

NICOLAS SAENZ, PH.D., P.E., S.E.

Principal



Summary

Dr. Saenz has more than 16 years of experience in diversified aspects of structural engineering analysis, design, evaluation, damage assessment of existing facilities, project management, forensic investigation and remedial design of existing buildings and bridges. He has been involved as an expert witness and provides litigation support services.

Dr. Saenz focuses on expanding Thornton Tomasetti's Forensic practice to Florida and neighboring states as well as Latin America by developing and maintaining strategic relationships in the region and by participating in evaluating the scope of losses and cause and origin investigations.

Areas of technical expertise

- Forensic Structural Engineering
- Structural Engineering - Investigation and Repair
- Structural Engineering - Rehabilitation
- Emergency Stabilization

Education

- Ph.D., Civil Engineering, Structural Engineering Concentration, 2004, University of Utah
- M.S., Civil Engineering, Structural Engineering Concentration, 2003, University of Utah
- M.Eng., Civil Engineering, Structural Engineering Concentration, 1999, Escuela Colombiana de Ingeniería, Colombia
- B.S., Civil Engineering, 1999, Escuela Colombiana de Ingeniería, Colombia

Registrations

- Licensed Structural Engineer in GA and NV
- Licensed Professional Engineer in AK, AL, CO, FL, GA, LA, MS, NV, SC, TX, WA and Puerto Rico
- Licensed Professional Structural Engineer Colombia, South America
- PTI Levels 1 and 2 Unbonded Post-Tensioning Systems Inspector

Select project experience

International investigations

Gasoline Tank Foundation Investigation, Tuxpan, MEX. Cause and origin investigation of failure of the ground improvement system which comprised of controlled modulus columns, wick drains and load transfer platform for thirteen 6.3M gallon gasoline storage tanks.

Collapse of Line 12 Mexico City Metro, Mexico City, MEX. Cause and origin investigation of the structural collapse of the Line 12 near the Olivos Station.

Keken Sahe Fire Invtn, Merida, MEX. Fire damage assessment and reconstruction engineering for pork processing plant.

Servicios y Terminales de Fluidos - Servitux, Tuxpan, MEX. Cause and origin investigation of the controlled modulus columns and load transfer platform foundation system for eight 6.3M gallon gas storage tanks.

EXXI Braskem, Nanchital de Lázaro Cárdenas, Minatitlán, State of Veracruz, MEX. Cause and origin investigation of a mechanically stabilized earth access platform failure.

SanCor CUL Milk Powdered Plant Exp SOD, Sunchales, Santa Fe, ARG. Structural damage assessment of a 7-story milk powder manufacturing facility that sustained damage due to a blast in the heater expansion tank at the roof.

Mexichem Petro Pajaritos Explosion Invtn, Veracruz, MEX. Blast cause and origin investigation of an explosion at a chemical manufacturing facility.

Artz Pedregal Collapse, Mexico City, MEX. Cause and origin evaluation of the partial collapse of a mall under construction.

Costenera Norte Sacyr Peer Rev Santiago, Santiago, CHL. Failure cause and origin investigation of the temporary structures to divert the Mapocho River during construction of the Costanera Norte & Sur highway.

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Socavon Autopista CDMX Cuernavaca, Cuernavaca, MEX. Cause and origin investigation of sinkhole in freeway between Mexico City and Acapulco causing three lanes to collapse.

Terminal Chicama Peru Failure Invest, Ascope, La Libertad, PER. Cause and origin investigation of a 1 km long pier that partially collapsed due to alleged high waves in March 2015.

Failure analysis investigations

Champlain Tower South Collapse, Surfside, FL. Cause and origin investigation of the sudden collapse of the 16-story tower in 2021.

James Rickards Middle School Collapse, Oakland Park, FL. Cause and origin investigation of the partial collapse of the middle school roof in March 2021.

Ground Flare Investigation, Port Arthur, TX. Cause and origin investigation of reported foundation movement of the controlled modulus column and load transfer platform foundation system at a petrochemical facility.

Haymarket Pedestrian Bridge Construction, Lincoln, NE. Structural failure investigation of a 614-foot-long, four-span post-tensioned girder for a pedestrian bridge.

Oil Tank Foundation Investigation, Pasadena, TX. Cause and origin investigation of reported foundation movement of the controlled modulus column and load transfer platform foundation system for a 6.3M gallon capacity oil storage tank.

Reinassance at Turtle Creek Parking Garage Collapse, Dallas, TX. Cause and origin investigation of a partial collapse of a seven-story precast concrete garage.

Toyota San Antonio Roof Collapse, San Antonio, TX. Cause and origin investigation of a partial structural collapse at the manufacturing facility on May 2016.

U.S. and international insurance pool assessments

Infonavit Sept 19 Earthquake CAT, Multiple States, MEX. Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Infonavit). Scope of damage assessment to multiple residential communities that sustained reported damage due to September 19, 2017 earthquake.

