



**Engineering,  
Planning and Design**

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# Contents

Firm Description	1
Markets Served	3
Master Planning	5
Civil Engineering	7
Rail Design	9
General Arrangement	11
Processing Engineering	13
Industrial Architecture	15
Structural Engineering	17
Mechanical Engineering	19
Electrical Engineering	21
BIM / 3D Capabilities	23



## What Drives VAA?

Our work is fueled by team commitment to our Vision and Values. The nine interchangeable phrases created by the six words of our vision statement not only represents who we are, they embody our business philosophy and client relationships. This vision aligns with VAA's values - integrity, excellence, service and relationships - that drive VAA. Pervasive and distinctive, we are proud to share our culture with you.

outstanding  
diverse  
growing

clients  
people  
company

### integrity

Be honest and respectful with our clients and each other. Confront tough issues directly, and remain accountable. Build trust through high ethical standards.

### excellence

Strive to exceed expectations in every task. Approach challenges using expertise, knowledge and creativity.

### service

Work together to achieve our collective best on every project. Address needs and desires proactively and with flexibility. Communicate promptly and clearly.

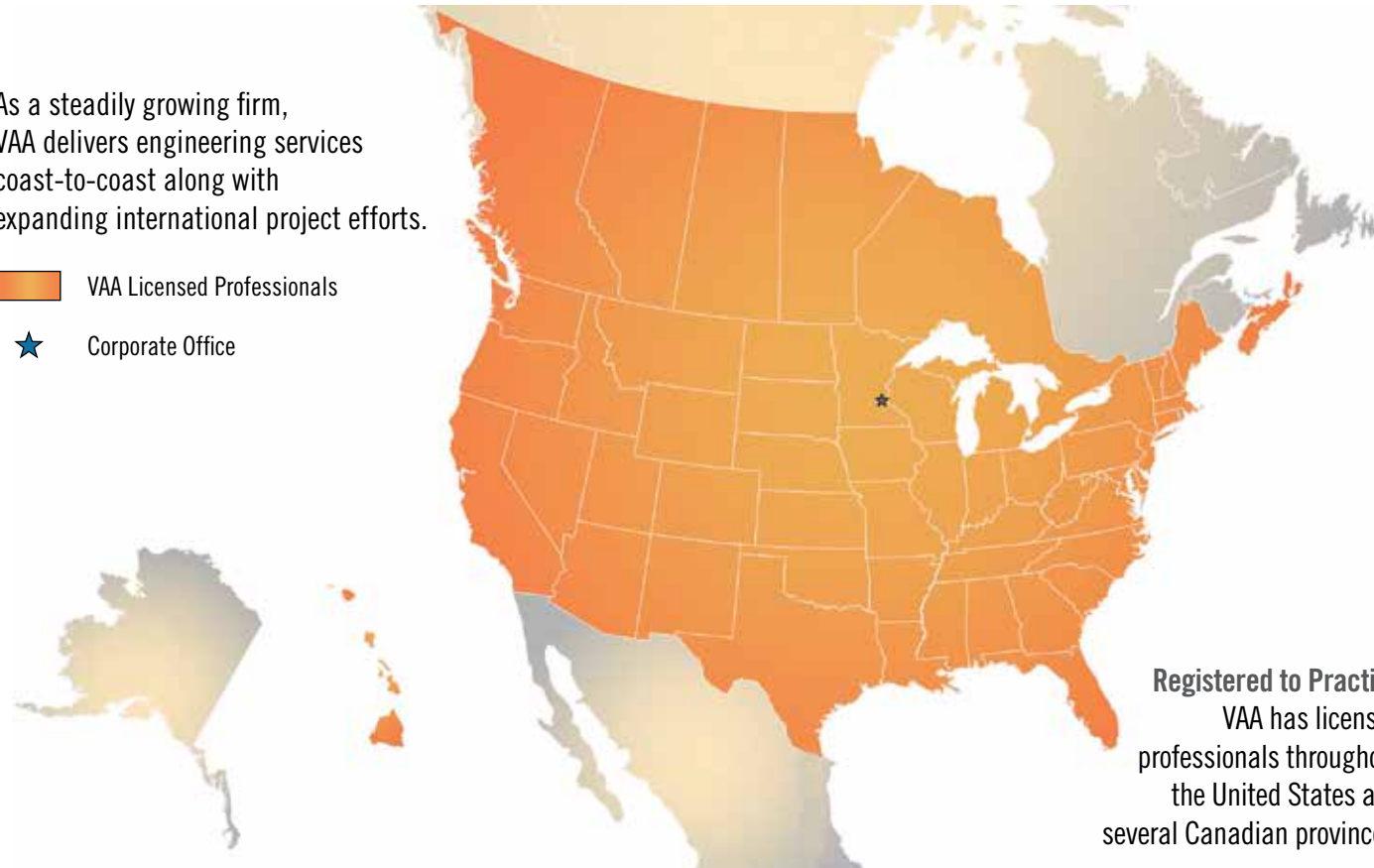
### relationships

Value employees and clients more than projects. Seek to understand the core meaning in all communications. Have fun together while building mutually beneficial relationships.

