

Peter A. Wrona, CPEng, IntPE(NZ), CMEngNZ, PE, SE (USA)

Associate Principal



Summary

Mr. Wrona has more than 38 years of professional experience participating in and leading structural engineering services for major new facilities and seismic retrofit of existing structures. His experience includes structural design, assessment and renovation of commercial, industrial and medium to high rise buildings. He also performs forensic investigations, litigation support, property loss consulting, structural stabilization of damaged structures, as well as design of repairs, strengthening and hazard mitigation measures for existing buildings. He has had broad exposure to various construction materials, including reinforced concrete, precast concrete systems, masonry, steel and timber.

Education

- M.S., Structural Engineering, 1980, University of California, Berkeley
- B.S., Civil Engineering, 1976, University of California, Berkeley

Registrations

- Chartered Professional Engineer in New Zealand (CPEng, CMEngNZ 1019709)
- Licensed Structural Engineer in California, USA (SE3621)
- Licensed Civil Engineer in California, USA (CE31017)
- Registered International Engineer (IntPE)
- Registered California Emergency Management Agency Safety Assessment Program Evaluator (SAP10790)

Professional Activities

- Chartered Member of Engineering New Zealand, Institute of Engineering Professionals (CMEngNZ)
- Member, Structural Engineers Association of California (SEAOC)
- Member, Structural Engineers Association of Northern California (SEAONC)
- Member, American Concrete Institute (ACI)
- Member, American Society of Civil Engineers (ASCE)
- Past Member, International Association for Shell and Spatial Structures (IASS)
- California Emergency Management Agency, Safety Assessment Program Coordinator and ATC-20 training instructor.
- Member, Chi Epsilon National Civil Engineering Honor Society, Marshal, 1979-1980

Select Project Experience

Forensic Engineering Investigations

Multiple Clients, 2016 Kaikoura Earthquake Investigation Projects, Wellington, New Zealand. Managing a group of 8 engineers working for owners, tenants, lawyers, and insurers. Providing damage assessments and repair solutions for commercial, industrial, and residential facilities including concrete high-rise and mid-rise apartment and office buildings.

CentrePort Properties, Wellington, New Zealand. Earthquake damage assessment of four office buildings including two mid-rise modern buildings featuring extensive use of precast concrete frames and walls. Services included site inspection, review of construction documents and detailed structural assessment.

80 Terrace, Wellington, New Zealand. Damage assessment of a 16-story commercial building featuring precast concrete frames, floor units and cladding. Scope included evaluation of severity and cause and origin of damage. Worked with owner, technical consultants and legal team to develop appropriate scope of repairs.

142 Wakefield Street, Wellington, New Zealand. Damage assessment of a 10-storey commercial building featuring concrete shear walls and frames with precast concrete floor units, bearing wall elements, stairs and cladding. Scope included evaluation of severity and cause and origin of damage, and worked with lawyers representing the insurer in pending litigation.

James Smith Carpark, Wellington, New Zealand. Damage assessment of a 9-storey concrete parking structure and adjoining high-rise hotel, featuring concrete shear walls and frames with precast concrete floor units and cladding on a unique skewed grid. Scope included evaluation of severity and cause and origin of damage, and worked with insurer, owner and technical consultants to develop appropriate scope of repair for superstructure and foundations.

Wellington City Council Civic Administration Building, Wellington, NZ. Damage assessment of a 6-storey civic building featuring concrete frames, precast floor units and cladding on a unique curved floor plan. Scope included evaluation of severity and cause and origin of damage, and

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worked with insurer, owner and technical consultants to develop appropriate scope of repair for superstructure and foundations.

I-Stay Oaks Analysis & Repair Scheme, Christchurch, New Zealand. Site investigation, damage assessment, and structural analysis of a 12-storey precast concrete shear wall building damaged in the 2011 Christchurch Earthquakes. Performed extensive site investigations and developed repair drawings to allow building re-occupancy. The project included non-linear pushover and dynamic non-linear time-history analysis.

British American Tobacco, Fiji. Damage evaluation and assessment of repair alternatives for buildings and several large hi-tech greenhouse structures after 2016 Tropical Cyclone Winston.

Oil Search, PNG. Damage evaluation and assessment of repair alternatives for refineries, buildings, processing plants, and bridges after the earthquake.

