

Karl J. Rubenacker, PE, SE, CWI, F.SEI is a partner at the New York City based structural engineering firm Gilsanz Murray Steficek. Karl holds a BE in Civil Engineering from Cooper Union and an MS in Civil Engineering from Caltech. He has over thirty years of structural engineering experience designing a broad array of structures from new construction to renovations, and including high rise, commercial, residential, and educational buildings. His experience also includes auto and rail bridges, aqueducts, parking garages, arenas, treatment plants and pumping stations. Karl is a Past-President of the Structural Engineers Association of New York, and he is active in several professional committees, including the ACEC-NY structural codes committee, the SEAoNY Codes and Standards Committee, the ASCE/SEI Disproportionate Collapse Technical Committee, and the NYC Buildings Department Structural Technical Committee.

**EDUCATION**      **CALIFORNIA INSTITUTE OF TECHNOLOGY**      Pasadena, CA  
Master of Science in Civil Engineering      1990

**THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART**      New York, NY  
Bachelor of Engineering in Civil Engineering      1989

**LICENSES & CERTIFICATIONS**      Registered Professional Structural Engineer in California  
Registered Professional Engineer in New York  
Registered Professional Engineer in Arkansas  
Certified Welding Inspector  
Qualified Parking Structures Inspector (QPSI) per NYC Rules and Administrative Code.

**PROFESSIONAL ASSOCIATIONS**      **Past-President**, Structural Engineers Association of New York (SEAoNY),  
**Member**, National Council of Structural Engineers Associations (NCSEA) Code Advisory Committee on Existing Buildings/Structural Retrofit  
**Member**, SEAoNY Codes and Standards Committee  
**Member**, Structural Code Committee, American Council of Engineering Companies New York Metro Region (ACEC-NY)  
**Member**, ASCE/SEI Disproportionate Collapse Technical Committee, ASCE/SEI Disproportionate Collapse Standards Committee, ASCE/AEI Facade Access Committee, American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI)  
**Fellow** of the Structural Engineering Institute (SEI).  
**Member**, New York City Department of Building's Structural/Foundation Technical Committees for the Model Code Program Building Code Revision for 2008, 2014, 2020 Building Codes.  
**Member**, New York City Department of Building's Special Inspections Advisory Committee

**EXPERIENCE**      **GILSANZ MURRAY STEFICEK**      January 1998 to Present  
PARTNER

**Periodic Inspection of Parking Structures Safety Program for NYC Department of Buildings** – Manages all of GMS' Parking Structure inspections for numerous clients to comply with the Parking Structure examinations as defined by Rule No. 103-13 of the Rules of the City of New York.

**Dior 19 East 57<sup>th</sup> Street and 598 Madison Avenue – New York, NY**  
GMS is providing structural design services to LVMH to combine the two buildings at

the lower levels. This involves the modification of the lateral system and building framing to accommodate the enlarged store. We are also working with Dior for the fit-out of the store and on the support of the new six-story facade. This project is in progress.

**360 Park Avenue South – New York, NY**

GMS provided structural engineering services for the redevelopment of a 450,000 sf, 20-story mixed-use office building located at the southwest corner of Park Avenue South and 26<sup>th</sup> Street. The building underwent an extensive upgrade that included a full lobby renovation consisting of new amenity spaces, new decorative stair and bleachers and a new occupiable roof terrace centered around the large water tank. Infrastructure upgrades included two new electric chillers at the cellar that required removal and repair of a portion of the 26<sup>th</sup> Street sidewalk, an emergency generator at the roof with new dunnage and new shaft framing on each floor to accommodate the fuel oil riser and electric cable, and structural repairs of the sidewalk vault due to water damage.

**Transbay Transit Center – San Francisco, CA**

GMS provided subject matter expert structural engineering consulting for the Mediation regarding this project.

