Engineering and Risk Management Consultants

John P. Masek, PE, SE
Summary of Education and Experience

EDUCATION

Washington University, Saint Louis, Missouri, B.S. Civil Engineering, 1981
Washington University, Saint Louis, Missouri, M.S. Structural Engineering, 1981
(Thesis: A comparison of linear and nonlinear seismic analysis methods for nonductile concrete frames)

PROFESSIONAL EXPERIENCE SUMMARY

Mr. Masek's 42 years of engineering experience have focused on risk-based design, hazard assessments, and mitigation design for new and existing public and private facilities. These studies and design projects involved assessment of natural hazard effects due to seismic events, blast loads, wind loads, and development of structural design alternatives. In 1985, Mr. Masek was the coauthor of one of the first FEMA documents to address earthquake hazard mitigation for lifeline systems in the United States. Since then, Mr. Masek has authored many seismic mitigation plans and developed seismic criteria for new facilities and retrofit of existing public and private sector facilities.

Mr. Masek has been the engineer of record for seismic retrofit projects for a very wide range of governmental and private sector facilities. Mr. Masek has served as the multidiscipline team leader on many seismic retrofit projects and has led teams of civil & structural engineers, architects, MEP engineers, cost estimators, and construction administration professionals.

Mr. Masek has completed seismic designs for a wide range of facility system components including: mechanical equipment & piping, electrical conduit, cable tray and equipment, process equipment & piping, computer systems, specialized government and private sector manufacturing equipment and systems, as well as non-building structures and components, such as tanks, equipment support structures, ceilings, and wall systems. Experience has included airports, data centers, hospitals, midrise and high-rise buildings, university and K-12 educational facilities, manufacturing facilities, data centers, religious facilities, government facilities for DOD, DOE, NSA, State agencies, and others. In the last ten years alone, Mr. Masek has personally developed seismic design documents and been the Engineer of Record for over 500 facilities. The total value of facilities Mr. Masek has done this type of design work for cumulative value exceeds $50 billion dollars in construction costs.

Mr. Masek has been an active member of the ASCE 7 code committee, in addition to other professional activities for professional engineering organizations, such as the American Society of Civil Engineers, the Structural Engineering Institute, and the Earthquake Engineering Research Institute.

Pertaining to Building Condition Assessments and Probable Maximum Loss Studies: Mr. Masek has performed PML analyses of a wide variety of buildings and structures located in the western, central, and eastern United States. Mr. Masek has performed these analyses using multiple techniques based on expert database methods, such as ATC 13, and Thiel/Zsutty; as well as using more detailed methods, such as those in ASCE 41. Mr. Masek has also developed customized seismic risk assessment methods, which have been used in client-specific evaluations. Mr. Masek has reviewed over 1000 separate facilities in just the past five years alone.

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REPRESENTATIVE PROJECT EXPERIENCE

A Partial Listing of Recently Completed Seismic Bracing of Facility Components and Equipment Anchorage Projects are listed below.

The Salt Lake City Airport
Role: Seismic Design Engineer and Engineer of Record for Electrical Systems
Mr. Masek has designed seismic bracing systems for suspended electrical systems on every building in this multiyear $4.5 Billion dollar project. Mr. Masek has designed foundations and anchorage for all types of electrical equipment for this project. Mr. Masek has also developed seismic certification documents for essential equipment.

University of Utah Hospitals
Role: Seismic Design Engineer and Engineer of Record for Electrical Systems
In the last five years, Mr. Masek has designed seismic bracing and equipment anchorage for mechanical and electrical systems for multiple phases of the University of Utah Main Hospital, the Children's Hospital, and the Huntsman Cancer Institute.

Utah Data Center, Bluffdale, Utah
Role: Seismic Design Engineer and Engineer of Record
Mr. Masek has been the engineer of record for numerous mechanical, electrical, and process systems for the complex NSA data center. Experience has included seismic design and construction supervision over 24 months. In addition to bracing design and construction supervision, Mr. Masek was directly responsible for equipment seismic certification. This has included certification by both experience data and by analysis.

