

Severud Associates

CONSULTING ENGINEERS P.C.



STRUCTURAL ENGINEERING SERVICES

Severud Associates offers services that range from conceptual planning to final inspection, including all levels of analysis, design and detailing, construction document preparation, and construction contract administration. Services also include engineering for alterations and renovations, repairs to existing facilities; condition surveys, peer reviews, expert testimony, on-call consulting, and more. The firm has completed thousands of projects of varying scale and complexity, always applying best practices to develop designs that are efficient, cost-effective, sustainable—and often innovative.

>> **Sphere**
Las Vegas, NV





>> Penn 2, New York, NY



>> 270 Park, New York, NY

ALTERATIONS AND RENOVATIONS

Our structural engineers have provided design services for a wide variety of alteration and renovation projects, including those at office buildings, hospitals, airports, and retail stores. The staff draws on its engineering expertise and extensive experience with structural systems — both current and historical — to develop efficient and economical designs for existing conditions of all kinds. Employing a holistic approach and open communication, they minimize unknowns and develop contingency plans to accommodate conditions uncovered during construction.

ANALYSIS, DESIGN, AND DOCUMENTATION

The engineers at Severud Associates have designed structures with all types of materials and systems. The staff leverages their expertise to apply knowledge from one project to another and develop innovative solutions. Severud is well known for extensively detailed drawings and specifications. Attention to detail and close coordination with other members of the design team results in highly developed construction documents that improve understanding of the project and the accuracy of cost estimates and budgets.



>> JFK Terminal 6, New York, NY

BUILDING INFORMATION MODELING

Severud Associates uses Building Information Modeling (BIM) throughout the design process to perform integrated analysis and design three-dimensional models that facilitate communication between the owner, designers, and construction team. At each stage of design and construction, the scope and level of development of the model are adjusted to meet the requirements of the specific project and the parties that will be using it. Better coordination, reduced conflicts, and support of operations management improve project success.

CONDITION SURVEYS

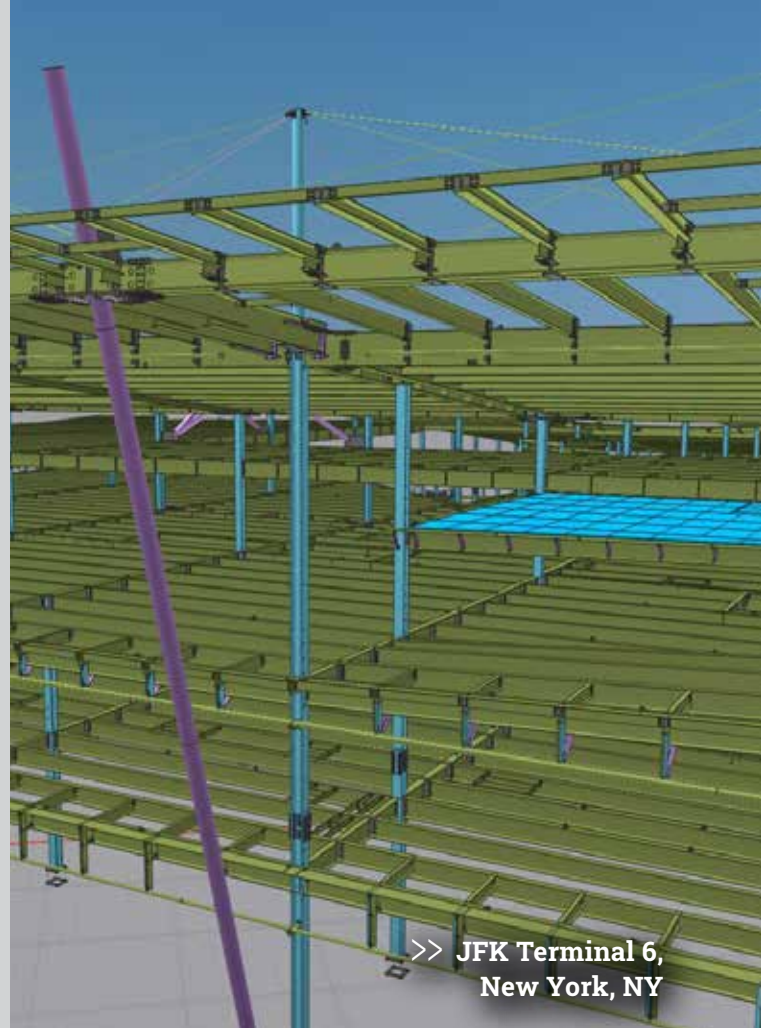
Our firm performs condition surveys and investigations of existing structures such as airport facilities, roadway and utility tunnels, office buildings, and parking garages. The engineering staff produces comprehensive reports that help owners develop maintenance programs, prioritize capital improvements, and schedule repairs. Structural condition documentation and assessments can also be added to multi-disciplinary due diligence reports to enable potential buyers to make better decisions about real estate purchases.



