BUILT FROM THE GROUND
UP WITH OPERATIONS AND
CONSTRUCTION EXPERIENCE

Project Design Group, Inc. is a multi-discipline, full service, engineering & construction firm dedicated to providing accurate, efficient, cost effective, project services, delivered on time, accident free, with exceptional customer service.

Our diverse staff has been gathered from a variety of backgrounds for their specialized experience. We have a proven track record of assisting clients with all phases of their projects including studies, scoping, scheduling, detail design and construction management. Our capabilities range from the specification of a single piece of equipment, to complete multi-disciplinary design of complex industrial systems, and project management.

The next time that you need engineering services, contact PDG and let our experts help develop a solution that’s right for you.
REACHING THE EXPECTATIONS

Safety - We are committed to maintaining a safe work environment and an excellent safety record for both our staff and our clients:
PDG’s goal is to be 100% accident free.
All staff complete annual OSHA training.
All staff are subject to annual drug screening.

Experience - We have a strong Engineering, Construction, Manufacturing, Project Management and Field Support background. Our experience in these areas gives us the ability to engineer solutions that are detailed for construction, and practical for operation and maintenance.

Responsiveness - Each project is assigned a project manager that acts as a single point of direct contact for the customer and the project.

Client Focused - We are part of your team. PDG focuses on listening to the clients needs, and providing the right solutions cost effectively. We take pride in providing what is best for our clients.

Company History
- Project Design Group, Inc. was formed in Fall 2003
- Acquired General Contractors License for Construction in 2013
- Engineering, Project Management, and Construction

Our Focus
Markets
- Petrochemical & Chemical
- Pulp & Paper
- Specialty Chemical
- Refining
- Wood Products
- Power
Designing User Friendly Systems
Model Reviews help with getting input from the facilities, maintenance and operations staff. Allowing them to educate the design team on specific ways that would be helpful in the long term operation and maintenance of the system. This can reduce the total cost of ownership of the system by reducing operation and maintenance inefficiencies.

Reducing Project Cost
In the study phase of projects these quick preliminary models allow for better cost estimates by allowing bulk material takeaways from a model. These early phase models also help to work out issues with precision such as general arrangements. As the project moves into detail design these models continue to be developed up to the final design.

Senior Experience
All of the key project roles are led by Engineers and Project Managers with more than 20 years of Industrial engineering experience. This knowledge enables our project team to see the underlying project issues and initiate plans to reduce project risks.

Specialized Skills
Often projects require specialized expertise to accomplish the job scope. Some of these specialized services include Pro/II Modeling for chemical process engineering and Caesar II piping stress analysis for high pressure, high temperature piping engineering.
“From concept to construction, we work together.”

WES GERHARDT - OWNER / PRINCIPAL ENGINEER

TAKING DESIGN TO THE NEXT LEVEL WITH OUR ADVANCED TOOLS

- Timberline Estimating
- Caesar II – Piping Stress Analysis
- STAAD – Finite Element Structural Analysis
- RAM Elements – Finite Element Structural Analysis
- Design Flow Solutions – Hydraulic Network Software
- CADWorx 3D – 3D Plant Design Software
- Autocad Plant 3D Design
- Bentley AutoPlant
- Navisworks Design Review
- MS Project
- Autocad and Autocad Mechanical
- Microstation
- Total Station (Plant Surveying, Grade, Model Data)
- Easy Power (Power Studies, Arc Flash, Breaker Coordination, Short Circuit Analysis)
- (CodeCalc, Tank, Aspen, SimSci-Essor Pro/II, ETAP)
- AGI 32 and Visual Lighting Software
- Laser Scanning (Leica)
- Cloudworx

WWW.PDGENG.COM
We provide a diverse set of project services to enhance, maintain, and protect the businesses of our clients.

