

**ANNEX 3 (ESF-3)**  
**PUBLIC WORKS AND ENGINEERING**

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**PRIMARY:** B&CB, Division of Procurement Services, Materials Management Office (MMO)

**SUPPORT:** As directed within the SCEOP, each supporting agency and organization will respond to coordinate the emergency activities of its department for a declared earthquake disaster. Selected state agencies or other organizations, as noted in this Annex, are assigned additional hazard-specific responsibilities for earthquake response.

SCDHEC, Office of Environmental Quality Control; US Army Corps of Engineers

**I. INTRODUCTION**

- A. There are over 1.5 million buildings in the state, and current loss estimates show the state will suffer significant building damage from a strong earthquake. In a magnitude 7.3 earthquake scenario, approximately 179,000 buildings, or over 12% of the total number of buildings in the state, will be at least moderately damaged. This type of damage will require safety inspection before reuse.
- B. A magnitude 7.3 earthquake will generate more than 36 million tons of debris in the disaster areas, including concrete and steel materials that require special treatment in disposal. Debris assessments will either be provided by the SAT, local governments, and/or state agencies representatives. If requested by the SERT, ESF-3 will coordinate debris management with local and federal government representatives and other support agencies to remove debris.
- C. ESF-3 will prepare for disaster response using the Operational Area Concept and worst case loss estimation data in Attachment C to the Basic Plan.

**II. MISSION**

- A. To establish policies, procedures, and restoration of transportation infrastructure, water resources, management, emergency contracting, and expertise following an earthquake disaster.
- B. To provide an accurate assessment of damages to determine the need for State and/or federal assistance, and to conduct safety evaluations to protect the public health and welfare.

### III. CONCEPT OF OPERATIONS

#### A. Damage Assessment

1. Initial requests for engineering services for post-disaster inspection and/or evaluation will be made to the SERT from the county emergency manager and, if necessary, state agencies with facilities within the affected areas. Decisions about responses to requests for engineering services will be coordinated as established by the response priorities.
2. Response operations will use an Earthquake Checklist that will be executed following a strong earthquake. Activities in the Earthquake Checklist do not replace required activities normally assigned to ESF in the SCEOP and supporting ESF SOP. The Checklist activities are to ensure that critical actions are completed or continuing at the appropriate time during an earthquake response. See Attachment A to this Annex for Checklist.
3. The local building official is responsible for declaring buildings within the jurisdiction to be safe for occupancy. State facilities are within the jurisdiction of the Office of State Engineer. The federal authority having jurisdiction shall inspect federal facilities. ESF-3, B&CB, Office of State Engineer, will support local building officials in inspecting and evaluating critical facilities with state-licensed building inspectors and/or engineers.
4. Due to the limited number of licensed building inspectors and state-employed engineers, the State Engineer's Office will request additional support from licensed volunteer engineering groups and private contractors. These groups will make up the Post-Disaster Inspection Team under the auspices of the ESF-3, B&CB, Office of State Engineer. Structural Engineers from FEMA will also be requested to provide support to the Post-Disaster Inspection Team. See Attachment B to this Annex more information on the Post-Disaster Inspection Team.
5. A Post-Disaster Inspection Plan will be used in the Operational Areas. The Plan includes information on the following:
  - a. Criteria for selecting earthquake shelter facilities.
  - b. Timeline to provide engineering support in the Operational Areas.
  - c. Supporting personnel.

- d. Operating procedures for personnel.
  - e. Training requirements of personnel.
  - f. Operational Area assignments.
  - g. Equipment and personnel shortfalls, including sources and delivery timeline.
6. Post-Disaster Inspection Team inspection priority is facilities that could serve as shelters and then to other critical facilities as requested by SERT Executive Group.
- B. Special Procedures for Volunteer Engineers
- 1. After confirmation of a damaging earthquake, ESF-3 will contact professional engineering volunteer groups. The volunteer group leader will contact members outside the affected area to determine the status of registered volunteer workers and their availability for deployment to the affected area. This information, along with any special request, will be relayed to an ESF-3 representative in the SEOC.
  - 2. All requirements for engineers working under the auspices of the SERT will be coordinated through ESF-3. No engineers will be deployed into the areas without appropriate coordination by ESF-3.
  - 3. Professional volunteer engineers in the field who require the assistance or other types of engineers (electrical, mechanical, civil, etc.) will request this support through the SERT.
- C. ESF-3 will also:
- 1. Coordinate debris removal with SERT.
  - 2. Coordinate with water and sewage treatment facilities in all matters concerning water supply and sewage treatment and disposal. If additional resources are needed, SCDHEC will coordinate through private contracts and through the SERT for FEMA and EMAC support.
  - 3. Identify private sector contractors, which may be required to provide potable water, supplies, or equipment in support of the earthquake response efforts. Identify points of contact (POC), methods of operations, and access procedures that will allow for rapid response to those requirements.

