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REPRESENTATIVE PROJECTS

Health Care

Additions & Alterations to Bellevue Woman's Center, Niskayuna, New York

Client: Ellis Hospital/ Niskayuna Campus / Dalpos Architects & Integrators

Project Structural Engineer responsible for the planning, design and engineering of a new woman's center addition to the existing hospital consisting of a combination two-story / single story building, including a full basement. This new facility is approximately 15,500 square-feet and replaces the demolished "Mansion" building and will house a new woman's medical care center with patient beds, imaging and diagnostic equipment, nurse's stations, pharmacy, reception, and support staff. The structural framing system utilized moment resisting steel frames to resist lateral loads with a composite concrete, metal deck and steel beam floor framing system and combination steel joists and steel beam roof framing. The single story framing system is designed to accommodate a single story future vertical expansion over the single story portion of the facility to accommodate the future needs of the hospital. The Project also includes modifications and renovations of approximately 15,500 square-feet of the existing hospital, including expansion of the main entrance / lobby and drop off canopies to the hospital. Construction is planned for the fall of 2011.

Northwest Tower Addition & Renovations, Glens Falls, New York

Client: Glens Falls Hospital/MWH (Design Phase Services); Glens Falls Hospital / Francis Cauffman Foley Hoffmann Architects (Construction Phase Services)

Project Structural engineer for a new 6-story addition which will house a new Cardiac-Vascular Center, a new Inpatient Oncology Unit with 25 private rooms, two new 41-bed Inpatient Care units, a new Critical Care Unit, combining Intensive Care and Coronary Care, and a new Surgical Recovery Center for patients recovering from Inpatient and day surgery. Project also

includes a new entry/lobby to service the entire hospital. The structural framing system utilized special moment resisting steel frames and special steel concentrically braced frames to resist lateral loads with a composite concrete, metal deck and steel beam floor framing system and sloping steel roof beams over the mechanical penthouse.

Otsego County Skilled Nursing Facility (Otsego Manor), Cooperstown, New York

Client: Otsego County / MWH (Design Phase Services);

Otsego County / Francis Cauffman Foley Hoffmann Architects (Construction Phase Services)

Project Structural Engineer for the design, engineering and construction of a new 141,000-square-foot, 176-bed two-story Skilled Nursing Facility with living and support service areas. The project featured a "podular" design with each "pod" consisting of three segments of 8 to 11 bed "communities", each with a shared kitchen, lounges and private areas that allow quite times with friends and family. The design allows easy flow from "community" to "community". The structural framing system utilized moment resisting steel frames to resist lateral loads with a composite concrete, metal deck and steel beam floor framing system and gable/pitched steel roof framing. The single story framing system for POD "B" was designed to accommodate a single story future vertical expansion to accommodate the future needs of the county. Construction phase services included review of vendor structural submittals and shop drawings for compliance with structural contract documents; review of all field questions and changes; and routine site visits during construction to review foundation and structural steel installation and progress.

Main Lobby Expansion, Syracuse, New York

Client: SUNY Upstate Medical University Hospital / Francis Cauffman Foley Hoffmann Architects

Responsible for the structural design of a three-story, structural steel framed facility and foundation system for the complete renovation and expansion of the main lobby to the hospital. The project included phased construction to allow uninterrupted access to the hospital; a covered entrance canopy for patient, staff and visitor drop-off and pick-up; a two-story open atrium with a walkway connected to the end of a new

Douglas R. Cahill, PE.

Position: Principal / Structural Engineer

Education:

Bachelor of Science, Civil Engineering, Clarkson College of Technology, 1980

Professional Engineering Registrations:

New York/1985/61675;
Connecticut/1997/20116;
Massachusetts / 2011; New Hampshire / 2011
New Jersey/1991/GE36381;
Pennsylvania/2000/PE-057275-E;
Vermont/1991/6217; Virginia/2002

Professional Experience:

Interactive Engineering Solutions, PC
Minoa, NY / Rome, NY, November 2003 – Present

As Principal and Senior Structural Engineer, Mr. Cahill is responsible for co-management of the Professional Corporation including general management of day to day operations as well as various structural projects; provides internal coordination and communication between the corporation, external consultants and the client; prepares planning and scheduling of various projects; provides quality assurance for structural work.

Mr. Cahill is responsible for the structural design and analysis of both new and existing facilities, including educational, industrial /warehouse, manufacturing, office buildings, health care, and pharmaceutical using state of the art technology.

MWH (formerly Harza Engineering),
Utica, NY, October 1984 – November 2003

As Manager of the Structural discipline, Mr. Cahill was responsible for general administration and management of day to day operations of the Structural department staff and projects; provided internal coordination and communication between the structural section and other disciplines; provided quality assurance for structural work.

As Project Manager, Mr. Cahill was responsible for proper and complete communication with clients to assure thorough understanding of client's requirements, objectives and project scope. Reviewed Project details with project team and subconsultants as required to provide a thorough understanding of the project scope, design approach, schedule of deliverables and budget requirements.

Technical responsibilities included structural design and analysis of steel, concrete, wood and masonry structures for a variety of facilities including health care, pharmaceutical, educational, industrial / warehouses, office buildings, commercial, and water resource / hydroelectric power project structures. Provided team leadership for all aspects of structural projects including supervisory work of other engineers.

Acres American, Inc., Consulting Engineers
Buffalo, NY, July 1980 – October 1984

Junior Civil / Structural Engineer & Civil / Structural Design Engineer.

bridge and parking garage designed by others and constructed concurrently with the Lobby Expansion project and a new mechanical room on the third floor. To accommodate the poor existing soil conditions, the new facility was supported on a foundation system consisting of structural grade beams and deep drilled piers.

Upgrade Emergency Power, Phase 2 – Penthouse Expansion, Syracuse, New York

Client: SUNY Upstate Medical
University Hospital / ME
Engineering

Responsible for the structural design of a single-story, structural steel framed high bay expansion of the existing penthouse located above the maintenance garage of the existing facility. The project included analysis of the existing facility roof framing and design of the associated reinforcement necessary to support the anticipated loads of the expanded space and new equipment.

Hutchings Psychiatric Center – Reconfiguration and Modifications of Buildings 1, 2, 8, 15 & 17, Syracuse, New York

Client: Dormitory Authority, State of
New York (DASNY) / Francis
Cauffman Foley Hoffmann Architects

Pre-Schematic structural design phase services associated with the reconfiguration and modifications of Buildings 1, 2, 8, 15 and 17. Scope of services included a comparative analysis of a previously prepared programming plans prepared in 1999 with that of the current needs of the staff and management, including evaluation of the “basis” of previously proposed removals of structural load bearing masonry wall removals; review and update the construction cost estimate to reflect current programming requirements and code revisions; and prepared recommendations based on “value engineering” reviews of the team.

Hutchings Psychiatric Center – Reconstruction of Building 7 and Repair of Building 2, Syracuse, New York

Client: Dormitory Authority, State of
New York (DASNY) / Francis
Cauffman Foley Hoffmann Architects

Based on the results of Pre-Schematic structural design phase services associated with the reconfiguration and modifications of Buildings 1, 2, 8, 15 and 17, scope of services included the following: Building 2 included an existing building condition survey of the structural elements; analysis and design of repairs and modifications as require to support the revised programming such that the facility would be retained as “swing space” during the reconfiguration of the overall complex. These repairs and modifications included elements in support of revisions required for MEP modifications. Building 7 reconstruction included implementation of recommendations from the previous study, including the design and construction of an in-fill addition.

