

CONSTRUCTION ENGINEERING



Photo Credit: Alistair Tutton Photography



McLaren
ENGINEERING GROUP



McLaren Engineering Group – Headquarters
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Ph: 1-800-420-6401

49
STATES
LICENSED

20k+
PROJECTS
COMPLETED

45
YEARS OF
APPLIED INGENUITY

11
OFFICES
WORLDWIDE



About Us

McLaren Engineering Group is a leading full-service engineering firm renowned for its trusted, high quality, and innovative approach to solving complex challenges. With industry experts in multiple technical disciplines, our team has provided customized solutions for over 20,000 projects through consultation, design, inspection, and construction management. With over four decades of experience, a staff of 200+, and 11 offices worldwide, McLaren addresses every project's specific needs with technical excellence and creative innovation.



JON SKINNER, PE

Vice President – Construction

JSkinner@mngmclaren.com

Core Technical Divisions

STRUCTURAL | CIVIL + SITE | MARINE + COASTAL | BRIDGE, HIGHWAY + RAIL
ENTERTAINMENT | GEOTECHNICAL | FACADE + BUILDING ENVELOPE
CONSTRUCTION ENGINEERING | FORENSICS | SURVEY + MAPPING



CONSTRUCTION ENGINEERING

McLaren's construction engineering division is an industry leader providing innovative solutions that enable developers, contractors, fabricators, and erectors to successfully take projects from procurement to completion.

From large infrastructure projects to buildings and specialty structures, our engineers determine the most optimal and cost-effective engineering solutions by assisting with means and methods of construction, planning, logistics, and project management for building projects across the country. This ensures jobs stay on time and within budget while providing the best solutions from the ground up.

Supporting construction needs of every size, scope, and complexity, our expert staff provides a diverse line of custom services including crane plans, permitting, rigging solutions, designs of temporary supports, bracing, and construction sequencing for both new and renovation projects. Our company also offers the conventional design of steel structures and connections in addition to providing Specialty Structural Engineering Services (SSE) for delegated design elements.

CRANE ENGINEERING

RIGGING + HEAVY LIFTS

STEEL CONNECTION

MISCELLANEOUS METALS +
DELEGATED DESIGN

SHORING

CONSTRUCTION LOGISTICS

TEMPORARY STRUCTURES +
SITE SAFETY

www.mgmclaren.com

MOBILE CRANES

HYDRAULIC + LATTICE BOOM
CRAWLER CRANES

TOWER CRANES (FAVCO, POTAIN,
LEIBHERR, WOLFKRAN + MORE)

DERRICKS (STIFF-LEG + GUY)

PEER REVIEWS


INSPECTIONS

PERMITTING WITH NYC DOB

IMPOSED LOAD ANALYSIS

CRANE ENGINEERING

McLaren's construction engineering team offers full-service crane engineering services, from planning and plan/calculation preparation to in-house expediting to handle all filing and permitting needs (NYC CN Applications). Whether it be the need to develop a new crane plan or a peer review of a plan prepared by another firm, our team brings the requisite expertise needed to ensure your crane plans are complete, code compliant, and have considered all aspects of the intended pick. As such we take into account crane placement and configuration, pick loads and center of gravities, pick criteria and radius, geometry and clearances, outrigger reactions and track pressures and corresponding dunnage/cribbing design, rigging criteria/specs and design needs, and project schedule and constraints. In addition, our experience with plan requirements and permitting processes with governing agencies (i.e. NYCDOT, NYSDOT, NYCDOT, NJDOT, MTA, MNR, AMTRAK, etc.) results in quicker reviews and approvals.

A low-angle photograph looking up at a construction site in a dense urban environment. A large white mobile crane with a lattice boom is lifting a red and white truck, which has an American flag on its side, onto the roof of a building. The crane's boom extends diagonally across the frame. In the background, several tall city buildings are visible under a clear blue sky. A green safety net or tarp is draped over part of the building being worked on, with the word 'OPEN' visible on it. The overall scene captures a major engineering feat in a city center.

