



# BUILDING SERVICES **GUIDE**



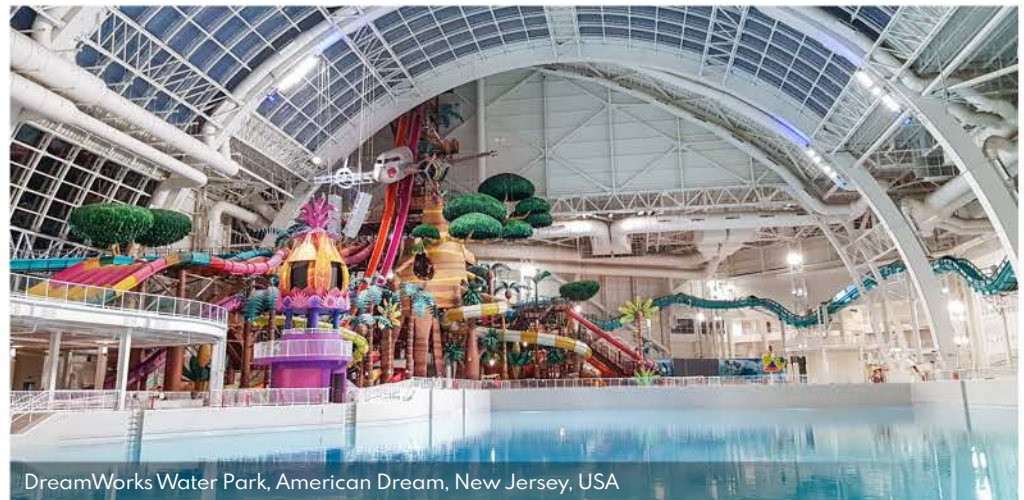
**MGA**  
Engineering  
[mgaeng.com](http://mgaeng.com)



West Edmonton Mall, Edmonton, Canada



American Dream, New Jersey, USA



DreamWorks Water Park, American Dream, New Jersey, USA



## The Company

Based in Calgary, Canada, and established in 1996, MGA Engineering specializes in various global projects involving structural and mechanical systems. Maged Ghali, the founder and CEO of MGA, serves as the Engineer of Record for several prominent buildings in North America, including the renowned West Edmonton Mall and the Edmonton City Centre shopping mall (formerly the Eaton Centre). Notably, MGA's latest high-profile building project is the American Dream Meadowlands shopping center in New Jersey, USA, which successfully opened its doors in 2020.

MGA is well-equipped to handle even the most challenging building projects, offering a comprehensive range of engineering, design, and analytical services for structures, foundations, and piping systems. Drawing upon extensive expertise from past projects, MGA possesses in-depth knowledge of the intricacies involved in project execution and commissioning. Additionally, MGA's design capabilities are complemented by world-class engineering expertise in extreme design conditions, including seismic and vibratory loads, extreme pressure and temperature, and non-competent soil behavior.



## The Roles

At MGA, we are dedicated to every phase of a project's life cycle, from initial concept and feasibility studies to engineering and design, fabrication, construction oversight, and construction support. As the Engineer-of-Record, we tailor our services to meet the specific needs of our clients, whether that involves serving as the designer, compliance consultant, simulation analyst, or project manager. Additionally, MGA specializes in assessments of existing buildings, renovations, and retrofits, providing comprehensive solutions to address our clients' requirements.



## The Versatility

MGA Engineering demonstrated its expertise as a structural engineering powerhouse during the American Dream Meadowlands project, spanning from 2013 to 2020. Situated just minutes from New York City, this sprawling shopping and entertainment complex boasts over 500 stores and restaurants, along with innovative attractions such as the country's first indoor ski hill, an indoor amusement park, an NHL regulation-sized rink, and the nation's largest indoor water park.