Patriot Meadows Retirement Resort, Rome, New York

Client: The Arnold Group (AGi)

Project Structural Engineer for the design and engineering a proposed new adult care facility consisting of a center hub “Commons Building” with four (4) multi-story “Multi-Resident Buildings” attached to the Commons Building. Separate from the main complex is a small neighborhood style complex of 19- two-level townhouse duplexes referred to as the “Roman Villas”. The “Commons Building” provides the required support and living amenities for the entire complex and residents with an overall building foot print of approximately 105,000 square feet on two levels, with the ground floor consisting of approximately 75,000 square feet and the second floor consisting of approximately 30,000 square feet. The structural framing system for the two-story “Commons Building” utilized moment resisting steel frames with a composite concrete, metal deck and steel beam floor framing system and steel roof joists. Each of the four “Multi-Resident Buildings” are four-story steel framed structures above grade with subterranean parking and basement located below grade. Each complex consists of approximately 12,800 square feet of apartment area per floor and an open high bay “Court Yard Atrium” with an approximate foot print of 8,150 square feet and are four stories in height. The first floor framing for the multi-resident buildings consists of cast-in-place

concrete waffle slab construction supported by cast-in-place concrete foundation walls and a combination of continuous strip and spread footings. The superstructure above the first floor utilized moment resisting steel frames with a composite concrete, metal deck and steel beam floor framing system and steel beams roof construction. Each of the “Roman Villas” are approximately 1350 square feet on the first floor or ground level and approximately 250 square feet on the second or upper levels and consisted of residential style wood framed construction.

Diagnostic Imaging Addition and Renovation, Lowville, New York

Client: Lewis County General
Hospital/ Francis Cauffman Foley
Hoffmann Architects

Project Structural Engineer for the design and engineering of a 2,200-sq. ft. addition and existing building renovation to the Diagnostic Imaging Department.

Addition to Emergency Department, Lowville, NY

Client: Lewis County General
Hospital/ Francis Cauffman Foley
Hoffmann Architects

Project Structural Engineer for the design and engineering of the addition and renovation to the Emergency Department. The project included a new entrance lobby and a covered canopy.

Elevated Chiller Room Addition, Watertown, NY

Client: Samaritan Medical Center /
Utility Services Group, Inc

Project Structural Engineer for the final design, engineering and construction of a 1,300-sq. ft. elevated Chiller Room addition to the existing Medical Center. Project featured design and construction of a complex spread footing foundation system between two existing buildings with extremely tight space constraints to accommodate the extremely congested existing underground site utilities that were required to remain in operation during construction.

Assisted Living Facility, Albany, New York

Client: First Columbia Development Corporation

Performed a quality assurance review of the structural design calculations and contract documents for construction of a new 60-bed, 41,000-square-foot, Assisted Living Facility. This included residence rooms, lounges, chapel, conference rooms, and a nurses' station with associated support spaces.

Office and Facility Expansion, Oneonta, New York

Client: Upstate Homes for Children and Adults

Project Structural Engineer for the design, engineering and construction of two new building additions and included total renovation of the existing facility. The structural framing system utilizes hollow core precast concrete roof and floor plank and exterior load bearing masonry walls.

Millennium Assisted Living Community, Freehold, NJ

Client: Dorothy & Martin Prager Developer

Responsible for the structural design and preparation of contract documents for the construction of a new 120-bed, Assisted Living Community Facility. This included residence rooms, lounges, chapel, conference rooms, and a nurses' station with associated support spaces.

Gamma Knife Building Addition and Alterations, Syracuse, New York

Client: SUNY Upstate Medical Center

Structural design of a single-story, reinforced concrete structure and foundation system to meet the radiation shielding and heavy floor loading requirements for the installation of a Gamma Knife Unit. The floor system was designed to support the installation of the Gamma unit weighing approximately 25 tons and a mobile service unit also weighing approximately 25 tons. To accommodate the poor existing soil conditions, the new facility was supported on a foundation system consisting of a thick, heavily-reinforced structural slab, supported on-grade beams, and deep drilled piers.

Mental Health Unit Addition, New Hartford, New York

Client: St. Luke's Memorial Hospital Center

Structural design and engineering for a new 27,000-sq.ft., two-story mental health unit addition. The foundation and steel framed, composite deck structural framing system was designed to accommodate a future 2-story overbuild addition.

Pharmaceutical

Building 430 Renovation Project, East Hanover, NJ

Client: Novartis (Sandoz) Pharmaceuticals Corporation / FCL Management, Inc.

Structural design, engineering and analysis of miscellaneous structural elements of the existing structural framing associated with the renovation of the existing 3-story, 100,000-sq.ft., facility. Scope of services included structural review of the existing cast-in-place reinforced concrete one-way joists, slab and beam framing system to determine if the existing structural members had adequate load carrying capacity to accommodate the installation of two air chilled chillers on the roof of the existing building and installation of a relocated moving lateral file system and recommend remedial action as required; review of the structural steel penthouse roof framing and design supplemental support framing for the installation of new hung mechanical ductwork and piping; and design of structural support framing for the installation of a "Coffee Bar" Canopy cantilevered off of the existing Atrium stair case landing.

Quality Assurance and Compliance Laboratory (Building 430) East Hanover, New Jersey

Client: Novartis (Sandoz) Pharmaceuticals Corporation

Structural design and engineering for a new, 3-story, 100,000-sq.ft., quality assurance and compliance laboratory. The cast-in-place reinforced concrete one-way joist, slab and beam framing system was engineered to accommodate specific requirements of vibration sensitive laboratory equipment. Involvement included routine site visits during construction to inspect reinforcing steel and concrete placement.

Chemical R&D Laboratory Facility (Building 423), East Hanover, New Jersey

Client: Sandoz Pharmaceuticals Corporation

Prepared Structural Design Development Documents for a proposed new, 3-story, 106,200-sq.ft. facility clad with precast concrete panels, metal panel and glass. The proposed facility will house Process R&D, Technology, Safety, Isotope, Analytical, and Peptide Labs. The structural steel framing and composite floor system was engineered to accommodate specific requirements of vibration sensitive laboratory equipment. Special features of the facility include design of damage limiting construction to resist potential blasts in areas of chemical storage. The project also included the design of a pedestrian bridge connecting the new facility with an adjacent existing facility.

Prep Plant Facility (Building 424), East Hanover, NJ

Client: Sandoz Pharmaceuticals Corporation

Prepared Structural Design Development Documents for a proposed new, two and one-half story, 28,600-sq.ft. facility clad with precast concrete panels, metal panel, and glass. The proposed facility will house Prep Plant functions and Prep Labs. The structural steel framed and composite floor system was engineered to accommodate specific requirements of vibration sensitive laboratory equipment. Special features of the facility included the design damage limiting construction to resist potential blasts in areas of chemical storage.

Site Potable Water VOC/Hardness Treatment System, Additions to Buildings 710 and 718A, East Hanover, NJ

Client: Sandoz Pharmaceuticals Corporation

Structural design and engineering for two additions, one to the existing boiler house, Building 710, and one to the existing pH Adjustment Facility, Building 718A. The addition to building 710 was a 7,500 sq-ft., single story, 23 feet high steel framed structure with 6-removable roof hatches designed to accommodate the installation and removal of 10' and 12' diameter process tanks. The foundation system utilized a combination of spread footings and retaining walls to accommodate the existing

site constraints. A special feature of the project included the design of a 79,000 gallon, 8.5 feet deep, underground cast-in-place concrete clearwell used for storage of finished treated water. The foundation system required careful coordination with existing water service utilities which remained in place and operational during construction of the facility. The addition to building 718A was a 2,700 sq-ft., single story, 23 feet high steel framed structure with 5-removable roof hatches designed to accommodate the installation and removal of 12' and 14' diameter process tanks. The layout of the structure utilized a 12 feet deep containment area occupying 90 percent of the buildings footprint to accommodate the requirement to contain the volume of ruptured tanks. The foundation design consisted of a combination of retaining walls and structural mat foundation to support the process tanks and exterior grades. Also, since the depth footing in the addition were greater than those in the adjacent existing facility, it was necessary to underpin the existing foundation system.

