



Pablo Robalino, B.Sc., M.Sc., P. Eng., PMP

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EXPERT SUMMARY

Mr. Pablo Robalino is a structural forensic engineer specialist and project manager, and a Senior Associate at 30 Forensic Engineering. Pablo has more than 20 years of work experience in engineering consulting within forensic engineering, mining, nuclear, oil and gas, cement, institutional, and other industries. As a forensic engineer, Pablo has investigated structural failures and damage to buildings and non-building structures as a result of inadequate design specifications or construction procedures, overloading or use changes, explosions in industrial facilities, fires, impacts to buildings or bridge structures, dynamic demands, deterioration of concrete and steel structures, foundation deficiencies, and soil-foundation interaction issues. Pablo has authored numerous expert reports for clients in the legal and insurance industries. Pablo has performed the detailed structural analysis and design of numerous structures. He has participated in the execution of all project phases, including engineering, procurement, and construction, along with multiple stakeholders and in a multidisciplinary environment.

SPECIALIZED PROFESSIONAL COMPETENCIES

- Civil and structural engineering
- Project management
- Analysis, design, and assessment of reinforced and pre-stressed concrete structures and foundations
- Analysis, design, and assessment of steel structures, connections, and structural components
- Analysis, design, and assessment of timber structures
- Code compliance and condition assessment of building and non-building structures
- Investigation of building, property, and construction failures
- Experience in small and major engineering procurement and construction management (EPCM) projects, greenfield, and brownfield
- Finite element analysis and modelling (STAAD.Pro, RISA-3D, Sap 2000, S-FRAME)

ACADEMIC BACKGROUND

Certificate in Engineering Leadership, Cornell University, Ithaca, NY, Expected Completion in 2024

Master of Science in Civil Engineering, North Carolina State University, Raleigh, NC, USA, 2006

Bachelor of Science in Civil Engineering, Pontificia Universidad Católica, Quito, Ecuador, 1999

**ADDITIONAL COURSES**

- Concrete and Masonry Structures, American Society of Civil Engineers, ASCE-AWICMPKG (23 PDHs), Expert On-Demand Webinar Package, 2020
- Structural Design and Construction of Steel Bridges, 2020 NASCC: The Virtual Steel Conference, NASCC and AISC (5 PDHs), 2020
- Advanced S-FRAME Analysis and Dynamic Analysis of Structures, S-FRAME courses, 2019
- Structures Under Blast and Impact, CIV1190H (Audited graduate course, one semester), Civil Engineering Department at the University of Toronto, Toronto, ON, 2018
- Concrete Design Handbook 4th Edition National Seminar Series, Cement Association of Canada. Overview of changes to the CSA A23.3-14 standard and the advancements in the 4th Edition of the Concrete Design Handbook (7.5 hrs), Toronto, ON, 2017
- Expert Witness, The Advocates' Society. Participated as an expert witness volunteer for the Civil Litigation Skills Certificate Program: Advanced Do A Trial, Toronto, ON, 2017
- Managing Project Risk, The Project Management Conference, Informa Exhibitions, PAL1100a (7 PDU), MTCC, Toronto, ON, 2017
- Diagnosing Defects in Aging Concrete Structures and Developing Effective Repair Solutions EPIC 07-1203-2331 (17 hrs), Toronto, ON, 2016
- The Project Management Conference, Informa Exhibitions, MTCC, Toronto, ON, 2016
- The Theory and Practice of Performance-Based Design (Nonlinear Analysis), Computers and Structures Inc., Toronto, ON, 2016
- The Concrete Repair Code, ACI 562.16, 2016
- Project Management – PMP Bootcamp, PM Training (35 PDUs), 2014
- Structural-Vibration Analysis: Design and Troubleshooting, American Society of Civil Engineers, ASCE-81952014 (21 PDHs), Washington DC, USA, 2014
- Project Planning, Analysis, and Control, The George Washington University, Business, 2013
- Industrial Building Design, CISC-ICCA Seminar, Toronto, ON, 2013
- OPG Nuclear Orange Badge 1 Training, OPG Nuclear, Darlington, ON, 2013
- Fundamentals of Connection Design, AISC Night School, T.Murray, P.E., Ph.D., 2013
- Fundamentals of Project Management, Ryerson University, Toronto, ON, 2010
- Leadership Training Program, WorleyParsons Canada Ltd., 2010
- SmartPlant® Materials / Foundation, Intergraph, WorleyParsons Canada Ltd., 2009
- AutoCAD Revit Structure Fundamentals, SolidCAD (24 PDHs), Toronto, ON, 2007
- ISO 9001 Quality Systems, Consultec Ltd., Toronto, ON, 2007
- Fulbright English for Graduate Students, University of South Carolina, Columbia, SC, USA, 2004
- University Business Leadership Program, Ilinizas University Residence, Quito, Ecuador, 2000
- Computer Science Engineering Certificate, Pontificia Universidad Católica, Quito, Ecuador, 1994