MOVING FORWARD WITH SOLID ENGINEERING

Project Management
Scope Development
Funding Grade Studies
Project Planning and Scheduling
Cost Estimates
Detail Engineering
Construction Technical Bid Packages
Cost Control and Tracking
Grant Writing, Funding Applications, Permits
In-Plant Support

Construction Management
Cost Control
Scheduling
Planning
Turnaround and Shutdown Planning
Quality Management
Safety
Constructability
Startup and commissioning
Construction Co-ordination
Field Engineering
Contract Management
Materials Management

Systems / Process Design
Mass Energy Balances
Simulations and Studies
PFD and P&I Diagram Development
Hydraulic Studies
Relief System Studies and Calculations
Process Equipment Specification
Trouble Shooting Hydraulic Systems and Utility Systems
Material Selection
Power/Steam, Solids Handling, Pulp and Paper, Refining, Chemicals, Waste Treatment
PSV Calculations and Studies
Process Design and Analysis
Environmental Compliance Systems

Mechanical
Mechanical Equipment Engineering
Equipment Specification and Design (including Pumps, Compressors, Chillers, Boilers, Turbine Generator Sets, Cooling Towers, Tanks, Pressure vessels, Tanks, Columns, Heat Exchangers, Fired Equipment, Etc.)
Hydraulic Network Analysis
Solids Handling (Including Pneumatic Conveying)
Failure Analysis
Fabrication Quality Audits
Equipment Reliability and Improvement
Maintenance and Lift Planning
Mechanical Integrity Program
HVAC Engineering
Engineering

Studies
Front End Loading
Funding Grade Studies
Scope Definition
Cost Estimates
Specifications
Project Management
Detail Design (All Disciplines)
Analysis (Stress, Structural, Hydraulic)
Equipment Supplier Shop Inspections
Field Engineering
Planning & Scheduling

Piping
Plot Plans & Layouts
General Arrangements
3D Plant Design [CADWORX]
Pipe Routing and Fabrication Isometrics
Piping Stress Engineering and Analysis (Caesar II)
Pipe Specification Development
Maintenance, Installation and Planning
Field Engineering and In-Plant Support
High Pressure (2800 psig) and High Temperature Experience

Electrical / Instrumentation
Electrical single line & motor load list development
Easy Power System Studies – modeling
[short circuit, load flow, arc flash & protective coordination studies]
Electrical Equipment Specification
[switchgear, transformers, MCCs, VF drives, motors]
Power and Control cable and tray sizing and routing
Motor Control Schematics
Lighting Analysis and Design
Grounding Plans Incorporating IEEE and NEC
Fabrication Quality and Factory Acceptance Test Audits
Instrument Specification [flow, level, pH, temperature, pressure, oxygen, etc.]
Control Logic Detail Development Support
P&I Diagram Development
Analyzer s for Process and Environment

Civil / Structural
Site Development and Site Plans
Storm Water Management Studies and Improvements
Retaining Wall Design
Foundation Design
Concrete Design
Fall Protection Systems
Rigging and Lift Planning
Finite Element Analysis
Structural Analysis and Design (STAAD & RAM)
Structural Evaluations and Retrofit Design
Seismic and Wind Analysis / Design
Bridge Crane, Monorail, and Lifting Beam Design
Tank Support Structures and Pipe Bridge Design
Access Platform, Mezzanine, Stair and Handrail Design
3D Modeling, Construction Drawings, Detail Drawings
Surveying Services - Total Station
Construction Cost Estimating and Support
ONE SCANNING SOLUTION
START TO FINISH

How it Works
A spinning and rapidly pulsating laser beam rotates around the vertical axis emitting 1 million points per second. Each pulsating beam of light then bounces back to the scanner. Based on a precise measurement of the time the beam traveled to and from the object, the scanner is able to accurately determine the distance of a specific point. Then by using this distance with a reference laser distance and the angle of the mirror the scanner is able to determine the specific location of a single point. Then by merging a photo with the scanned data a photo realistic 3D point cloud is created.

Step 1 – Field Scanning
Our expert surveyors use industrial grade ultra-high speed Leica scanners to take into the field. They then position the scanner and targets to get a scan from each vantage point around an object to make sure that they have scanned all surfaces included in the object.