Automated Storage/Retrieval System (AS/RS) Facility, , East Hanover, New Jersey

Client: Novartis (Sandoz) Pharmaceuticals Corporation

Structural engineer for the expansion to their automated/retrieval system (AS/RS). Performed the structural design of a reinforced concrete mat foundation for an 8,000 pallet, high rise automated rack storage building. Work also included the design of a new 12,000-sq.ft. low bay, steel framed, automated warehouse building as well as modifications to the 40,000-sq.ft. existing facility.

Building 401 East Warehouse Renovation, East Hanover, New Jersey

Client: Novartis (Sandoz) Pharmaceuticals Corporation

Structural Engineer for the Building 401 East Warehouse renovation to comply with CGMP guidelines, Sandoz Guideline 28 requirements, and New Jersey Uniform Construction Codes. The project is comprised of erection of concrete fire-resistant block walls enclosing the entire warehouse area, relocation, and expansion of existing pallet racking, and complete heating, ventilating, and air conditioning, fire protection, and security engineering. Compartmentalization was provided to house different categories of sensitive packaging and new goods storage, as well as isolated sampling rooms.

Quality Control Laboratory, Building U-22, Union, NJ

Client: Schering-Plough Corporation

Structural design and engineering for a new, 2-story, 63,000-sq.ft. facility. The structural steel framing and composite floor system was engineered to accommodate specific requirements of vibration sensitive laboratory equipment. The project consisted of an accelerated schedule with the issue of early foundation contract documents eight weeks after receipt of authorization to proceed and issue of structural steel documents four weeks later. The project also included the design of a utility pipe bridge connecting the existing pipe bridge to the new facility.

Solvent Storage Building Addition, Building 64 – Phase 2, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble Pharmaceuticals

Structural design of a new single story, steel-framed, 2,400-square-foot addition on the north side of existing solvent storage building 64.

Foundation Pad for Temporary Oil Tank & Containment Dike, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble Pharmaceuticals

Structural design and preparation of contract documents for a new foundation pad to support a temporary Oil Tank & Containment Dike.

Building 56 Steam Pipe Replacement - Pipe Bridge Addition & Modifications, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble Pharmaceuticals / ME Engineering

Structural design of the structural steel framing for approximately 130 linear feet of renovated and new elevated pipe bridge for the replacement steam piping to Existing Building 56. Involvement included review of construction phase submittals and coordination of field conditions.

Chilled Water System Upgrades – Phase 2, Pipe Bridge Foundations & Structural Steel, Building 206 to Building 46, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble Pharmaceuticals

Structural design of the structural steel framing and foundations for approximately 350 linear feet of new elevated pipe bridge connecting the utilities between existing building 206 and existing building 46. Involvement included review of construction phase shop drawings, submittals and coordination of field conditions.

Chilled Water System Upgrade, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble Pharmaceuticals

Structural design of a new single story, steel-framed, 6,400-square-foot chiller plant facility. Work also included the structural design of a new elevated pipe bridge connecting the new chiller plant facility and existing building 42.

Tie-off Beam Design, High Rise Warehouse Building, North Norwich Plant, North Norwich, New York

Client: Procter & Gamble Pharmaceuticals

Structural analysis of the existing roof framing to support the additional concentrated loads imposed on the roof framing from the installation of new tie-off beams at the various existing upper platforms used to service the existing mechanical equipment.

Building 42 – AC-22 Renovations, Woods Corners Facility, Norwich, New York

Client: Procter & Gamble
Pharmaceuticals

Structural analysis of existing building 42 floor and roof framing to determine the impact of adding a new mechanical equipment and / or a penthouse above the existing roof to house new mechanical equipment.

Cooling Tower Replacement, Franklin Lakes, New Jersey

Client: Merck-Medco Managed
Care, L.L.C.

Structural design and preparation of contract documents for a new structural steel frame to support the installation of a new elevated cooling tower.

Boiler Replacement, Franklin Lakes, New Jersey

Client: Merck-Medco Managed
Care, L.L.C.

Analysis of the existing roof framing over the existing boiler room to determine the structural capacity of the existing framing to support the additional loads imposed on the roof framing from the installation of new roof mounted mechanical equipment. The work included the structural design and preparation of contract documents of the required structural steel roof reinforcement based on the results of the results of the structural analysis

Educational

Carthage Central School – Middle School / High School Additions & Alterations, Carthage, New York

Client: Carthage Central School
District / MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with new additions and alterations to the large existing Middle School / High School complex. The work at the middle school featured the construction of a new 1 ½ story classroom addition and an expanded gymnasium, including renovated fitness center and new Physical Education area.

The work at the high school included the addition of a new 2-story science wing and a new 6-lane pool and support facilities to replace the outdated existing four lane pool. The structural framing system for both the middle school and high school additions included a combination of moment resisting steel frames with a composite concrete, metal deck and steel beam floor framing system, sloping steel roof joists and beams roof framing and non-load bearing concrete masonry / brick veneer exterior shell.

Ridge Mills Elementary School, Alterations, Rome, NY

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of alterations, reconstruction and renovations of an existing 27,000 square-foot, single story facility originally designed and constructed in 1956, with additions in 1957 and 1962. The existing structural framing system consists of a combination of steel joists, steel beams, steel columns and masonry load bearing walls. The Project featured complete removal of the existing gypsum roof deck and replacement with a new steel deck system, structural reinforcement and upgrades to the existing roof framing systems to increase the vertical load carrying capacity of the framing systems to meet the requirements of the State and Local building code and installation of new rooftop mechanical equipment. The implementation of these upgrades were a result of a previous structural analysis and investigation performed by IESolutions to determine the load carrying capacity of the existing roof framing system

Bellamy Elementary School, Additions & Alterations, Rome, NY

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of additions, alterations, reconstruction and renovations of an existing 43,000 square-foot, single story facility originally designed and constructed in the late 1950's, with additions in the late 1980's and early 1990's. The existing structural framing system consists of a combination of steel joists, steel beams, steel columns and masonry load bearing walls. The Project featured structural reinforcement and upgrades to the existing roof framing systems to increase the vertical load carrying capacity of the framing systems to meet the

requirements of the State and Local building code. The implementation of these upgrades were a result of a previous structural analysis and investigation performed by IESolutions to determine the load carrying capacity of the existing roof framing system.

To meet the long range needs of the District, the Project also featured the construction of two separate classroom additions, one located on the West and East ends of the existing classroom wing (each having an approximate footprint of 5,000 and 6,200 square-feet respectively) and the demolition of a portion of the existing building to accommodate the reconstruction to include an enlarged cafeteria / kitchen / administrative area with an approximate footprint of 9,000 square-feet.