MGA played a pivotal role in designing and engineering the four most complex buildings within the project: The Water Park, the Amusement Park, the Core Building, and the Connector Building. Our involvement encompassed all aspects of the project, from initial conceptual design to detailed engineering, modularization studies, and planning, as well as fabrication oversight, erection planning, on-site construction support, and tenant fit-out.





## Structural Engineering

MGA offers an experienced team with a history of successful structural engineering projects in both design and support roles. In addition to the technical aspects, MGA offers comprehensive owner support, contract administration, and seamless coordination with consultants and contractors throughout the project lifecycle. Our portfolio includes:

- Building layouts
- Piles
- Civil infrastructure
- Foundations, including mat foundations and piles
- Heavy concrete work
- Steel structures and superstructures
- Structural steel connections and welding
- Masonry structures
- Water retaining structures, including pools
- Static and mobile roofs

## Special Engineering

With decades of expertise, MGA excels in tackling design challenges that could not be solved with conventional engineering methods. Our extensive experience stems from resolving unique problems through innovative yet practical solutions tailored to meet the client's exact requirements. Spearheaded by our Special Engineering group, we specialize in addressing distinctive scenarios, including:

- New erection studies
- Structural vibration mitigation
- Structural fire protection
- Building code studies
- Building envelope studies
- Corrosion protection
- Extreme temperature analysis
- Blast resistance design
- Seismic analysis and retrofitting



## Fit-Outs and Finishes

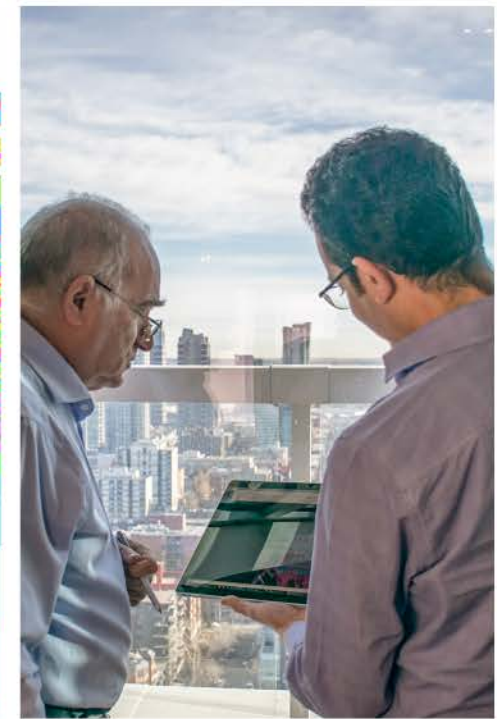
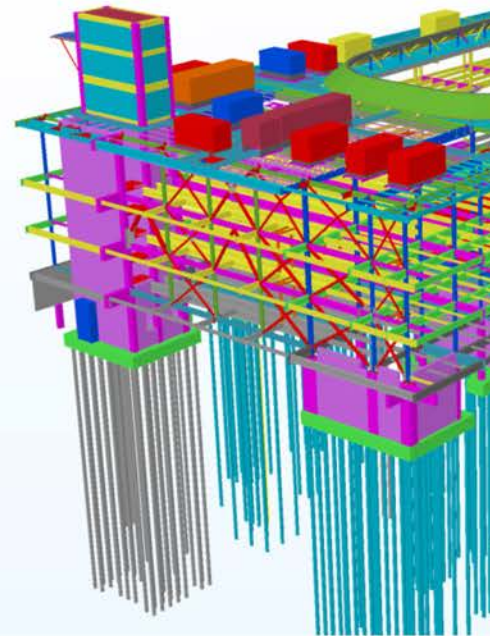
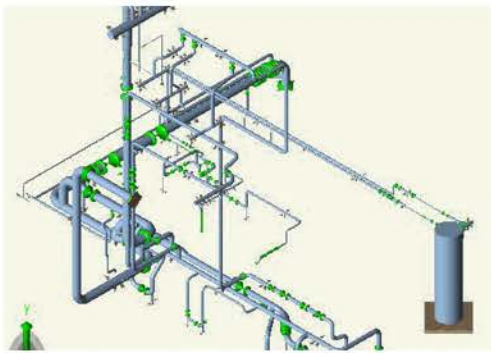
Once the primary structural requirements of a building are met, MGA also specializes in fit-outs and finishes. Leveraging extensive experience, we excel in tenant fit-outs, theming installations, cold-formed steel framing, and a myriad of other finishing touches, including:

