

## ***Introduction***

Structural Engineers play an important role in protecting the safety of the public, not only through the design of buildings and bridges but also in response to disaster. For decades, West Coast engineers have volunteered their expertise in evaluating structures in the aftermath of powerful earthquakes all around the Pacific Rim.

In 1990, driven by a new earthquake hazard awareness caused by the adoption of seismic design provisions in the 1989 Connecticut State Building Code and the widespread destruction of the Loma Prieta Earthquake (SF/ Oakland, 1989) and Hurricane Hugo (1988), the SEC Board of Directors created the original Emergency Preparedness Volunteers Group.



A little more than a decade later, during the week of September 11<sup>th</sup>, 2001, SEC's Emergency Preparedness/ Disaster Assistance Committee was prepared to send 4 teams of experienced structural engineers to Ground Zero to assist their neighboring state in the recovery and cleanup operations. Two teams eventually went down on September 16<sup>th</sup>.

With a new sense of urgency, SEC ERG membership has continued to grow, specialized training has begun, new training programs and an Operations Manual have been outlined. The newly created CT Urban Search and Rescue Advisory Board has asked SEC- ERG for guidance in structural matters.

## ***Our Mission Statement***

**"The Structural Engineers Coalition of Connecticut - *Emergency Response Group*** is a group of experienced volunteer professional engineers, trained to evaluate damage to public and private building structures in order to assist public officials in the initial assessment of hazards to human safety in the event of a major disaster, natural or otherwise."

## ***Personnel***

SEC-ERG provides training to build upon the design and field experience of Professional Engineers to include the evaluation of structures following catastrophic events, whether natural or man-made. This training model was developed based on the Applied Technologies Council's *Post Earthquake Safety Evaluation for Buildings* (ATC-20), which has been utilized for the past 15 years after each major U.S. earthquake as well as the events of September 11, 2001. In addition, this program encompasses training in personal safety, recognition of hazardous materials, antiquated building systems, shoring and rigging systems, and the response of buildings to blast effects.

## ***Logistics***

There are three specific functions that the SEC-ERG will perform to provide assistance to the state of Connecticut during a crisis. To accomplish these functions, four levels of volunteers have been established, based on degree of training and experience.

First, a select few, highly trained volunteers (SEC-ERG Level A) may qualify and be selected to serve as structural specialists on the state Urban Search and Rescue Team (CT-USR Team). As a structural specialist on the CT-USR Team, a SEC-ERG member will provide a direct contact to the SEC-

ERG and be knowledgeable in the procedures and tasks performed by the SEC-ERG.

Level B volunteers will consist solely of professional engineers licensed in the State of Connecticut and be trained in a variety of different areas including first aid, historical structures, rapid structural building evaluation, and heavy rigging. Four Level B volunteers make up the SEC-ERG first response team. In addition, these volunteers would also provide engineering support for the CT-USR team to consist of performing structural load calculations and reviewing any available existing structural drawings for the buildings in question.

Level C volunteers, professional engineers licensed in the State of Connecticut and trained in ATC-20 procedures, will perform rapid structural evaluation of buildings to determine an approximate level of damage and if they pose a threat to public safety. Level D volunteers are graduate engineers and will assist Level C volunteers with their rapid structural evaluation of buildings, performing basic tasks such as documenting observed conditions.

All volunteers will maintain their own personal Field Emergency Equipment Kit and SEC-ERG is also pursuing different options to acquire the equipment required to support functions at the team level. Temporary operations procedures are currently in place and an extensive Operations Manual is in development, based on the "Structural Engineering Emergency Response (SEER)" program being created by the National Council of Structural Engineers Associations (NCSEA).

## ***Financing***

Currently SEC – ERG funding is provided solely by its volunteers. Opportunities for state and federal grants are being explored at this time.

### ***Government Interface***

SEC-ERG is currently working with various governmental agencies in an attempt to properly protect the group's volunteers for their services rendered under this program. One solid achievement - legislation has been passed that provides "Good Samaritan" protection to volunteers working under this program. In conjunction with that effort, SEC-ERG has received a draft "Memorandum of Understanding" with the Connecticut Office of Emergency Management that, when enacted, will allow protection for its volunteer members under the Civil Preparedness statutes. SEC-ERG is looking forward to the day that its members will be sworn in under this agreement.

### ***Connecticut Urban Search and Rescue Team***

SEC-ERG has been working with the State of Connecticut Urban Search and Rescue Advisory Board since its establishment in the beginning of 2002. The purpose of this board is to facilitate the development of a Connecticut Urban Search and Rescue (US&R) Team based on federal models established by other US&R Teams that are part of a national FEMA response system. The purpose of this team will be to provide a dedicated rescue effort to victims trapped within a structural collapse. SEC-ERG is working with the Advisory Board to develop Connecticut's Team as well as their operational procedures. This partnership allows SEC-ERG to integrate their response with the State's during a structural collapse. The result of this integration will allow the state US&R Team to focus their resources on the rescue effort while SEC-ERG addresses the structural assessment of adjacent structures and provide engineering support for the structural engineering component of the state's team.

### ***Summary***

A lot has been accomplished to date, but there still remains much to do.

- On the national scene the National Council of Structural Engineering Associations (NCSEA) has developed a model plan (SEERP) for establishing and maintaining statewide emergency response plans for structural engineers, legal issues such as a national "Good Samaritan" law are being proposed but face strong opposition from special interest groups
- In CT, near term goals include integrating SEC-ERG Operation's Manual with the SEERP manual, coordinating our group's effort with other public agencies and developing strong communication channels, with those state agencies.

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# ***Structural Engineers Coalition – Emergency Response Group (SEC-ERG)***

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