Step 2 – Registration
Next the raw data that has been captured with the scanner is loaded into special software that stitches each scanned vantage point together to create a single point cloud. This process is called registration. The scans can also be accurately referenced to through the use of geolocation.

Step 3 – Publishing
After registration a variety of deliverables can be published: 2D Plans and Elevations, Panoramic Images (that enable measurements to be pulled from the image), Section and Profile Views, Wireframe and Surface Models.
Improved Retrofit Designs
Designers frequently have to design in and around existing structures for projects. Starting with a 3D scan of the existing structure and area gives a clear and accurate understanding of exactly where the current structures are located. This results in eliminating interferences and making sure that necessary clearances are maintained.

Quickly Evaluate Concepts
A point cloud can allow you to quickly and accurately evaluate how a proposed design will fit into an existing environment.

Facility Life Cycle Management
Once a scan has been performed and a point cloud has been produced, then accurate plant measurements can be taken from any part of the scan. This is helpful, not only for the current project, but for future projects as well.

Quality Control
Scans can be used to evaluate “as-built” constructions as verification that they met the design criteria.

Increased Productivity
Industrial projects often have tight timelines for completion. By being able to quickly and accurately gather all of the existing measurements needed, the design teams are able to begin work more quickly. This expedites the overall project schedule.

Lower Surveying Cost
Manual surveying processes are time consuming and often require numerous days in the field to gather the survey information needed. Traditional surveying is also prone to costly errors, since one missed dimension could require a team to make an additional trip to acquire the missed measurement. With a 3D laser scanner the data acquisition happens much faster, and the likelihood of a missed dimension is greatly reduced.
PARTIAL CLIENT LIST

- Boise
- Georgia-Pacific
- Kemira
- Evonik Industries
- Temple-Inland
- RockTenn
- Environ
- PowerSouth Energy Cooperative
- Mitsubishi
- INEOS
- ExxonMobil
- CF Industries
- Total
- DAK Americas
PAST PROJECT EXAMPLES

Main Tank Farm Emergency Generator
Reboiler Debottlenecking
Mill Warm Water System Optimization
Specialty Chemicals Waste Water Treatment Plant Upgrade (Funding Grade Estimate & Detail Design)
Concentrator Thermo Compressor
K2300/K2500 Hydrocracker Compressor Turbine Overspeed Protection
Paper Machine Dry End Starch Conversion
Breaker Stabilization Tank
Mill Wide Natural Gas Study
Organic Chemical Plant Expansion
Recovery Boiler Burner Management Safety System and Boiler Upgrade to Natural Gas
Lighting System Plant Upgrade
Boiler M.A.C.T. Combination Boiler Upgrade & New Power Boiler Installations
Mechanical Integrity Program Development
Recovery Boiler Natural Gas Conversion
Energy Monitoring Study-Steam Demand
Tissue Converting Dust Collection
Recovery Boiler Air Optimization Project
New Chip Thickness Screening System-Scope and Estimate
Tissue Machine Dry End Pulper Rebuild
New Polymer Modified Asphalt Unit

Concrete Repair Study and Recommendations
C-2030 Process Air Compressor and Building
Process Sealed Sewer Refurbishment
1250# Steam Header Engineering and Stress Analysis
Refrery Waste Water Treatment Plant Expansion Study / Detail
Fine Paper Machines Starch Systems-Scope and Estimate
Size Press Starch Cooker Replacement
New Vapor Destruction Unit
Urban Wood Handling Study
Chemical Waste Water Treatment Plant Expansion Study / Detail
Lime Kiln Burner Replacement & BMS Replacement
DMAPA Process De-Coupling
EPAM Reactor Addition
Breaker Addition
Flue Gas Cooler Replacement
New Chiller
Recovery Boiler Screen Tube Replacement
Recovery Boiler Floor, Front Wall, and Dissolving Tank Replacement
Safety Relief Valve Audit / Study (150 Valves)
Lighting System Upgrades Lowering Operational and Maintenance Costs
Tissue Machine - Vacuum Pick-up Box at Forming Roll
New Drilling Fluid Mud and Cement Plants