**TIFFANY'S FLAGSHIP STORE LIFT OF LTM 1130 MOBILE CRANE ONTO
THE ROOF UTILIZING A 500-TON LIEBHERR LTM 1500 CRANE**

APPLIED INGENUITY



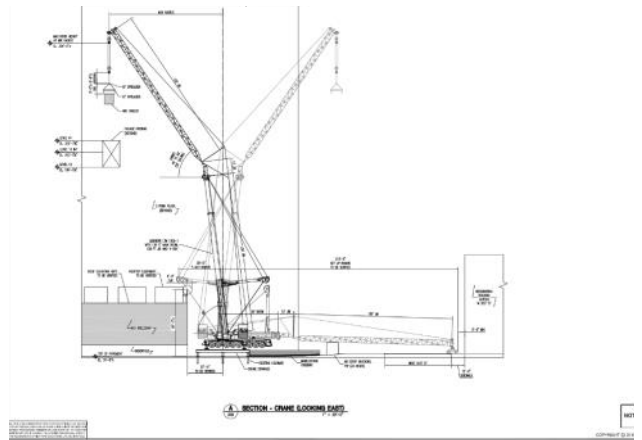
ROCKEFELLER UNIVERSITY OVER FDR
CRANE & DAVIT ARM DESIGN



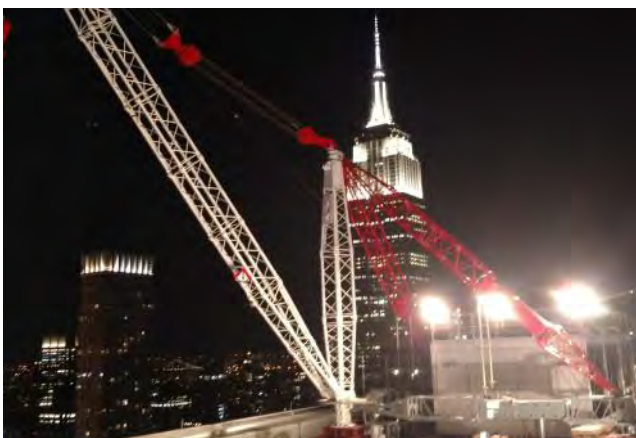
MANHATTAN WEST SOUTHEAST TOWER
LTM-1350 CRANE PLANS



WITTPENN BRIDGE MOBILE CRANE PLANS



2 PENN PLAZA (CRANE PLAN DRAWINGS)
FOR 80,000LB LIFT



BANK OF CHINA ROOFTOP DERRICK PLANS



LOUIS ARMSTRONG LTM-1100 CRANE PLANS

MECHANICAL + ROOFTOP
EQUIPMENT RIGGING

LONG-SPAN + CURVED
GIRDER RIGGING

CUSTOM + OFF-THE-SHELF
SPREADER BEAM & LIFTING

SKATE + ROLLER SYSTEMS

LOAD TRANSFERS (I.E. CRANE
HOOK TO INTERIOR GANTRY'S
OR SLIDE SKATES)

INTERIOR/ENCLOSED SPACE
RIGGING

HYDRAULIC GANTRY'S + SLIDE
RAILS

COUNTERWEIGHTED PICKS TO
HANDLE ECCENTRIC PICK/
DROP POINTS

SELF-PROPELLED MODULAR
TRAILER (SPMT) PLANS

RIGGING + HEAVY LIFTS

Our team of construction experts offers complete rigging solutions to service material and equipment handling needs, from shop to field installation. Beyond the design and check of a sling or shackle, we can develop step-by-step sequential drawings to illustrate the movement and/or transfer of a load throughout the rigging and installation process. Each project takes into account piece geometry, field constraints, and all loading conditions.