4. Coordinate with ESF-7 on ice and water requirements, and develop a strategy to distribute water and ice in the Operational Areas. ESF-3 will coordinate with ESF-19 to assist initially with providing water in the Operational Areas.
5. Coordinate with US Army Corps of Engineers as requested to provide engineering support as well as ice, water, housing, debris removal, transportation, generators, and showers.
7. Coordinate transportation requirements with ESF-1.

#### IV. ESF ACTIONS

The emergency operations necessary for the performance of the Public Works and Engineering Services function include but are not limited to:

##### A. Preparedness

1. Prepare a Post-Disaster Inspection Plan. See III.A.4. This Plan will include:
  - a. Criteria for selecting earthquake shelter facilities.
  - b. Timeline to provide the engineering support in the Operational Areas.
  - c. Supporting personnel.
  - d. Operating procedures for personnel.
  - e. Training requirements of personnel.
  - f. Operational Area assignments.
  - g. Equipment and personnel shortfalls including sources and delivery timeline.
2. Prepare a plan for distribution of ice and water in the Operational Areas.
3. Conduct training, and develop SOPs for Post-Disaster Inspection Team(s).
4. Coordinate with the professional engineering organizations in the recruitment, registration, orientation, and training of volunteer structural and civil engineers.

5. Prepare and coordinate with ESF-1 to provide transportation requirements for Post-Disaster Inspection Teams and equipment.
6. Participate in drills to exercise the Post-Disaster Inspection Team, and ensure members are annually trained and certified.
7. Analyze the Loss Estimation Reports prepared by SCEMD on damaged buildings.
8. Plan and prepare for the impact on the water supply, and develop strategies to provide water in the Operational Areas.
9. Plan and prepare for the impact on the wastewater and sewage treatment and disposal systems, and develop strategies for wastewater and sewage treatments restoration.
10. Coordinate with US Army Corps of Engineers to provide resources following the disaster.
11. Identify resource shortfalls and prepare documentation to request additional resources.

B. Response

1. Implement the ESF-3, Earthquake Checklist, Attachment A to this Annex.
2. Implement the Post-Disaster Inspection Plan.
3. Establish engineering priorities, and coordinate those priorities with SERT.
4. Activate and deploy the Post-Disaster Inspection Team(s).
5. Provide for debris clearance.
6. Validate resource shortfalls, and obtain necessary resources.
7. Implement a plan for distribution of ice and water.

C. Recovery

See Recovery Section, Annex 3, (ESF-3) to the SCEOP.

D. Mitigation

Encourage structural and non-structural hazard mitigation plans throughout the State. These include but are not limited to:

1. Inventory and classify all critical facilities.
2. Assess relative risk to public safety of each class of structure, encouraging the approval of building ordinances to mitigate the threats.
3. Identify and recommend the most cost-effective ways to eliminate the non-structural threats.

## V. RESPONSIBILITIES

### A. B&CB, Office of State Engineer

1. Prepare a Post-Disaster Inspection Plan. See Section III.A.4. above.
2. Conduct training and develop SOPs for Post-Disaster Inspection Team (s).
3. Coordinate with the professional engineering organizations in the recruitment, registration, orientation, and training of volunteer structural and civil engineers.
4. Prepare and coordinate with ESF-1 to provide transportation requirements for Post-Disaster Inspection Teams and equipment.
5. Participate in drills to exercise the Post-Disaster Inspection Team, and ensure members are annually trained and certified.
6. Analyze the Loss Estimation Reports prepared by SCEMD on damaged buildings.
7. Review and update as necessary the Earthquake Checklist for ESF-3.

### A. SCDHEC, Office of Environmental Quality Control

1. Identify and maintain a listing of potential shortfalls by Operational Area.
2. Identify private sector contractors, which may be required to provide potable water, supplies, or equipment in support of the earthquake response efforts. Identify POC, methods of operations,

and access procedures that will allow for rapid response to those requirements.