As a steadily growing firm, VAA delivers engineering services coast-to-coast along with expanding international project efforts.

 VAA Licensed Professionals

 Corporate Office



**Registered to Practice**  
VAA has licensed professionals throughout the United States and several Canadian provinces.

#### AGRIBUSINESS



#### BUILDINGS



#### INDUSTRIAL



## ENGINEERING, PLANNING & DESIGN SERVICES

Founded in 1978, VAA continues to grow and serve clients as a multidisciplinary firm. We focus our services in three sectors - Agribusiness, Buildings and Industrial. To distinguish VAA from other firms, you could look to our client relationships that span decades. Clients rely on VAA's services for new facilities, expansions and retrofits, but also for strategic planning, maintenance and process design. We specialize in bulk commodity-handling facilities, including material handling, value-added processes, transportation and export.

From our senior leadership team to our most recent employee, we value the trust our clients place in us and strive to earn it. We are committed to helping achieve your project goals, grow your business and build lasting relationships together.



# Markets Served

Alternative Energy

Chemical & Manufacturing

Feed

Fertilizer

Food / Beverage

Flour

Grain

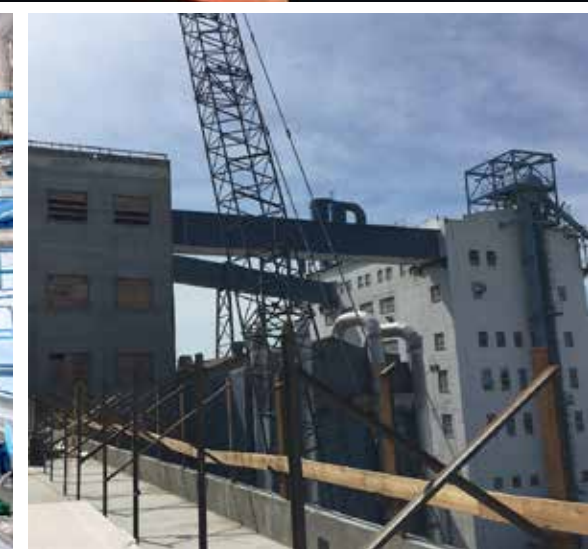
Minerals

Oil & Gas

Port / Marine

Power

Seed





## MASTER PLANNING

- Discuss Current & Future Goals
- Understand Local & Company-Wide Business Objectives
- Document Existing Facilities & Identify Bottlenecks
- Explore Solutions for Short- & Long-Term Plans
- Determine Project Budget & Schedules
- Accommodate Future Growth



### *Crafting the Solution*

Where is your business headed? VAA understands the value of discussing a new facility or expansion in light of long-term business goals. These goals impact any number of site and design decisions to enhance functionality, support cost savings and ease of business growth. We sit down with you and discuss how a project fits into your strategic vision, transportation trends and even future employee needs. Our team wants to understand your industry, process and people. VAA's approach positions a project for flexibility as business, economic or geographic needs change.

### *Service Contacts*

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## CIVIL ENGINEERING

- Site Planning
- Sanitary & Stormwater Utility Design
- Drainage, Erosion & Sediment Control Design
- Roadway Design & Layout
- Sustainable Design
- Stormwater Management (SWPPP & NPDES Permitting)
- Truck Simulation
- Agency Coordination (i.e. county, state, municipal, watershed districts, port authorities, provinces)



### *A Comprehensive Approach*

With experience throughout the United States and Canada, VAA's Civil Engineering Group focuses on driving early involvement and coordination with local authorities to bring potential issues related to permitting and utilities to the forefront to maximize site layout and design efficiency. VAA's three decades of experience has created a comprehensive approach to rail, site and facility design.



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## RAIL DESIGN

- Manifest Track
- Shuttle Load Facilities
- Transload Facilities
- Sequence of Operations Studies
- Site Selection
- Port Facilities
- Intermodal Facilities
- Hazardous Materials



### *More than Point A to Point B*

Working on commodity-handling facilities throughout North America has developed VAA's comprehensive understanding of how facilities function - from equipment and processes to transportation to and from a site. This knowledge augments the firm's rail design capabilities to support projects, including greenfield site development, rail expansions and increases in shuttle-train traffic and capacity needs.