WITTPENN BRIDGE REPLACEMENT MAIN SPAN LIFT

APPLIED INGENUITY



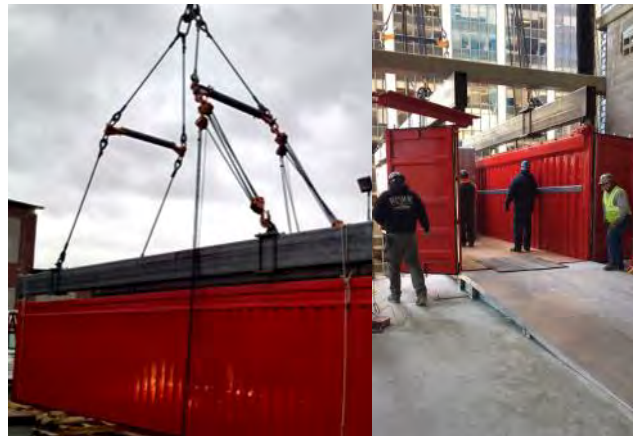
JAMAICA STATION COUNTERWEIGHT
TRUSS RIGGING



GANTRY RIGGING PEER REVIEW



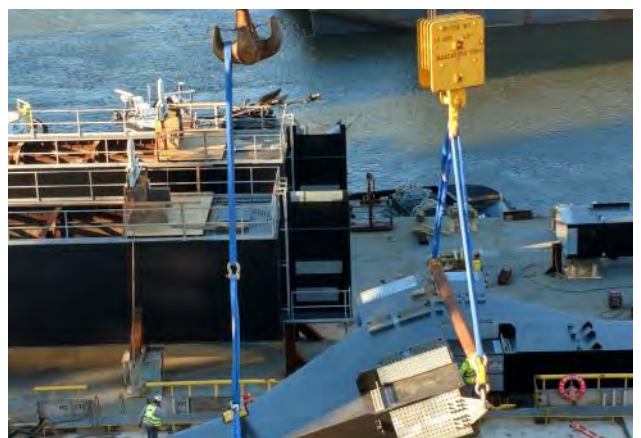
PULASKI SKYWAY EXODERMIC PANEL RIGGING



WTC LIFT CONTAINER
CUSTOM CONTAINER RIGGING



BEEKMAN AVENUE RIGGING DESIGN



BRIDGE ERECTION RIGGING OF ASYMMETRICAL
90K "KNUCKLE" COMPONENTS

STANDARD SHEAR

NON-STANDARD SHEAR

MOMENT

AXIAL

SPICES

HEAVY TRUSSES

BRACED FRAMES

RETROFITS + REINFORCING OF
EXISTING

EXISTING BEAM
RECONNECTION

HARDENED STRUCTURES +
BLAST MITIGATION DESIGN
CONNECTIONS

HIGH SEISMIC ($R > 3$)

SPECIALTY CONDITIONS

PRE-DETAILING ASSISTANCE

VALUE ENGINEERING

STEEL CONNECTION

Connections between structural members are a critical part of any steel structure and their proper treatment is an essential component of safety and cost. Our construction engineering division has intuitive knowledge of how a systems will transmit loads, loads paths, and a deep understanding of structural mechanics to provide both safe and economical designs.

Steel connection design for structural steel projects includes standard shear connections, non-standard connections, moment connections, bracing, trusses, high seismic, and custom specialty conditions. McLaren's unparalleled experience is the foundation for developing and delivering the most economical, safe, and structurally efficient connections.

