KL

STRUCTURES

RAVI KANITKAR, S.E.
PRINCIPAL

Ravi has more than twenty years of experience in the design of new and the retrofit of existing structures. His focus has been on the solution of unique problems for a variety of structures, ranging from seismic retrofit of existing buildings and bridges to the rehabilitation of infrastructure, such as large diameter pipes and tanks. Ravi has strived to promote the use of new technology towards mitigation of extreme loading conditions such as seismic and blast and is well-versed in the use of seismic dampers, buckling restrained braces, composite fiber reinforced polymers etc. In addition, he has performed numerous assessments of existing buildings and is very familiar with the Existing Building Code, ASCE-31 and other related seismic retrofit codes. Ravi has served as lead designer or project manager on several large new structures with both the traditional and design-build delivery methods. Ravi's extensive experience with existing and new construction allows him to bring to his projects valuable insights regarding selection of structural systems, construction material, and cost-effective solutions with associated benefits to constructability and project cost. Ravi is the founding Principal at KL Structures Group, LLP.

REGISTRATION P.E (California, Missouri, Maryland, Oregon, Utah), SE (California), LEED AP

NOTABLE PROJECTS

- **San Joaquin County Administration Building, Stockton, California:** As a Senior Associate at Crosby Group, Ravi served as the Project Manager for the design-build delivery of this new 6-Story, 250,000ft^2, $98 million Administration Building for San Joaquin County, Stockton, California. The project was designed and built in 27 months. The building utilizes buckling restrained brace frames for improved seismic performance and includes dramatic architectural features like the 60ft cantilevered board chamber at the sixth floor. The design-building team included Hensel Phelps Construction Company and Fentress Architects. This LEED Gold project has won several state and national excellence awards.
- **BART Transbay Tube Seismic Assessment & Retrofit:** Served as Crosby Group's Project Manager on the Fugro West and Moffat & Nichol team for the seismic assessment of the BART Transbay Tube. Further details are withheld per the wishes of the client.
- **Self-Anchored Suspension Span of the New San Francisco-Oakland Bay Bridge:** As a part of Weidlinger Associates' design team, Ravi worked closely with TY Lin International on the structural design of the new bridge. Involved with the design of the main tower, the cable saddle grillage at the top of the tower as well as the saddles at the east end of the suspended span.
- **Ford Assembly Building, Richmond, California:** Starting in 2004, with the Crosby Group, to the present, Ravi serves as the On-Call engineer for the adaptive reuse of this historic facility. He has handled the seismic retrofit of the building, restoration of the historical structural and architectural components, as well as tenant improvement design for the leased spaces.

OTHER PROJECTS

Buildings:

- New 3-story Fine Arts Building for College of Marin, Kentfield, California. This 35,000ft^2, $10 million, LEED Silver building uses exposed structural steel and concrete walls as part of the structural system. Role: Project Manager, Completion: January 2011.
- New 3-story, 180,000ft^2, $40 million library for the City of Fontana, California. Utilizing steel gravity framing with concrete and masonry shear walls, this building incorporates library functions, a performing arts auditorium and public gathering spaces. Role: Project Manager, Completion: 2007.
- Seismic retrofit, utilizing viscous dampers, of the 15-story steel moment framed Caltrans District IV headquarters, Oakland, California. Role: Lead Structural Engineer, Completion: December 2010.
- Seismic retrofit, utilizing viscous dampers, of the 10-story steel moment framed East Bay Municipal Utility District headquarters, Oakland, California. Role: Lead Structural Engineer, Completion: 2006.
- New 4-story steel framed Santa Clara County Crime Lab building, San Jose, California. The building utilizes buckling restrained braces to achieve enhanced seismic performance required for this essential services building. Role: Structural Engineer, Completion: 2006.
- New 10-story steel moment framed building for Brooklyn Polytechnic University, Brooklyn, NY. Role: Structural Engineer, Completion: 2001.
- New 22-story concrete dormitory building for the Brooklyn Polytechnic University, Brooklyn, NY. The building comprises flat slab construction with shear walls. Role: Structural Engineer, Completion: 2001.
- Seismic retrofit of the Marin County Civic Center building, a 1960s concrete U.S. National Historic building designed by Frank Lloyd Wright in Marin, California. Role: Structural Engineer, Completion: 2000.

Other Structures:

- Rehabilitation of the 740ft long circa 1912 Dornan Drive Tunnel, Richmond, CA. This historical tunnel is being rehabilitated with improved drainage systems and concrete repair and strengthening. Role: Lead Structural Engineer, Completion: 2012.
- Dynamic analysis and seismic retrofit of 50m tall concrete silos and large hopper structures in Central & South America.
- Seismic analysis of a 650 feet tall offshore platform using response spectra and non-linear analytical techniques.
- Seismic design of pile foundations with severe scour and liquefaction problems for a 5km long concrete bridge.
- Detailed analysis and rehabilitation of a 90ft tall, 60ft diameter water tank, New Mexico.
- Finite element analysis of a suction caisson (bucket) foundation with soil-structure interaction.

