

CAROLINE ZENNIE DUPOUX, P.E.

Vice President



Summary

Caroline Zennie Dupoux joined Thornton Tomasetti in 2023, specializing in forensic structural engineering, building envelope investigations, and construction defect litigation. She investigates structural failures, water intrusion, and façade and stucco performance issues, helping owners, insurers, and legal teams identify the causes of damage and resolve complex disputes. She also helps restore and renew existing structures by applying Thornton Tomasetti's expertise in forensics and investigations, building enclosures, and structural renewal to improve structural integrity, enhance building envelope performance, and promote long-term durability. She has 15+ years of Civil and Structural Engineering experience, varying from new building design to existing building condition assessments and Construction Quality Assurance/Quality Control.

Areas of Technical Expertise

- Concrete Shell & Building Envelope Investigations
- Structural Assessments of Existing Buildings
- Forensic Engineering

Education

- M.S., Civil Engineering, 2008, Columbia University
- B.S., Civil Engineering, 2006, University of Virginia

Registrations

- Licensed Professional Engineer in FL, VA

Select Project Experience

Engineering Consulting and Project Management

Aragon of Boca Raton, Boca Raton, FL. Construction administration of building envelope restoration and roof restoration projects for a 10-story residential condominium building. Scope of work includes terrace restorations, waterproofing, pool deck, and pools.

El Rancho Development Project, Petionville, HTI.* Lead engineering consultant and quality assurance supervisor for the design and construction of a 600 space multistory parking garage, convention center, and a commercial village with a movie theater and amphitheater.

Center for Disease Control, CDC, Foundation Biological Specimen Storage Facility

Delmas, HTI.* Structural engineering services for a one-story, 2,000-square-foot biological specimen storage facility. Scope of work included structural design, production of Construction Documents, cost estimating, bidding, and quality control throughout the construction of the facility.

DELIMART Supermarket, Port-au-Prince, HTI.* Structural engineering services for a supermarket development in the capital. Scope of work included cost estimates, and leading quality assurance field teams.

US Department of State Jails Petit-Goave and Cabaret, Petit-Goave and Cabaret, HTI.* Structural engineering services for the construction of two US Department of State funded jails. Scope of work included peer review of construction documents, and quality control throughout the duration of the construction.

Mairie de Petit-Goave, Petit-Goave City Hall, Petit-Goave, HTI.* Structural engineering services for a four-story, 16,000-square-foot city hall building in Petite-Goave. Scope of work included structural design, and geotechnical recommendations for the building. Lateral load analysis was performed using ASCE 7 equivalent lateral force procedure.

*Denotes work performed with previous employer.

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Club E11even, Miami FL. Provided engineering consulting and support services throughout concrete quality review and evaluation, and review of column repair and strengthening details by others.

Structural Assessments of Existing Buildings

Modera Skylar, Miami, FL. Condition assessment of 4-story parking garage and peer review of proposed structural repairs for beams supporting the pool structure.

275 Fontaine Parc, Miami FL. Existing building structural assessment for a 7-story residential building and adjacent parking garage structure. Scope of work included condition assessment and non destructive testing.

Nissan Dealership Show Room, Port-au-Prince, HTI.* Post blaze structural investigation, provided structural assessment services for a steel structure with CMU envelope to determine if the structural components involved in the fire were still adequate and met the design intent.

Forensic Engineering

Palazzo del Sol / Della Luna, Fisher Island, FL. Forensic investigation, provided litigation support regarding alleged construction defects, including deficiencies at balconies, building envelope, and at post-tensioned concrete structural slabs.

Fort Lauderdale International Airport Terminal 3 Bumpout, Fort Lauderdale, FL. Forensic investigation, provided expert support regarding construction defects observed at curtain wall and joint sealants, and proposed remedial protocol.

Florida National University, Miami FL. Forensic investigation, provided litigation support expert services, investigations, and expert report regarding alleged construction defects at building envelopes.

Faena Forum, Miami Beach, FL. Forensic investigation, provided expert services and expert report regarding construction defects, including parking garage reinforced concrete structural slab and building envelope defects.

RIVA Condominium, Fort Lauderdale, FL. Provided litigation support services, investigation, and expert report regarding alleged construction defects, including roofing, waterproofing, building envelope and pool shell defects.

2000 Ocean, Hallandale Beach FL. Forensic investigation, provided expert services and expert reports regarding construction defects, including building envelope, concrete frame, expansion joint, waterproofing, and roofing defects.

The Villages Charter School, The Villages, FL. Provided litigation support services in a construction insurance claim.

Peninsula Condominium, Aventura FL. Provided litigation support expert services and expert report, investigating alleged waterproofing defects at a pool deck restoration project.

Wild Orchid Tr Residence, Lake Worth FL. Provided litigation support expert services and expert report, investigating and documenting concrete shell defects at a newly built 2-story single family residence.

Edgewood Ave Residence, Fort Myers FL. Provided litigation support expert services and expert report, in response to alleged concrete shell and roofing defects at a newly built single family residence.

San Marino Dr Residence, Miami Beach FL. Provided litigation support expert services and expert report, investigating and documenting concrete shell defects at a newly built 2-story single family residence.

3000 Island Blvd, Aventura, FL. Provided litigation support expert services and expert report, in response to pool deck waterproofing and concrete restoration project.

Arlington Apartments, Jacksonville FL. Provided litigation support expert services and expert report, in response to allegations against the EOR of a building restoration project.

Sworn Testimony

Deposition, 3000 Island Blvd v. Straticon LLC, regarding construction defects in a condominium pool deck renovation project, June 15 2026.

Deposition, Arrange for Change Design Studio LLC v. Umbral Construction LLC, regarding construction defects in a newly built single family home in Fort Myers, FL. March 10, 2026.

CONTACT

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