MGA SERVICES **GUIDE**

MGA Engineering

mgaeng.com

v3

Pacific Coast Terminals Shiploader, British Columbia, Canada

Antucoya Conveyor, Chile

American Dream Meadowlands, New Jersey, USA

MGA Engineering

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Bloom Lake Stacker Conveyor, Quebec, Canada

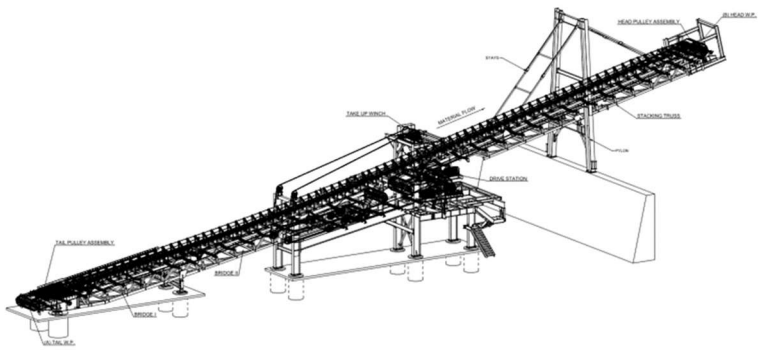
The Company

MGA Engineering is a master designer of structural and mechanical systems deployed across the globe in the infrastructure, building (commercial and industrial), mining, energy, and marine industries. Founded in 1996, MGA now staffs 65 highly experienced engineers, providing an exceptional level of technical expertise and innovative engineering solutions to commercial and industrial clients.

Using state of the art design and computing tools, MGA completes work compliant with North American and European standards. From initial project conception via Design Basis Memoranda, through Front End Engineering and Design (FEED) studies to detailed design of equipment, buildings, and material storage structures with the necessary foundation systems, MGA's team meets the design needs of the industry.

The Roles

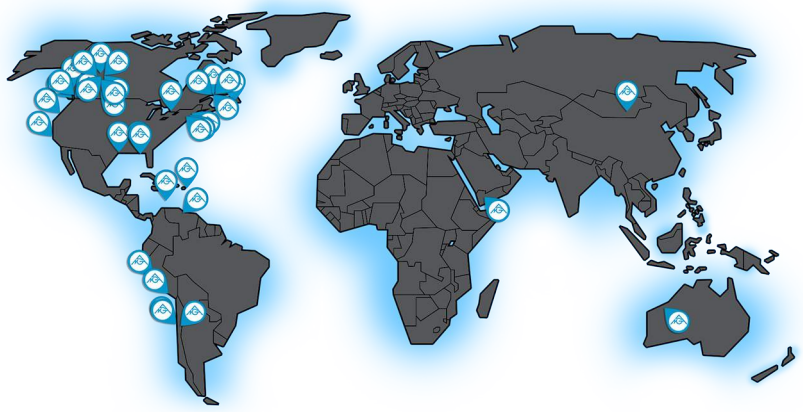
MGA Engineering is involved throughout a project's lifecycle; from concept and feasibility studies, to engineering/design, fabrication, construction oversight, and postconstruction support. Typically hired as the Engineer-of-Record, MGA's mandate is tailored to the unique needs of the Client - be it as designers, compliance consultants, simulation analysts, construction planners, and project or program managers. This way, the company's capabilities can be deployed in a variety of engagements, such as design, procurement, design & procurement, engineering & procurement & construction management (EPCM), engineering & procurement & construction (EPC), design-build, and subject matter experts.

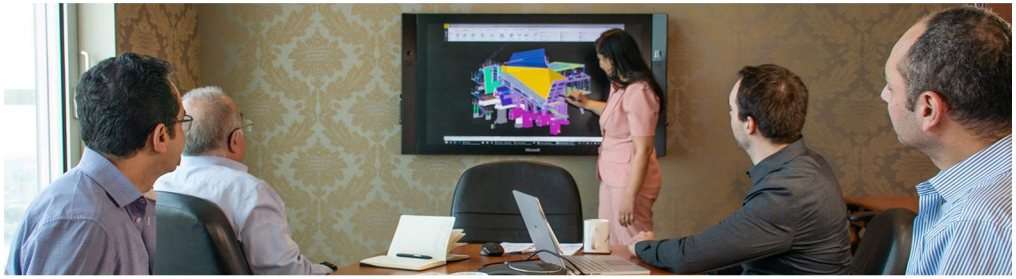


American Dream Water Park, New Jersey, USA

A Global Footprint

The company's head office in Calgary entails corporate, finance, and project management functions. Design and engineering reside mainly in the company's Cairo (Egypt) office. A second project management office will be opened in New Jersey, in 2020. Three more satellite project offices are contemplated as well in 2020-2021: Quebec City, Vancouver and Buenos Aires (Argentina). Staff headcount numbers close to 70 and is set to double by the end of 2020.





