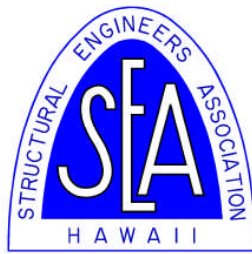


# **SEAOH Post-Disaster Reconnaissance Field Guide**



**December 2008**

## Section 1 – Introduction

The purpose of the Structural Engineers Association of Hawaii (SEAOH) Post-Disaster Reconnaissance Team is to observe and document the effects of earthquakes, hurricanes, storms, floods, tsunamis, and other natural and manmade disasters on the built environment. This Learning from Disasters (LFD) Program includes two major activities:

- Conduct post-disaster field investigations.
- Disseminate the lessons learned from these activities to local organizations.

The purpose of the LFD Program is to increase local awareness about disaster preparedness and to increase knowledge about potential hurricane, earthquake, and other disaster-related hazards and mitigation strategies among the engineering, architecture and public agency communities.

This SEAOH Post-Disaster Reconnaissance Field Guide (hereafter called Field Guide) stresses advance planning. It outlines procedures that enable SEAOH to dispatch investigation teams quickly and effectively when the need arises. This planning is essential in allowing SEAOH to best utilize its resources, avoid duplication of efforts, and ensure that all important aspects of the disaster are adequately studied.

This Field Guide describes procedures for deciding what disasters will be investigated; responsibilities of project participants; formation and dispatch of investigation teams; and dissemination of the information collected. It also offers general guidelines for data collection in the field. The LFD Program is overseen by the SEAOH Disaster Response Committee.

## Section 2 – Introduction

### Selecting Disasters to Be Investigated

The SEAOH Board of Directors decides which disasters will be investigated. In general, SEAOH will investigate hurricanes, earthquakes, and major storms and floods that cause significant damage in Hawaii. Criteria for determining whether or not a post-disaster investigation will take place are applied on a case-by-case basis. Criteria include early damage reports and availability of funds and investigators.

### Selecting Team Members

The size and composition of the Disaster Reconnaissance Team (DRT) will depend on the location of the disaster and the extent of damage. For events that require extensive investigation, the DRT may be divided into groups, with each group focusing on a particular area and/or aspect of the investigation.

The DRT Team Leader will be the SEAOH Member appointed as the Disaster Response Committee chairperson, acting under the oversight of the SEAOH Board. If he/she is unavailable, the SEAOH President shall select the Team Leader. Team Members will be selected from applications submitted by SEAOH members indicating their interest in serving on a DRT. Licensed structural engineers with previous field investigation experience are desirable, but interest, availability, and capability are also criteria. Selection of Team Members and their assignments is critical to the success of the mission.

It is preferable that the Team Leader and all Team Members not have any other commitments (such as to other organizations, agencies, or clients) or conflicts of interest that jeopardize the mission of this LFD Program to provide non-proprietary documentation and photographs, and objective, unbiased observations and opinions.

### Responsibilities of Investigative Teams

Field investigators are expected to assess the nature and extent of damage, noting building components and systems that did not fail as well as what did. In addition to documenting damage, field investigators should attempt to determine failure mode, factors that may have contributed to failure, what the implications of the damage are, and identify any secondary impacts. Those chosen for a DRT will be given a briefing detailing their specific obligations for that disaster. Team members are expected to contribute to subsequent de-briefings, reports, or other activities organized by SEAOH to disseminate information.

Refer to Section 4, Responsibilities of LFD Project Participants, for a detailed discussion of Team Members' responsibilities. Reconnaissance Teams should be prepared to spend several days to two weeks in the field. Team members are volunteers and take part in investigative activities on their own time and at their own risk. Typical responsibilities include:

1. Make a rapid general damage survey of the affected area.
2. Coordinate closely with the DRT Team Leader.
3. Participate in coordination meetings with other agencies/investigators and report results.
4. Assess need for follow-up research and recommend specific areas, facilities, and subjects that merit further attention.
5. Provide debriefings to researchers and/or potential funding organizations regarding recommended further investigations and research.
6. Contribute to required reports.

## Section 3 – General Response Procedures

### Gaining Access to Affected Areas

A State or County agency may issue identification badges to members of the Disaster Reconnaissance Team (DRT). A release form must be signed and given to the Team Leader. Refer to Appendix A, Forms: SEAOH Release Form. The Team Leader will contact local agency officials to facilitate entry, as necessary.

### Preparing to Go into the Field

Team Members are expected to provide their own clothing and personal effects, medical and emergency supplies, and necessary tools or equipment. Refer to Appendix B, Pre-Departure Checklist.

### Team Travel Procedures

For disasters on outer islands, the team will typically travel together as a group. Team Members are responsible for keeping accurate records and receipts to justify later reimbursement. Refer to Appendix A, Expense Reimbursement Policy.