Specialty Engineering With Fiber Reinforced Polymers:

- Numerous building & bridge projects involving strengthening of steel, concrete and masonry structures using composite fiber reinforced polymers:
  - Repair of large-diameter buried & elevated steel water pipes, St Louis, MO
  - Seismic retrofit of highway bridges in Maryland
  - Retrofit of 150ft tall silos in Central California
  - Several parking garages and academic building on the UCLA campus
  - BART West Oakland, Hayward, San Leandro Stations Piers
  - Aurora Bridge, Seattle, Washington
  - Evans Creek Bridge, Oregon
  - Sutro Reservoir, San Francisco, CA
  - Parking Garage No. 9, UCLA, Los Angeles, CA
  - Historic Squatter's Pub, Salt Lake City, UT
  - Unitarian Church, Oakland, CA
  - Sea Isle Blvd Bridge, piers & prestressed stringers, Sea Isle City, NJ.
  - Rogue River Bridge, arch strengthening, OR.
  - 25-story Watermark bldg, façade rehabilitation, Philadelphia, PA.
  - Repair of concrete basins, Blytheville, AR.
  - Seismic strengthening of piers at several BART Stations & Aeriels.
  - Prestressed circular concrete pipe (PCCP) rehabilitation.
  - Rehabilitation of large diameter steel tanks for corrosion loss of steel.
  - Several Highway bridges for corrosion related deterioration.
  - Industrial facilities with corrosion related damage.

PUBLICATIONS

"Rehabilitation of a Cracked Cast Iron Pipe Segment with Internal Composite Overlay", R. Kanitkar et al, Presented at the 2015 MWEA-MoAWWA Joint Annual Conference, Tan-Tara, MO.

"An Overview of the Use of Fiber-Reinforced Polymer for Seismic Retrofit", R. Kanitkar, Presented at the 2013 RN Raikar Memorial Internation Conference & Dr. Suru Shah Symposium on Advanced in Science & Technology of Concrete, ACI India Chapter, Mumbai, India.

"Assessment of Existing Rectangular Water Tanks & Rehabilitation Utilizing Fiber Reinforced Polymers", R. Kanitkar, T. Ervin, K. Oguntunde, Presented at the Special Session on Liquid Containing Structures, ACI Fall Convention, Toronto, 2012.

"A Showcase in Stockton—The New San Joaquin Administration Building", R. Kanitkar, W. Liu, Modern Steel Construction, June 2010.

"Water Flow Through Cracks in Thick Concrete Sections", R. Kanitkar, W. Liu, G. Houlahan, R. Kianoush, Concrete International, April 2011.

"Seismic Evaluation and Rehabilitation of a Three Story Pre-Northridge Steel

Frame Essential Service Facility", C. Blaney, W. Liu, R. Kanitkar, Presented at the 2010 SEAOC Convention, San Diego, CA.

"Visco-elastic Dampers in Seismic Retrofit of Existing Buildings: An Overview of Benefits, Advancements in Materials & Analytical Technology", Kanitkar, Nishimoto, Aiken and Kasai, Presented at the 8th U.S. National Conference on Earthquake Engineering, April 2006, San Francisco, CA.

"Energy Dissipation & Performance-Based Engineering for the Retrofit of a Pre-Northridge Steel Moment Frame Structure", R. Kanitkar, O. Waqfi, C. Blaney, Proceedings of the 13th World Conference on Earthquake Engineering, August 1-6, 2004, Vancouver, Canada

"Seismic Performance of Conventional Multi-Story Buildings With Open Ground Floors for Vehicular Parking", Ravi Kanitkar & Vasant Kanitkar, The Indian Concrete Journal, Feb 2004.

"Application of Energy Dissipation Technology For Retrofitting Steel Structures With Vulnerable Pre-Northridge Connections", O. Waqfi, R. Hamburger, R. Kanitkar, Proceedings of ATC-17-2, May 30 & 31, 2002, Los Angeles, CA

"Seismic Retrofit of a Steel Moment Frame Structure Using Viscoelastic Dampers", R. Kanitkar, M. Harms, P. Crosby, Presented at the 6th U.S. National Conference on Earthquake Engineering, Seattle, July 1998.

"A Partial Damping Approach to Prevent Concrete Panel Connection Failure & Improve Seismic Response of a Steel Moment Framed Structure", R Kanitkar & P Crosby, Proceedings of The Passive Energy Dissipation Systems for New & Existing Buildings Symposium, Los Angeles, July 1996 & Proceedings of the 1996 Annual Meeting of The Los Angeles Tall Buildings Structural Design Council, Los Angeles, May 1996.

EMPLOYMENT HISTORY

- Aug 2012 – Present KL Structures Group, LLP
- Nov 2001 – Aug 2012 Crosby Group Engineers, Redwood City, CA
- Jan 1999 – Oct 2001 Weidlinger Associates, New York, NY
- June 1995 – Dec 1998 Crosby Group Engineers, Redwood City, CA
- Aug 1993 – May 1995 Digital Structures Inc., Berkeley, CA

EDUCATION

- M.S. Structural Engineering, August 1991 – May 1993, Washington State University, Pullman, WA
- B.S. Civil Engineering, June 1987 – May 1991, Poona University, Pune, India

MEMBERSHIPS

- Structural Engineers Association of Northern California
- American Concrete Institute, Voting Member of ACI 440 Committee