Turnkey Solutions

MGA not only talks the design talk but walks the equipment walk. Over the past two decades, MGA's engineers have rightfully gained a global reputation as experts in the design and delivery of complex structural and mechanical systems. MGA's Asset Group will deliver complete turnkey solutions to oilsands operators, port authorities, and mining owners. The Group handles all aspects of an asset, throughout its development lifecycle, from concept to engineering, procurement to logistics, fabrication to modularization, construction to start-up, and operational ROI validation to field support. MGA's delivery philosophy is investment-centric: all project decisions are governed by the imperative of maximizing ROI over the economic life of the operating asset.

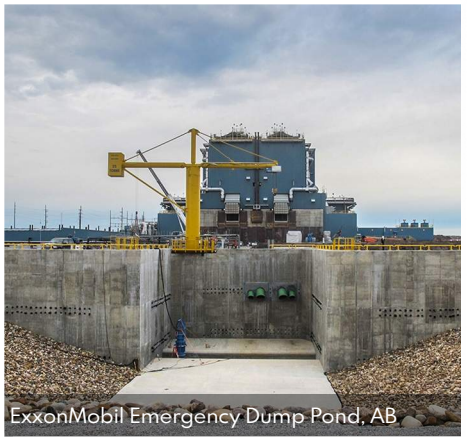
Standard General-Acheson Rail Un-Loading Steel Bridge, Alberta, Canada


Aurora 2 SWQR, Alberta, Canada

The Canadian Oilsands

MGA can legitimately lay claim to one undisputable fact: the firm's engineering leadership has had a hand in the design of virtually every material handling systems currently operating in the Canadian Oilsands. No other company in the world can match the scale, depth, and value lessons learned by MGA during its twenty-plus years of involvement in this demanding industrial sector.


Aurora 2 SWQR, Alberta, Canada


ExxonMobil Emergency Dump Pond, AB


ILO Ship-Unloader, Peru


Ridley Terminal Stacker Reclaimer, BC, Canada

The Applications

Materials Handling (Land & Marine)

- Conveyor systems
- Ship loaders & unloaders (static)
- Ship loaders & unloaders (rail-mounted)
- Bucket wheel stacker-reclaimers
- Surge bins, chutes and hoppers
- Tanks, vessels and silos
- Loading & unloading facilities
- Bulk gravel facilities
- Crushing plants
- Feeders

Oilsands and Mining

- Crushing plants & apron feeders
- Slurry preparation plants
- Primary separation cells
- Surge facilities and pump boxes
- Rotary breakers
- Double roll crushers
- Tank farms and pressure vessels
- Ore processing systems
- Mobile sizing stations
- Equipment erection

Commercial Buildings

- Shopping centers
- Entertainment complexes
- Recreational facilities
- Building & construction technologies
- Code compliance verification
- Complex steel beams
- Glass structures
- Parkades
- Modularization