>> Denver International Airport, Denver, CO

CONNECTED MODELING

We use connected structural steel modeling to enhance design precision and efficiency for complex projects. Using advanced detailing capabilities in Revit, Tekla, and other industry-leading software, Severud creates highly detailed models that go beyond traditional Level of Detail (LoD) 300. This approach facilitates seamless collaboration among engineers, contractors, and fabricators, minimizing ambiguity and reducing potential challenges during construction. Connected modeling improves cost estimation, minimizes inter-trade clashes, and streamlines coordination, resulting in significant time and cost savings for clients.



DESIGN FOR PHYSICAL SECURITY

Physical security is a critical component of building design. Severud Associates' engineering staff has the experience and expertise required to assess risk, identify potential threats and their consequences, and implement mitigation strategies that make buildings safer. The firm has provided studies of new and existing buildings owned or used by government agencies and private organizations that consider blast threats, vehicle intrusion, and accidental events such as gas explosions that occur within the buildings or adjacent to them.



DESIGN FOR SUSTAINABILITY

Severud Associates is committed to making structures sustainable and has been applying best practices in green building design for many years. Working with the owner, architect, MEP consultant, and others on the design team, the engineering staff explores economical ways to minimize a building's impact on the environment and the use of resources — locally sourced and recycled whenever possible—while improving functionality. Site placement, green roofs, water and thermal storage, and high-performance curtain wall also increase inhabitants' quality of life.

>> SUNY Maritime, New York, NY

EMERGENCY RESPONSE

When a hurricane, earthquake, heavy snowstorm, or other natural or human catastrophe causes damage to a building, its owner needs a rapid response. Severud Associates has responded to many such emergencies and is prepared to mobilize teams of experienced engineers on short notice. Once on site, team members assess structural damage, document the conditions, and provide temporary stabilization or interim repair recommendations. Subsequently, engineers perform any necessary analysis and design permanent repairs and restorations.



>> 140 West Street, New York, NY



>> **MSG Rigging, New York, NY**

ENTERTAINMENT RIGGING LOAD REVIEW

Severud Associates provides specialized rigging load review services for entertainment venues, ensuring the safety and performance of complex rigging systems. With extensive experience in iconic venues like Madison Square Garden and the Sphere in Las Vegas, the firm’s engineers meticulously analyze rigging loads, which can range from 100,000 to 500,000 pounds for large-scale productions. Working closely with venue operators and production teams, Severud verifies that each rigging load is properly supported by the venue’s structure, prioritizing the safety of performers and attendees. This rigorous approach enables unforgettable performances in a secure environment, allowing creativity and technical innovation to flourish.

FAÇADE AND PARAPET INSPECTIONS

Severud Associates engineers are experienced in the inspection and evaluation of parapets, including determination of the causes of observed deficiencies, performance of stability analyses, and specifying methods of repair. The staff is fully versed in the requirements of building codes and ordinances, such as Local Law 126 of 2021, and can determine the scope and frequency of observations, issue notifications of results, and prepare and file comprehensive reports.



>> **215 East 68th Street, New York, NY**



>> Mid-Manhattan Library, New York, NY

FEASIBILITY STUDIES

Feasibility studies are useful for complex structures involving multiple components, difficult existing conditions, or critical operations and are important for projects that involve systems that have no prior performance record. Severud Associates' experienced staff uses their extensive knowledge of structural systems, material behavior, and construction techniques to perform preliminary analysis and design of alternate structural systems, assess the advantages and disadvantages of each, anticipate possible issues, and contribute to logistics strategies.