EMPLOYMENT BACKGROUND

30 Forensic Engineering

Senior Associate, Civil/Structural
2016 – Present, Toronto, ON

- Building systems and structural failure analysis.
- Investigations related to structural failures or damage to buildings or non-buildings structures and foundations.
- Assessments of structural design or construction deficiencies.
- Detailed design of structural remediation packages including emergency response plans, temporary shoring, detailed repair or reconstruction design, and engineering support during construction.
- Condition assessments of buildings and properties, and codes and standards compliance analysis and reviews.
- Project management, quality assurance and control procedures.
- Business development.

Associate, Civil/Structural
2015 – 2016, Toronto, ON

AMEC / Inprocon Inc

Senior Structural Engineer / Project Engineer
2014 – 2015, Oakville, ON

- Delivered high quality detailed structural designs for the Western Range, ArcelorMittal, Liberia project including SAG mill area platforms, pipe-rack structures, concrete pier supports, water and wastewater structures, and building platforms for a 15M tpy large iron-ore concentrator.
- Completed the design check of reinforced concrete manholes and retaining structures, and the design check of the ball-handling pit steel structure in the grinding area.
- Performed and delivered a 3D frame Response-Spectrum seismic dynamic analysis for a large multistorey hospital building (Baca Ortiz) located in Quito, Ecuador.

Hatch

Senior Structural Engineer
2012 – 2014, Mississauga, ON

- Completed structural engineering designs and delivered engineering consulting support to various mining and nuclear projects, including 3 major projects as a lead or design engineer.
- Delivered structural engineering designs for 3 major projects as a lead or design engineer for clients such as Agrium (Mine Exhaust Ventilation Tunnel), Barrick (Pascua Lama – Zaldivar), and Baffinland Iron Mines Corporation (Mary River).
- Completed 7 EPC small brownfield nuclear projects in 18 months for the Pickering and Darlington Nuclear Plants and 8 EPC small brownfield mining projects in 7 months as part of the Vale Overflow portfolio of engineering services.



WorleyParsons

Senior/Lead Civil Structural Engineer

2009 – 2011, Toronto, ON

- Completed structural engineering designs and delivered engineering consulting support to various industry sectors such as mining, petrochemical, environmental and infrastructure, and energy.
- Delivered structural engineering designs as a lead or design engineer for 7 major and 6 medium to small size projects for clients such as Xstrata Nickel (Falcondo, \$600 million T.I.C.), BHP Billiton (Cerro Matoso NOSS, \$175 million T.I.C.), Suncor (HCC Tower Repair), Mopani (Mufulira Smelter Upgrade), Zamin Ferrous (Valentines Iron Ore, \$3 billion USD T.I.C.), Vale Inco (Roads and Material Handling Study), OPG (Atikokan Bio-Mass Conversion Project), Rio Tinto, and others.
- Infrastructure Area Lead. Led the pre-feasibility and feasibility studies and cost estimates for the Energy Conversion Project (\$600 million - estimated T.I.C.) for the ferronickel metallurgical and power plants located in Bona0, Dominican Republic.
- Developed and implemented a “Design Data Management (DDM)” strategy to improve the process of creating and managing large and complex three-dimensional finite element models (FEM) by integrating structural components. The implemented strategy facilitated the structural design, significantly reduced the time required to build a large FEM, increased productivity, and improved the accuracy of the results.

WorleyParsons

Intermediate Structural Engineer

2008 – 2009, Toronto, ON

- Performed structural engineering designs and delivered engineering consulting support to various mining, petrochemical, and infrastructure projects.
- Coordinated the structural analysis, design, and assessment of various heavy industrial structures and components comprising reinforced concrete and structural steel.