Rome Free Academy High School, Rome, New York

Client: Rome City School District

Project Structural Engineer for the design, engineering and construction of the new \$45 million, 324,000-square-foot, High School with a grade configuration of 9 through 12 constructed at the Griffiss Business and Technology Park site. The new facility features an Olympic sized swimming pool with spectator seating; an 18,000-square-foot main gymnasium and 6,200-square-foot auxiliary gymnasium with 120-foot clear span steel roof trusses and an elevated running track; locker rooms and weight training rooms; a 13,000-square-foot auditorium with 112-foot clear span steel roof trusses with seating for 1000; classrooms, music, art, technology, offices and other support areas. The structural framing system for the two, 2-story classroom wings utilized moment resisting steel frames with a composite concrete, metal deck and steel beam floor framing system, sloping steel roof joists supporting a pitched standing seam metal roof system and a metal stud / brick veneer exterior shell. The structural framing system for the remaining portions of the facility utilized a combination of load bearing masonry walls, steel floor framing beams with composite concrete, metal deck and steel beam floor framing system and steel roof joists. The project also incorporated the complete renovation and conversion of the existing base chapel into a facility which houses the cafeteria, kitchen, and art classrooms and required a complete structural evaluation and reinforcement of the existing roof framing to increase the load carrying capacity of the existing roof framing system to conform with current snow loading requirements.

Stokes Elementary School Alterations, Rome, New York

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of structural reinforcement and upgrades to the existing roof framing systems to increase the vertical load carrying capacity of the framing systems to meet the requirements of the State and Local building code. The implemented reinforcement was a result of IESolutions' previous structural analysis and investigation of the existing roof framing to determine the roof's existing load carrying capacity. The project also included several localized modifications and additions to the facility to meet the long range needs of the District. The structural framing system for the original 39,500 square-foot, single story facility consists of a combination of steel joists, steel beams, steel columns and masonry load bearing walls designed and constructed in the late 1950's, with additions ranging from the 1960's to the mid 1990's.

Elementary School's Roof Evaluations and Investigations, Rome, NY

Client: Rome City School District /
MARCH Associates

Performed existing building surveys and structural analysis for four (4) of the District's Elementary schools to determine the load carrying capacity of the existing roof framing for each facility. Work included "short term" and "long term" recommendations for remedial repair. The original schools were designed and constructed in the mid to late 1950's with additions ranging from the 1960's to the mid 1990's. These evaluations lead to remedial structural repairs, additions & alterations at two of the buildings investigated. Refer to separate Project descriptions for Stokes Elementary School and Bellamy Elementary School.

Staley Upper Elementary School Reconstruction – Systems Upgrades at Kitchen, Rome, New York

Client: Rome City School District /
MARCH Associates

Performed a structural analysis and investigation of the existing roof framing to determine the existing load carrying capacity to support the installation of new roof mounted mechanical equipment for

the upgrade of mechanical systems for the renovated kitchen. The project also included the design and construction of new support foundations and structural slab system for the installation of a new exterior freezer at the existing loading dock. Project included design of remedial repair as required to comply with the current building code. The original school was designed and constructed in the mid to late 1950's.

Staley Middle School Roof Evaluations & Investigations, Rome, New York

Client: Rome City School District /
McDonald & Monterose Architects

Performed a structural analysis and investigation of the existing roof framing to determine the existing load carrying capacity. Project included design of remedial repair as required to comply with the current building code. The original school was designed and constructed in the mid to late 1950's.

Denti Elementary School, Ventilation Upgrades, Rome, NY

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the interior modifications and alterations to the existing facility, including provisions for support framing / elevated platform to support new roof top mechanical equipment.

Strough Middle School, Renovations, Rome, NY

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the interior modifications and alterations to the existing facility, including provisions for support framing to support new roof top mechanical equipment.

Alterations to the Former Clough Elementary School, Rome, New York

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the interior modifications and alterations to the existing facility for conversion to the District's Administrative facility and support for the Pre-K program.

Alterations to the Former Clough Elementary School, Phase 2, Rome, New York

Client: Rome City School District /
MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the Phase 2 interior modifications and alterations to the existing facility. Structural modifications included supplemental framing for support of rooftop mechanical equipment and replacement of deficient existing exterior lintels.

High School Renovations, Rome, New York

Client: Rome City School District

Structural Engineer for renovations to existing high school which include window replacement, upgrade of existing electrical distribution system, conversion of offices to classroom space, and renovation of classroom area to administrative suite.

St. Lawrence-Lewis BOCES, Administrative Building, Reconstruction, Canton, NY

Client: St. Lawrence-Lewis BOCES
/ MARCH Associates

Project Structural Engineer for the design, engineering and reconstruction of the structural components associated with converting the former Nursing Home to an administrative facility. Performed a structural analysis and investigation of the existing roof framing to determine the existing load carrying capacity. Project included design of remedial repair as required to comply with the current building code, including provisions for support framing to support new roof top mechanical equipment. The original facility was designed and constructed in 1972 - 1973.

DeRuyter Central School District, Capital Project, DeRuyter, NY

Client: DeRuyter Central School
District / MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the interior modifications and alterations to the existing facility Main Building and Annex Building, including provisions for support framing to support new roof top mechanical equipment and new roof openings.

Indian River High School – Additions & Alterations, Philadelphia, NY

Client: Indian River Central School
District / MARCH Associates

Project Structural Engineer for the design, engineering and construction of additions and alterations to the existing Indian River High School located at the Central School District High School and Middle School Complex. The Project included the design and construction of a two-story, steel framed, classroom addition with an overall height to match that of the adjacent existing two-story existing structure; selective demolition of a small portion of the existing building to make way for construction of a new two-story, large classroom instruction addition; and the design and construction of a single-story, steel framed addition in an interior existing courtyard with program space consisting of a connecting corridor, offices and new toilets. The combined footprint of the collective proposed additions was approximately 22,000 square feet.

Indian River Calcium Primary Elementary School – Additions & Alterations, Calcium, NY

Client: Indian River Central School
District / MARCH Associates

Project Structural Engineer for the design, engineering and construction of the additions and alterations to the Indian River Primary Elementary School at Calcium, NY. The Project consisted of three, single-story, class room additions connected to each other and the exiting single story building with connecting links. The combined footprint of the additions and connecting links are approximately 26,000 square feet. The height of the new structural steel roof framing system matches that of the adjacent

existing facility. The exterior walls are non-load bearing cavity walls constructed of brick and CMU.

2007 Capital Improvement Projects – Senior High School North / Middle School / Intermediate School, Horseheads, NY

Client: Horseheads Central School
District / McDonald & Monterose
Architects

Project Structural Engineer for the design, engineering and construction of the structural components associated with the renovations and modifications to the auditorium / stage house, adjacent music areas and the installation of a new roof mounted pool dehumidification system at the Senior High School and installation of new roof mounted mechanical equipment at the gym of the Middle / Intermediate School. The overall scope of the project at the High school included removal of the existing roof framing over the existing auditorium stage and adjacent music areas to allow for vertical increase in the height of the stage house and to accommodate the addition of a two story mechanical room / storage room immediately behind the existing stage. The project also included overbuild areas above the existing low roofs to accommodate the installation of new roof mounted mechanical equipment and to upgrade the vertical load carrying capacity of the existing roof framing systems to meet the requirements of the State and local building code of these areas. The structural framing system consisted of a combination of steel joists, steel beams, steel columns and masonry load bearing walls.

Hamilton College – Margaret Bundy Scott Field House Canopies, Clinton, NY

Client: Hamilton College /
McDonald & Monterose Architects

Project Structural Engineer for the design and engineering of the structural components associated with the construction of two new entrance canopies for the exiting field house. The scope of the project included protection of the entrances from sliding and drifting snow conditions resulting from the current configuration of the existing facility and surrounding structures. The structural framing system consisted of a combination of steel beams, steel columns and hollow core pre-cast concrete roof plank and steel roof deck.