STEVENS INSTITUTE OF TECHNOLOGY STEEL CONNECTION
DESIGN OF TWO-TRUSS PEDESTRIAN BRIDGE

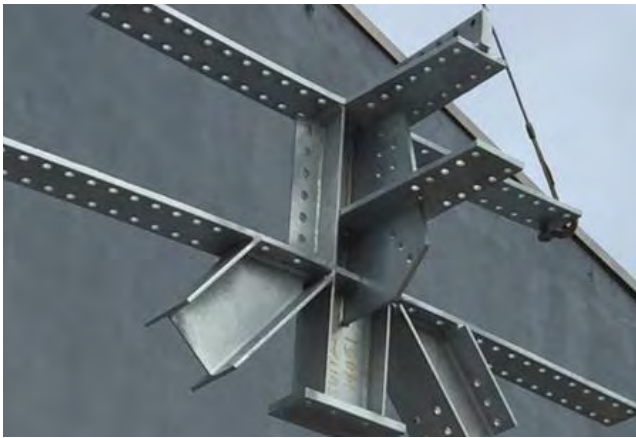
APPLIED INGENUITY



IN-SITU TRUSS RETROFIT



REINFORCEMENT OF EXISTING CONNECTIONS



COMPLEX BRACED FRAME CONNECTIONS



FIELD BOLTED CONNECTIONS



UNOBTRUSIVE CONNECTION RETROFITS



STANDARD SHEAR CONNECTIONS

STANDARD STAIRS
MONUMENTAL STAIRS
LADDERS
VANITIES
GUARDRAILS
SIGNS
DAVITS
ARCHITECTURAL METALS

MISCELLANEOUS METALS + DELEGATED DESIGN

We provide Specialty Structural Engineering Services (SSE) for a wide array of standalone miscellaneous metals and delegated design items. With constant pressures on construction costs, schedules, and fees, Structural Engineers of Records (SEoR) are required to do more with less and look for ways to shed design scope. This has resulted in moving away from the more typical and straightforward design-bid-build environment of the past. As such, bringing on an SSE in the early stages of the project has never been more critical in project success.

Today, SEoR's are delegating more design items than ever before. This includes secondary structural elements (stairs, guardrail, davits, elevator rails, cladding, etc.) as well as primary structural elements. McLaren's construction engineering division has developed a sound reputation for producing quality, knowledgeable, and efficient end product in the design of delegated design items.