Consultec Ltd

Structural Engineer

2006 – 2008, Toronto, ON

- Completed the structural analysis, design, and assessment of various structures comprising reinforced concrete and structural steel for cement plants located in Canada, the USA, and other countries.
- Delivered the structural engineering analysis and design of several silos including 2 large partially post-tensioned clinker silos (206 ft. high, 148 ft. diameter, and approximately 90,000 tons of storage capacity each) and 2 large four-pack partially post-tensioned inverted cone cement silos (274 ft. high, 79 ft. diameter, and with a storage capacity of approximately 180,000 tons per four-pack silo group). The silos are located in the Holcim cement plant in Ste. Genevieve, Missouri – USA.
- Developed and implemented various strategies to optimize the analyses and design of large pre-stressed and reinforced concrete silos and other structures.

North Carolina State University

Research Engineer

2004 – 2006, Raleigh, NC, USA



- Conducted experimental research for three projects under the advice of Dr. Mervyn J. Kowalsky.
- Expanded Shale, Clay, and Slate Institute & North Carolina State University—"Shear Performance of Reinforced Lightweight Concrete Square Columns in Seismic Regions"—recommended modifications for the shear strength analytical model.
- North Carolina Department of Transportation & North Carolina State University—"Pile Bent Design Criteria in Bridge Designs"—analyzed pile and bent cross-sections of various bridges to determine moment-curvature responses and stiffness.
- Developed simple formulations for lateral displacement limit states of bridge superstructures, and designed the test setup for testing of neoprene bearing pads used in pile bent superstructure connections of bridges under cyclic shear.

Quito Tennis & Golf Club - El Condado

Operations Manager

2002 – 2004, Quito, Ecuador

- Supervised contractors for 32 construction projects involving more than 3500 m² of reinforced concrete and steel, including offices, change rooms, warehouses and roads.
- Responsible for the work of maintenance and reconstruction projects containing more than 1000 m².

Pontificia Universidad Católica del Ecuador

Associate Professor (part-time)

2000 – 2004, Quito, Ecuador

- Structural design, School of Architecture, Fourth and Fifth level.

Inprocon Construction & Engineering Consulting

Project Engineer

1999 – 2004, Quito, Ecuador

- Created and managed a company that provided structural design and construction services to several clients with projects in the cities of Quito and Guayaquil, Ecuador.
- Delivered the structural studies for bridge design projects for the Ministry of Public Works of Ecuador, Guayas Province –Ecuador.
- Completed the structural design and construction management of 14 institutional and residential projects.

Diego Robalino F. Constructores

Structural Engineering Assistant (part-time)

1994 – 1999, Quito, Ecuador

- Collaborated in various structural studies and construction projects.



PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers of Ontario (PEO), Professional Member
- Association of Professional Engineers and Geoscientists of Alberta (APEGA), Professional Member
- Engineers Geoscientists Manitoba (APEGM), Professional Member
- Professional Engineers and Geoscientists of British Columbia (EGBC), Professional Member
- Project Management Institute (PMI), Member
- Canadian Society for Civil Engineering (CSCE), Member
- American Institute of Steel Construction (AISC), Past Member
- American Society of Civil Engineers (ASCE), Member
- Structural Engineering Institute (SEI), Member
- American Concrete Institute (ACI), Member
- Group, Canadian Standards Association (CSA), Associate member of CSA's S850 Blast Resistant Buildings Technical Committee
- North Carolina Board of Examiners for Engineers and Surveyors, Engineering-Intern
- Canadian Institute of Mining, GTA West Branch (CIM), Past Member
- Ontario Society of Professional Engineers (OSPE), Past Member
- Earthquake Engineering Research Institute (EERI), Past Member

COURT APPEARANCES

- Qualified as an Expert Witness in Structural Engineering for a Disciplinary Hearing at the Engineers Geoscientists Manitoba Professional Association, 2023.
- Assisted in multiple mediations, arbitrations, and litigation procedures before settlement.