Facebook (META) Data Centers
Role: Design Engineer and Engineer of Record
Mr. Masek has designed seismic bracing, seismic anchorage of both electrical and mechanical equipment. Mr. Masek also performed seismic and pressure load design for specialty wall systems. Facilities were located in Utah and Oregon.

Databank Data Centers
Role: Design Engineer and Engineer of Record
Mr. Masek has designed seismic bracing and equipment anchorage for several Databank facilities. Bracing design also included assessment of other structural systems, such as equipment support frames and hot isle containment structures.

eBay Data Centers
Role: Design Engineer and Engineer of Record
Mr. Masek has designed seismic bracing and equipment anchorage for eBay data centers. Mr. Masek has also developed seismic certification documents for both mechanical and electrical equipment.

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University of Utah Stadium
Role: Design Engineer and Engineer of Record
Mr. Masek has developed seismic bracing and equipment anchorage designs for mechanical and electrical systems for remodeling projects at the University of Utah football stadium.

Astra Tower, Salt Lake City, Utah
Role: Design Engineer and Engineer of Record
Mr. Masek is currently developing seismic bracing and equipment anchorage design for the 39-story Astra Tower in Salt Lake City.

Worthington Tower, Salt Lake City, Utah
Role: Design Engineer and Engineer of Record
Mr. Masek is currently developing seismic bracing and equipment anchorage design for the 31-story Worthington Tower in Salt Lake City.

University of Utah, Multiple Campus Educational Buildings
Role: ***Role: Design Engineer and Engineer of Record***
Mr. Masek has developed seismic bracing and equipment anchorage designs for mechanical and electrical systems for several new buildings at the University of Utah.

Utah State University
Role: Design Engineer and Engineer of Record
Mr. Masek has developed seismic bracing and equipment anchorage designs for mechanical and electrical systems for several new buildings at the University of Utah.

LDS Church, Salt Lake City Temple
Role: Design Engineer and Engineer of Record
Mr. Masek has developed seismic bracing and equipment anchorage designs for electrical systems for the LDS Temple seismic base isolation project in Salt Lake City.

Eccles Performing Arts Center, Salt Lake City, Utah
Role: Design Engineer and Engineer of Record
Mr. Masek has developed seismic bracing and equipment anchorage for the 2500-seat Eccles Theater in Salt Lake City.

Salt Lake City School District, Salt Lake City, Utah
Role: Project Engineer, Project Manager, and Engineer of Record
Mr. Masek conducted a system-wide study of the Salt Lake City school system and developed a manual for use in nonstructural equipment, piping, and interior components. This project won a national engineering award for its innovative and practical technology.

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Recent Property Condition and Seismic Assessment Projects have included Projects for Most Nationally Recognized Risk Assessment Companies:

Partner Engineering and Science, Inc.
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has performed hundreds of property condition assessments and probable maximum loss evaluations for Partner. Properties have included shopping malls, apartment facilities, industrial facilities, low-rise to high-rise office buildings, and parking structures. Reviews have been mostly in the states of California, Oregon, Utah, and Washington. Mr. Masek has also done numerous PML evaluations for Partner in other states, including: Alaska, Colorado, Idaho, Illinois, Tennessee, and Texas.

AEI, Inc.
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has performed approximately one hundred property condition assessments and probable maximum loss evaluations for AEI. Properties have included shopping malls, apartment facilities, industrial facilities, low-rise to high-rise office buildings, and parking structures.

EBI, Inc.
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has performed multiple property condition assessments and probable maximum loss evaluations for EBI. Properties have included shopping malls, apartment facilities, industrial facilities, and storage facilities. Reviews have been in Utah and Idaho.

EMG, Inc.
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has performed multiple property condition assessments and probable maximum loss evaluations for EMG. Properties have included shopping malls, apartment facilities, industrial facilities, low-rise to high-rise office buildings, and parking structures. Mr. Masek has also performed post-earthquake damage assessments for EMG. Reviews have been mostly in Utah.

PCA, LLC
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has performed numerous property condition assessments and probable maximum loss evaluations for PCA, LLC. Properties have included multistory office buildings, parking structures, and apartment facilities (especially mid-rise student housing). Projects have been located in multiple east coast, mid-west, and western US states.