By considering future trends, VAA helps clients determine the best track design for a site and/or a specific industry. Integrating rail layout with the overall vision of a facility provides designs tailored to industry practice and owner operations. Our work in the early stages of a project involves "big picture planning" such as assisting with site selection and preliminary design concepts. Together, our experiences with Class I Railroads, vendors, owners and contractors across markets have established our knowledge of each component in a project.

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## GENERAL ARRANGEMENT

- Process Flow Diagrams (PFDs)
- Facility & Equipment Layout
- Feasibility Study & Reports
- Rail / Truck / Vessel Receiving & Loadout
- Dust Control & Pneumatic Conveying
- Equipment Specifications, Bid Packages & Analysis
- Hazard Monitoring Equipment Layout
- Facility Evaluation
- Owners' Construction Representative

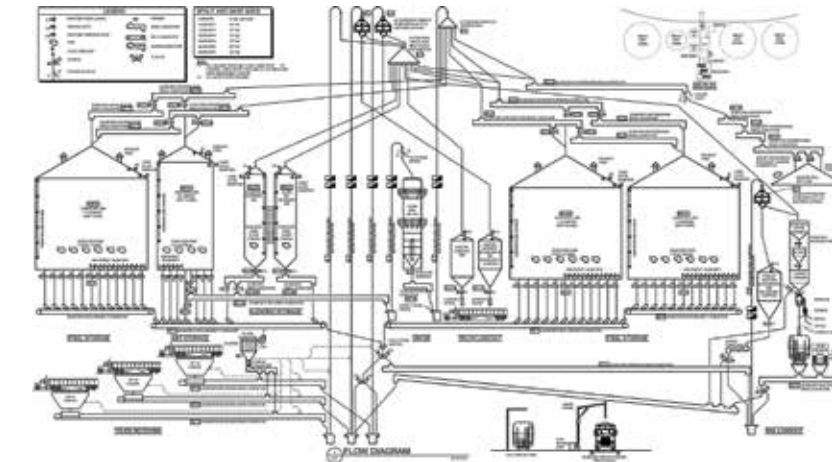


### *Asking the Right Questions*

We understand how different facilities function, regardless of the product being processed. By first understanding our clients' immediate and future business objectives, we tailor our work to address site-specific needs and use our experience to layout the equipment and the facility. Engaging clients to work through process flow scenarios, we draw out key criteria and guide the decision-making process by asking the right questions at critical project stages.

### *Commodity Proficiency*

- Feed (aquatic, domestic, livestock & poultry)
- Fertilizer (dry & liquid)
- Minerals (cement, sand, salt, etc.)
- Other (wood & pet coke)
- Processed Grains (canola meal, DDGS, malt, etc.)
- Seed
- Whole Grains (corn, soybean, wheat, etc.)



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## PROCESSING ENGINEERING

- Balance of Plant Design
- Equipment & Piping Layouts
- Description of Operations (D00s)
- Engineering Design Support During Start-Up & Commissioning
- Sanitary Design
- P&IDs & Process / Utility Flow Diagrams
- Process Instrumentation Datasheets & Coordination



### *Functional Design*

Count on VAA for process design related to chemical and food manufacturing, oil / gas and liquids, to name a few. We understand P&IDs, mass balance, equipment layout and specifications and heating / cooling systems related to a variety of processes and offer design support to owners, EPC and design-build contractors. Our services consider efficient process workflow within a facility as well as how equipment will be maintained and replaced when necessary.

### *Integration of Process Technologies*

- Centrifuges
- Clean-In-Place (CIP)
- Compression
- Distillation
- Extraction
- Filtration
- Membrane Systems



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## INDUSTRIAL ARCHITECTURE

- BIM / 3D Capabilities & Imaging
- Life Safety Code Analysis
- Specific Codes & Standards
- Site & Facility Assessments
- Building Design
- Sanitation Design
- Implementation Documents
- Contract Administration



### *Creating the Best First Impression*

The Industrial Architecture Group recognizes the layout and process flow on any project must work for both your business and employees. At the same time, clients who invite prospective customers to their facilities want a great first impression. When we consult on a project, we look at the best form and functionality based on client goals while adhering to programming, life safety code and constructability. VAA combines design leadership and planning capabilities with specialized knowledge and project management to maximize project value.