AWARDS AND ACHIEVEMENTS

- 30 Forensic Engineering 2018 Outstanding Associate Award.
- 30 Forensic Engineering 2016 Outstanding Innovation Award (shared with J. Reitsma, J. Burns, S. d'Obrenan, R. Parkinson).
- North Carolina State University graduate scholarship, 2004 – 2006 (M.Sc., NCSU).
- Fulbright graduate scholarship, 2004 – 2006.
- Graduate research assistantship sponsored by the North Carolina Department of Transportation. Participated in three research projects, 2004 – 2006.
- Third highest point average. First in class graduated as Civil Engineer at PUCE, May 1999 (B.Sc., PUCE).

**PUBLICATIONS / SPEAKING ENGAGEMENTS**

Speaking Engagements

- “Soil-Structure Interaction - Losses Requiring Structural and Geotechnical Expertise,” Subject Matter Expert Presentation, 30 Forensic Engineering Webinar (Presented by J. Reitsma, P. Robalino, and V. Schifano), June 2020.
- “Advanced Structural Analysis,” Subject Matter Expert Presentation at Blaney McMurtry LLP, “Lunch and Learn,” event organized by Blaney McMurtry LLP and 30 Forensic Engineering, February 2020.
- “Engineers before Engineering - Filippo Brunelleschi, Florence Cathedral (Santa Maria del Fiore),” Subject Matter Expert Presentation, “Skills and Snacks,” Internal event organized by 30 Forensic Engineering, November 2019.
- “Silo Failures Caused by Unrealistic Design Considerations,” Subject Matter Expert Presentation, “Skills and Snacks-Silo Structure Failures,” Internal event organized by 30 Forensic Engineering, May 2017.
- “Project Management Boot Camp,” Subject Matter Expert & Instructor, GK University (Internal), June – August 2016.
- “Structural Damage Assessment and Remediation,” Subject Matter Expert Presentation, “Ask the Expert Day,” Event organized by GK, September 2016.
- P. J. Robalino, “Shear Performance of Reinforced Lightweight Concrete Square Columns in Seismic Regions,” North Carolina State University, Raleigh (NC), United States, 2006.
- “Structural Design Course, Fourth and Fifth level,” School of Architecture, Pontificia Universidad Católica del Ecuador, 2000 – 2004.

Papers

- B. Robinson, V. Suarez, P. Robalino, M. J. Kowalsky, M. A. Gabr, “A Point of Fixity Model for Pile and Shaft Bents,” ASCE - American Society of Civil Engineers Proceedings of Sessions Of Geo-Denver 2007, February 18-21, 2007, Denver, Colorado Conference Proceeding Paper Contemporary Issues In Deep Foundations (GSP 158), Denver (Colorado), United States, 2007.
- B. Robinson, V. Suarez, P. J. Robalino, M. J. Kowalsky, M. A. Gabr, “Pile Bent Design Criteria,” North Carolina Department of Transportation (2005-19) FHWA/NC/2006-14 Transportation Research Board, Raleigh (NC), United States, 2005.

Thesis

- P. Robalino, “Shear Performance of Reinforced Lightweight Concrete Square Columns in Seismic Regions,” (Under the direction of Dr. Mervyn J. Kowalsky), A thesis submitted to the Graduate Faculty of North Carolina State University, Approved by Dr. Mervyn J. Kowalsky, Dr. Paul Zia, and Dr. James M. Nau, NCSU, Raleigh (NC), United States, 2006.
- P. Robalino, “Investigación Relacionada a Estructuras Prefabricadas que Incorporen Conexiones y/o Apoyos Articulados y sobre su Comportamiento Bajo la Acción de Fuerzas Horizontales para Edificios de Varios Pisos,” (Under the direction of Ing. Diego Andrade Stacey), A thesis submitted to the Faculty of The Pontifical Catholic University of Ecuador, Approved by Ing. Diego Andrade Stacey, Ing. Guido Merino G., Ing. Estuardo Páez E., PUCE, Quito, Ecuador, 1999.



Articles

- P. Robalino, “Even Retaining Structures Need Support – Design and Assessment Perspectives from a Forensic Engineer,” 30 Forensic Engineering website and LinkedIn, <https://www.30fe.com/insights/>, June 2020.
- P. Robalino, “Silo failures caused by unrealistic design considerations,” LinkedIn, January 2018.
- P. Robalino, “Explosion Response,” Claims Canada, November 2017, www.claimscanada.ca, PM40063170, pages 22 to 24, Canada, 2017.

Standards

- Assisted in the preparation of CSA standards as an Associate Member of CSA’s S850 Blast Resistant Buildings Technical Committee.