Neubig Hall Dining Room Alterations & Stair Tower Addition, SUNY at Cortland, Cortland, New York

Client: Auxiliary Services Corp /
New York State University
Construction Fund / MARCH
Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the addition of a new stair tower, new roof top mechanical equipment support framing / elevated platform and interior alterations and renovations in support of the complete upgrade of all food services for Neubig Dinning Hall. The interior alterations and renovations featured removal of two major masonry bearing walls to provide an expanded and open serving and dining area within the upgraded areas.

Donavan Hall – Reconstruction of Main Entrance Canopy, SUNY College of Tech. at Utica/Rome, Marcy, NY

Client: New York State University
Construction Fund / MARCH
Associates

Project structural engineer for the reconstruction of the main entrance canopy roof framing and support foundations following the collapse of the existing structure resulting from unforeseen unstable existing soils condition following the repair of an underground waterline break.

Health, Physical Education, and Recreation Facility, SUNY College of Tech. at Utica/Rome, Marcy, New York

Client: New York State University
Construction Fund

Structural design of a new 85,000-sq.ft. steel framed, composite deck, health, physical education, and recreation facility including a gymnasium, pool, activities room, and dining facility. The work included design of 100-ft. and 80-ft. steel trusses.

Technology/ Science Building, SUNY College of Tech. at Utica/Rome, Marcy, New York

Client: New York State University Construction Fund

Structural design of a new 120,000-sq.ft., two story steel framed and composite deck technology/ science building.

New Center for Science and Industry Competitiveness (CSIC) Building, Plattsburgh, New York

Client: Clinton Community College

Structural design and engineering for a new three-story, 65,000-square-foot CSIC Building. The building includes science and technology laboratories, classrooms, a 150-seat tiered lecture hall with stage, a 5,600-square-foot general purpose hall, maintenance shops, and offices. Structural design of roof beams and joists, composite floor beams, and building columns was performed using an automated computer design program.

Wilson Laboratory G-Line Facility, Ithaca, New York

Client: Cornell University

Project Structural Engineer for the design, engineering and construction of a new 3,000-square-foot, partially buried, facility built into the side of an existing hill that connects to the side of the existing underground synchrotron tunnel. The new Wilson Laboratory G-Line Facility is part of Cornell University's High-Energy Synchrotron Source (CHESS) facilities. CHESS is a laboratory organization that provides state-of-the-art synchrotron radiation facilities for research in Physics, Chemistry, Biology, and Environmental and Materials Sciences. The construction featured extensive use of an H-pile and lagging shoring system to allow excavation into the side of the existing hill to unearth the existing tunnel and allow for construction of the new facility. The structural framing system utilized cast-in-place reinforced concrete exterior retaining walls, hollow core precast concrete roof plank, interior steel columns and roof beams and exterior non-load bearing in-fill masonry walls. The project also featured the design and construction of a 140-foot long buried connecting link between the new facility and the existing Wilson Laboratory building.

Library / Classroom, Utica, New York

Client: Munson Williams Proctor Institute

Project Manager and Project Structural Engineer for the design, engineering and construction of a new 10,000-square-foot two-story facility with a full basement. The design of the structural steel roof beams, composite floor beams and building columns was performed utilizing an automated computer design program.

Student Center, Utica, New York

Client: Munson Williams Proctor Institute

Project Manager and Project Structural Engineer for the design, engineering and construction of a new 7,000-square-foot, single story facility with a full basement. The design of the structural steel roof beams, composite floor beams and building columns was performed utilizing an automated computer design program.

New School of Art / Classroom Building, Utica, New York

Client: Munson-Williams-Proctor Institute

Structural design and engineering for a 15,000-square-foot storage and office building that supports the Institute's museum and school of art programs. The design of the structural steel roof beams, composite floor beams and building columns was performed utilizing an automated computer design program.

Museum Expansion Project, Utica, New York

Client: Munson-Williams-Proctor Institute

Structural design and engineering for a 16,500 square foot museum expansion project. The project includes a 10,000 square foot reinforced concrete underground art storage facility, offices, conference rooms and a glass-enclosed pedestrian connection between the Museum of Art and the historic Fountain Elms building. The structural system consisted of a cast-in-place reinforced concrete waffle slab system for the underground storage facility and a cast-in-place reinforced concrete flat plate and beam system for the above grade framing. The design was performed utilizing computer concrete design methods.

Walker Laboratory Rehabilitation, Troy, NY

Client: Rensselaer Polytechnic Institute

Structural design and engineering for the rehabilitation of the historic Walker Laboratory building into a state-of-the-art chemistry laboratory. The project included design of structural steel framing and reinforced concrete mat foundations for two new three-story tower additions as well as miscellaneous structural modifications to the existing building's interior floor framing to accommodate interior renovations.

K-12 School Facility Addition and Alterations, Jefferson, New York

Client: Jefferson Central School District

Structural design and engineering for the additions and alterations to an existing K-12 grade school building. The work included a steel framed gym and classroom addition, as well as structural modifications to the existing structure to accommodate the conversion of the existing building's low roofs to second floor classroom space. The new addition included provisions for future upward expansion.

PE Building Addition, Utica, New York

Client: Utica College

Structural design of a 7700-sq.ft. steel framed addition to the existing physical education center for new racquetball courts and exercise room.

New 800-Student K-12 Grade School, Cherry Valley, New York

Client: Cherry Valley-Springfield Central School District

Structural design and engineering of a new 2-story steel framed, \$9 million, 800 student, K-12 grade school.

High School & Elementary School Additions, Hamilton, New York

Client: Hamilton Central School District

Structural design of a 15,300-sq.ft., 2-story steel framed addition to the high school wing and a 3200-sq.ft. single story steel

framed addition to the elementary wing of the existing K-12 school.

Alterations and Additions to Existing K-12 School Building, Stamford, New York

Client: Stamford Central School District

Structural design of a 25,000-sq.ft. two story, steel framed addition for a new classroom and gymnasium wing on the North end of the existing K-12 grade building and a 4700- sq. ft. single story steel framed addition on the South end of the existing building. Worked also included structural reinforcement of areas of the existing floor framing system to accommodate an increased floor live load due to a change in area usage. The new two-station gymnasium with support facilities, art/technology addition, and 14 classroom addition are compatible with the existing 1936 art deco facility.

Elementary School Addition & High School Science Addition, Carthage, New York

Client: Carthage Central School District

Performed quality assurance review of another engineers structural design calculations and contract documents for a single story, steel framed elementary school addition and a two-story, steel framed high school addition.

Watson-Williams Elementary School, Utica, New York

Client: Utica City School District

Performed quality assurance review of another engineers structural design calculations and contract documents for a new 58,000-sq.ft. two-story, steel framed building consisting of 3-on-12 pitched roofs. Involvement included preparation of structural details for the project.

James H. Donovan Jr. High School, Utica, New York

Client: Utica City School District

Performed quality assurance review of two other engineers structural design calculations and contract documents for a new 149,000-sq.ft. combination one-story and two-story, steel framed building consisting of 3-on-12 pitched roofs. The project included a gymnasium, auditorium, dining, media center and classroom wings. Portions of the one- story sections were

designed to accommodate future over build expansion.

Gidney Avenue Memorial School, Newburgh, New York

Client: Newburgh City School District

Performed quality assurance review of another engineers structural design calculations and contract documents for a new 18,000-sq.ft., one-story, steel framed building consisting of 3-on-12 pitched roofs.

