



WILLIAM T. HOLMES, S.E.
Rutherford & Chekene
Senior Consultant

Mr. Holmes has 45 years of practical experience in all aspects of designing structures, particularly designing for protection from earthquake effects. In addition to traditional structural engineering design of buildings, Mr. Holmes' interests and experience includes a remarkably wide variety of topics, including post earthquake reconnaissance and analysis, post earthquake response of hospitals, seismic protection of nonstructural systems, fragility and retrofit standards for URM and concrete buildings, regional loss estimation, development of seismic standards for both new and existing buildings, research and development of seismic technology, seismic isolation, public policy, and performance based seismic engineering.

Education

B.S., Civil Engineering, Stanford University, Stanford, CA
M.S., Structural Engineering, Stanford University, Stanford, CA

Registration

Registered Civil and Structural Engineer, California
Registered Professional Engineer, Tennessee,

**Professional Affiliations
and Honors**

Applied Technology Council (ATC), President, 1985-86; Board of Directors, 1983-1987
American Society of Civil Engineers, Life Member
California State Hospital Building Safety Board, Member 1983-95; Chair, 1988-93
Consortium of Universities for Research in Earthquake Engineering (CUREE), Board of Directors, 1994-present;
Earthquake Engineering Research Institute, Honorary Member; Board of Directors, 1990-93; Chair of Monograph Committee, 1994-2008; Chair of Learning From Earthquakes (LFE) Reconnaissance Program, 2005-present
Building Seismic Safety Council (BSSC), Provisions Update Committee for NEHRP Provisions, Chair, 1994-1997, 1997-2000
BSSC Exceptional Service Award, 2002
BSSC Board Chair, 2010-present
NEES Governance Board: Member 2010-present
Structural Engineers Association of Northern California (SEAONC), Fellow and Honorary Member; President, 1987-88; Board of Directors, 1979-81, 1987-89
Structural Engineers Association of California, Fellow, Board of Directors, 1981-83, 1988-91
Member, New Zealand Department of Building and Housing Structural Advisory Committee, 2006-present.
Robert Cornforth Award, National Council of Structural Engineers Associations, 2010
H.J. Brunnier Award for outstanding achievement in structural engineering (SEAONC), 2005
Alfred E. Alquist Medal for Achievement in Earthquake Safety (Public Service) from the California Earthquake Safety Foundation, 1999
ATC Award of Excellence, Extraordinary Achievement in Seismic Rehabilitation of Buildings, 1998

Selected building design experience Project Principal or Project Structural Engineer on the following engineering projects:
Marin County Community Mental Health Center, San Rafael, CA

Saddleback Community Hospital, Laguna Hills, CA
 Jerry L. Pettis Memorial Veterans Hospital, Loma Linda, CA
 Dept. of Justice Headquarters Office Building, Sacramento, CA
 Main Library Expansion, UC Berkeley, CA
 Allen Pavilion, Oregon Shakespeare Festival Ashland, OR
 Restoration and Seismic Strengthening of 6 Historic Quad Buildings,
 Stanford University, CA
 Seismic Protection of Computer Room and Related Equipment:
 Hewlett-Packard Headquarters, Palo Alto, CA
 Survey of Nonstructural Seismic Risks at Six VA Hospitals
 Evaluation of Compliance Requirements for CA SB1953: 20 various
 hospitals
 Mills Peninsula Hospital Replacement Hospital (new 243 bed
 seismically isolated hospital), 2011
 Lathrop Post Acute Rehab Center, Base Isolated Rehab Center, to
 be completed 2013

Selected peer reviews
 Retrofit of Five Government Lifeline Buildings, Delhi, India, 2005-
 2006.
 Bloomingdales Department Store Retrofit/addition, San Francisco,
 2003
 Seismic Design of State Building, Anchorage, Alaska (Built on Site
 with Graben)
 Santa Clara County Office Building (Damping Devices)
 Oakland City Hall, CA (Base Isolation)
 LA County Emergency Operations Center, CA (Base Isolation)
 Member of Stanford University Design Criteria Panel (numerous
 panel criteria reviews and individual peer reviews)

