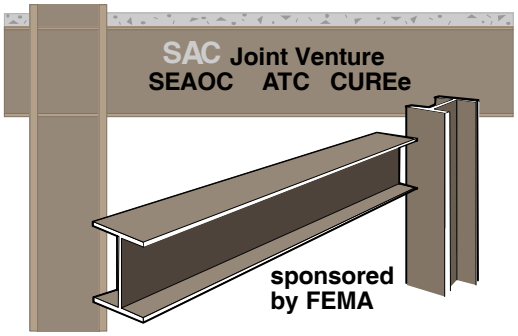
TRAINING SEMINARS ON NEW RECOMMENDED SEISMIC DESIGN CRITERIA FOR STEEL MOMENT-FRAME BUILDINGS

San Francisco • Los Angeles • Seattle
September, 2000



The Purpose of the Seminars is to introduce four recently completed sets of recommended seismic design criteria for steel moment-frame buildings developed under a 6-year, $12-million research and development project by the SAC Joint Venture, a partnership of the Structural Engineers Association of California (SEAOC), Applied Technology Council (ATC), and California Universities for Research in Earthquake Engineering (CUREe).

The recommended design criteria are the culminating and principal products of the SAC Steel project, which was funded by the Federal Emergency Management Agency (FEMA) to develop reliable and cost-effective design criteria to reduce the earthquake hazards of steel moment-frame buildings. The project commenced in late 1994, following the unexpected damage to welded steel moment frames during the 1994 Northridge earthquake.

Seminar Program. The two-day seminar program (see other side for details) includes 12 hours of lectures by key SAC project participants. Day 1 will provide relevant technical information needed to fully understand the intent and background of the various recommendations. Day 2 will provide a comprehensive overview of the recommended seismic design criteria for steel moment-frame buildings.

The seminars have been tailored to meet the immediate needs of engineers, building officials and others concerned with the design and seismic safety of this important class of construction.

Seminar Dates and Locations

- September 11-12, 2000 (Northern California)
  PG&E Building, Lobby Level Auditorium
  245 Market Street, San Francisco, California
- September 22-23, 2000 (Southern California)
  Wyndham Hotel, Los Angeles Airport
  6225 West Century Blvd., Los Angeles, California
- September 27-28, 2000 (Pacific Northwest)
  DoubleTree Hotel, Seattle Airport
  18740 Pacific Highway South, Seattle, Washington

Financial Sponsor

FEDERAL EMERGENCY MANAGEMENT AGENCY

Sponsoring Organization

SAC JOINT VENTURE, a partnership of

Registration Information. Participants can register for one or both days. The registration fee, which includes lunch, intermission refreshments, and the handouts described below, is $75 for one day, $120 for both days. A late fee of $25 will be imposed on registrations postmarked or faxed within 10 days of seminar to be attended. Persons interested in registering should complete, detach, and submit the Registration Form to ATC. Registration forms can also be downloaded from the web sites of all three joint venture partners.

Materials and Handouts Provided. Participants will be provided with the following four volumes of recommended seismic design criteria:

- *Recommended Seismic Design Criteria for New Steel Moment-Frame Buildings* (FEMA 350),
- *Recommended Seismic Evaluation and Upgrade Criteria for Existing Welded Steel Moment-Frame Buildings* (FEMA 351),
- *Recommended Postearthquake Evaluation and Repair Criteria for Welded Steel Moment-Frame Buildings* (FEMA 352), and
- *Recommended Specifications and Quality Assurance Guidelines for Steel Moment-Frame Construction for Seismic Applications* (FEMA 353).

In addition, each participant will receive a bound copy of the seminar notes, a CD-ROM containing six comprehensive state-of-the-art reports summarizing the technical background considered in the development of the recommended criteria, and guidance on how to obtain additional information developed during the project.

SAC Regional Training Seminar Series

NAME _____

ORGANIZATION _____

ADDRESS _____

CITY/STATE/ZIP CODE _____

BUSINESS PHONE AND FAX NUMBERS _____

Please check one location: ☐ San Francisco, CA (September 11-12, 2000) ☐ Los Angeles, CA (September 22-23, 2000)
☐ Seattle, WA (September 27-28, 2000)

Registration Fee: ☐ $120 for both days, per registrant, or $75 for one day: ☐ Day 1 ☐ Day 2 $ _____

Late Registration Fee: add $25 per registrant (if postmarked or faxed within 10 days of Seminar) $ _____

TOTAL ENCLOSED* $ _____

*Payment may be made by check or credit card (MasterCard or VISA). If paying by credit card, please provide the following information:

☐ MasterCard ☐ VISA # _____ Exp: ____/____

Name (as it appears on the card) _____

Checks should be made payable to ATC. Please mail or fax your completed form with the appropriate payment to:

Applied Technology Council, 555 Twin Dolphin Dr., Suite 550, Redwood City, CA 94065 FAX: 650/593-2320

SAC REGIONAL TRAINING SEMINARS: LOS ANGELES, SAN FRANCISCO, SEATTLE

DAY 1: Focus on Technical Background

8:00 am - 9:00 am: Seminar Registration

9:00 am: Introduction; *FEMA, SAC representatives*
Brief welcome and introduction.