ACE HOTEL BROOKLYN MONUMENTAL STAIR

APPLIED INGENUITY



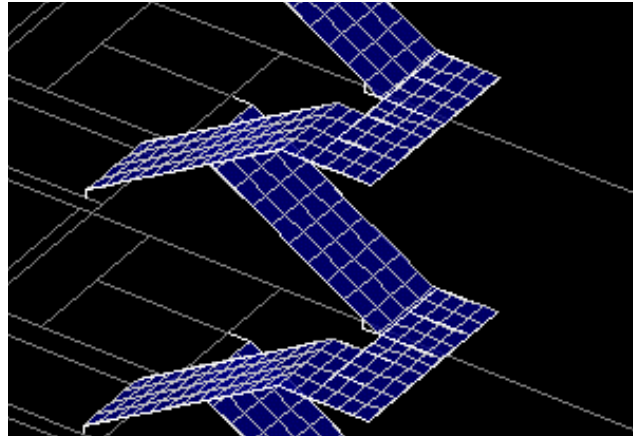
INMAR PREFABRICATED STAIRS



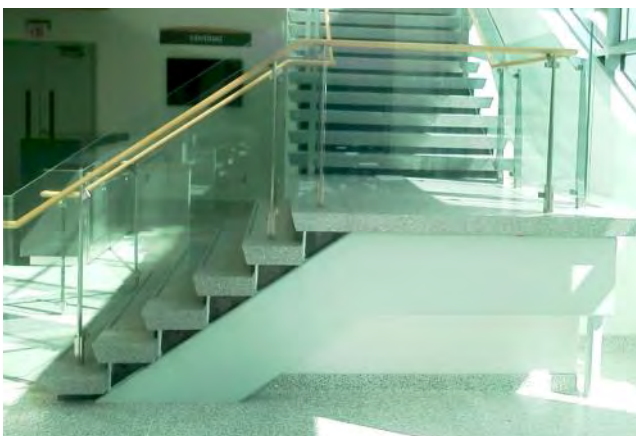
ZAHA HADID ARCHITECTURAL METALS



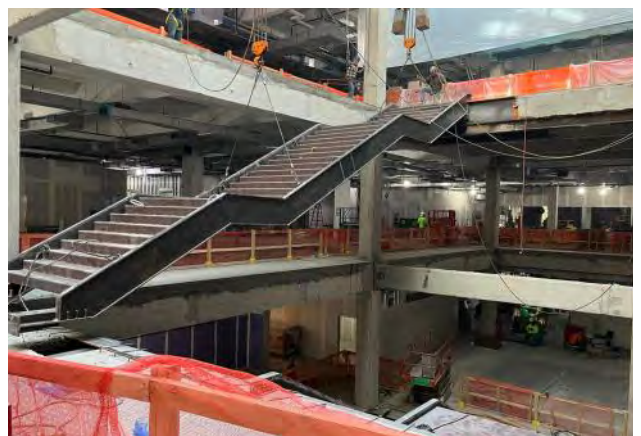
GUARDRAILS



MONUMENTAL STAIR VIBRATION ANALYSIS



SUNY UNIVERSITY ALBANY MONUMENTAL STAIRS



CORPORATE HQ MONUMENTAL STAIR

BRIDGE SHORING (ERECTION,
DEMO, BEARING &+ SEAT
REPAIRS/REPLACEMENTS)

SHORING OF EXCAVATION
(SOE)

COLUMN TRANSFERS/
REMOVALS

STRUCTURAL LIFTING + LOAD
TRANSFERS

HYDRAULIC JACKING

SHORE, CUT + RECONNECTS
(SCR)

UNDERPINNING

MASONRY SHORING, NEEDLE
BEAMS & LINTELS

CONCRETE CONSTRUCTION
SHORING + RESHORING

SHORING SOLUTIONS

From infrastructure, bridges, and buildings projects to renovation work, construction often requires the need for temporary shoring and support. Our team of construction engineers has experience in all facets of shoring and structural lifting. With a construction mindset and an understanding of best field practices, our team stands out in the industry for developing solutions that are practical, efficient, and cost-effective.



ST. PETE PIER TEMPORARY SHORING OF PIERHEAD
BUILDING CONSTRUCTION

APPLIED INGENUITY



MACOMBS DAM BRIDGE
TEMPORARY SHORING & JACKING



AMERICAN DREAM MALL WATERPARK
TEMPORARY SHORING & BRACING DESIGN



HRSG SEWAREN GENERATOR, ERECTION PLANS +
TEMPORARY SHORING AND STABILITY BRACING



TSX HOTEL SUPER COLUMN JACKING



JACKING & REMOVAL OF COLUMN TRANSFER
GIRDER FOR 1,000,000 LB LOAD



BOWTIE TEMPORARY SHORING, COLUMN LOAD
TRANSFERS & CONSTRUCTION SEQUENCING

ERECTION ENGINEERING
TRUSS ERECTION SEQUENCING
SEQUENCING OF CONSTRUCTION
TEMPORARY STABILITY
MEANS + METHODS
DEMO PLANS (NYC DMO PLANS)
NYC PERMITTING + EXPEDITING
PRE-BID CONSULTING + VALUE
ENGINEERING

CONSTRUCTION LOGISTICS

As projects become more complex and challenging year after year, getting from point A to point Z is no longer a trivial task - even on the smallest of projects. McLaren can provide engineering support for a multitude of services to ensure projects are built in an efficient, safe, and stable manner across all phases.