CentrePort Limited, Wellington, New Zealand. Damage evaluation and assessment of repair alternatives for buildings, wharves, seawalls, and pavements after 2016 Kaikoura Earthquake.

Multiple Clients, Christchurch Earthquake Investigation Projects, Christchurch, New Zealand. Managing a group of 20 engineers working for owners, insurers, and attorneys. Providing damage assessments, repair solutions and litigation support for commercial, industrial, healthcare and residential facilities. Personally leading more than 100 projects during the past 8 years.

Lyttelton Port of Christchurch Damage Evaluation and Assessment, Christchurch, New Zealand. Evaluation and assessment of repair alternatives at inner harbor and container terminal. Inner harbor includes seven wharves, tug jetty, dry dock and oil wharf. Container terminal includes 850 meters long wharf with concrete deck supported by concrete sea wall and timber, steel and concrete piles constructed at different time periods over the past fifty years.

CAP – Compania Siderurgica Huachipato, Damage Evaluation and Assessment, Concepcion, Chile. Damage evaluation and assessment of repair alternatives for the Steel Mill Facility including more than twenty steel and concrete structures, water treatment plant and ship-loading pier. Evaluation of proposed repairs and costs.

Valparaiso Port, Damage Assessment, Valparaiso, Chile. Damage assessment of ship-loading piers. Evaluation of repair alternatives and timeframes.

SPK Fish Plant, Damage Assessment, Coronel, Chile. Damage assessment of relatively new waterfront buildings and dock pier. Assess code compliance and evaluate repair concepts and costs.

Kimberly-Clark Warehouse, Damage Assessment, Colina, Chile. Damage evaluation and assessment of repair alternatives.

Iron Mountain Document Storage Facility, Damage Assessment, Santiago, Chile. Damage evaluation of five warehouse buildings and storage racks. Evaluation of repair concepts and costs.

W.M. Keck Observatory, Damage Assessment, Mauna Kea Science Reserve, Hawaii. Structural damage survey and design of seismic repairs for telescope structure at the Mauna Kea summit as well as administration buildings in Kamuela, Hawaii.

Loma Prieta 1989 Earthquake Recovery, CA. Conducted the Safety Assessment of more than 25 buildings and waterfront structures in Oakland, California after the earthquake.

Baikonur Cosmodrome Space Launch Complex, Space Launch Facility Building 92A-50, Baikonur, Kazakhstan. Provided condition assessment of spacecraft processing facilities, with specific regard to blast loading, water infiltration, and condensation.

Lake Mead Embankment Collapse, Lake Mead, Nevada. Cause and origin investigation of embankment and ramp failure at Lake Mead water shore.

San Pablo Dialysis Center, San Pablo, CA. Cause and origin investigation of the claimed water damage and mold conditions at the DaVita San Pablo Dialysis Center in California.

Granite Construction Aggregate Mix Plant Fire Claim, Tracy, CA. Structural damage assessment of concrete mix plant after fire.

Summit Owners Association Condominium, San Francisco, CA. Cause and origin investigation of the claimed water damage and roof deck failure.

Anadite-Lynex Recyclers Fire Claim, Santa Clara, CA. Structural damage assessment of recycling plant buildings and structures due to fire. Evaluation of repair concepts and costs.

Seismic Assessments and Renovations

Vandenberg Air Force Base, SLC-3E Space Launch Complex, Vandenberg, CA.* Structural evaluation and conceptual modifications of Mobile Service Tower, Launch and Service Buildings, Launch Mount, Frame Bucket and Foundations to service larger space vehicles at SLC-3E Launch Complex. Areas of special interest include the design for blast loads and launch pressures.

San Joaquin County Courthouses, Seismic Retrofit, San Joaquin, CA. Seismic retrofit of four courthouse buildings including Stockton, Tracy and Manteca Superior Courts as Juvenile Justice Center French Camp.

Alameda City Hall, Restoration and Seismic Retrofit, Alameda, CA. Seismic upgrade and historic renovation including addition of a 65-foot-high clock tower. Originally constructed in 1890 of unreinforced brick and heavy timbers. ABK Methodology for seismic hazard mitigation in unreinforced masonry and Division 88, LA Building

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Code were utilized to maximize preservation of existing construction.