NOVA, Inc.
Role: Building Condition Assessment Engineer and Seismic Risk Analyst
Mr. Masek has done design-phase plan views, construction phase reviews, and probable maximum loss evaluations for NOVA. Mr. Masek's role has included seismic evaluations of historical, office, and residential buildings. Additionally, Mr. Masek has performed seismic evaluations of HUD properties, which have entailed ASCE 41 calculations.

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Mr. Masek has Considerable Experience in Seismic Assessment and Retrofit Design Projects for Building Structures. a Partial Listing of Projects have included:

The Irvine Company Seismic Review Services, Orange County, CA
Role: Project Engineer, Project Manager, and Engineer of Record
The project included seismic assessments of the Irvine Company's portfolio of 100+ major structures. Various seismic retrofit, insurance, and risk assessment alternatives were investigated. The end result was a restructuring of earthquake insurance, coupled with selective seismic retrofit of several facilities.

Los Angeles County, Low Income Housing, Los Angeles, California
Role: Multidiscipline Team Leader, Project Manager, and Engineer of Record
This project involved modernization and seismic retrofit of a large low income housing complex, originally constructed in the 1950's and 1960's.

University of California, San Diego, California
Role: Lead Engineer
Mr. Masek reviewed seismic risk conditions at a large subset of this campus' facilities and developed a computer-based method of risk grouping and retrofit methodologies.

3M Corporation, Southern California, Multiple Locations
Role: Design Engineer and Engineer of Record
Seismic analysis and retrofit design of multiple buildings and complex production equipment.

NBC Studios Seismic Retrofit and Earthquake Damage Repair, Burbank, California
Role: Multidiscipline Team Leader, Project Engineer, Project Manager, and Engineer of Record
This facility includes buildings built from the 1940's to 1970's. Considerable damage was sustained in the 1987 Whittier Earthquake. Retrofit included the use of carbon fiber composites (possibly the first use in California) and exterior steel frames.

American Towers Data Center, San Diego, California
Role: Project Engineer and Engineer of Record
This project included seismic retrofit of a computer center for a trading exchange company (for continuous operation levels) following a major earthquake on a fault less than five miles away.

Orange County Water District Seismic Analysis and Retrofit, Orange County, California
Role: Multidiscipline Team Leader, Project Manager, and Engineer of Record
Project manager for Phase I and Phase II Seismic Analysis and Retrofit Design Projects: Phase I included seismic risk analyses of a 60 mgd water treatment plant, several pump stations, and numerous above-grade steel and below-grade concrete storage reservoirs. Phase II included seismic retrofit of several treatment buildings, as well as critical equipment and piping within these buildings. Phase II also included retrofit design of below grade concrete storage facilities and retrofit design of pump station buildings, equipment anchorage design, and piping retrofit.

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LDS Church History Museum, Printing Facility and Seismic Bracing Design and Construction, Salt Lake City, Utah
Role: Engineer of Record
Mr. Masek developed seismic bracing design documents and supervised construction for seismic bracing of new steam and steam condensate piping.

Bingham Entrepreneurship and Energy Research Center, Seismic Bracing Design, Vernal, Utah
Role: Engineer of Record
Mr. Masek was the engineer of record for seismic bracing design of piping and ductwork, as well as equipment anchorage design for this project. Mr. Masek also provided field supervision services.

Jordon Valley Water Conservancy District, Bluffdale Water Treatment Plant Seismic Retrofit of the Filter Building and Chlorine Facility, Bluffdale, Utah
Role: Senior Engineer and Quality Control Lead
Mr. Masek was a senior engineer and quality control engineer for the seismic retrofit design of the Jordon Valley Water Conservancy District's Filter Building and Chlorine Facility. Responsibilities in this project included direction of the retrofit concept selection and design implementation.

Rockwell International Headquarters Seismic Retrofit, Seal Beach, California
Role: Project Engineer
Mr. Masek was responsible for seismic-anchorage and bracing design of all interior components of this highly critical computer facility and corporate headquarters. The facility was designed to provide continuous operation following a major regional earthquake.

