



Geotechnical
Environmental
Water Resources
Ecological

Structural/Architectural Services

Building Envelope Evaluation

Services

Investigation Services

Design Services

Repair and Rehabilitation Design

Forensic Engineering/Failure
Investigation/Collapses

Environmental Structures

Building Envelope Services

Parking Structures

Special Structures

Structural Engineering/Design

Formwork Analysis Design/Shoring-
Reshoring Analysis

Foundations and Geotechnical
Investigation

GEI Consultants Inc., P. C. Structural/Architectural Division provides Building Envelope services that include façade repairs, roofing and plaza waterproofing to both existing and new buildings. Our in-house expertise has allowed the integration of the building envelope strategy with our structural/architectural and sustainable/environmental disciplines for the development of various challenging projects, in particular, “Green Roofs” in various locations in the New York City area. GEI’s waterproofing

for roofs and plazas services include testing and surveying of existing roof conditions to identify defects and pin point entries for water infiltration. Due to our structural/architectural expertise, we are recognized as Forensic Experts in many building envelope litigation cases. Our expertise includes state-of-the-art non-destructive testing technology to identify building envelope issues and failures.

Structural/Architectural & Forensic Engineering

Building Envelope Facades



5TH AVENUE New York, NY

GEI designed facade repairs for this Landmark residential building including stone and terra-cotta repairs. Construction administration services were provided as well.

STARRET CITY Brooklyn, NY

GEI investigated the masonry facade distress in this giant complex of thirty two 20-story buildings and prepared repair drawings and specifications for repairs of the balcony railing failure, concrete slab eyebrow spalling, and brick masonry distress. Construction administration services were provided.

CONFUCIUS PLAZA New York, NY

The Confucius Plaza project is a 44-story reinforced concrete building with masonry brick facades. The brick facades exhibited compressed soft joints accompanied by masonry outward movement especially at the upper floors. GEI investigated the causes for the facade distress such as the effects of thermal expansion on the facade, shrinkage issues, and moisture absorption. GEI prepared construction documents for the repairs and provided construction administration services.

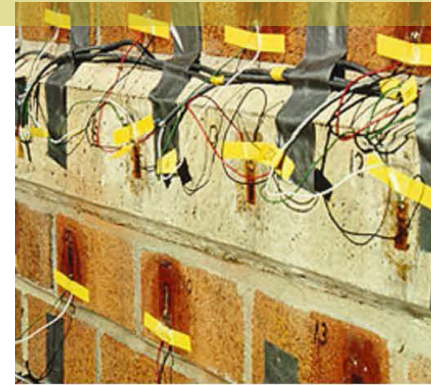


NEW YORK ATHLETIC CLUB New York, NY

This 24-story building is constructed with limestone and brick facades. GEI performed condition surveys and investigated the spalled and cracked masonry facade distress. Based on the investigation, GEI prepared design drawings and specifications for the repairs. Construction administration services were provided.

KOLB LABORATORY BUILDING New York, NY

The high-rise masonry facades experienced distressed facades and water leaks. GEI investigated the distress and prepared repair drawings and specifications for the damaged facades, expansion joints, and flashing at shelf angles. Construction administration services were provided.



MANHATTAN PLAZA New York, NY

This high-rise structure experienced distressed facades with spalled bricks. The brick facade was tested by GEI to determine the causes for the spalled bricks. Stress Relief tests and other relevant tests were conducted. Based on the investigation, GEI prepared construction documents for the repairs. The repairs included cutting new soft joints and replacing damaged bricks.

EAST 20TH STREET New York, NY

This landmark building had a deteriorated and damaged facade. GEI designed repairs including fiberglass replacement of terra cotta units, and provided construction administration services.

Structural/Architectural & Forensic Engineering

Building Envelope Facades



MLK FEDERAL BUILDING Atlanta, GA

GEI was retained to investigate and provide a second opinion related to the causes of marble facade distress. Additionally, we were asked to review the structural safety of the building facades. GEI performed a condition survey of the building facades, identified various causes for the structural distress and recommended a course of action for repair details and immediate safety precaution measures. An engineering report with findings, conclusions and recommendations was issued.

ATLANTIC AVENUE Stamford, CT

The facades of this high-rise office building consisted of precast concrete walls finished with marble panels. Several marble panels exhibited extensive cracking and out-of-plane warping. GEI performed a condition survey and retrieved marble samples for laboratory testing. GEI investigated the effects of the various design and construction details including the marble anchoring system. A report was issued with findings, conclusions and recommendations.



WASHINGTON STREET Newark, NJ

This building complex consists of a two-story office structure and an eighteen-story tower structure located in Newark, NJ. The tower building was originally used as a parking garage and later converted to a storage facility. The brick facade of both the office and tower buildings display various signs of distress and deterioration, including water leaks, brick cracking, bulging, structural steel corrosion and window damage. GEI performed a structural evaluation of the brick facade to identify the type, cause, and extent of the facade damage and deterioration. Scaffold drop observations and probe openings were performed. GEI prepared an engineering report, including the findings of the investigation with the preliminary repair details and construction repair cost estimates.



Structural/Architectural & Forensic Engineering

Building Envelope Roofs



ONE IRVING PLACE - GREEN ROOF

New York, NY

The Green Roof at One Irving Place, NYC (aka Zeckendorf Towers) has a 17,000 square foot roof located on the 7th floor in the center of this residential complex surrounded by 4 towers. GEI designed this "Green Roof" on top of the existing 12-inch thick concrete roof slab. The new roofing consists of many layers of materials that make up the green roof including free-form raised mounds. Green Roof benefits include aesthetics, heat reduction during the summer when urban areas tend to become heat sinks, and reduction of water run-off into the storm sewer system.

BUENA VIDA

Brooklyn, NY

The existing roofing system was a torched-down roofing modified bitumen roofing that developed wrinkles and blisters a short time after the original installation. GEI performed a roof investigation to determine the cause of the failure and prepared repair documents for the roofing system replacement. The repair included complete removal of existing 10,000 square foot of roofing membrane, insulation and flashing and the installation of a new gravel surfaced 3-ply modified bitumen roofing (upside



down) system with associated flashing. Two-part metal counter-flashing system was provided at the junction between the roof deck and building walls, liquid applied, and flashing was installed at all roof penetrations. GEI provided construction administration services.

CONFUCIUS PLAZA

New York, NY

Complete removal of existing 4,000 square foot roofing membrane and flashing on the second floor setback and the installation of a new gravel surfaced 2-ply modified bitumen roofing system with associated flashing. Mechanical equipment was installed and a 2-part metal counter-flashing system was provided at the junction between the roof deck and building walls.



HOLMDEL SCHOOL

Holmdel, NJ

GEI performed studies of 280,000 sq. ft. polyurethane roof system that experienced delamination and coating failure resulting in water penetration into the school facility. The study included material sample tests and moisture studies including infrared imaging. An engineering report with findings, conclusions and recommendations was issued.



Structural & Forensic Engineering

Building Envelope Plaza



SEAPOINTE VILLAGE

Wildwood Crest, NJ

The Seapointe Village plaza deck and parking garage is a single level underground precast/prestressed concrete structure located at the site of Seapointe Village in Diamond Beach, Wildwood Crest, NJ. The plaza deck is a park-like area with pedestrian sidewalks, landscaping, pool, spa, and other amenities. Since the plaza deck construction completion in 1993, the deck has been experiencing extensive water leaks. The water leaks have caused some structural deterioration to the plaza deck. GEI was retained by the owners to investigate the cause of the water leaks, assess the structural damage, and develop repair plans and details.