Applied Komatsu Technology America, Seismic Retrofit and Functional Remodel to Three Buildings, Santa Clara, CA. Seismic retrofit and construction support for three buildings originally constructed in the late 1970's. The building renovations required roof strengthening plus raised platforms for new mechanical equipment, lowering of floor slabs and foundations for access floors, trenching and cutting large openings in existing concrete panels and the installation of braced steel frame and concrete shear walls.

San Mateo-Foster City School District, Voluntary Seismic Upgrades to 27 School Buildings, San Mateo, CA. Conducted surveys and detailed seismic evaluations of 21 school sites, followed by seismic retrofits of school buildings determined to be vulnerable to earthquake damage.

Contra Costa College, Liberal Arts Building Retrofit, San Pablo, CA. This project consisted of the seismic strengthening of the Liberal Arts Building by use of in-fill concrete shear walls. The building is a three-story concrete structure built in 1965.

Oakland High School, Modernization and Health Clinic, Oakland, CA. The project involved substantial renovations to two buildings, totaling 159,000 square feet, and a new two-story Classroom Building G totaling 17,060 square feet. The structural system for this building is timber and steel framing with a conventional slab on grade and spread footing foundation. There were also substantial renovations made to the 5,580-square-foot Health Clinic.

Pine Valley Middle School, Modernization and New Library and Classroom Buildings, San Ramon, CA. Complete renovation of existing 60,000-square-foot masonry building housing classrooms, admin, performing arts, library, cafeteria, lockers, gymnasium, etc. Building separated into two distinct structures with new courtyard.

W.M. Keck Observatory, 10-Meter-High Telescope, Mauna Kea Science Reserve, Hawaii. Modifications and additions to Nasmyth platforms and Nasmyth decks.

Design Experience

United States Embassy Building, Manama, Bahrain.* Design and construction support for new US Embassy complex in Bahrain. The \$100M project involved blast load analysis and design of sophisticated security systems.

Vandenberg Air Force Base, Evolved Expandable Vehicle Program, Vandenberg, CA. This project involved the design of a launch complex for Titan missiles. Designed extensive retaining walls and tank anchorages, and provided design services for a launch pad and flame duct, vehicle assembly building, pump house, valve house, fan house, guard house, auto coupler, support equipment, and pad equipment buildings. Areas of special interest included the design for blast and launch pressures, a bridge crane and "hammerhead," and movable platforms within the vehicle assembly building.

Ellis Partners, Jack London Square, Oakland, CA. Structural engineering for a design-build project totaling more than 280,000 square feet. The project includes a six-story, LEED Silver mixed-use building, a two-story mixed-use building and two one-story retail buildings. The projects are located over existing subterranean parking structures and required careful coordination and planning.

Ishi Conservation Camp, Tehama County, CA. This project consists of 15 single-story buildings totaling 45,500 square feet, located in Tehama County near the town of Paynes Creek. The facilities include barracks, mess hall, fire engine and mobile food garages, and administration. Construction is CMU and timber.

U.S. Department of Energy, SLAC National Accelerator Laboratory, Hitches 4, 5, and 6, Palo Alto, CA. The project involves construction of three hitches and support rooms within an existing underground cavern. It includes structural steel platform that is approximately 150 feet long, 37 feet wide and 15 feet tall. Each hitch requires structural support for piping, HVAC and electrical equipment, cable trays and bridge cranes.

Hewlett Packard Company, Light Manufacturing Facility, Roseville, CA. 190,000-square-foot single-story high bay facility with shipping/receiving docks, and covered links to adjacent buildings. The design utilized tilt-up concrete panels, with metal deck over open web steel joist and girder long span roof framing supported on structural steel columns.

W.M. Keck Observatory, 10-Meter-High Telescope, Mauna Kea Science Reserve, Hawaii.* Structural analysis and design of a telescope structure.

Division of the State Architect, Contract Plan and Review Services, 2004-2006, Oakland and Sacramento, CA. Provided plan review services for new school construction in Northern California.

Alvarado Middle School, New Buildings, Union City, CA. This project consists of three new single-story buildings, a media center, an administration building and a severely disabled classroom building. Due to the high potential for liquefaction of the soil at the site, a deep foundation system consisting of torque-down piles is used at each building. A typical eight-inch slab-on-grade is provided which is supported on grade beams spanning between the pile caps.