3. Analyze the Loss Estimation Reports prepared by SCEMD on potential debris from the event.
4. Prepare and coordinate with ESF-1 to provide transportation requirements for public works supplies and equipment.
5. Plan and prepare for the impact on the water, and develop strategies to provide water in the Operational Areas.
6. Plan and prepare for the impact on the wastewater and sewage treatment and disposal systems, and develop strategies for wastewater and sewage treatments restoration.

C. US Army Corps of Engineers

1. Continue to update debris removal policies to assist local governments as required.
2. Develop resource packages for potable water, ice, and equipment in support of the earthquake response.
3. Identify agencies and organizations that could provide additional resources in support of the earthquake response efforts.

**VI. FEDERAL INTERFACE**

The National Response Framework (NRF) ESF-3, Public Works and Engineering, supports this Annex.

**VII. ATTACHMENT:**

Attachment A	ESF-3 Earthquake Checklist
Attachment B	Post-Disaster Inspection Team

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**ESF-3 (Public Works and Engineering)**

Date/Time complete

1. \* \_\_\_\_\_ Implement Post-Disaster Inspection Plan.
2. \* \_\_\_\_\_ Activate, mobilize, and deploy Post-Disaster Inspection Teams as requested.
3. \* \_\_\_\_\_ Coordinate departure place, time, and transportation of the Post-Disaster Inspection Team.
4. \* \_\_\_\_\_ Request Corps of Engineers structural engineers and Surface Towed Ordnance Location System (STOLS).
5. \* \_\_\_\_\_ Provide for emergency debris removal for passage of emergency vehicles.
6. \_\_\_\_\_ Validate plans for alternate water sources, and coordinate with ESF-7 and ESF-15.
7. \_\_\_\_\_ Prepare reports of water/sewer system failures.
8. \_\_\_\_\_ Provide ESF-1 transportation requirements into the area.
9. \_\_\_\_\_ COE to coordinate resources to use in disaster response. Allocate resources according to established priorities.
10. \_\_\_\_\_ Coordinate with ESF-6 for Post-Disaster Inspection Team to evaluate facilities for shelters.

**\*NOTE:** All Checklist activities listed are essential, and should be completed. However, Checklist activities denoted with an asterisk are critical, and should be completed first. Other action items can be executed simultaneously to expedite response actions.

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**I. Purpose**

To inspect and evaluate structures to use as shelters, as well as inspect and assess critical facilities as designated by SERT Operations Group for structural integrity.

**II. Organization**

- A. Teams will be composed of structural and civil engineers and licensed building inspectors from State, volunteer engineer groups, and, if necessary, federal personnel working under the auspices of the B&CB, Office of State Engineer.
- B. After coordination with ESF-3, the team will deploy using ground transportation and, if available, aerial assets. The teams will meet with the local building official(s) to discuss the priority of buildings to be inspected. If the local building official is available, he or she will accompany the team during the inspection and evaluation of facilities.
- C. Each team will have a team leader who will be responsible for assignment, situation and follow-up reports to the ESF-3 POC and the local building official.
- D. Priority will be given to structural assessment of pre-identified ARC shelter facilities, and then other critical facilities as prioritized by SERT Operations Group.
- E. After a facility has been assessed, the team will post a placard identifying the building and its date and time of assessment, and provide a report to the local building official.
- F. The local building official will declare buildings within the jurisdiction to be safe for occupancy.

**III. Coordinating Instructions**

- A. Transportation: Teams will assemble at the SEOC for deployment. An ESF-3 representative will coordinate the departure time and date.
- B. Lodging: If overnight lodging is required, the teams will coordinate before departure with its ESF-3 representative on lodging availability and reimbursement procedures.
- C. Communications: Teams will be provided with a cellular telephone to communicate and, if available, satellite telephone.
- D. Reporting Requirements: In coordination with SCEMD, the teams will develop a standardized report form to use. Teams will report daily (no later than 7:00 a.m.) to ESF-3 the usability of facilities to serve as earthquake shelters. ESF-3 will

**Attachment B to Annex 3 (ESF-3)**  
**Post-Damage Inspection Team**

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provide the report to the SERT Operations Group for further analysis and decision-making.