Jordan Valley Water Conservancy District Seismic Studies, West Jordan, Utah
Role: Project Manager and Lead Engineer.
This study involved a seismic analysis of the Jordan Valley Water Treatment Plant, the Southeast Water Treatment Plant, as well as numerous pump stations, piping systems, and water storage tanks/reservoirs. Estimates of earthquake damage were prepared for three earthquake levels Earthquake loss estimates generated in this study were then used to prepare emergency repair and recovery budgets. Mr. Masek developed detailed seismic mitigation measures for critical buildings, basins, tanks, piping, and equipment.

Jordon Valley Water Conservancy District, Bluffdale Water Treatment Plant Seismic Retrofit
Role: Project Design Engineer, Engineer of Record, and Bracing Installation Contractor
This project included seismic retrofit design of piping systems, ductwork, electrical systems, control panels and other nonstructural items. Design criteria were based on FEMA 356, but also utilized FEMA 412,413, and 414. Bracing work was performed in the Filter Building portion of this project, while the building was in use.

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Weber Basin Water Conservancy District, Layton, Utah
Role: Project Design Engineer, Grant Writer, and Engineer of Record
Mr. Masek has developed the District overall multihazard mitigation analysis plan and has Mr. Masek developed seismic vulnerability models for the district's complete water system, including reservoirs, canals, aqueducts, trunk lines, treatment plants, wells, and pumping plants.

Metropolitan Water District of Salt Lake & Sandy Peer Review, Sandy, Utah
Role: Project Engineer and Project Manager
Mr. Masek was the expert peer reviewer for construction of a new 150 mgd treatment facility, expansion of an existing facility from 113 mgd to 150 mgd and construction of a new interplant pipeline. Services included: instruction of design consultants (using training classes) regarding utilization of the criteria document for design of new facilities, as well as retrofit of existing facilities.

LDS Hospital Parking Structures, Salt Lake City, Utah
Role: Multidiscipline Team Leader, Project Engineer, and Engineer of Record.
Mr. Masek developed renovation designs and seismic upgrade designs for three parking structures at the LDS Hospital campus. This project included the first use of carbon fiber technology in Utah.

Metropolitan Water District of Salt Lake & Sandy, Seismic Bracing Design, Point of the Mountain Water Treatment Plant, Sandy, Utah
Role: Project Engineer and Engineer of Record
Mr. Masek was the design engineer for seismic bracing design of mechanical systems for G3 Design Build at the MDSLS Point of the Mountain Water Treatment Plant. Project challenges that were overcome in this project included development of bracing systems that allowed for concurrent demands of equipment vibration, relative movement between adjacent structures, and budget constraints.

Sacramento Water Treatment Plant Rehabilitation Project
Role: Engineer of Record
Mr. Masek is the engineer of record for the seismic design of mechanical piping systems for the Sacramento Water Facility. This $165 million expansion project includes new chemical and filtration facilities.

Bremerton Naval Shipyard, WA
Role: Lead Engineer
Mr. Masek was the project manager and project engineer for a comprehensive equipment retrofit and pipe bracing program for mission critical items at this complex mission critical Naval facility.

Unisys Corporation, Mission Viejo California
Role: Multidiscipline Team Leader, Project Engineer, and Engineer of Record
Mr. Masek was responsible for the seismic analysis and retrofit design of the manufacturing building, office building, and equipment and nonstructural items, including complex clean room equipment.

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Parker Hannifin Corporation, Irvine, CA
Role: Multidiscipline Team Leader, Design Engineer, and Engineer of Record
Mr. Masek performed comprehensive seismic analyses of multiple structures within close proximity to the Newport-Inglewood Fault. Retrofit design documents were then developed for several structurally deficient buildings. Also, Mr. Masek developed a comprehensive equipment anchorage and piping bracing manual for use throughout the facilities, including chemical tanks, piping, and control systems.

Department of Navy ((Secret Classified Project)): Blast Analyses of Classified Facilities
Role: Project Engineer
Mr. Masek was the project technical analyst on a project to develop control equipment fragility models subjected to blast loading. These fragility relationships were used to assess the ability of control equipment to continue to operation under a wide range of blast loading scenarios (ranging from small localized blasts to nuclear blasts).