9:15 am: What Happened? *David Bonowitz, SAC Topical Investigator*
Performance of steel buildings in the Northridge, Loma Prieta, Kobe, and other recent earthquakes. General types of connection and system behavior observed, statistics on the type of damage and numbers of buildings involved, sensitivity to various structural and ground motion parameters, distribution of damage within structures.

9:45 am: Why? *Stephen Mahin, SAC Project Manager*
Basic problems with pre-Northridge and other types of welded moment-resisting connections. Issues related to system proportioning, connection configuration, fracture, base and weld metal properties, welding and ground motion characteristics. SAC response to these issues in understanding overall problem and in developing new guidelines.

10:30 am: Break

10:45 am: What are Expected Demands on Steel Frame Structures? *Helmut Krawinkler, SAC Topical Investigation Team Leader*
Identification of key engineering parameters used in SAC program to measure performance. Effect of ground motion (e.g., seismic hazard setting, soil conditions, aftershocks) and building characteristics (e.g., configuration, proportions). Effect of connection fracture on performance. Sensitivity of response predictions to structural idealization and analytical procedures.

12:00 pm: Lunch Break

1:00 pm: What Basic Parameters Contribute to the Performance of Improved Connections? *James Malley, SAC Project Director for Topical Investigations*
Basic approaches to connection design: unreinforced connections, reduced beam section connections, reinforced connections. Role of panel zone deformations and continuity plates. Weld access hole details. Effect of welding processes, procedures, details. Relationship between acceptance criteria, defects, material toughness, and stress/strain demands. Effect of loading histories and rates. Interior vs. exterior connections. Issues related to column depth and orientation.

2:15 pm: What Factors Affect Pre-Qualified Connections? *Charles Roeder, SAC Topical Investigation Team Leader*
What is a prequalified connection? Behavioral modes and heirarchy of failure conditions identified for (unreinforced and reduced beam section) welded connections as well as for bolted connections. Anticipated behavior at various performance levels. Important issues for simple gravity only connections.

3:45 pm: Break

4:00 pm: How Reliable are Steel Moment Frames? *Douglas Foutch, SAC Topical Investigation Team Leader*
Reliability assessment of steel moment frames. Important structural and ground-motion characteristics influencing reliability. Reliability estimates for steel frames having different proportions and configurations and designed according to different codes. Biases introduced by analytical procedures.

4:30 pm: End of First Day

DAY 2: Focus on Guidelines and Applications

9:00 am: Brief Introduction; *FEMA, SAC representatives*

9:10 am: What are the Design Guidelines for New Steel Buildings? *Mark Saunders, SAC Guidelines Writer*
Overview of important provisions and differences from current practice. How to incorporate connections that are not prequalified. Worked examples and applications.

10:40 am: Break

11:00 am: What Specifications are Recommended for Construction of Steel Buildings? *Robert Shaw, SAC Guidelines Writer*
What are the acceptance criteria for construction? How can the required construction quality be achieved?

12:00 pm: Lunch Break

1:00 pm: How is Probability of Failure Evaluated? *Ronald Hamburger, SAC Project Director for Product Development*
What risks and uncertainties are considered for new and existing buildings? How is the confidence that a structure can reach its performance goal established for a particular seismic hazard? How are these confidence indices used in developing the design criteria and evaluating the likely performance of a structure?

1:30 pm: How to Evaluate and Upgrade Existing Buildings. *John Hooper, SAC Guidelines Writer*
Details of the overall process of evaluating existing welded steel frame buildings. Discussion of specific important recommendations, along with worked examples and applications.

2:30 pm: Break

2:50 pm: How to Evaluate and Repair Damaged Buildings. *Maryann Phipps, SAC Topical Investigator*
Details of the overall process of evaluating buildings following a potentially damaging earthquake. Discussion of specific important recommendations, along with worked examples and applications.

3:50 pm: How to Get More Information. *SAC representatives*
Discussion of SAC and FEMA publications.

4:10 pm: Seminar Closure

Seminar Cancellation Policy. Registrations cancelled 20 days before the seminar will be fully refunded. Cancellations between 20 and 10 days before the seminar will be subject to the late registration fee. Within 10 days of the seminar, no refunds will be given.

Continuing Education Units (CEUs). Participants will receive documentation for 1.45 CEUs or 14.5 equivalent hours.

Additional information about the seminar series may be found online at:

www.seaoc.org
www.atcouncil.org
www.curee.org