

FEMA US&R RESPONSE SYSTEM
Position Description
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 Technical Team Manager.

Description of Duties

The Structures Specialist is responsible for:

- Assessing the immediate structural condition of the affected 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 on site to task force personnel.
- Adhering to all safety procedures.
- Cooperating with and assisting other search and rescue resources.
- 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 IST Structural Unit Leader.

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

1. Successful completion of Rescue Systems 1
2. Comprehensive knowledge of building materials, to include:
 - Knowledge of the design and construction techniques for wood, masonry, concrete, and steel.
 - Knowledge of the design and construction techniques utilizing architectural materials such as unreinforced masonry and concrete.
3. Knowledge of the behavior of structures under adverse loading conditions.
4. Ability to identify features that allow for the determination of the condition of structures subjected to adverse loading from:
 - Earthquakes - ability to evaluate the remaining lateral force system capacity in the event of aftershocks.

- Hurricanes and tornadoes - ability to evaluate the lateral force system and areas of local stress.
 - Flood or dam collapse.
 - Fire or explosion.
 - Landslide or avalanche.
 - Transportation accidents.
5. Knowledge of the appropriate types of structural hazard reduction methods for various types of collapsed structures, including:
 - Shoring and bracing and availability of appropriate materials.
 - Removal of collapsed structural components and hazards, or debris removal.
 - Methods for creating safe havens.
 - Identification of unsafe areas that must be restricted.
 6. Knowledge of victim access methods, including:
 - How and where to penetrate various building types to minimize risks.
 - Effects of lifting large structural components and the ability to calculate weights for rigging and lifting operations.
 - Knowledge of safe rescue practices and procedures.
 7. Must have completed the FEMA Structural Specialist Course.

Skills

1. Currently licensed as a structural engineer or equivalent as sanctioned by the FEMA US&R Advisory Committee.
2. A minimum of five years experience in structure design and analysis to include evaluation of existing structures, field investigation or construction observation experience.
3. Ability to identify vertical load and lateral force resisting framing systems and be able to identify the critical elements within those systems.
4. Ability to identify failure indications of building materials, including:
 - Knowledge of how basic building materials and framing systems perform.
 - Knowledge of how building materials typically fail under various loading conditions.
 - Knowledge of typical falling and collapse hazards from previous failures.
5. Ability to identify building features that could provide entry or access to victims such as ducts, shafts, etc.
6. Able to recommend practical solutions for US&R operations in compromised structures.

Abilities (see general *requirements*)