Gregori High School, New Campus, Salida, CA. A new 14 building, 270,000-square-foot high school campus serving 1600 students, including a gymnasium, performing arts center, cafeteria, media center and home economics building. The framing for all structures consists of structural steel beams and columns with concrete filled metal deck diaphragms and special concrete braced frames.

Hayward Unified School District, East Avenue Elementary School, Hayward, CA. Structural engineering for the design of a new classroom building, a multipurpose building and outdoor covered eating area totaling 55,000 square feet, and renovation of 22,000 square feet of the existing main

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building. The new structures are constructed of timber and steel framing with spread and continuous footing foundations and tall retaining walls to accommodate for the sloping site.

Humboldt State University, Student Housing, Arcata, CA. Nine two-story residential buildings grouped in four complexes with associated covered walks and elevator/stair cores plus a two-story community center with an articulated clerestory and a single-story restroom building. The structures are expected to be of timber frame construction (with limited steel framing) and with conventional slab-on-grad and shallow footings.

U.S. Navy, Naval Postgraduate School, Research Laboratories and Classroom Buildings, Monterey, CA. Structural engineering services for a three-story, 33,000-square-foot heavy industrial laboratory and classroom building, a two-story, 22,000-square foot administration building, and a single-story, 8,000-square foot lecture hall.

W.M. Keck Observatory, Next Generation Laser Platform, Mauna Kea, HI. Structural design of a new platform on the Keck II telescope as part of the Laser Guide Star Adaptive Optics System.

West Contra Costa Unified School District, Coronado Elementary School, Richmond, CA Structural design of a new campus with four new timber-framed shear wall buildings totaling 64,000 square feet. The administration and classroom building is a two-story structure and the remaining buildings are single-story. The project also includes a library, lunch shelter and playground.

Contra Costa Community College District, Contra Costa College Master Plan, San Pablo, California. This master plan project included recommendations for renovation, replacement or consolidation of facilities as well as to develop campus architectural and landscaping guidelines incorporating district sustainability goals.

Sworn Testimony

Affidavit, in the High Court of New Zealand, Wellington Registry, Precinct Properties Holdings Limited vs. OMV New Zealand Limited regarding damage to 17-storey concrete and steel framed office building. July 2017, October 2017, August 2018.

Affidavit and Brief of Evidence, in the High Court of New Zealand, Christchurch Registry, Lyttelton Port Company Limited vs. AON New Zealand regarding material damage insurance claims arising out of the Canterbury earthquake sequence valued at \$435,000,000 NZD. Affidavit on May 2017, Brief of Evidence on November 2018, Supplementary Brief of Evidence on April 2019.

Litigation

Public Trust Building, Christchurch, New Zealand. Litigation support for a claim related to damage and repair alternatives for earthquake damaged mid-rise concrete building.

11 Deans Avenue, Christchurch, New Zealand. Litigation support with regard to damage and repair alternatives for earthquake damaged mid-rise concrete building.

Courtenay Car Park Limited, Wellington, New Zealand. Litigation support for project works claim related to earthquake damage of an eight-storey concrete carpark building

Alternative Dispute Resolution

Lyttelton Port Of Christchurch, New Zealand. Provided expert advice during mediation with regard to repair alternatives for more than sixty buildings, wharves, seawalls and pavements damaged in the 2011 Christchurch Earthquakes. December 2013.

Northlands Mall, Christchurch, New Zealand. Provided expert advice during mediation with regard to damage and repair alternatives for large earthquake damaged shopping mall. October 2014.

St. Andrews Holdings, Christchurch, New Zealand. Litigation and mediation support for a claim related to four earthquake damaged properties including two storey office block, two storey apartment building, warehouse, and industrial building. August 2016.

PTL Property Trust, Christchurch, New Zealand. Litigation and mediation support for a claim related to three earthquake damaged properties including two storey office building, warehouse, and community hall. June 2016.

Mercer Stainless Ltd., Christchurch, New Zealand. Litigation and mediation support for a claim related to concrete office building and a warehouse damaged during 2010 Christchurch earthquake sequence. April 2016.

Contact

Peter A. Wrona
Level 10, Lambton Centre
117 Lambton Quay
P.O. Box 25646
Wellington 6140, New Zealand
M +64 (0)21 066 5079 T +64 4 473 8379
PWrona@ThorntonTomasetti.com
www.ThorntonTomasetti.com

* Denotes work performed with previous employer.