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

Senior Principal

Summary

Dr. Nicolas Saenz has more than 20 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 AL, AR, CO, FL, GA, LA, NV, SC, TX, WA and Puerto Rico
- Licensed Professional Structural Engineer in Colombia, South America
- PTI Levels 1 and 2 Unbonded Post-Tensioning Systems Inspector

Select Project Experience

Failure Analysis Investigations

Jet Set Club, Santo Domingo, Dominican Republic. Cause and origin investigation of the sudden collapse of the nightclub in April 2025.

Champlain Tower South Collapse, Surfside, FL. Cause and origin investigation of the sudden collapse of the 12-story tower in 2021.

Miami-Dade Resource Recovery Facility, Doral, FL. Investigated extent of fire related damage and building code analysis to structural framing systems. The subject property is an industrial waste-to-energy facility, which uses non-hazardous waste to generate electricity for approximately 35,000 homes.

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.

Renaissance at Turtle Creek Parking Garage Collapse, Dallas, TX. Cause and origin investigation of a partial collapse of a 7-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 in May 2016.

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International Investigations

Servicios y Terminales de Fluidos - Servitux, Tuxpan, MEX. Cause and origin investigation of failure of the ground improvement system comprised of controlled modulus columns, wick drains and a 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 Line 12 near the Olivos Station.

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

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 Investigation, Veracruz, MEX. 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 multi-story mall under construction.

Costenera Norte Sacyr Peer Review 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.

Socavon Autopista CDMX Cuernavaca, Cuernavaca, MEX. Cause and origin investigation of sinkhole in the 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.

U.S. and International Insurance Pool Assessments

IDEA Public Schools, TX. Investigated alleged damage to building envelope and roofing assemblies in 21 school campuses due to Hurricane Hanna in 2020 and windstorm in 2023.

Hurricane Ian, Confidential Structural, Envelope and Roof Assessment, LA. Investigated extent of hurricane-related damage to structural systems, building envelope and roofing assemblies for over 50 condominium facilities throughout western Florida.

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 Arqueologia e Historia, MEX. Engineering evaluation of the damages reported by the Instituto de Arqueologia e Historia due to the reported earthquakes in Mexico on September 7 & 19, 2017. The case 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 gulf coast due to Hurricane Harvey 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 Arecibo Observatory, Arecibo, PRI. Stabilization of the Arecibo Observatory due to failure of a 3-inch-diameter cable as part of the suspended supporting structure.

Sworn Testimony

Deposition Experience

M. Lombardo & C. Lombardo v. Vault Reciprocal Exch., regarding damage to fenestrations due to Hurricane Ian. Twelfth Judicial Circuit in and For Sarasota County, Florida. August 19, 2025.

Los Suenos Condo. Ass'n Inc. v. Citizens, regarding alleged damages due to Hurricane Irma. 11th Judicial Circuit in and for Miami-Dade County, Florida Civil Division. September 2, 2022.

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

Charte Bridge Collapse Investigation, Bogota, COL. Covioriente v. 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.

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Valley View Mall Partial Collapse, Dallas, TX. Continental Casualty Co. v. EFK LBJ Partners, LP, Hill Wilkinson Constr. Grp., 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 v. 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.

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

Corsicana ISD v. 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 v. Steveco Builders, et al, Bryson, TX, regarding alleged foundation movement of a post-tensioned slab-on-grade. In Arbitration, January 21, 2016.

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

Trial Experience

Trial, Banca Mifel, S.A. IBM, Grupo Financiero Mifel MO-469 v. Zurich Aseguradora Mexicana, S.A. de C.V., regarding alleged damages to a 10-story building in Mexico City due to the earthquake on September 19, 2017. Juzgado de Primera Instancia Especializado en Oralidad Mercantil de Culiacan, Sinaloa. January 30, 2024.

Trial and Deposition, Banca Mifel, S.A. IBM, Grupo Financiero Mifel MO-36 v. Zurich Aseguradora Mexicana, S.A. de C.V., regarding alleged damages to a 12-story building in Mexico City due to the earthquake on September 19, 2017. Juzgado de Primera Instancia Especializado en Oralidad Mercantil de Culiacan, Sinaloa. June 21, 2023.

Trial and Deposition, Mather v. 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)

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CONTACT

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