**General Motors Building – 767 Fifth Avenue, New York, NY**

Since 2003, GMS has provided structural engineering and façade consulting services for the owner and tenants at this 1960's vintage building in Midtown Manhattan. We have provided services for the re-cladding, roofing, and waterproofing of the first two stories, the two-story infill project at Madison Avenue and the plaza reconstruction which supports the glass Cube. We have provided tenant renovations for Apple, York Capital Management, Jana Partners, Citigroup, Bank of America, The Switzer Group, and pop-up retail stores among others.

**Roku – 5 Times Square, New York, NY**

GMS provided structural engineering services for Roku's office fit-out on the 30<sup>th</sup>-37<sup>th</sup> floors of 5 Times Square in Manhattan. The layout of the office space, comprising 237,000 sf, consists of open workstations, conference rooms, and various amenities.

We designed a 3-story interconnecting stair, as well as support for a curved horizontal fire shutter around the new stair opening. Our team reinforced the structure of the building to support a public assembly occupancy for both a "Town Hall"-type meeting space and the 34<sup>th</sup> floor terrace. At the terrace, GMS also provided structural support for a new glass guardrail and anchor points to tether terrace furniture to the existing roof structure. In addition, we reviewed loads imposed by seven (7) IDF rooms and one (1) MDF room.

**315 Hudson Street – New York, NY**

GMS was retained to provide structural services for the 40,000 sf roof renovation of this 10-story office building in Lower Manhattan which included a new one-story addition event space, relocation of convenience stair and elevator, new roof top units, expanded retail entrance, new exterior courtyards and green spaces. In addition, GMS provided

waterproofing services for the ground floor and roof top courtyards. GMS also provides services for various tenant alterations.

**Bowlero – Various Locations**

GMS has provided structural engineering services for Bowlero at sixteen locations across the country since 2017. Work includes redevelopment of existing properties for the bowling centers, new interior fit out as well as design of supports for architectural details. GMS has assisted with new Bowlero centers in New York, New Jersey, California, Georgia, Florida, Virginia and Massachusetts.

**Rocky Top Student Center Quinnipiac University – Hamden, CT**

The new 85,000 sf student center is the heart of the new complex at Quinnipiac University's York Hill campus. It holds the campus' central mechanical plant in the basement, and campus dining areas and student activity spaces. The frame is constructed of concrete shear walls, heavy timber and glulam beams and girders and columns using concealed steel connector plates. The floor and roof systems also use heavy timber, glulam beams and girders, and timber decking.

**Times Square Retail – New York, NY**

GMS structural engineers worked with the landlord to convert this large retail space back to "white box" condition and improve the space by extending the basement and prior to demising the area into smaller stores. We also provided structural engineering to the "sister" tenants for a new 51,000 sf flagship and a new 52,000 sf flagship within the block long building. The fast-track schedule and complicated coordination issues require the extensive participation of GMS in all aspects of the design and construction.

**12-14 Warren Street – New York, NY**

GMS provided structural engineering Services to this 13-story 50,000 sf, ultra-luxury residential concrete building with a green roof system in Tribeca. GMS is also providing the demolition/sequence drawings to keep portions of the existing five-story building.

**Sportime – Randall's Island, NY**

Expansion of the John McEnroe Tennis Academy. GMS has provided schematic alternatives for a new field house within the proposed expansion.

**Parking Garage at the York Hill Campus – Quinnipiac University, Hamden, CT**

Design for the five-story, 600,000 sf free-standing, precast concrete parking garage for approximately 2,000 cars.

**M&T Bank Arena, fka TD Bank Sports Arena – Quinnipiac University, Hamden, CT**

The new 141,000 sf twin arena houses a 3,286 seat rink for ice hockey, a 3,570 seat arena for basketball, fitness room, locker rooms, and other support facilities. One of just four twin arenas in the Northeast, the sports center is one-story tall with lower levels built into the hill. Each arena has unobstructed sight lines from all seats thanks to three dimensional roof trusses with 164 foot clear spans.