SUTTON PLACE 3 STORY TRUSS
ERECTION SEQUENCING



APPLIED INGENUITY



METROPOLITAN OPERA HOUSE LOGISTICS
AND HOIST SYSTEM



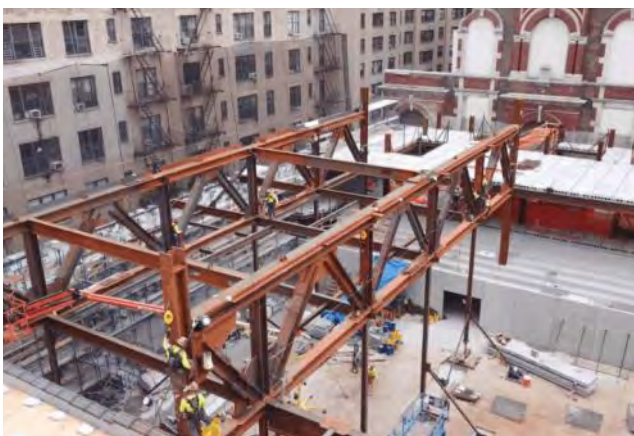
TIFFANY CRANE LIFT LOGISTICS



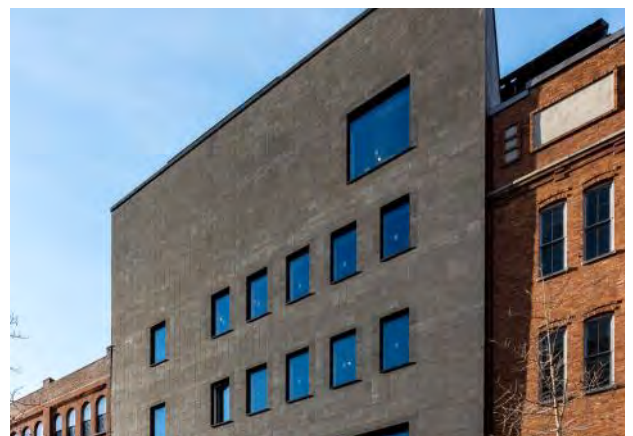
THE HALL AT LIVE! TRUSS ERECTION SEQUENCING
AND LOGISTICS



STEVENS INSTITUTE OF TECHNOLOGY
ERECTION MEANS + METHODS



SPENCE SCHOOL CONSTRUCTION SEQUENCING
AND LOGISTICS



HAUSER + WIRTH NYC PERMITTING

SITE SAFETY PLANS

PROTECTION PLATFORMS

CRASH DECKS

DEBRIS NETTING (VERTICAL/
HORIZONTAL)

HORIZONTAL LIFELINES

FALL PROTECTION

SCAFFOLDING

MEANS OF EGRESS

FENCES

TEMPORARY TRAFFIC CONTROL /
MAINTENANCE & PROTECTION OF
TRAFFIC (MPT)

TEMPORARY STRUCTURES + SITE SAFETY

Keeping the public safe is the primary tenet of the engineering profession. Our construction division can provide a wide array of services to keep both the general public and site workers safe during the development of any project.