Arkansas Power and Light, Jonesboro, AK
Role: Multidiscipline Team Leader, Project Engineer, Project Manager, and Engineer of Record
Mr. Masek was responsible for seismic analysis of two 2000 megawatt generation units. Ground motions levels were high due to close proximity to the New Madrid fault system. Retrofit design documents were developed for critical piping and equipment. Retrofit designs were also developed for 300 ft tall electrostatic precipitator units. This design required complex seismic analysis concurrent with large thermal gradients.

LDS Capital Tabernacle, Salt Lake City, Utah
Role: Multidiscipline Team Leader and Project Manager
Mr. Masek applied the first use of center core technology in Utah to this historic structure constructed of native granite and other stone. Using this technique, the appearance of the interior and exterior of the structure were maintained. Also, costs were less than other more invasive retrofit methods.

IRS Building Historical Renovation, Ogden, Utah
Role: Project Manager
This historic structure was adapted for reuse as a modern federal government facility. Badly deteriorated exterior brick walls were strengthen for strict earthquake standards. Interior wood and timber systems were renovated, and prior extensive fire damage was repaired.

Old Mill Structure at Tracey Aviary, Salt Lake City, Utah
Role: Project Manager and Engineer of Record
This mid 1800's structure was completely renovated, seismically retrofitted, and an outdoor meeting area added. Challenges included adaptation of drilled vertical cores to adobe walls.

Police Station, Brea, California
Role: Project Engineer, Project Manager, and Engineer of Record

This historic circa 1900's URM structure was renovated using the then new technology of center core construction.

McDonnell Douglas Corporation (now Boeing), Riverside County, California
Role: Multidiscipline Team Leader, Project Engineer, and Engineer of Record
This project involved seismic retrofit and other improvements to a complex industrial facility of wood frame, masonry, and concrete buildings originally constructed between the early 1900's to mid 1970's. Retrofit was accomplished while the facility remained operational.

Irvine Company Corporate Headquarters, Newport Beach, California
Role: Project Manager for Study and Peer Reviewer for Retrofit Design
This project included steel jacketing of massive first floor concrete columns and composite wrapping of upper floor columns. Retrofit of this very high end office building was accomplished in a phased manner while the building was occupied.

Weber Basin Water Conservancy District, Seismic Retrofit Design and Construction for Critical Piping Systems and Electrical Systems for the Filter Building at the Davis North Water Treatment Plant, Davis County, UT
Role: Engineer of Record
Mr. Masek designed seismic bracing measures for piping systems and electrical systems in the District's Davis North Water Treatment Plant.

Travis Air Force Base Hospital, CA
Role: Project Manager and Lead Engineer
This project involved a comprehensive design of equipment piping, and nonstructural bracing project for U.S. Navy enhanced seismic design requirements.

Seismic Design for the Central Utah Water Conservancy, Utah Valley Water Treatment Plant Expansion
Role: Engineer of Record for Seismic Design of Nonstructural and MEP Systems
This project included seismic design of numerous complex systems. Consideration of expansion and contraction along with seismic loading was included in the design.

Seismic Risk Analysis of Wastewater Treatment Facilities, Joint Authority of Water Treatment Agencies of Los Angeles, Orange, and Riverside Counties, California
Role: Project Engineer, Project Manager, and Engineer of Record
This project included seismic risk analysis of 26 water and wastewater treatment facilities located in Southern California. Seismic risk analyses were done to assess the expected performance of components of their facilities during site specific events.

Weber Basin Water Conservancy District, Seismic Retrofit Design and Construction for a 12 MG Culinary Water Reservoir, Davis County, UT
Role: Consulting Engineer

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Mr. Masek wrote and obtained a FEMA grant for the seismic retrofit of a 12 million gallon culinary water reservoir. Retrofit includes installation of earthquake actuated shutoff valves.

Weber Basin Water Conservancy District, Seismic Retrofit Design and Construction for Culinary Wells, Davis and Weber Counties, UT
Role: Consulting Engineer
Mr. Masek wrote and obtained a FEMA grant to seismically retrofit 11 culinary well facilities. Mr. Masek also provided peer review and technical consultation during design and construction.

