemble and apply a "Hasty Harness"
  - Tie a Simple Figure eight knot
  - Tie a Figure Eight follow-through knot
  - Tie an overhand follow-through with webbing
  - Attach a prusik loop to a rope
  - Be familiar with anchor systems
  - Be familiar with raising and lowering systems
  - Proficiency at attaching yourself to, and participating in a raising or lowering system
  - Proficiency at descending and ascending a fixed line, low angle