

Capabilities Overview

POWER Engineers Discipline Services
Food and Beverage

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Company Profile: Food and Beverage



POWER's corporate headquarters in Hailey, ID

Just the Facts

- *Founded in 1976*
- *45+ offices across North America*
- *\$580M (2021)*
- *230+ food and beverage team members*

Core Competencies

- *Continuous Processing*
- *Critical Infrastructure*
- *Controlled Environments*

FIRM OVERVIEW

POWER Engineers (POWER) is a progressive consulting engineering firm specializing in energy, facilities (food and beverage), environmental, and federal project services. From our beginnings in small-town Hailey, Idaho, we've become a global, multidiscipline firm with more than 3,000 team members.

THE ART AND SCIENCE OF MANUFACTURING FACILITIES

With our full spectrum of multidiscipline engineering solutions under one roof, we practice the art and science of manufacturing plant design. We provide clients with project planning and delivery services that help reduce risk and bring order to the fast-paced manufacturing world. Our team understands the impact capital decisions can have on your business – from the plant floor to the retailer's shelves. We plan and deliver practical solutions that reduce the lifecycle cost of your facilities.

THE POWER OF PARTNERSHIP

We've established and maintained strong, long-term partnerships with industry leaders – a testament to our work in fast-paced manufacturing environments. Our projects succeed when we build partnerships and collaborate. Understanding our clients' manufacturing objectives allows us to deliver high quality work that maximizes available resources such as equipment, space, energy, and materials. We're invested in your project outcomes and work as an extension of your team. By partnering with POWER, your projects benefit from our industry-spanning experience with equipment vendors, contractors, and other consultants. We're creating a network of excellence for project execution, and we invite you to take part in it.

Located Coast-to-Coast to Support Your Projects



SAFETY

POWER is classified by the Department of Labor as SIC: 8711 and consistently outperforms engineering services and general industry benchmarks for occupational safety. In 2021, we had an EMR of .55, an RIR of .16 and a DART rate of .06. We have maintained industry-leading levels of safety performance for the past several years. Our safety success is based on a firm commitment by our employees to avoid injuries, work within scope, and improve our culture of safety.

ENERGY AND SUSTAINABILITY

We have designed sustainable facilities and infrastructure for years, with energy-efficient designs for process and manufacturing equipment. We incorporate lifecycle costs and materials conservation as major criteria. Because we strive to implement high-performance buildings with energy-efficient designs, we offer sustainable designs that support LEED requirements. POWER is a member of the U.S. Green Building Council and has several LEED Accredited Professionals on staff. We are also a Charter Member of the Institute for Sustainable Infrastructure (ISI), at the highest membership level. ISI is a 501(c)(3) not-for-profit, structured to develop and maintain a sustainability rating system for civil infrastructure in the United States.



Comprehensive Services

- *Project Management*
- *Architectural Services*
- *Civil Engineering*
- *Structural Engineering*
- *Process Engineering*
- *Packaging Systems Design and Engineering*
- *Mechanical Engineering*
- *Electrical Engineering*
- *Controls, Automation and Integration*
- *Environmental Engineering*
- *Program/Construction Management*

CIVIL ENGINEERING

Our civil team partners early with clients in the project process, ensuring that the selected site is a good match for the facility, and then develops the necessary design documents to maximize its effectiveness.



Our experienced team brings a nimble project approach and a strong project portfolio of successfully executed civil engineering services.

Key Services

- Design services master planning
- Feasibility studies
- Environmental permitting
- Land use planning and permitting
- Site development and utilities
- Survey and geotechnical coordination
- Grading and erosion control
- Stormwater drainage and control
- Watershed and hydrologic analyses
- Storm water pollution prevention plans
- Crossings and culverts
- Water and wastewater systems
- Roadway and transportation facilities

STRUCTURAL ENGINEERING

Our experienced structural engineering staff members are adept at providing designs that meet our clients' needs. With input and review from our clients, as well as local building departments, we develop clear and comprehensive statements of structural requirements and design criteria to be used throughout the design of the project. We can also provide a preliminary conceptual structural layout as a basis of design to determine construction materials and area planning.



Multidiscipline engineering services were provided for this 170,000 square-foot greenfield manufacturing facility.

Key Services

- Master planning
- Structural application of soils and geotechnical analyses
- ADA/OSHA compliance environmental permitting
- Platform design (tailored to client's standards)
- Structural building code coordination
- Rehabilitation and retrofit of existing structures
- Feasibility studies
- Rapid structural analysis through 3D modeling
- GMP structural curbs, columns and structural detailing
- Integrated process pipe rack design
- Design for future needs

ARCHITECTURAL SERVICES

The architectural group provides architectural designs for new facilities, renovations, remodels, and adaptive re-use of existing buildings to perform new functions. We can provide a complete range of architectural services ranging from master planning,

feasibility studies to final detailed design and construction support. The architectural group can provide computer-generated “what if” conceptual building designs for new facilities and, using an existing facility for a base, is able to show management what proposed building modifications or additions would look like. These preliminary concepts can help generate estimated costs to aid management decisions. These relatively inexpensive graphic products are presented in 3-D and are readily understood. Our building type experience includes industrial production and manufacturing facilities, clean room manufacturing and research facilities, electronic technology production facilities, generation power plants, control buildings, warehouse and maintenance buildings and office/administrative buildings.