### *Service Contacts*

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## STRUCTURAL ENGINEERING

- Structural System Selection
- Forensic & Failure Investigations
- Design of Unique Structures
- Slipform Concrete Structures
- Dynamic Analysis & Pressure Release Expertise
- Seismic, High Wind Design
- Steel & Concrete Outlet Stacks
- Crane & Gantry Supports
- Platform Design
- Foundations  
(for tanks, generators, specialty equipment, vessels, etc.)



### *Efficiency in Structures*

Earned through decades of rigorous agribusiness and industrial experience, VAA has cultivated a reputation as a designer of efficient and flexible facilities. Structural engineers at VAA have experience with varied geographic climates, high coastal winds and seismic conditions to support structural stability and longevity. From hurricane coastlines to the great plains, our teams can provide designs to store, handle and process commodities for a range of industries.

Recognized for our detailed and practical approach, we extend our work beyond design to get to know our clients and their business. Working closely with general contractors and owners, VAA is a respected partner that looks toward continuing relationships long after project completion.

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## MECHANICAL ENGINEERING

- Industrial Building HVAC
- Material Handling, Conveyors & Dust Containment
- Steam Systems
- Process Cooling & Heating
- P&IDs & PFDs
- Heat Exchangers & Vessels
- Special Exhaust Systems
- Make-Up Air Systems
- Piping Design



### *Balance of Plant Design*

VAA's Mechanical Engineering Group provides services to national agribusiness and industrial clients on challenging new construction and facility expansions. The team offers the ability to deliver a total project - from conceptual design to construction documents and contractor support, including a broad range of mechanical systems to meet local code requirements and owner expectations. Clients commend our team for its quality performance, quick response time and internal and external team coordination.



### *Service Contacts*

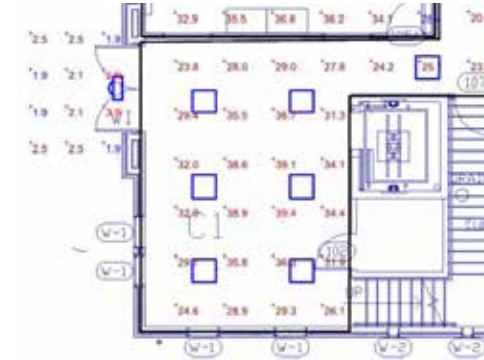
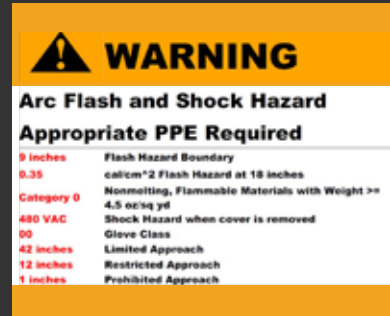
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# ELECTRICAL ENGINEERING

- Utility Coordination
- Arc / Flash Studies
- Harmonic & Power Factor Studies
- Emergency Systems
- Energy-Efficient Lighting
- Motor Control Center
- Power Distribution System Design
- Power Systems Analysis Studies
- Parking Lot, Site & Roadway Lighting



### Powering Facility Results

The Electrical Engineering Group brings energy-efficient and cost-effective solutions to support the larger vision for your facility. VAA designs and performs power system analyses of existing and new electrical distribution systems. The team frequently uses 3D modeling to provide the best internal coordination and reduce conflicts during construction. Invested in delivering both safe and functional designs, our electrical engineers incorporate traditional power, lighting and systems design for safety and energy efficiency.

## Service Contacts

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## BIM / 3D CAPABILITIES

VAA is a competent team member when considering 3D modeling for your facility or site. Integrating BIM / 3D programs with our design services since 2005, VAA has completed projects using REVIT, Bentley Structural, Solid Works, Civil 3D and AutoCAD 3D. Our work for owners and contractors gives us the knowledge and experience to create cost-effective, buildable solutions that meet your needs and accommodate changing industry trends.



### *Effective Communication*

Working with BIM / 3D models allows all disciplines to view and interact with actual designs. The process of developing these models encourages coordination discussions that may not occur with two dimensional software.

### *Coordinated Design*

Allowing multidiscipline design to occur in one integrated master model, BIM / 3D programs identify design elements that “clash” or components that occupy the same space. Conflicts can quickly be corrected during design, resulting in more accurate plan sets with fewer revisions.



### *Seeing is Believing*

BIM / 3D modeling offers opportunities to not only “see” a project spatially, but also how it will function. Instead of relying on your imagination, experience your facility through our realistic video / walk-throughs. With unique perspectives and multidiscipline input, our models support project coordination now and operational efficiency later.





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integrity • excellence • service • relationships