BRIAN SHEN, P.E., S.E., LEED AP

Principal

Summary

Brian Shen joined Thornton Tomasetti in 2000 and has 24 years of experience in structural design and forensics of new and existing buildings. His full building life-cycle experience includes the design of new buildings on greenfield sites; building additions constrained by surrounding structures; investigations and renovations of existing buildings both undamaged and damaged; as well as the stabilization and demolition of structures. Brian's work includes extensive projects in healthcare, as well as broad experience in the education, justice, life sciences, residential, commercial, and industrial market sectors, and includes design-build, design-assist, as well as traditional design-bid-build project deliveries.

Areas of Technical Expertise

- Forensic Structural Engineering
- Healthcare Structural Engineering Design
- Demolition Engineering

Education

- M.S., Civil Engineering, 2000, University of California, Berkeley
- B.S., Civil Engineering, 1999, University of Arizona

Registrations

- Licensed Structural Engineer in AZ, CA, GA, HI, ID, NE, NV, OR, UT, and WA
- Licensed Professional Engineer in CA, GA, ID, MT, OR, TX and WA
- LEED-Accredited Professional
- Safety Assessment Program (SAP) Evaluator, Post Earthquake Evaluation of Buildings, California Governor's Office of Emergency Services (CAL OES)

Professional Activities

- Member, American Institute of Steel Construction (AISC)
- Member, Structural Engineers Association of Northern California (SEAONC)

Select Project Experience

Forensic Structural Engineering

Confidential Mixed-Use Highrise Construction Claim Investigation, Seattle, WA. Forensic investigation of a structural steel construction claim for a mixed-use highrise, utilizing a steel plate and concrete composite wall core system.

Condominium Construction Claim Investigation, Confidential Location, GA. Forensic investigation to determine multiple construction claim issues including post-tensioned tendon failures, balcony cracking and tile delamination, and roof membrane and water intrusion.

Hotel Façade Earthquake Damage, Napa, CA. Façade damage assessment following an earthquake for a 5-story hotel. Scope included a survey and recommendations for structural integrity, fire-rating, and weather-resistance.

Hotel Balconies Assessment, Monterey, CA. Structural damage assessment of damaged concrete hotel balconies requiring reconstruction.

Skilled Nursing Facility Electrical Fire Loss, confidential location, CA. HCAI (California's Department of Health Care Access and Information, formerly OSHPD) code consulting to determine code upgrade and code repair recommendations for an electrical fire loss.

Confidential Retail Store Roof Collapse, confidential location, ID. Structural investigation for the partial collapse of a retail store roof due to extensive snow storms. Scope included emergency stabilization, evaluation of gravity and lateral elements, conceptual repair plans, and the applicability of code-upgrades.

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Healthcare Structural Engineering Design

California State University San Bernardino, Health Care Center Expansion and Renovation, San Bernardino, CA. Structural engineering for the renovation of a 13,000-square-foot single-story building, and a 13,000-square-foot addition. The addition is a concrete tilt-up and wood shear wall hybrid structure which features natural lighting throughout the interior.

El Camino Hospital, Integrated Medical Office Building, Mountain View, CA. Structural engineering for a 7-story, 250,000-square-foot structure housing cancer, heart, vascular and neuroscience outpatient services within a 2-story podium, and five floors of medical office space above. The project scope includes demolishing an existing 120,000-square-foot building that is adjacent to two active acute care buildings and the construction of a new 200-car parking garage.

El Camino Hospital, Replacement Hospital, Mountain View, CA. Structural engineering for a 469,304-square-foot, 5-story, 248-bed replacement hospital. The project included an 8,600-square-foot expansion of an existing 9,000-square-foot central plant, with interconnecting utility tunnels, a remodeling of the existing north addition and a 600-car parking structure.

El Camino Health, Taube Pavilion and Scrivner Center for Mental Health & Addiction Services, Mountain View, CA. Structural engineering for a 2-story, 50,000-square-foot behavioral health services building with 36 beds. Scope involved the phased demolition of an existing behavioral health services building and an expansion of utility capacity in the adjacent central utility plant that will serve the new building. This project was delivered through OSHPD.

Demolition Engineering

Camp Pendleton Water Tank Demolition, Camp Pendleton South, CA. Structural engineering services for the demolition of a 135-foot tall, 40-foot diameter water tank. The United States Marine Corps did not possess existing drawings, which necessitated a full field survey of the tank including non-destructive testing to determine the thickness of the steel materials. Additionally the scope of work included creation of as-built drawings, structural analysis, and demolition sequencing for the water tank. The demolition sequence included precise cuts to selectively weaken the legs of the water tank, enabling the contractor to use demolition excavators and tensioned cables to fell the water tank into a precise ground zone surrounded by environmentally-sensitive habitat.

761 Post Street, San Francisco, CA. Structural evaluation and design of selective demolition for a hotel renovation. The building is a 17-story, reinforced concrete structure with a penthouse and basement, circa 1929. Scope involved assisting in the demolition sequence, shoring gravity elements, demolition of structural elements, temporary strengthening for seismic resistance, and design of bracing for an interior hoist.

SFO Terminal 3 Low Roof Demolition, San Francisco, CA. Structural evaluation and design for the demolition of the low roof at SFO Terminal 3. The building is a 3-story, steel framed structure with a basement, circa 1974. Scope includes assisting in the demolition sequence, design of a rail beam track system for the use of mini hydraulic excavators and determining the maximum safe load imposed on the deck. The proposed track system uses existing frame beams slated for demolition as rails and portable rail brackets to secure rail beams for vibration and movement.

El Camino Hospital, North Addition Demolition and Make Ready, Mountain View, CA. Structural engineering for the demolition of the existing 120,000-square-foot 1970s wing to make room for a future medical office building. Scope included façade enclosure on three adjacent buildings, and selective demolition of footings integrally shared between the building scheduled for demolition, and those buildings to remain.

City of Long Beach Old Courthouse Demolition, Long Beach, CA. Structural engineering services for the demolition of the 141-foot-tall Long Beach Courthouse. Originally constructed in 1961, the Long Beach Courthouse utilized several concrete cores as its lateral-force-resisting-system and its floors consisted of one-way concrete slabs supported by steel framing. The scope of work included assisting on the deconstruction sequence, planned stabilization and subsequent removal of the basement walls, and on-site monitoring.

State Route 47 Schuyler Heim Bridge Deconstruction Engineering, Long Beach, CA. Structural engineering services for the deconstruction of the existing Schuyler Heim Bridge for the California Department of Transportation. The existing bridge spans the Cerritos Channel, an active waterway, with an immediately adjacent rail bridge and the overhead replacement bridge. The scope of work includes assisting on the deconstruction sequence, evaluation of the existing construction trestle, and on-site monitoring for the demolition of the existing piers above and below the water surface.

CONTACT

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