### While in the Field

#### Safety Assessments

DRT members are NOT to be involved in assessing the safety of structures for occupancy purposes solely or in conjunction with local building officials. This would interfere with the investigator's primary job of data and information collection, and expose SEAOH to a liability for which it is unprotected. In most cases, determining the safety of structures is the responsibility of the local building official, who may be assisted by a separate SEAOH team of building safety volunteers.

#### Field Reporting Procedures

Each field investigator is responsible for reporting to the Team Leader. It is important that timely information from the field be made available on at least a daily basis for dissemination to SEAOH Board. The Team Leader should provide a situation report upon arrival in the field, and every 24 hours thereafter until the field investigation is terminated. Basic information to be communicated includes:

1. Location of team and how they can be contacted.
2. Initial activities and activity since last report.
3. Major observations and foci of the team.
4. Apparent needs for further investigation.

#### Coordinating with Other Organizations/Agencies

Post-disaster investigations are major activities for several private, research, and governmental organizations. The DRT may coordinate its field investigations with other groups to enhance data collection for the benefit of the community at large.

### **Dealing with Media**

Disasters generate media interest and SEAOH members in the field may be approached for comment by members of the media. In the case of a severe disaster, SEAOH may participate in a news conference. This will present opportunities for favorable media coverage for SEAOH and the work we do. Whether in the field, or elsewhere, there are several things investigators must keep in mind when dealing with the media.

1. SEAOH is a professional association of volunteers; DRT members shall identify themselves as participating in the SEAOH-led effort.
2. The purpose of SEAOH field investigations is to learn as much as possible from the destructive effects of natural and manmade disasters.
3. The SEAOH field team is in the area to document the performance of structures.
4. Give preliminary information, when possible, about post-investigation public briefings.
5. Offer to provide the final report to interested media personnel. Obtain their business cards.

### ***DO NOT MENTION, OR GIVE THE IMPRESSION OF, ANY OF THE FOLLOWING:***

1. Do not indicate that SEAOH is there to help with detailed analyses, repairs, reconstruction, or solving of other problems.
2. Do not indicate that SEAOH's findings will be definitive answers.

### **After Returning from the Field**

#### **Documenting Investigative Findings**

One important goal of post-disaster investigations is to document field findings and publish them in a format that can be archived. Part of the LFD project involves disseminating the results of such investigations to other SEAOH members, to interested organizations/agencies, and to design professionals. Depending on the significance of the event and depth of investigation, dissemination of information will be accomplished through one or more of the following methods:

- Electronic information
- Newsletter article or insert
- A special reconnaissance report
- Public briefings or presentations

All team participants are required to contribute to the post-disaster activities described herein.

#### **Post-Investigation De-Briefings**

Post-investigation de-briefings will be conducted by the Team Leader at an appropriate time after the team's return from the field. The de-briefing will provide SEAOH, local agency officials, and other interested organizations with the observations of the SEAOH Reconnaissance Team. The nature and level of follow-up activities will also be discussed.

The de-briefings within SEASOH will provide opportunities to evaluate how the DRT activities functioned and discuss ways to improve field investigations. Information from these debriefings will be used subsequently to revise this Field Guide.

**Section 4 – Responsibilities**

The responsibilities of key participants are outlined below for the following four phases of activity:

- Pre-Disaster planning
- Disaster Notification and Mobilization
- Field Investigation
- Post-Investigation activities

<b>Summary of Responsibilities</b>				
	<b>Team Member</b>			
	<b>Team Leader</b>			
	<b>Disaster Response Committee</b>			
	<b>SEAOH President</b>			
<b>Pre-Disaster Planning</b>				
▪ Update this Field Guide, including the Appendices.		X		
▪ Place an article in the Wiliki soliciting field investigators on an annual basis.		X		
▪ Ensure that systems for notification in the event of a disaster are in place.		X		
<b>Disaster Notification and Mobilization</b>				
▪ Collect readily available information about the disaster and determine if disaster will be investigated. Confer with Board of Directors.	X			
▪ Select Team Leader if Disaster Response Committee Chairperson is unavailable.	X			
▪ Determine the appropriate level of investigation and select Team Members. Confer with Team Leader. Establish budget.	X			
▪ Contact each selected Team Member. Explain selection, expectations, details of the process, and similar information.			X	
▪ Provide team members with this Field Guide, including all forms.			X	
▪ Make team travel arrangements, where necessary.			X	
▪ Respond to inquiries from members, the media, and others. Inform them of SEAOH’s response to the event. Continue to do so on an as-needed basis.	X			
▪ Read and sign the Release Form and “Guidelines for Reconnaissance Team Members.” Refer to Appendix A, Forms.				X
▪ Submit signed forms to SEAOH President.			X	
▪ Assemble personal gear and necessary professional equipment for field investigation.				X