**Confidential Office Building – Jersey City, NJ**

GMS worked with this building's owner to investigate the connections of the façade panels and establish a testing and repair protocol for the 22-story, 800,000 sf building.

**Umbilic Torus Sculpture at the Simon Center – SUNY Stonybrook, NY**

Structural engineering for a bronze and granite sculpture and plaza reconstruction.

**510 Madison Avenue – New York, NY**

GMS served as the Structural Engineer, Special Inspector and Façade Consultant for this out-of-the-ground 350,000 sf, 30-story boutique office building. The steel structure is unobtrusive, creating column-free spaces. The belt trusses, which limit building movement due to wind, are prominently displayed. Inspection services included structural steel erection, bolting and welding, cast-in-place concrete and curtainwall.

**Hurricane Sandy Assessments**

GMS was contracted by the New York City Department of Buildings to perform structural assessments with DOB electrical and mechanical inspectors for all buildings within Zone A after Hurricane Sandy.

**One Jackson Square – 122 Greenwich Avenue, New York, NY**

Structural design services for a new 11-story, 60,000 sf luxury residential building that also includes 8,000 sf of retail space all built atop a subway line. The structure is cast-in-place concrete. GMS was also retained to assist in detailing this unique undulating curtain wall.

**World Trade Center 7 – Forensic Study, New York, NY**

Development of structural models and collapse hypothesis' for NIST.

**Sierra Bonita Mixed-Use Affordable Housing – West Hollywood, CA**

A five-story mixed-use building, where steel framing with long span decks are used to accommodate the parking grid below and to minimize floor to floor height. The building contains 43 one bedroom units; commercial/retail space is located at ground level and resident parking is located below grade. This project received a SEAoNY 2012 Excellence in Structural Engineering Winner-New Under \$30M, a SEAOSC Award of Merit for Excellence in Structural Engineering 2011 – New Construction and a Design Concept Award from the Los Angeles Business Council in 2008.

**250 Hudson Street – New York, NY**

Structural design services for converting the former printing trades building into a state-of-the-art modern office center with a magnificent green roof. GMS reinforced the existing roof and designed the trellis and its connections to the base structure.

**MoMA PS 1 – HVAC Upgrade, Long Island City, NY**

MoMA PS1 is the leading contemporary art center in New York, preserving much of the original "school" architecture as well as most of its unique classroom-sized galleries. The current project will upgrade the systems in the south wing.

**1120 Avenue of the Americas, The Hippodrome, New York, NY**

GMS served as structural engineer and as façade consultant for the renovation of the entry lobby and mechanical systems upgrade at this 22-story existing office building. The bottom six floors were overclad with a new metal and glass curtain wall. GMS consulted on the design detailing and panel installation of this new enclosure. Completed in 2006.

**Brooklyn Supreme and Family Courthouse – 330 Jay Street, Brooklyn, NY**

GMS served as both the Structural Engineer and Curtain Wall Consultant for this new 32 story, 1,100,000 sf, steel framed office building with three below grade levels. The lower 864,000 sf is dedicated to court space and the upper 245,000 sf designated as speculative office space. GMS also served as the Blast Consultant, developing details and specifications to create a blast resistant façade and building structure. Completed in 2006, the A, C, and F train subway lines run below Jay Street, adjacent to the foundations. Project was completed in 2002 at cost of \$450M.

**Toys R Us – Times Square, New York, NY**

GMS served as both the structural engineer and the curtain wall consultant for the new Toys "R" Us flagship store in New York City's Time Square. This design incorporated a custom "point supported" glazing system and custom metal cladding. The fast-track schedule and complicated coordination issues required the extensive participation of GMS in all aspects of the façade design and erection. Renovation of an existing building into a retail store with four levels, totaling over 103,000sq.ft. Included among the store's new features are a large atrium, interior ferris wheel, glass curtain wall façade, and two suspended glass walkways. The Toys R Us flagship closed at the end of 2015.