INAH Mexico 2017 EQ, Instituto Nacional de Arqueología e Historia, MEX. Engineering evaluation of the damages reported by the Instituto de Arqueología e Historia due to the reported earthquakes in Mexico on September 7 & 19, 2017. The cases involves over 2,500 national and historic monuments in Mexico.

Puerto Rico Ports Authority Maria CAT, Multi-city, PRI. Scope of damage assessment to 380 buildings located in most commercial airport and marine port facilities due to Hurricane Maria in September 2017.

Regional Pool Alliance - CAT Harvey, Multi-city, TX. Scope of damage assessment to 280 buildings including k-12 schools,

court houses, airports, parks, and recreational facilities located in multiple counties and cities along the Texas golf coast due to Hurricane Irma in September 2017.

Caribe Plaza Glazing Investigation, San Juan, PRI. Assessment of the existing fenestrations and its associated flashings and accessories of a 24-story tower due to Hurricane Maria in September 2017.

Emergency stabilization

Puerto Rico Arcicibo Observatory, Arcicibo, PRI. Stabilization of the Arcicibo Observatory due to failure of a 3 inch diameter cable as part of the cable supporting structure.

Litigation support (U.S. - domestic)

Allen ISD Football Stadium Investigation, Allen, TX. Structural investigation of an existing 18,000-seat stadium for alleged design and construction defects. The project included the investigation of a multistory press box, retaining wall systems, multiple concession buildings, skip joist concrete framing and scoreboard.

Parkland vs Lend Lease US Construction, Irving, TX. Cause and origin investigation of alleged structural deep foundation movement.

Safeco Insurance vs. Somasundaram, Arlington, TX. Cause and origin investigation of alleged hail damage to a residence.

Sworn testimony

Deposition experience

The Venetian Gardens of Miami Country Club v. Westchester Surplus Lines Insurance Company and Everest Indemnity Insurance Company, regarding alleged damages due to Hurricane Irma. United States District Court for the Southern Florida. October 22, 2020.

Charte Bridge Collapse Investigation, Bogota, COL. Covioriente vs. Insurers, regarding the cause and origin of a bridge collapse over the Charte River, highway at Yopal & Aguazul, Casanare. Corte de Arbitramento y Conciliacion, January 24, 2020.

Valley View Mall Partial Collapse, Dallas, TX. Continental Casualty Co. vs. EFK LBJ Partners, LP, Hill Wilkinson Construction Group, LTD., and Lloyd D. Nabors Demolition, LLC., regarding a partial collapse of a structure under demolition. 95th Judicial District Dallas County, TX. April 16, 2019.

Southlake Park Village Investigation, Dallas, TX. Excel Southlake I, LO vs. Woodmont Southlake, LP, et al., regarding alleged deep and shallow foundation movement to the multi-building retail mall. Northern District of Texas Fort Worth Division. October 12, 2017.

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MJ Dev v RGV Advantech Const McAllen, McAllen, TX, regarding alleged construction deficiencies of the structural and foundation systems. District of Hidalgo County, TX. 370th Judicial District.

Corsicana ISD vs. Hart G&A - High Sch, Corsicana, TX, regarding alleged construction deficiencies of the structural and foundation systems. District vs. Charter Builders, LTD, et. al. District of Navarro County, 13th Judicial District.

Robinson vs. Steveco Builders Bryson TX, Bryson, TX. Home of TX and Warranty Underwriters Insurance Co., regarding alleged foundation movement of a postensioned slab-on-grade. In Arbitration, January 21, 2016.

505 N McClurg Chicago FE Moran vs. IL UIC, Chicago, IL, regarding alleged construction design deficiencies of plumbing support with Unistrut systems. Cook County Department - Law Division. October 22, 2015.

Trial experience

Trial and Deposition, Mather vs. Parkway Properties, Houston, TX, regarding casualty from failure of a vehicle cable barrier system, Harris County District Court, TX, 295th Judicial District. May 1, 2014.

Select papers, lectures and publications

"Strain-Based Confinement Model for FRP-Confined Concrete," ASCE Journal of Structural Engineering, June 2007 (co-author)

"Short and Medium Term Durability Evaluation of FRP-Confined Circular Concrete," ASCE Journal of Composites for Construction, May/June 2006 (co-author)

"Shear Friction Capacity of Concrete with External Carbon FRP Strips," ASCE Journal of Structural Engineering, December 2005 (co-author)

"Modelo de Bielas y Tirantes Para el Calculo de Cortante por Friccion del Concreto Con el Uso de Fibras de Polimero Reforzado," Informaciones Tecnicas del Instituto Americano del Concreto Seccional Colombia, Boletin No. 3, 2005 (co-author)

"Strut-and-Tie Model for Shear Friction of Concrete with Fiber-Reinforced Polymer Composites," American Concrete Institute Structural Journal, November 2004 (co-author)

CONTACT

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