

Title of Project: Enhancements to the California Emergency Management Agency's (CalEMA's) Building Safety Assessment Program Emerging from Recent Earthquakes in New Zealand and Japan

Principal Investigator: Jim Barnes, PE, CalEMA Safety Assessment Program Coordinator

Participating Institutions: California Emergency Management Agency
California Building Officials
Applied Technology Council
Structural Engineers Association of California?
American Institute of Architects?

Funding Period: July 1, 2011 to December 31, 2011

Total Cost: \$34,380

Purpose: See Attached Exhibit A

Matching Contributions: The state's Safety Assessment Program has approximately 7,000 volunteers each of which will likely benefit from this project. CalEMA anticipates offering 9 training sessions to focus on training the trainers of these volunteers. CalEMA anticipates that 40 trainees will attend each of the training sessions of 4 hours for a total of 160 hours of volunteer time valued at \$100/hr

Total Matching Contribution:	\$144,000
Leverage ratio:	4.2
Total Project Value:	\$178,480

Background

The California Emergency Management Agency (CalEMA) administers a standardized approach for rapid safety assessments of damaged buildings called the Safety Assessment Program (SAP). The Program uses volunteers and mutual aid resources to provide professional engineers and architects and certified building inspectors to assist local governments in safety evaluations of their built environment in the aftermath of disasters. Hundreds of credentialed SAP volunteers have been deployed after recent California earthquakes to conduct assessments and post red (unsafe), yellow (restricted use) or green (inspected) placards on buildings to help ensure safety following earthquakes and speed recovery. The program is managed by CalEMA with cooperation from professional organizations including the California Building Officials (CALBO), the Structural Engineers Association of California (SEAOC), and others. SAP produces two resources, manages the credentialing and training of over 7,000 SAP Evaluators, as well as local government representatives who serve as SAP coordinators when safety assessments are implemented in their community.

SAP uses a publication to train safety assessors titled “ATC 20: Post-Earthquake Safety Evaluation of Buildings,” that is published by the Applied Technology Council (ATC). ATC 20 was last updated in 1995 based on its use in the Northridge Earthquake. While recognized as an international standard, ATC has a project underway to update ATC 20.

Recent earthquakes and aftershocks in New Zealand and Japan resulted in the rapid development of enhancements to their safety assessment programs that could easily be considered and adapted on an interim basis here in California with low or no cost to local governments.

Purpose Of The Study

This project will produce a report that examines lessons learned from similar building safety assessment programs administered in New Zealand and Japan after recent earthquakes, to incorporate improvements into the California program, and to provide training in various locations in California with the improved material.

The following is a tentative list of refinements to Safety Assessment Programs in New Zealand and Japan identified to date that may be potentially relevant to California practice:

- 1) Use of Indicator Buildings to assess need for reevaluations following aftershocks:
- 2) Christchurch’s enhanced intelligence from Level 2 assessment forms that expand on minimal SAP Tagging intelligence: Green 1, Green2, Yellow 1, Yellow 2, Red 1, Red 2, Red 3.
- 3) Enhanced demolition/repair intelligence on a blue form for red-tagged buildings only
- 4) Streamlined assessment and documentation approaches for moderately damaged residences compared to SAP – Red Placards only, No Yellow or Greens Placards, Informational pamphlets in lieu of Yellow or Green Placards.
- 5) Rapid response practices versus zone-wide safety assessments and relative priorities
- 6) Light Urban Search And Rescue (USAR) escort team protocols to ensure safety of SAP teams
- 7) Demolition advice to owners, perhaps modeled after the Japanese Stage 3 system

- 8) Aftershock Policies: Entering Damaged Buildings in periods of heightened aftershock potential.
- 9) Barricading, cordoning practices and their performance in aftershocks
- 10) Stabilization practices for damaged buildings and their performance in aftershocks
- 11) Road clearing of debris – expediting contracts
- 12) Water-resistant ink pens and non-fadable placards.

This project will:

- 1) Help CalEMA, the California Building Officials (a primary local government coordination organization), the Applied Technology Council (ATC), the Structural Engineers Association of California (SEAOC) and others evaluate the need to enhance California's Safety Assessment Program and its administration;
- 2) If warranted, help expedite short-term, stopgap administrative changes to California's Safety Assessment Program or related emergency response activities such as road clearing, barricading, cordoning, and stabilization;
- 3) Help develop a dialogue between CalEMA, ATC, SEAOC and CALBO resulting in an interim consensus on SAP program changes, where possible;
- 4) Help develop revised forms, procedures, protocols, policies, and training resources to reflect necessary changes to SAP;
- 5) Help CalEMA train Safety Assessment Coordinators in new administrative changes.

Scope Of Work

CalEMA will produce a report (By Month 3) that will:

- a. Analyze lessons learned from building safety assessment practices in Japan and New Zealand that are potentially relevant to California practices.
- b. Propose interim, stop-gap or long-term recommended changes to California's Safety Assessment Program, or related emergency response activities such as road clearing, barricading, cordoning, and stabilization.
- c. Revise training and coordination manuals to implement the changes.

CalEMA will solicit training co-sponsors, identify sites and schedules, advertise training availability (By Month 4).

CalEMA will conduct train-the-trainer classes, and issue credentials to SAP volunteers, trainers, and coordinators (By Month 6).

The project representatives during the term of this agreement will be:

Requesting Agency: Alfred E. Alquist Seismic Safety Commission	Providing Agency: California Emergency Management Agency
Name: Fred Turner	Name: Jim Barnes
Phone: 916-263-5506 x 227	Phone: (916) 845-8273
Email: Turner@stateseismic.com	Email: Jim.Barnes@calema.ca.gov

Direct all inquiries to:

Requesting Agency: Alfred E. Alquist Seismic Safety Commission	Providing Agency: California Emergency Management Agency
Attention: Fred Turner	Attention: Jim Barnes
Address: 1755 Creekside Oaks Drive, Suite 100, Sacramento, CA 95833	Address: 3650 Schriever Ave Mather, CA 95655
Phone: 916-263-5506 x227	Phone: (916) 845-8273
Email: Turner@stateseismic.com	Email: Jim.Barnes@calema.ca.gov

BUDGET DETAILS

1. Budget Breakdown

336 hours x (\$50/hr Associate Civil Engineer + \$30/hr AGPA) = \$26,880
9 trips to provide training x \$500/trip travel expenses (air fare, car rental, per diem) = \$4,500
Air Travel and Pier Diem to New Zealand for Associate Civil Engineer = \$3,000
Totals: \$26,880 + \$4,500 + \$3,000 = \$34,380

2. Invoicing

- A. For services satisfactorily rendered and upon receipt and approval of the invoices, the Commission agrees to compensate the California Emergency Management Agency (CalEMA) for actual expenditures incurred in accordance with the rates specified herein or attached hereto.
- B. Invoices shall include the Agreement Number and shall be submitted in triplicate not more frequently than monthly in arrears to:

Sue Celli
1755 Creekside Oaks Drive, Suite 100
Sacramento CA 95833

3. Budget Contingency Clause

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State, or offer an agreement amendment to Contractor to reflect the reduced amount.

4. Payment

- A. Costs for this Agreement shall be computed in accordance with State Administrative Manual Sections 8752 and 8752.1.
- B. Nothing herein contained shall preclude advance payments pursuant to Article 1, Chapter 3, Part 1, Division 3, Title 2 of the Government Code of the State of California.