FORENSICS

Determining the causes of structural damage or other undesirable conditions — member failure, water infiltration, corrosion, excessive deflection, for example — often requires careful investigation and deep knowledge about how structural materials behave. The engineering staff at Severud Associates has the expertise and experience to recognize potential sources of trouble. By fully engaging with owners, building personnel, and tenants, engineers can uncover even the most hidden or indirect cause of a problem.



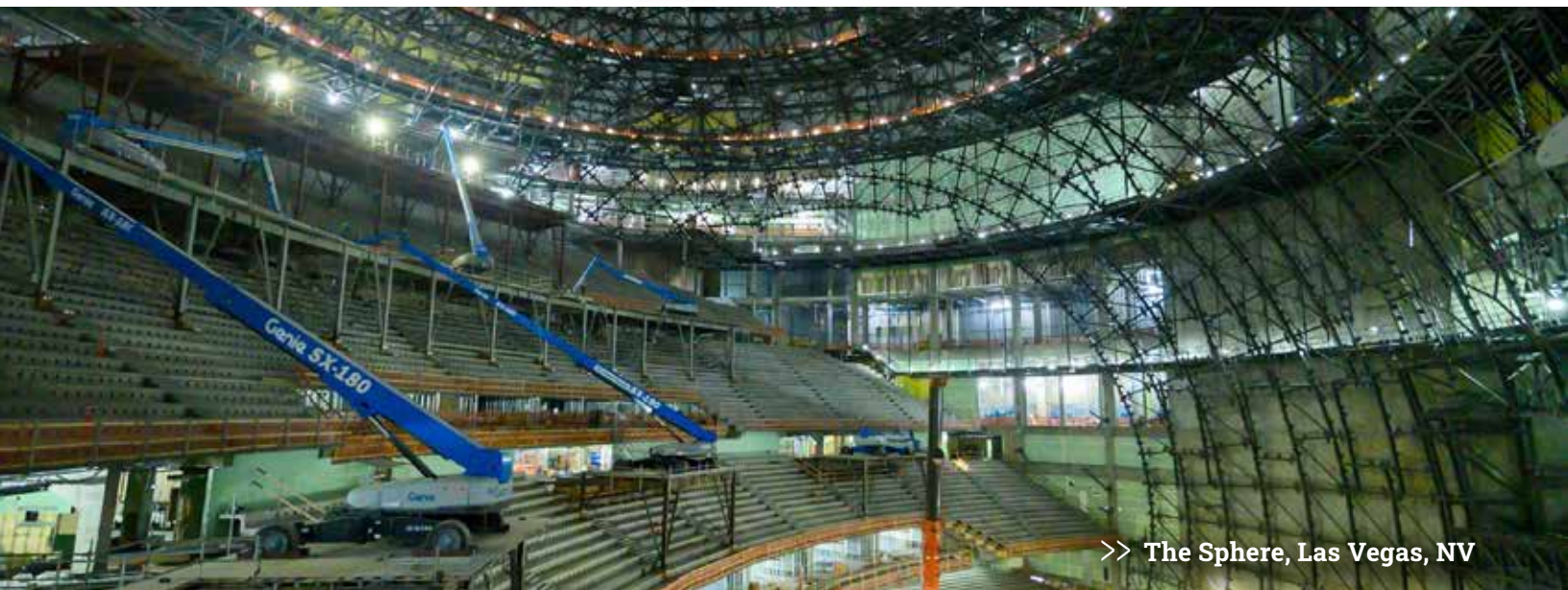
>> Manhattan Municipal Building, New York, NY



>> **Harmon Tower –
Expert Testimony,
Las Vegas, NV**

LITIGATION SUPPORT AND EXPERT TESTIMONY

With an in-house forensics and litigation support team, Severud Associates has extensive and effective experience with the investigation of and expert testimony for design- and construction-related legal cases in arbitration and courtroom settings. The team develops in-situ and lab testing protocols, performs advanced software analysis of computer models, and assesses design and construction documents and as-built structures. The results are included in comprehensive reports used by counsel and in court proceedings.