J. Watson Bailey Jr. High School Additions and Alterations, Kingston, NY

Client: Kingston City School District

Performed quality assurance review of another engineers structural design calculations and contract documents for a 6,500-sq.ft., 2-story, steel framed addition and a 20,300-sq.ft., 2-story, steel framed addition.

Roof Evaluation and Investigation, Booneville, New York

Client: Adirondack Central School District

Performed a structural investigation of the existing roof structure over the existing pool and recommended remedial repairs.

Industrial / Warehouse / Manufacturing

Building 184 – Existing Building Condition Survey, Groton, Connecticut

Client: M/E Engineering, PC / Electric Boat Corporation, A General Dynamics Company

Project structural engineer for the field investigations, structural evaluation and assessment of existing Building 184 to determine if the existing building superstructure (structure above the foundation level) was generally structurally sound and if the framing had adequate load carrying capacity to support the currently imposed dead loads, the code prescribed live loads and the code prescribed lateral loads. The loads used in the evaluation were

based on those obtained from the applicable building code(s), existing documents and the facility's overall intended use. The scope of our assessment was limited to a general review and overall evaluation of the existing structural framing members above grade (second floor beams, third floor beams, roof beams, columns and bracing) to determine the basic structural parameters of the overall system and their ability to perform as intended for the remainder of it's life expectancy. The scope of work included the preparation of an "Opinion of Probable Construction Cost Estimate" for based on the recommendations for rehabilitation.

Building 260 – Floor Trench Reinforcement – Groton, Connecticut

Client: Electric Boat Corporation, A General Dynamics Company

Client: Electric Boat Corporation, A General Dynamics Company

Project manager and structural engineer responsible for the structural design of the structural reinforcement and floor trench modifications in an existing reinforced concrete structural slab located in Bay 5 of Building 260. The reinforced trench was designed to support the moving loads from the MIP/SHT enclosure and the Reactor Compartment Enclosure (RCE). Scope of services included review of structural steel shop drawings and contractor submittals during construction.

Moveable Mold in Place (MIP) Enclosure – Conceptual Design, Groton, Connecticut

Client: Electric Boat Corporation, A General Dynamics Company

Client: Electric Boat Corporation, A General Dynamics Company

Project manager and lead structural engineer responsible for the development of conceptual design of major structural framing members, platform framing for a stand-alone moveable enclosure. Tasks included review of local and state building codes to determine compliance with design forces associated with wind, earthquake, and snow loads. MWH provided conceptual and programming services for a versatile facility in support of improved production efficiencies associated with the special hull treatment (SHT), mold-in-place (MIP) process for General Dynamics' Virginia Class submarine program. The focus of this project was to develop a land based, moveable, enclosure that will provide the proper environment for the MIP process and will allow for application of the SHT in

consort with final assembly of the submarine. Key elements of the conceptual design involved the following:

- 219,000 cubic foot, fully mobile enclosure with integral staging to provide full access to all areas of the exterior hull surface.
- Integral spaces for all support functions such as mold manufacturing, parts and tools cribs, and segregated processing equipment areas to minimize set-up time.
- Plug-and-play utility connections to allow for ease of enclosure set-up and movement.
- Specialized HVAC systems to support environmentally sensitive processes.
- Suitable for use as a blast cleaning room, painting enclosure, and SHT application enclosure.
- Minimum 60-foot long work zone to accommodate required work force and proposed production schedule.
- Maximum 54-foot width to fit within confines of existing final assembly building and not interfere with assembly operations in adjacent manufacturing bays.
- The enclosure shall be capable of passing over the entire length of the boat without interference by the tail fins, conning tower, or temporary support structures.

New Attack Submarine Test and Assembly Facility, Groton, Connecticut

Client: Electric Boat Corporation, A General Dynamics Company

Structural design and engineering of a new 63,000-square-foot facility at an existing industrial site. Structurally, the facility consisted of two separate design features. The three-story "Lab/Support Block" is approximately 45 feet wide x 240 feet long and is framed with a conventional structural steel beam / composite floor / steel column construction system. The single-story "Test Bay" area is approximately 60 feet wide x 240 feet long x 62 feet high framed with structural steel roof beams, clear span fabricated roof trusses, crane girders to accommodate a 25 ton / 5 ton auxiliary pendant operated crane and stepped building columns. A special design feature in the test bay area was the design of the floor system to accommodate an imposed floor loading of 6 tons/square foot.

Heavy Plate Cell Manufacturing Facility, Quonset Point, R.I.

Client: Electric Boat Corporation, A General Dynamics Company

Structural design of a new 31,000 sq. ft. high bay, heavy plate cell manufacturing facility, featuring tandem cranes and other special heavy materials handling equipment for submarine hull manufacturing.

Blast & Coat Facility, Quonset Point, R.I.

Client: Electric Boat Corporation, A General Dynamics Company

Miscellaneous involvement in the structural design of a new blast and paint facility featuring four large cells used for preparation of submarine hulls for painting.

Industrial Demolition Project, Groton, Connecticut

Client: Cianbro Corporation

Project structural engineer for construction services for the removal of 45+ buildings at Electric Boat Corporation's Groton, Connecticut site on an accelerated schedule. The project involved the demolition of approximately 370,000-square-feet of buildings, includes the design and preparation of bid documents for: site work (grading, paving, retaining walls, sidewalks); site utility relocations; cutting and capping of services; fiber optic relocations; re-support and/or relocation of existing utilities; and the repair of building enclosures left open by demolition of adjacent structures.

Inspection and Structural Evaluation for Manufacturing Facility, Rome, New York

Client: City of Rome

Interactive Engineering Solutions, PC was retained by the City of Rome Office of Code Enforcement to evaluate the structural condition of several buildings at the former Revere Copper and Brass, Inc. (Rome Manufacturing Company Division) facility on Railroad Street in Rome, NY. The facility is now owned by Railroad Property Development Corp which is currently in litigation with the City of Rome regarding a notice to abate an unsafe condition associated with buildings at the facility. The work included existing building condition surveys of several buildings, preparation of structural evaluation calculations and report,

and several meetings with the various parties of the litigation.

Industrial Consolidation Project, Whitestown, New York

Client: Utica Corporation

Structural design of a new 12,000-square-foot structural steel-framed high bay addition and associated heavy foundations to house and support relocated 4,000 ton and 6,000 ton presses; 3-inch, 6-inch, and 7-inch Ajax upsetters; and a 26-inch roll press. Project utilized an accelerated design and construction schedule to allow phased renovations of the existing facility, construction of the new facility, and installation of the relocated equipment with minimized interruption of production. Project also included renovations to the adjacent existing single-story facility and selective demolition of the existing facility that previously housed the relocated equipment.

Structural Evaluation, Utica, New York

Client: Utica Converters Inc.

Structural evaluation of the existing third floor framing in the "EL" wing to determine the adequacy of the existing floor and floor framing to accommodate the installation of a new twisting machine. The existing construction consisted of a combination of masonry exterior walls, wood columns, steel framing, and wood plank floors.

Facility Renovation, Shipping and Receiving, Chadwicks, New York

Client: Mohawk Limited

Structural evaluation of existing masonry structure to allow controlled removal of existing masonry stair tower. Structural design of a single-story infill addition and a covered canopy between two existing buildings.

Structural Evaluation, St. Johnsville, New York

Client: Sentinel Products Corporation

Performed a structural evaluation and analysis of an existing manufacturing facility to determine allowable floor load carrying capacities. The existing structure consisted of an abandoned 100-year old wood framed building and a relatively new steel framed building.