**Hoboken Ferry Terminal – Hoboken, NJ**

Rehabilitation of six original ferry slips at historic Hoboken Terminal including the reconstruction and repair of a portion of the building's substructure and superstructure, construction of ferry service ticket offices, rehabilitation of the building roof and Tiffany skylights, rehabilitation of the copper fascia on the exterior of the building, waterproofing and insulating the exterior walls near the ferry slips, and rehabilitation of the interior finishes of the ferry terminal area.

**695 East Main Street – Stamford, CT**

GMS was retained to perform comprehensive inspection of the façades, roof and structural systems of this 1980s vintage curtain wall building located in downtown Stamford Connecticut. Construction documents for the replacement of the roofs, repairs to the façades and remediation of structural issues were also undertaken.

**880 Fifth Avenue – New York, New York**

Garage repairs at a landmarked 21-story apartment building with penthouse.

**New York University, Tisch School of the Arts – New York, NY**

Multiple renovations of interior space at 715-719-721-725 Broadway spanning over 10 years. Projects include structural work for new classrooms, office space, mechanical systems, storefront, recording studios, etc.

**New York University, University Club and School of Education – New York, NY**

Interior renovation of two existing buildings to create one functional 55,000 sf space, plus a new one-story mechanical penthouse. Provided controlled inspection and in-situ materials testing services.

**110 East 59<sup>th</sup> Street – New York, NY**

Assessment of below grade parking garage in an existing office building.

**75 Park Place – New York, NY**

Renovation of the existing building, including a new double-height lobby. Structural, curtainwall and inspection services provided.

**SUNY Stonybrook Humanities Building – Long Island, NY**

Design of a 60,000 sf steel addition to an existing 40,000 sf, three-story concrete building. Engineered 100% of the connections.

**Hoboken Railroad Yard B – Hoboken, NJ**

General renovation of a railroad yard including a new four-track, 65 foot long rail bridge, new 26,000 sf multi-purpose building with sections for train inspections, locomotive fueling and sanding, train washer and employee facility. Site improvements include structural supports for the catenary, structural supports for the yard lighting and site retaining wall. Winner of the 2003 ACEC Gold Award.

**Ninth Avenue Towers – New York, NY**

Schematic design of 2.5 Million sf mixed use office/residential/hotel complex over the rail yards on the west side of Manhattan.

**52 Broadway – New York, NY**

GMS provided structural engineering for both the landlord and the tenant to upgrade the building for the new UFT offices - approximately 280,000 sf. Eight columns of this 20-story building were cut and re-supported at the 2nd floor to allow for a new 900-seat auditorium at the lower levels and to provide a new ramp down to parking. GMS also engineered all of the new steel connections and performed NYC Controlled Inspections.

**Abbott Capital Management, 1290 Avenue of the Americas – New York, NY**

GMS provided structural engineering for the interior fit-out of approximately 34,700 sf on the 9th floor. The project included structural support for a new high density filing system, a folding partition, a glass wall, the review of slab cores and trenching for electrical and plumbing needs, as well as special inspection services.

**New York University, Clive Davis Department of Recorded Music – New York, NY**

Renovation of 5<sup>th</sup> Floor of 194 Mercer Street to accommodate sound studios and classrooms.

**New York University – 75 Third Avenue Data Center, New York, NY**

Reinforcement of basement at 75 Third Avenue Dormitory to support a new data center

with 175 psf loading. Also analyzed existing roof structure to receive new mechanical equipment.

**838 Fifth Avenue – New York, NY**

Design of a 26,000 sf addition to an existing 43,000 sf, 11-story building. Interior renovation and conversion from office to residential space. Provided controlled inspection services.

**217 Broadway – New York, NY**

Design of three-story, 30,000 sf addition on top of an existing seven-story, 115,000 sf building, plus interior renovation of the existing building. Provided controlled inspection services.

**264 West 11<sup>th</sup> Street – New York, NY**

Design and inspection for the renovation of an existing 10,000 sf, four-story brownstone. Provided controlled inspection and in-situ materials testing services.

