

CORE SERVICES

Conceptual/Pre-Project Planning

Project Engineering

Process Engineering

Mechanical Engineering

Piping Engineering

Instrumentation Engineering

Electrical Engineering

Civil/Structural Engineering

Procurement

Estimating (Conceptual & Detailed)

Constructability

Cost Analysis

Planning and Scheduling



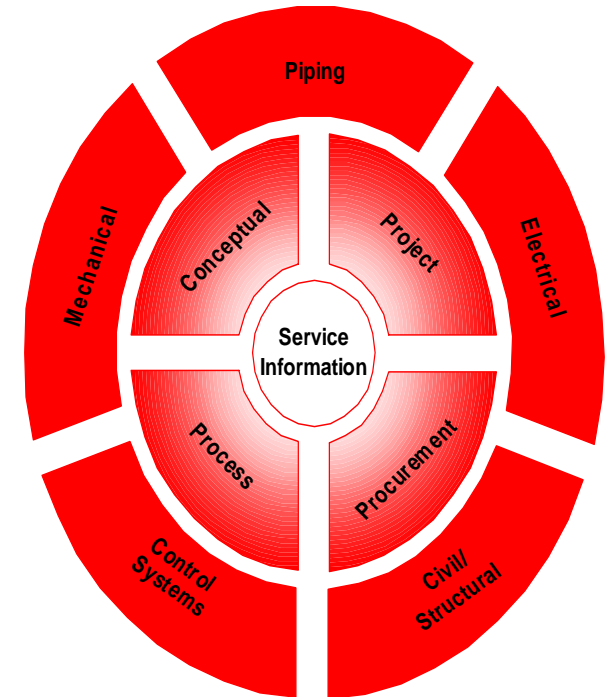
CII studies have shown that owners who implement and utilize Engineering Pre-Project Planning Best Practices on projects save approximately 4% of total project authorization cost and reduce schedule durations by approximately 13% versus owners who do not utilize Pre-Project Planning Best Practices.



Heavy Industrial Engineering



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Heavy Industrial Engineering

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CB&A's Engineering Services

CB&A can provide engineering support to meet the needs of heavy industrial customers. CB&A offers not only the versatility to take on whatever tasks are to be met, but also the flexibility to meet our customers' formats and existing standards. CB&A works closely with our customers to provide engineering services ranging from conceptual through detail design. Our services include the preparation of front end engineering packages, scope of work, capital development, detail design, procurement, preparation of work packages, and construction/start-up support. With a background which began in project services, we recognize the impact of design on the overall project.

CB&A's main focus is on meeting our customer's requirements and producing a quality package in a cost effective manner. Cost of deliverables and level of detail in design must always be balanced. This is why CB&A works closely with our customers to identify their specific project requirements.

To learn more about CB&A or inquire about a specific service, please contact Steve Moon by calling 256-552-7641 or e-mail moonms@cba-projectmgt.com.

Capabilities

- **Conceptual/Pre-Project Planning**—Scope Definition, Process Calculations, Process Studies, Process Flow Diagrams, Heat & Material Balances, Equipment Data Sheets, Equipment Lists, General Arrangements, P&ID's, Hydraulic Calculations, Line Sizing, Discipline Take-Off Quantities, Value Engineering, Cost Estimating, Planning/Scheduling, 3-D Modeling.
- **Project Engineering**— Engineering, Procurement, & Construction Coordination from Conceptual Through Start-Up, Organizing Project Teams, Controlling Project Scope Of Work, Developing & Controlling Project Execution Plans, Schedules, & Budgets.
- **Process Engineering**— Calculations & Simulations, Process Flow Diagrams, Equipment Data Sheets, Heat & Material Balances, P&ID's.
- **Mechanical Engineering**—Heat Exchangers, Pressure Vessels, Rotating Equipment, Material Handling, Engineered Package Equipment, HVAC, 3-D Modeling.
- **Piping Engineering**— Piping Design, Isometrics, Pipe Stress Analysis, Pump Calculations, Fire Protections, Plumbing, 3-D Modeling.
- **Instrumentation Engineering**—P&ID Development, Instrument & Control Valve Specifications, Control Panel Design, Installation Details, PLC Configuration, DCS Configurations.
- **Electrical Engineering**—Power Distribution, Power Generation Equipment, Lighting, Communications, Grounding, 3-D Modeling.
- **Civil/Structural Engineering**—Site Development, Effluent Collection & Treatment, Foundations, Structural Steel, Heavy Plate Duct Work, 3-D Modeling.
- **Procurement**—Vendor Qualification, Inquiry Package Development, Bid Tabulation, Evaluation, Requisitions, Expediting, Vendor Drawings.

Staffing Experience

INDUSTRIES

- Acetate Fibers
- Chlor Alkalai
- Compressor Manufacturing
- Fluoropolymers
- Metals & Alloys
- Microturbine Power Generation
- Power
- Pulp & Paper
- Specialty Chemicals
- Waste Water Treatment

CB&A's Best Practices

- OSHA 1910.119 Compliant Design (PSM, MOC, PHA)
- Balance Of Design Cost
- Constructability
- Economy Of Design
- Partnering/Team Building
- Project Controls
- Scope Definition & Control (Includes Operations, Maintenance, EH&S, etc.)
- Team Quality Reviews