- Wall partitions and cold-formed steel
- Facades (glass, precast, ETFE, metal cladding, etc.)
- Escalators and elevators
- Flooring and floor tolerances
- Railings and feature stairs
- Parapets
- Fall restraint and fall arrest systems
- Structurally supported theming/decorations/signage

## Structural Rehabilitation

MGA works closely with owners, architects, general contractors and consultants to expedite solutions to design changes, structural modifications and building re-purposing. Offering a comprehensive suite of in-house expertise across multiple disciplines, we provide complete asset management encompassing condition data collection, evaluation, optimization, remediation, and strategic review. Typical services include:

- Inspection and engineering investigation
- Structural health monitoring
- Condition survey and 3D scanning
- Repair and rehabilitation design
- Temporary/construction support systems design
- Modification to existing structures
- Reviewing existing and new loads
- Load testing and monitoring
- Presenting cost-effective solutions



## Utilities and Mechanical

Utilities and mechanical systems play a significant role in shaping the structural design process. MGA possesses particular expertise in intricate piping layouts, honed through extensive involvement in heavy industrial projects. Our utilities and mechanical capabilities encompass:

- Piping, HVAC, and electrical layouts
- Pipe stress analysis
- Fire suppression systems
- Equipment pads and dunnage
- Deep underground utilities
- Integration of mechanical units into the structure
- Necessary seismic restraints for Mechanical, Electrical, and Plumbing (MEP) components

## Resource and Energy Management

Sustainability and resource management are essential considerations in modern building projects. At MGA, sustainable design principles are integral to our design philosophy from the outset. Our approach to sustainability management encompasses:

- Design flexibility for future modifications
- Project management strategies to minimize construction hours
- Design for reuse
- Utilization of renewable and energy-efficient materials
- Performance-based design (where justified)
- Integration of sustainable solutions throughout the design process

# Contact

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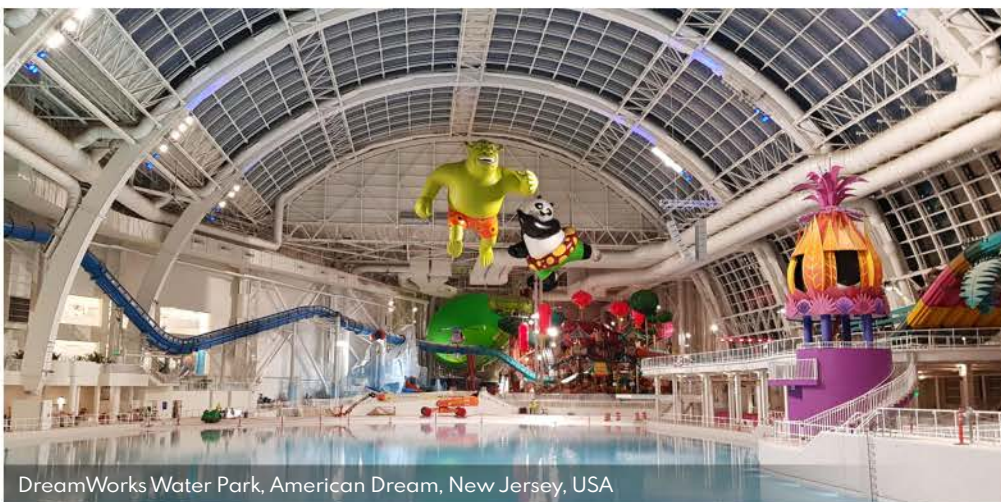
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