>> **The Sphere, Las Vegas, NV**

ON-CALL CONSULTING

Our firm can provide on-call structural engineering services to many clients in both the private and public sectors. Real estate developers, government agencies, and building managers are among the many clients who benefit from having experienced engineers and support staff readily available to address multiple alteration, renovation, and repair projects or other structural issues in a timely and expeditious manner. Commercial and retail clients also benefit from efficient production of fit-outs and improvements at branches and franchises.



>> Sphere, Las Vegas, NV

PARAMETRIC ANALYSIS AND OPTIMIZATION

Severud Associates is a leader in parametric analysis and optimization. The firm's in-house parametric and algorithmic design team utilizes highly detailed computer models and sophisticated software that allows them to run millions of structural simulations and optimize structural designs for parameters such as steel tonnage, column layout, and framing configuration, among many others. Whether large or small, projects benefit from efficient distribution of materials, simplified framing, and improved logistics.

PARKING GARAGE INSPECTIONS

Our engineers have the experience and expertise to evaluate parking structures, whether framed in structural steel, cast-in-place, precast, or post-tensioned concrete, or any other structural system. The firm's engineers are fully versed in the requirements of building codes and ordinances, such as New York City Local Law 126 of 2021—with which they have been involved since its inception—including the filing of reports and preparation of maintenance and repair documents. Several staff members are Qualified Parking Structure Inspectors.



>> JFK International Airport, New York, NY



>> Yankee Stadium, New York, NY

PEER REVIEWS

Severud Associates performs reviews of the work done by other structural engineering firms to help ensure that projects conform to the owner's requirements, meet applicable building codes, have clear documentation, and are readily constructible. The staff has the experience and expertise needed to validate basic assumptions, confirm calculations and analyses, and identify potential issues. Engineers can also suggest alternative approaches that may result in a more efficient structural design, decreased costs, and better overall value.



>> Moynihan Train Hall, New York, NY

RESTORATIONS, REPAIRS, AND REHABILITATIONS

Our experienced engineers have analyzed and designed many restorations, repairs, and rehabilitations, often in conjunction with emergency responses, forensic engineering, and condition surveys. The staff's deep knowledge of structural systems — both current and historical — and extensive experience with the causes of damage lead to efficacious structural designs. By engaging a building's owner and operations personnel, engineers can often arrive at solutions that will also facilitate maintenance and improve future performance.

SHADE STRUCTURES

Our engineers can provide comprehensive structural design services for a wide range of shade structures, including louvered, retractable, tension sail, lateral arm, and fixed roof canopies. These designs prioritize both functionality and aesthetics, offering protection from the elements while enhancing the visual appeal of any space. Utilizing advanced engineering techniques and considering factors like wind load and material limitations, Severud ensures the resilience and performance of each structure, even in extreme weather conditions. The firm's expertise extends to customized solutions tailored to the specific needs of each project, guaranteeing safe, durable, and visually appealing shade structures for various applications.



>> **Spice Island Resort Project,
St. Georges, Grenada**



>> **Denver International Airport,
Denver, CO**

TENSION MEMBRANE STRUCTURES

Severud Associates is a recognized leader in the design and engineering of tension membrane structures. The firm has a proven track record of delivering innovative and high-performance tensile fabric projects, including the renowned roof structure at Denver International Airport. Severud's use of advanced computational design, parametric modeling, and non-linear finite element modeling ensure accuracy, precision, and structural reliability. Through collaborations with industry leaders, Severud delivers solutions for a wide range of applications, consistently pushing the boundaries of tensile fabric engineering.

Our firm, our future

Severud Associates is a premier structural engineering firm with a legacy of excellence spanning nearly a century. Known for innovative yet practical solutions and a commitment to pushing the boundaries of structural design, Severud is the engineering force behind some of the world's most iconic and complex structures.

From the Gateway Arch in St. Louis to Sphere in Las Vegas to 270 Park Avenue in New York City, Severud's portfolio showcases a unique blend of creativity, technical expertise, and a deep understanding of architectural vision. Whether working on landmark buildings, cutting-edge contemporary projects, or anything in between, Severud Associates consistently produces engineering solutions that inspire and endure.

Severud Associates delivers individualized structural engineering to every project, regardless of scale or scope. Engineering excellence and engaged client service are top priorities and have earned the trust of many longstanding and repeat clients.

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