Bulk Materials

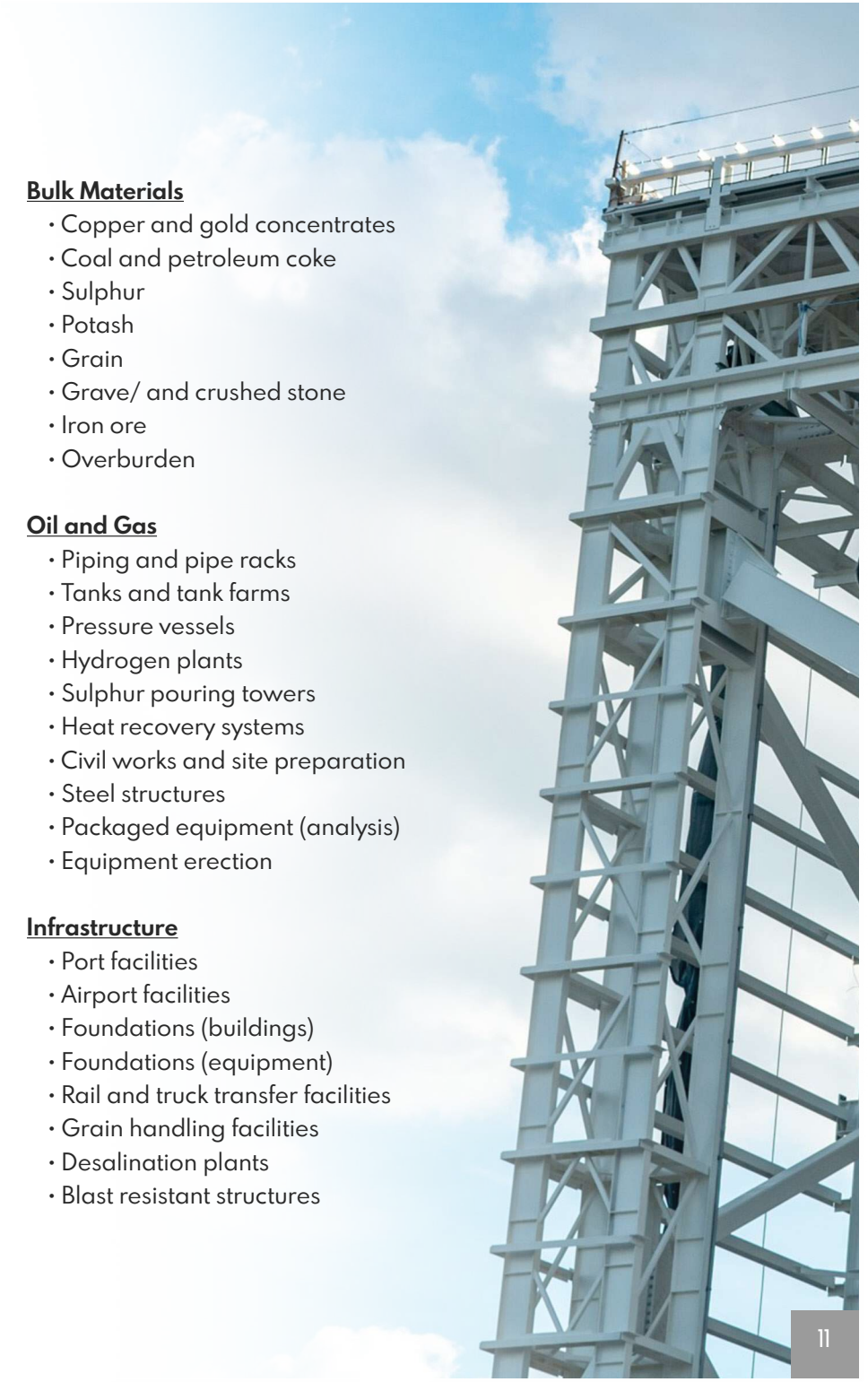
- Copper and gold concentrates
- Coal and petroleum coke
- Sulphur
- Potash
- Grain
- Grave/ and crushed stone
- Iron ore
- Overburden

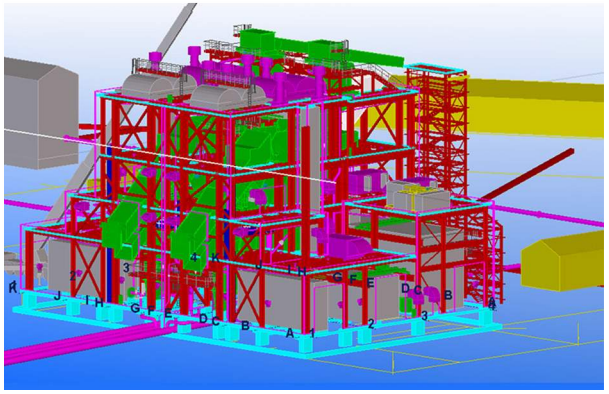
Oil and Gas

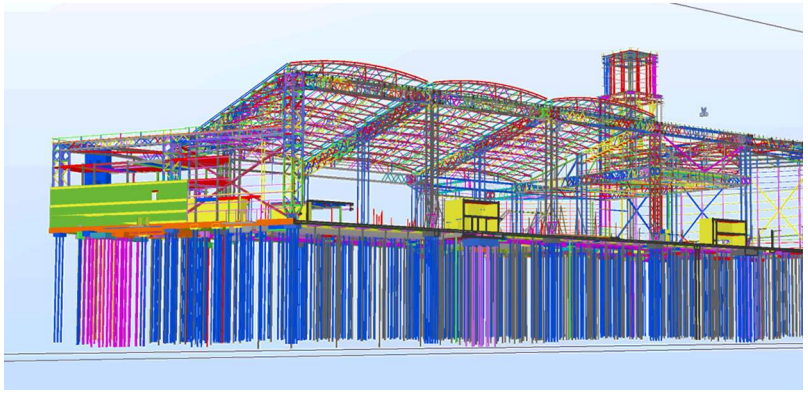
- Piping and pipe racks
- Tanks and tank farms
- Pressure vessels
- Hydrogen plants
- Sulphur pouring towers
- Heat recovery systems
- Civil works and site preparation
- Steel structures
- Packaged equipment (analysis)
- Equipment erection