<b>Summary of Responsibilities</b>				
	<b>Team Member</b>			
	<b>Team Leader</b>			
	<b>Disaster Response Committee</b>			
	<b>SEAOH President</b>			
<b>Field Investigation</b>				
<ul style="list-style-type: none"> <li>▪ Be available to answer specific policy or unusual questions that arise during the course of the field investigation. Continuously monitor field investigation efforts and support the Team Leader on an as-needed basis.</li> </ul>	X			
<ul style="list-style-type: none"> <li>▪ Arrange for daily debriefing of DRT. Coordinate all on-site arrangements and activities of team members.</li> </ul>			X	
<ul style="list-style-type: none"> <li>▪ Provide regular situation reports to the SEAOH President.</li> </ul>			X	
<ul style="list-style-type: none"> <li>▪ Perform work to support team’s operations. Participate in daily Team meetings.</li> </ul>				X
<b>Post-Investigation Activities</b>				
<ul style="list-style-type: none"> <li>▪ Work with Team Leader to plan dissemination of information. Monitor performance of post-investigation activities.</li> </ul>	X			
<ul style="list-style-type: none"> <li>▪ Provide reconnaissance report preparation instructions to team members.</li> </ul>		X		
<ul style="list-style-type: none"> <li>▪ Process expense report claims; submit financial reports.</li> </ul>			X	
<ul style="list-style-type: none"> <li>▪ Prepare a summary report for the SEAOH Board of Directors of the principal activities undertaken by the DRT.</li> </ul>			X	
<ul style="list-style-type: none"> <li>▪ Prepare and deliver own materials for briefings and reports to Team Leader.</li> </ul>				X
<ul style="list-style-type: none"> <li>▪ Coordinate production of field investigation information. Prepare and distribute synopsis of lessons learned to professional and trade associations and other organizations.</li> </ul>	X	X		
<ul style="list-style-type: none"> <li>▪ Prepare and coordinate publication of final reconnaissance report from materials prepared by Team Members/Team Coordinators. Work with Disaster Response Committee.</li> </ul>			X	
<ul style="list-style-type: none"> <li>▪ Participate as a speaker as appropriate in post-disaster SEAOH briefings.</li> </ul>	X			X
<ul style="list-style-type: none"> <li>▪ Provide Disaster Response Committee with critical comments on the investigation process, field inspection forms, checklists, or this Field Guide, so they may be improved.</li> </ul>				X
<ul style="list-style-type: none"> <li>▪ Recommend revisions to SEAOH policies and field operating procedures based on lessons learned during the investigation and dissemination process.</li> </ul>		X		

## **Section 5 – Data Collection**

### **Collecting Data**

Team members are expected to take digital photographs while in the field, and to keep track of the photos by location and date. It is recommended that GPS coordinates be taken as well. This will assist in both illustrating the reconnaissance reports and preparing presentations upon the team's return.

### **Types of Data to be Collected and Recorded**

A field investigator looking at engineered buildings is expected to assess the type of damage to buildings. Damage must be documented for a sufficient number of similar buildings in the same area – both damaged and undamaged – so that both an average level of damage and the variety of the damage can be determined. It is important to note what did not fail, as well as what did.

In addition to identifying damage to individual structures, field investigators should consider performing an overall building survey on a representative sample basis. Collect geo-coded spatial data sufficient to make a map of what types of buildings are/were in each area and the type and extent of damage at each sample building.



## Appendix A – Forms

Contained in this Appendix are the following forms:

- SEAOH Release Form
- Guidelines for Reconnaissance Team Members
- Letter of Introduction
- Reconnaissance Reimbursement Policy
- Expense Reimbursement Statement

# SEAOH Release Form



In connection with work performed by me under the auspices or sponsorship of SEAOH, I represent and agree as follows:

1. I will be individually acting as an independent volunteer and not as an employee of SEAOH.
2. I am aware of the dangers to person and property which are inherent in the investigation of disaster areas.
3. I will make my own determination as to any precautionary health or safety measures I should undertake prior to embarking and during any activities undertaken under the auspices or sponsorship of SEAOH.
4. I release SEAOH and any of its officers, directors, and members from any liabilities for injury or damage arising out of any work undertaken under the auspices or sponsorship of SEAOH.

Participants in the SEAOH LFD Project are volunteers, and take part in investigative and presentation activities at their own risk. SEAOH and other agencies, organizations, and firms providing support to the LFD Project assume no responsibility for possible injury, death, property damage, or other loss resulting from wind, water, earthquakes, aftershocks or other, secondary related hazards, including, but not limited to: fire, building collapse, hazardous material release, or civil disturbance.