**PREVIOUS EXPERIENCE – STRUCTURAL ENGINEER**

**Post-Northridge Conditions Assessments, Bank of America – Los Angeles, CA**

Part of a team which performed post-earthquake condition assessments of over 48 Bank of America branches in Los Angeles County. Assessments were performed in accordance with ATC-20 methodology.

**Fred Waring Drive Bridge – City of Indio, CA**

Five span, 6 lane, hinged post-tensioned concrete bridge. In compliance with CALTRANS standards and consideration of column plastic hinging effects on superstructure.

**Mission Valley West Light Rail Transit Extension – San Diego, CA**

Design calculations for peer review of 35 span post-tensioned concrete bridge and elevated reinforced concrete railway station.

**Penasquitos Pipe Bridge – San Diego, CA**

Final design of three span, 48" diameter welded steel pipe bridge for the Penasquitos Trunk Sewer.

**Lamont Public Utility District Wastewater Treatment Plant – Lamont, CA**

Reinforced concrete headworks, influent, effluent structures.

**Foothills and River Mountains Pump Station – Nevada**

220' x 115' x 80' reinforced concrete pump station structures to supply Las Vegas with water.

**3.3 MG Eastside Reservoir – California**

200' diameter x 19' high welded steel above ground tank.

**San Sevaine Channel Improvements – San Bernadino County, CA**

Design of 60' wide x 14' high reinforced concrete rectangular flood control channels.

**San Diego County Water Authority Pipeline4B, and Aqueduct # 1 Relocation – San Diego**

Design of 4-mile long, 200psi, 96" diameter welded steel pipeline, and 800' long, 48" diameter double barrel continuous welded steel pipelines with appurtenances. Provided shop and field inspection services.

**PRESENTATIONS  
AND JURIES**

ATC-156, Workshop For Seismic Practice Needs For Buildings and Lifeline Infrastructure Located in the Central and Eastern United States, The work forming the basis for this publication was conducted pursuant to a contract with the National Institute of Standards and Technology under the National Earthquake Hazards Reduction Program, July 22, 2022

ASCE/SEI Design Guide Alternative Load Path Analysis Guidelines for Disproportionate Collapse, R. Gilsanz, K. Rubenacker, ASCE/SEI Structures Congress, Orlando, FL, April 24-27, 2019.

Challenges and Complexity of Air-Rights Structures - Case Study: One Jackson Square, by Karl Rubenacker and Philip Murray, 2015 Structures Congress, Portland, OR, April 24, 2015

Design of a High-Rise Steel Building to Resist Disproportionate Collapse, R. Gilsanz, E. Kim, P. Murray, K. Rubenacker, 37<sup>th</sup> IABSE International Symposium, Madrid, Spain, 3-5 September 2014

Design of a High-rise Steel Building to Resist Disproportionate Collapse, by Karl Rubenacker, 2014 ASCE Metropolitan Section Structures Group Spring Lecture Series, New York, NY, May 13, 2014

Structural Design Recommendations for Building-Supported Façade Access Equipment, 2014 Structures Congress, Boston, MA, April 4, 2014

Design of a High-Rise Steel Building to Resist Disproportionate Collapse, 2014 Structures Congress, Boston, MA, April 3, 2014

Sierra Bonita: Innovative use of Long Span Metal Deck Slabs and Shored Construction, 1st Annual Residential Building Design and Construction Conference, February 2013.

**PUBLICATIONS**

ATC-156, Seismic Practice Needs for Buildings and Lifeline Infrastructure Located in the Central and Eastern United States, Applied Technology Council under the National Institute of Standards and Technology National Earthquake Hazards Reduction Program, May 2023, <https://doi.org/10.6028/NIST.GCR.23-041>

Façade Assessment Equipment, by Task Committee on Façade Access Design Guidelines, ASCE/AEI, 2015.