Structural Steel Building, Stillwater, Oklahoma

Client: Moore Business Forms

Project included structural design and construction of a new 5000 square feet steel framed industrial facility including equipment support framing, monorail crane beams and checking of structural steel shop drawings.

Religious / Not-for-Profit

1st Baptist Church, Rome, New York

Client: 1st Baptist Church

Performed structural field observations for the remedial structural repair of the sanctuary floor framing to address concerns related to sagging conditions and excess vibrations. Field observations revealed several damaged members requiring preparation of a complete floor reinforcing plan including upgrade to the wood joists, wood girders and steel posts. In conjunction with the floor reinforcement, the church elected to include in the design the removal of several support columns to improve the space requirements in the fellowship hall below the sanctuary.

Utilities / Communications

Convertible Static Compensator Facility, Frederick R. Clark Energy Center, Marcy, New York

Client: New York Power Authority

Project Structural Engineer for the design, engineering and construction of a new 11,000-square-foot, single story facility. The design of the structural steel roof joists, beams, and building columns was performed utilizing an automated computer design program.

Line Crew Building – Final Inspection of Mezzanine, Frederick R. Clark Energy Center, Marcy, New York

Client: New York Power Authority

Performed the final review and visual inspection of the completed 1,400 sq-ft. mezzanine located within the existing Line

Crew Building. Scope of work included completion of NYPA's "Construction Compliance Certification" form as required for occupancy.

Power Control Center, Phase 2 – New Entrance, Lobby and Site Improvements, Schenectady, New York

Client: New York Independent
System Operator (NYISO)

Project Structural Engineer for the design, engineering and construction of a new 600-square-foot, single story facility and covered entrance. The design of the structural steel roof framing was performed utilizing an automated computer design program.

Energy Control Center, Binghamton, New York

Client: New York State Electric and
Gas Corporation

Structural design of one-story high reinforced concrete foundation/retaining walls for a new 55,000-sq.ft., steel framed energy control center. Involvement included the structural design of a 200-ft. long reinforced concrete underground tunnel connecting the new facility and the adjacent existing facility.

Singer Link Building, Binghamton, New York

Client: New York State Electric &
Gas

Structural design of infill floor framing for a 38'x 32' second floor open lobby area. Involved structural reinforcing of existing framing members to accommodate the additional floor loading.

Charles Poletti Fossil Power Plant, White Plains, New York

Client: New York Power Authority

Structural design of the foundations for a new three-story structural steel framed office/warehouse facility at the Poletti Power Station in New York City. The foundations consisted of steel H end bearing piles founded on rock and a reinforced concrete structural slab/grade beam ground floor framing system.

Self-Supporting Communications Tower, Massena, New York

Client: Motorola Inc. for PASNY

Performed a 3-dimensional structural frame analysis of an existing 175' high self supporting communications tower to determine the adequacy of the structure to support new microwave antenna dishes on the tower at various locations on the tower.

Pre-Engineered Metal Building Foundations

Pre-engineered Metal Building, Titan Homes, Sangerfield, New York

Client: Champion Enterprises, Inc.

Structural design of the foundation system for a new 173,000 square foot pre-engineered metal building. Project featured fast-track design and construction to replace their manufacturing facility destroyed by fire during the winter of 1998-1999. Champion Enterprises received national recognition based on their community minded management decision to continue to pay their employees during the entire reconstruction period. As time was of the essence, to expedite the process and get the facility back on line as soon as possible, the design team worked closely with corporate management and the contractors to expedite decision making, design and construction. Titan Homes is a local manufacturer of pre-fabricated homes.

Pre-engineered Metal Building, New Distribution Center and Corporate Offices, Frankfort, New York

Client: Northern Safety Company,
Inc

Structural design of a foundation system for two attached pre-engineered metal buildings. Project included construction of a new 55,000 square-foot, single-story, high bay distribution warehouse and a new 32,000 square-foot, two story corporate office building.

Pre-engineered Metal Building, Utica Business Park, New Hartford, New York

Client: Remet Corporation

Structural design of a foundation system for a new 20,000-square-foot, single-story, pre-engineered metal building.

Building Addition, North Utica, New York

Client: Fleet Bank

Structural design of a foundation system for a new 16,000-square-foot pre-engineered metal building addition.

Building Addition, Utica, New York

Client: Harron Cable

Structural design of a foundation system for a new 7,000-sq. ft. pre-engineered metal building addition to their exiting facility.

Commercial / Office / Municipal Buildings

John F. Kennedy Civic Arena, Phase 1 Additions & Alterations, Rome, New York

Client: City of Rome / MARCH Associates

Project Structural Engineer for the design, engineering and construction of the structural components associated with the Phase I expansion and renovation project. Expansion included the construction of a new one-bay addition on the north end of the existing facility to accommodate expansion of the existing ice rink to a new skating surface of 85' x 200' and the construction of a new 3,300 square-foot locker room wing addition containing four locker rooms. Renovations included interior structural modifications to create a new multipurpose community room and miscellaneous structural alterations to accommodate installation of new roof top mechanical equipment support framing / elevated platform and interior alterations and renovations in support of the complete upgrade of all electrical, refrigeration, mechanical and plumbing systems. Also provided structural support services to the ice rink consultant for the complete replacement of the existing facility's ice skating surface slab-on-ground, subgrade insulation, sub-base replacement and

densification, refrigeration system and dasher boards.

Central Maintenance Facility, Utica, New York

Client: Municipal Housing Authority of the City of Utica, NY

Structural design of a new 132' x 100', two-story central maintenance facility. The first floor included a high-bay maintenance garage, stock room, administrative and operational staff offices and loading dock. The partial second floor included a stock room. The structural framing system included a combination of structural steel roof and floor framing with pre-engineered wood roof trusses supported by masonry load bearing exterior walls and structural steel interior columns. The project also included an on-site 40' x 20' wood framed / concrete foundation containment salt storage enclosure.

Structural Evaluation, Watertown, New York

Client: Bell Atlantic

Structural evaluation of the existing second floor framing in the existing battery / rectifier room to determine the adequacy of the existing floor and floor framing to accommodate the installation of additional batteries. The existing construction consisted of a combination of masonry exterior walls and steel framing.

Structural Evaluation, Herkimer, New York

Client: Marine Midland Bank

Structural evaluation of the existing wooden roof framing to determine the adequacy of the existing framing to accommodate the relocation of an existing mechanical cooling tower.

Main Lobby Entrance Additions and Alterations, Hauppauge, New York

Client: Reuters Information Technology Inc.

Project included structural design and engineering for the removal of an existing curved glass block wall and construction of an enlarged covered entrance.

New Child Care and Administration Center, Utica, New York

Client: Utica Head Start

Structural design of a new 7,600-sq.ft, two-story masonry load bearing wall structure, utilizing pre-engineered wood-floor joists and roof truss framing.

Banking Convenience Center, New Hartford, New York

Client: The Savings Bank of Utica

Structural design of a new 4,000-sq.ft., single-story steel framed structure. The project included a covered 3-lane drive through teller window section.

National Guard Armory, Hancock Airport, Syracuse, New York

Client: State of New York National Guard

Structural design of a new 32,000-sq.ft., two-story masonry load bearing wall structure utilizing structural steel roof and floor framing.

Town of Whitestown Ice Skating Facility, Whitestown, New York

Client: Town of Whitestown

Provided structural technical assistance for the preparation of a specialized concrete specification and slab-on-ground details for the repair and replacement of the existing facility's ice skating surface support slab-on-ground, subgrade insulation, sub-base replacement and densification, refrigeration system and dasher boards.