\_\_\_\_\_  
Name (print)

\_\_\_\_\_  
Affiliation

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Address

## Guidelines for Reconnaissance Team Members



1. Prior to departure, all team members must sign and submit the “SEAOH Release Form” and “Guidelines for Reconnaissance Team Members.”
2. For all disasters, immediately upon return and in a period not to exceed three weeks following the disaster, each team member will submit a written report in an electronic format specified by the DRT Team Leader, along with digital photographs. This report must be received before travel costs will be reimbursed.
3. For disasters with significant impacts, a more complete Reconnaissance Report will be issued by SEAOH within four months following the disaster. Contributions must be received on electronic media or via email from each author no later than two months after the event. Delinquent reports will be omitted and no reference will be made to that individual's participation. In all cases, regardless of professional affiliation, Reconnaissance Team members agree to fulfill their obligation to SEAOH by submitting their Reconnaissance Reports to the Team Leader.
4. All team members identified by SEAOH will be listed at the front of the Reconnaissance Report. Large reconnaissance efforts may require that team members coordinate the contributions of several individuals. Major contributions by specific individuals may be acknowledged at the end of a chapter, with approval of the Team Leader. Overall editorial responsibility falls to the Team Leader/Technical Editor. Large reconnaissance may have both a Team Leader and a Technical Editor. The SEAOH Board has final authority to approve issues of content.

I have read these guidelines for Reconnaissance Team members and agree to abide by each of the conditions to the best of my ability.

\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Affiliation

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

[insert date]

Subject: [insert name of disaster]  
Disaster Reconnaissance Effort



To Whom It May Concern:

This is to advise and acknowledge that the Structural Engineers Association of Hawaii (SEAOH) has dispatched a team of engineers to investigate the effects of [insert name of disaster]. By means of this letter, your assistance and cooperation with the Reconnaissance Team is requested.

Quick response field studies conducted following major natural disasters are vital to identify knowledge gaps where further research is most needed. They can also offer opportunities to make recommendations regarding mitigation measures, construction requirements and building codes, and disaster preparedness for better preparing communities in the event of the next disaster.

Cooperation with the members of this study team in granting them access to disaster scenes and in sharing information with them enhances their effectiveness in carrying out their critical task. Your cooperation is most appreciated.

Sincerely,

President  
Structural Engineers Association of Hawaii

## **Reconnaissance Reimbursement Policy**

Travel reimbursement will be limited to the following items:

### Transportation

1. Necessary taxi or ground transportation.
2. Reasonable use of personal auto at prevailing mileage rate.
3. Parking.

### Meals and Lodging

1. Hotel cost at prevailing local standard rate (single). All expenditures must be supported by receipts.
2. Personal food and beverage at no more than per diem set by the SEAOH President.

### Miscellaneous

1. Necessary telephone, fax, and internet charges.
2. Necessary printing and copying services.
3. Reasonable fees and gratuities.

SEAOH will reimburse reasonable expenses and does not wish to impose hardship on volunteers. Recognizing that SEAOH funds are limited, however, team members are encouraged to make use of other resources, where available.



## Appendix B – Pre-Departure Checklist

### Documents

1. Driver's license and SEAOH Disaster Reconnaissance Team ID.
2. Credit cards.
3. Business cards.

### Reference Materials

1. SEAOH Post-Disaster Reconnaissance Field Guide.
2. Maps.

### Equipment / Tools of the Trade

1. Hard hat.
2. Flashlight (with extra batteries).
3. Pocket knife (e.g., Swiss Army, with attachments).
4. Tape measure.
5. Digital camera (with extra batteries, extra memory card, and battery charger as applicable).
6. Microcassette recorder.
7. Clipboard, paper, pens/pencils.
8. Cellular phone and charger.

### Clothing

1. Work boots or sturdy walking shoes
2. Appropriate clothing for field work, including wind breaker and rain gear.

### Personal Effects

1. Toilet articles (shaving gear, toothpaste and brush, comb, soap, etc.)
2. Small packages of tissue, roll of toilet paper, "Wash and Drys".
3. Sunglasses, sunscreen, hat.
4. Insect repellent.
5. Alarm clock

### Medical/Emergency Supplies

1. First aid kit (Band-Aids, adhesive tape, gauze pads, triangular bandage, ace bandage, etc.).
2. Chlorine or iodine pills for water purification, if necessary.
3. NIOSH masks (4-6), if necessary.
4. Prescription pills or medicine, if required.

### Other

1. Sleeping bag (if required).
2. Day pack for carrying equipment and supplies in the field.
3. Snacks (dried fruit, nuts, granola bars, candy bars, etc.).
4. GPS receivers.