2 MANHATTAN WEST
CONSTRUCTION SAFETY COCOON

ERECTION PLANS AND DETAILS

ANCHOR BOLT PLANS AND
DETAILS

ASSEMBLY AND SINGLE PART PIECE
DRAWINGS

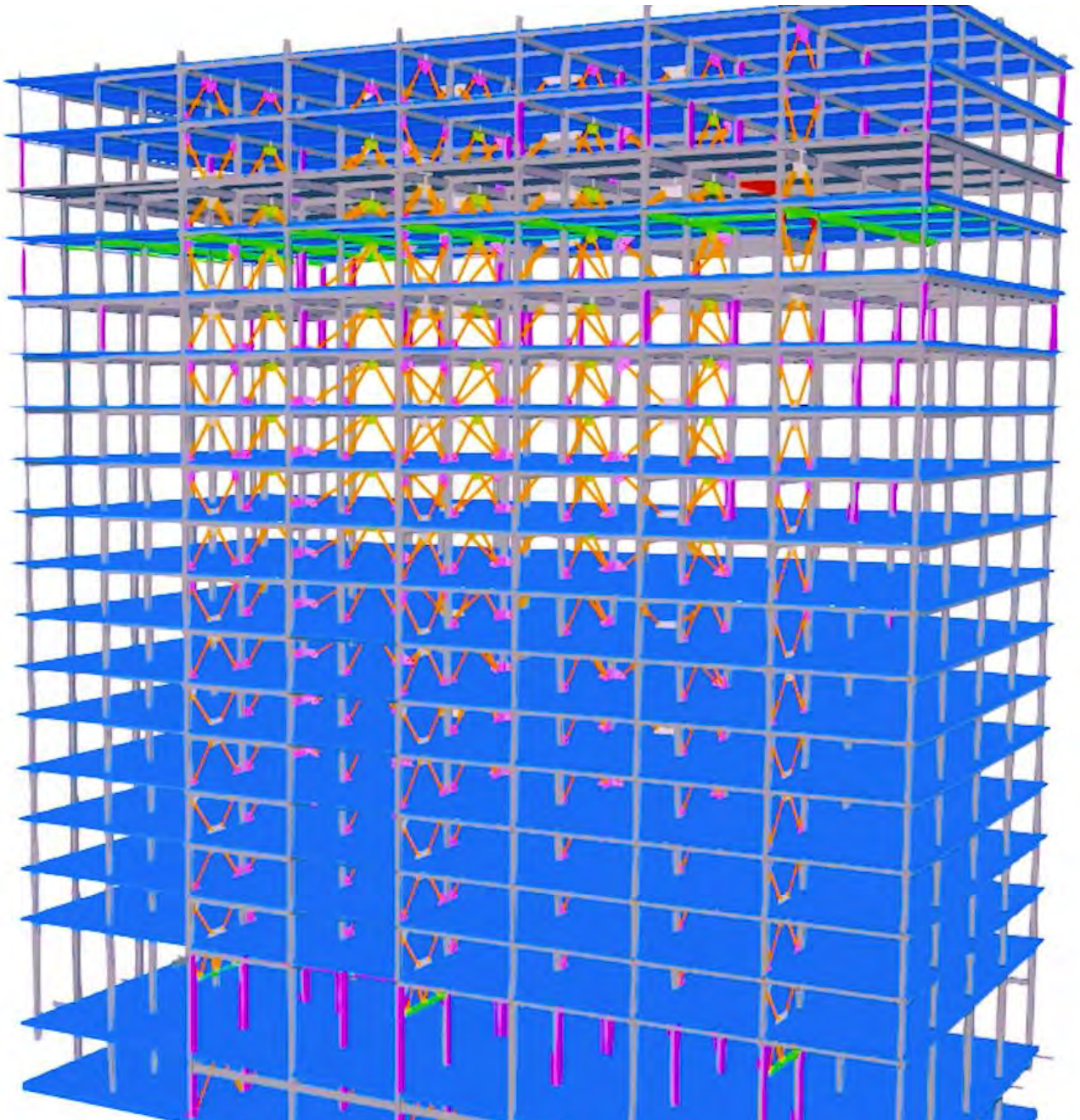
MATERIAL LISTS FOLLOWING ASTM
NOMENCLATURE (OR OTHER AS
REQUIRED)

3D MODELING FILES (CNC, DXF,
ETC.)

CONNECTIVE 3D MODELING
SERVICES

STEEL DETAILING

Working with fabricators, contractors, and erectors nationwide, we deliver clear and concise shop drawings illustrating member sizes and dimensions, material specifications, and all connective elements. By combining our construction engineering expertise with our detailing capabilities our team offers a one-stop shop aimed at reducing coordination, eliminating headaches in the field, lowering project costs, and expediting project schedules. Regardless of size or scope, our top priority is to ensure each project flows smoothly from start to finish. From the detailing of smaller steel elements like columns, trusses, and stairs, to larger structures like buildings, bridges, and stadiums, we provide:





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