Transportation Structural Engineering

Rehabilitation of Canal Lock O2 on the Oswego Canal – New York State Barge Canal System, Fulton, New York

Client: New York State Thruway Authority, Canal Corporation Division

Structural design associated with preparation of plans and specifications for

the rehabilitation of Lock O2's lock chamber, approach walls, breast walls, gate recesses, apron and valve wells.

Route 59 Widening and Reconstruction – Rockland County, New York

Client: New York State Department of Transportation

Final structural design associated with preparation of plans and specifications for the widening and reconstruction of Route 59 in the Town of Clarkson and the Village of Spring Valley. Specific elements of the project responsible for the structural design include: staged construction of two (2) parallel – 10' wide x 6' high concrete box culverts and culvert extensions including an inlet structure, an outlet structure and associated wing walls at North Branch Pascack Brook; approximately 375 feet of retaining wall structural design and construction details for reconstruction of Forman Drive / Route 59 intersection.

Route 17 – Five Mile Point to Occanum – Windsor, Broome County, New York

Client: New York State Department of Transportation

Final structural design associated with preparation of plans and specifications for the replacement of a pre-cast concrete culvert and associated headwalls and wing walls for the reconstruction of Route 17.

Route 67 – Replacement of Bridge over Kayaderosseras Creek, Village of Fort Johnson, Montgomery County, New York

Client: New York State Department of Transportation

Final structural design associated with preparation of plans and specifications for the staged construction of a 25' wide x 10' high pre-cast concrete box culvert bridge, associated abutments and wing walls for the reconstruction of Route 67.

Water Resources and Hydroelectric Power Related Facilities

Hinckley Reservoir Water Treatment Plant, Hinckley, New York

Client: Upper Mohawk Valley Regional Water Board

Performed quality assurance review of another engineers structural design calculations and contract documents. The work included a reinforced concrete substructure and structural steel superstructure for the Administration Building and Process Complex, reinforced concrete Contact Basins, and miscellaneous reinforced concrete site structures such as the Impact/Distribution Structure, Connection Vault, Finished Water Vault and Transmission Main Connection Valve Vault.

Orange County Water Supply Project, Goshen, New York

Client: Orange County Water Authority

Structural design of a 3200-sq.ft. structural steel framed superstructure with a monorail crane system for the Shawangunk Kill Pump Station.

Fish Viewing Facility at Hadley Falls Hydroelectric Station, Holyoke, Massachusetts

Client: Northeast Utilities

Structural design of additions and modifications to the existing powerhouse and diversion flume to accommodate a public viewing facility used to view fish migration upstream of the existing dam through an existing fish flume.

Upper Mechanicville Hydroelectric Redevelopment Project, Hudson River, Mechanicville, New York

Client: New York State Electric and Gas Corporation

Structural design of eight reinforced concrete site retaining walls, a reinforced concrete electrical equipment room floor slab, a 10 feet span structural steel site

bridge, structural steel access platforms within the superstructure, and site grading and drainage for a 17 MW hydroelectric powerhouse structure on the Hudson River. Work included checking portions of a senior engineers design calculations for the reinforced concrete substructure.

Upper Mechanicville Hydroelectric Redevelopment Project, Hudson River, Mechanicville, New York

Client: New York State Electric and Gas Corporation

Performed quality assurance review of another engineers structural design calculations and contract documents for the stabilization and crest modifications of an existing dam located on the Hudson River. The design included addition of rock anchors to increase the structures factors of safety against sliding and overturning.

Trenton Falls Hydroelectric Development, Trenton, New York

Client: Niagara Mohawk Power Corporation

Trenton Falls Hydroelectric Development: Project included the redevelopment of an existing hydroelectric power facility. Involvement included structural design of seven reinforced concrete anchor blocks for a new 2100 feet long, 14 feet diameter steel penstock, 6 feet high replacement wooden flashboards and supporting steel members for the dams main and auxiliary spillway and design of a new reinforced concrete intake structure. Also, performed stability analysis calculations for an existing 60 feet high gravity dam with recommendations of remedial repairs to increase the structures stability factors of safety.

Saranac River Hydroelectric Redevelopment, Upper New York State

Client: New York State Electric and Gas Corporation

Saranac River Hydroelectric at Mill C: Structural design of a new reinforced concrete intake structure, a new reinforced concrete powerhouse substructure containing a 3.4 MW single horizontal turbine, and checked the structural calculations of another engineers for the design of the 500 feet long, 11.5 feet diameter replacement penstock with its support piers, saddles and anchor blocks.

Pembroke Hydroelectric Project, Pembroke, New Hampshire

Client: Pembroke Hydroelectric Corporation

Structural engineer for the redevelopment of an existing hydroelectric power generating facility. Performed the structural design of a new reinforced concrete combined substructure/superstructure containing a single 2.6 MW horizontal turbine and a new concrete intake structure to connect a 9' diameter 500 feet long penstock.

Talville Hydroelectric Power Project, Talville, New York

Client: TAK Hydro

Structural design of a new reinforced concrete canal channel, powerhouse and steel trashracks for a 900 KW ESAC submerged turbine.

Kayuta Lake Hydroelectric Project, Kayuta Lake, New York

Client: TAK Hydro

Structural design of a new reinforced concrete powerhouse for a 500 KW ESAC submerged turbine.

East Hollie Lake Improvements, Leflore County, Mississippi

Client: U.S. Army Corps of Engineers, Vicksburg District

Prepared contract documents and technical specifications for structural aspects of two 5-foot square concrete box type drainage culverts, an inlet structure, an outlet structure, and stilling basin using the requirements established in a Corp provided Design Memorandum.

Felsenthal Lock and Dam Modifications, Vicksburg District

Client: U.S. Army Corps of Engineers, Vicksburg District

Prepared structural sections of a design memorandum supplement for modifications to an existing navigation pass weir to accommodate installation of a new hinged-crest gate and support piers.

Kings Flow Dam Spillway Replacement, Indian Lake, New York

Client: L. & A. Bet

Structural design of a new overflow dam spillway section and associated site reinforced concrete retaining walls.

Phoenix Hydroelectric Project, Phoenix, New York

Client: Long Lake Energy Corporation

Performed stability calculations for an existing 2-bay radial gate structure, a new 4-bay radial gate structure, an existing overflow dam spillway section, and a new non-overflow dam section for FERC and DEC supporting design reports. Also performed stability calculations and structural design of a reinforced concrete integral intake-powerhouse structure.

Forestport Hydroelectric Project, Forestport, New York

Client: Trafalgar Power Inc.

Performed stability and structural design calculations for a new auxiliary spillway structure consisting of four 9-ft. diameter, gated conduits and a powerhouse intake structure for FERC and DEC supporting design reports.

Beaver Falls Hydroelectric Project, Beaver Falls, New York

Client: Boise Cascade, Inc.

Structural design of a new 26'x34'x15' high reinforced concrete intake structure, a new 10'x16'x70' long reinforced concrete penstock and trashracks for an existing low head hydroelectric power generating facility.

North Hartland Hydroelectric Project, Hartland, Vermont

Client: Vermont Electric Cooperative, Inc.

Structural design of site retaining walls for a project that included a concrete powerhouse structure containing two 2 MW turbines connected to a new 12-foot-diameter penstock, 470 feet downstream of an existing dam.

Susitna Hydroelectric Project, Anchorage, Alaska

Client: Alaska Power Authority

Assisted with cost estimating for a feasibility study and FERC license application for the development of two major dam sites and power installations totaling 1650 MW. Performed quantity takeoffs for a 650 feet high concrete arch dam and the associated spillways, diversion tunnels, underground powerhouses and cofferdams.