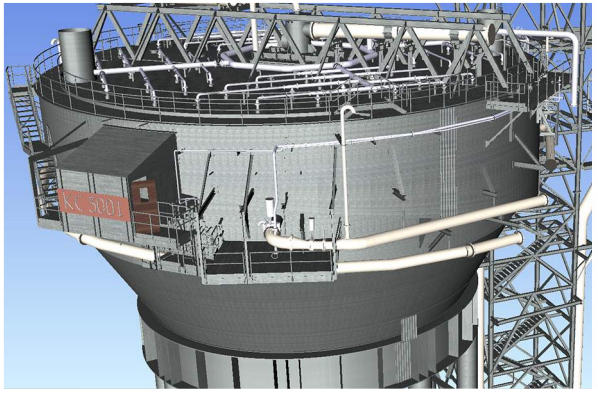
Infrastructure

- Port facilities
- Airport facilities
- Foundations (buildings)
- Foundations (equipment)
- Rail and truck transfer facilities
- Grain handling facilities
- Desalination plants
- Blast resistant structures









The Experience

Structural Engineering

- Finite Element Analysis (FEA)
- Design for extreme conditions
- Dynamic analysis
- Design of plate structures
- Stability studies
- Large-span structures
- High and low temperature design
- Metal fatigue assessment
- Welding
- Special connections

Mechanical Engineering

- Machine design
- Process plant pipe stress analysis
- ASME Section VIII Divisions 1 and 2 pressure vessels
- API 620/650 storage tanks
- Piping design and equipment layout
- API 579 fit-for-purpose analyses
- TC44 / CSA B626 portable tank design
- Mining equipment and systems
- Dynamic loading

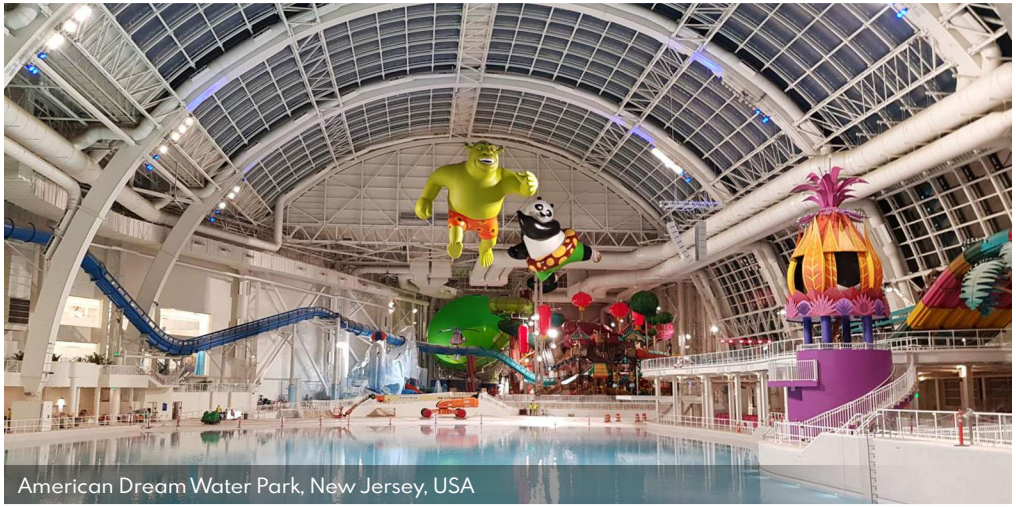
Building Engineering

- Building layouts
- Foundations, piles, concrete and masonry
- Steel superstructures
- Static and mobile roofs
- Wall cladding, partitions and facade
- Deep underground utilities
- Piping, HVAC and electrical layouts
- Civil infrastructures
- Vibration mitigation systems
- Fire resistance analysis
- Erection studies

Asset Development

- Concept and feasibility studies
- DBM and FEED
- Modularization studies
- Detailed design
- Code compliance
- Standard development
- Estimate development
- Procurement and logistics
- Construction oversight
- Project management

OPP2 Head Truss, Alberta, Canada



American Dream Water Park, New Jersey, USA

Kearl Lake Slurry Preparation Plant, Alberta, Canada

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