Weber Basin Water Conservancy District, Seismic Retrofit Design and Construction for Critical Electrical Systems at Culinary Wells, Water Treatment Plants, and Power Plants, Davis and Weber Counties, UT,
Role: Engineer of Record
Mr. Masek wrote and obtained a FEMA grant to develop seismic bracing and anchorage designs and construct retrofit measures for 43 critical equipment items, including: electrical transformers, substations equipment, and MCC's.

Hoag Memorial Hospital, Newport Beach, California
Role: Multidiscipline Team Leader, Project Manager, and Engineer of Record
This project includes seismic analysis and retrofit design of a parking structure in very close proximity to the Newport Inglewood fault.

Cardinal Glennon Hospital, St. Louis, Missouri
Role: Project Engineer
This project included seismic analysis and retrofit design of a 1950's and 1960's nonductile concrete frame and masonry structures.

McDonnell Douglas Corporation (now Boeing) Seismic Retrofit, Seal Beach, California
***Role: Project Engineer and Engineer of Record*.**
Mr. Masek developed retrofit methods for this complex facility of nonductile concrete and precast concrete buildings in a manner which minimized facility interruption and impact to architectural finished of ornate precast panels.

Department of Energy ((Classified (Q) Top Secret Project))
Role: Project Engineer
Mr. Masek was a project engineer involved in designing and supervising tests of control equipment for a classified project related to Uranium enrichment. This equipment was required to operate continuously under imposed shock environments. This three year assignment included seismic analysis and seismic qualification of hundreds of equipment items.

Earthquake Engineering Research Institute
Nonstructural Seismic Design Study for California, Washington, and Utah
Role: Principal Investigator

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Mr. Masek was the principal investigator for a prominent study for the Earthquake Engineering Research Institute to determine methods for improvement of implementation methods for seismic design of piping, equipment, and nonstructural components.

Aetna Insurance, Post Northridge Earthquake Investigations
Role: ***Principal Engineer***
Mr. Masek led a multidiscipline team of engineer to investigate damage claims for Aetna Insurance Company. Investigations focused on identification of earthquake related damage verses pre-existing damage due to deterioration.

Federal Emergency Management Agency
Role: Instructor
Mr. Masek has served as a primary emergency response and planning trainer throughout the United States. Training and emergency response exercises involved government officials, first responders, and utility professionals. Mr. Masek was a principal trainer for over 20 courses.

Stanford University, Stanford, California
Role: Peer Reviewer
Mr. Masek performed computer code review for seismic risk models developed at Stanford University for risk modeling of large groups of diverse building types.

ADDITIONAL SPECIALIZED TRAINING
- Member Earthquake Engineering Research Institute (EERI)
- Life Member American Society of Civil Engineers ASCE 7 Code Committee
- Member and Technical Editor Technical Council of Earthquake Lifeline Engineering (TCLEE)
- Member American Water Works Association
- Certified Office of Emergency Services Post Earthquake Inspector (ATC-21)
- Army Corps of Engineers: Structural Collapse Emergency Shoring Design, California
- Emergency Search and Rescue Training Center
- Sandia RAM-WSM Risk Assessment Methodology for Water Surety
- FEMA: Certified Trainer and Train-the-Trainer for Extreme Load Effects for Utility Systems

PERSONAL INVESTIGATIONS OF NATURAL DISASTERS
- 1987 Whittier Earthquake
- 1988 Superstition Hills Earthquake
- 1989 Loma Prieta Earthquake
- 1993 Guam Earthquake
- 1994 Northridge Earthquake
- 2004 Sumatra Earthquake
- 2005 Katrina and Rita Hurricanes

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- 2008 Wells Nevada Earthquake
- 2020 Magna Utah Earthquake

HONORS

2009 Invited Keynote Speaker, 2009 Earthquake Engineering Research Institute International Conference

2005 Outstanding Seismic Project for 2005 (Mitigation Category) in the United States, Metropolitan Water District of Salt Lake and Sandy – Seismic Analysis and Design Criteria Considering High Intensity Ground Shaking, Liquefaction, and Transient Wave Propagation at U.S. Earthquake Engineering Conference.

2004 Outstanding Seismic Project (Planning) in the Western United States, Salt Lake School District.