**Selected Studies
 and Research**

Project Director (for BSSC), *Development of Concrete Model
 Buildings Types* for estimating seismic risk of older concrete
 buildings, 2010
 Project Director (for Applied Technology Council), *Identification
 and Mitigation of High Risk Older Concrete Buildings*, Ongoing.
 Project Director (for BSSC), *Research Required to Take Full
 Advantage of Performance-Based Seismic Design*, prepared for
 NIST, 2008-9.
 Co-Principal Author, FEMA 547/ICSSC RP-7, *Techniques for the
 Seismic Rehabilitation of Existing Buildings*, NIST, 2008
 Chair, Project Steering Committee, ATC 58: *Development of Next-
 Generation Performance-Based Seismic Design Guidelines*
 Senior Technical Advisor, ATC 33 (FEMA 273-ASCE 41): *NEHRP
 Guidelines for Seismic Rehabilitation of Buildings*, Member of
 Senior Technical Committee, 1993-97
 Principal Investigator, *Seismic Performance Objectives for Tall
 Buildings*, A report for the PEER Tall Buildings Initiative.
 Co-Principal Investigator, ATC-28, *Development of Recommended
 Guidelines for Seismic Strengthening of Existing Buildings:
 Issues Identification and Resolution*, ATC, 1990
 Chair, Joint Venture Management Committee, SAC joint venture
 for research into steel frame failures on Northridge Earthquake,
 1996-1999
 Consultant for Structures to California Seismic Safety
 Commission, for Report to Governor on Northridge Earthquake,
 1995
 Member, three-person control group, "Typical Costs of Seismic

Selected Publications and Lectures

- Rehabilitation of Buildings - Second Edition" FEMA, 1992-95
 Co-Principal-in-Charge, "Development of Seismic Standards for Existing Federal Buildings," National Institute of Standards and Technology (NIST), 1992-93 Project Director of update to these standards, 2011.
- Member of Project Working Group (7 person control panel), Development of a Standardized Earthquake Loss Methodology (HAZUS), National Institute of Building Sciences, funded by FEMA, 1991-present; Chair, 2000-present.
- Project Principal, San Francisco Un-reinforced Masonry Buildings Study, City of San Francisco, 1989
- Structural Consultant, VA Study to Establish Seismic Protection for Furniture, Equipment and Supplies, Veteran Administration, 1978
- Co-editor, Special Edition of EERI *Spectra* commemorating the Centennial of the 1906 Earthquake, 2006
- "State of the Art Structural Rehabilitation and Practice," VIII Mexican Symposium on Earthquake Engineering, 2005
- "Performance Based Seismic Engineering and the Retrofit Methods of FEMA 273/356," Turkish-Greek Joint Workshop, Athens and Istanbul, 2001
- Keynote Address, "The Role of Emerging Techniques in Performance Based Seismic Engineering in Corporate Earthquake Planning," The Fifth International Conference on Corporate Earthquake Programs, San Jose, CA, 2000
- "The State of Practice of Seismic Retrofit in the United States," US-Japan Symposium and Workshop on Seismic Rehabilitation of Concrete Structures, Tokyo, 2000
- State of the Art Speaker, "Risk Assessment and Retrofit of Existing Buildings," 12th World Conference on Earthquake Engineering, Auckland, New Zealand, 2000
- The Background and History of the Seismic Hospital Program in California," Workshop on Seismic Design and Retrofitting of Hospitals in Seismic Areas, Florence, Italy, 1999
- Keynote Speaker, ASCE Structures Congress, Portland, OR, 1997
- "Evaluation of Existing Buildings," State of the Art speaker at the 11th World Conference on Earthquake Engineering, Acapulco, Mexico, 1996
- Visiting Lecturer, The New Zealand National Society for Earthquake Engineering, New Zealand, 1996
- Co-Editor, EERI Reconnaissance Report on Northridge Earthquake, Volume II, Buildings, 1996
- Degenkolb Forum Speaker, Structural Engineers of Northern California, San Francisco, CA, 1995
- Guest Lecturer, The First Workshop on Seismic Design of Structures, Bangkok, Thailand, 1995 "Policies and Standards for Re-occupancy Repair of Earthquake-Damaged Buildings," Earthquake Spectra, 10:1, Earthquake Engineering Research Institute, February 1994
- "The Hazards of Unreinforced Masonry Buildings," SEAONC Fall Seminar, San Francisco, 1990
- "Structural Protection of Nonstructural Elements in Existing Buildings," US/Italy Technical Exchange, Varenna, Italy, 1989