This 1947 building's renovation design by POWER, as seen from this 3-D rendering, enabled this major manufacturer to increase capacity through an upgrade of its process machinery.

Key Services

- Site planning/site selection
- Conceptual design, design development through final design
- Programming, planning or space planning
- Building code review and analysis
- Permitting support
- Ground-penetrating radar
- Geotechnical survey coordination
- Integrated design with all disciplines
- Sustainability and/or LEED, if desired
- Design to client's budget
- Building retrofits

PROCESS ENGINEERING

Our process team has worked in an abundance of facilities, which has allowed us to examine processes, equipment, and system crossover. We bring relevant and innovative applications from other industries and tailor them to fit your needs. We regularly evaluate and redesign existing food processing lines and systems to eliminate bottlenecks, reduce downtime, increase capacity, and improve quality. We assist with technology selection by researching available options and then matching vendor requirements, project budget, and operating and maintenance costs to the client's needs. We design accessible and easy-to-maintain work areas and platforms, because moisture and dust have no place in your plant. We are committed to understanding your specific process needs to reduce time and save costs. Our process design professionals know how to ask the right questions, and ensure answers are understood before design begins.



POWER coordinates process design projects of all scales and sizes.

Key Services

- Conceptual design
- Piping and instrumentation diagrams (P&IDs)
- Project scoping and budgeting
- Specifications
- Installation scoping documents
- Startup supervision
- Process line assessment and optimization

PACKAGING SYSTEMS DESIGN AND ENGINEERING

Our packaging systems specialists really know their business. Our engineers and designers understand packaging operations are conspicuously capital-intensive. As a result, we perform a detailed analysis of our clients' needs and existing systems prior to starting the design process. With extensive knowledge of equipment capabilities, efficient layouts and critical quality control, our engineers are veterans at providing reliable solutions that meet our clients' highest packaging expectations. We provide procurement, installation, and startup support for all kinds of packaging systems, so you can make the best investment decision early on. Years of hands-on experience has taught us how to mitigate risks throughout project development and minimize startup time, so you can get to business.



We can tackle complex packaging line challenges to create your ideal system.

Key Services

- Packaging plant surveys
- Conceptual design
- Preliminary design
- Final engineering

- Procurement expertise
- Installation and startup support

MECHANICAL ENGINEERING

The mechanical department has extensive utility design experience covering sizing and specifying industrial plant utilities inclusive of boilers, economizers, deaerators, backflow preventers, water treatment equipment, hot water generators, direct contact heaters, high pressure wash down skids, air compressors, filter-dryers, and receivers. We have extensive HVAC design experience and capabilities. Our experience ranges from simple halocarbon split systems to complex chilled water systems. POWER is an active member of the International Institute of Ammonia Refrigeration (IIAR). Our membership lets us stay abreast of industrial refrigeration trends and pitfalls, particularly around ammonia.



From boilers and utilities to HVAC and exhaust systems, our mechanical team is skilled in infrastructure systems.

Key Services

- HVAC design (standard and hygienic)
- Gas handling (argon, helium, nitrogen, CO₂, etc.)
- Compressed air systems (dry air, high pressure, etc.)
- Systems analysis, troubleshooting and improvement

- Mechanical utilities assessment and upgrades
- Ammonia refrigeration/cold storage systems design
- Steam, boiler, and chiller design
- Scrubber and fume exhaust systems
- Chilled water
- Fire water and fire alarms

ELECTRICAL ENGINEERING

Our outcome-driven electrical engineers have broad industry experience and provide smart solutions for each project's unique requirements. Our teams have worked with a variety of electrical systems from full power system design to small commercial units and simple additions to existing sites. Our electrical engineers are engaged and involved with other disciplines from the start. Early and frequent communication and planning results in a smoother project with few surprises down the line.



Our team can provide clients with a wide variety of studies and evaluations, including arc flash, power quality, and energy use.

Key Services

- Grounding system design
- Plant-wide electrical distribution system design
- Emergency power/UPS design
- Code assessment
- Planning
- Lighting
- Fire detection and alarm system
- Security and access control system
- Motor control design
- Conduit/cable tray and cable sizing
- Systems analysis, troubleshooting and improvement
- Power quality measurement and analysis

AUTOMATION, CONTROLS, AND INTEGRATION

Our control specialists offer true system integration. As in our other disciplines, the controls team is comprised of individuals with real-world project experience. Their experience observing and working with plant equipment makes our systems integration team a go-to resource for optimizing design and streamlining production systems. The level of understanding and technical strength of our team is one of POWER's strongest virtues and key to the success of our projects. Our team is experienced in providing controls engineering to support all plant operations, including, but not limited to, process, packaging, and material handling. Roles and responsibilities on past projects include providing control panel design, control philosophy development, P&ID drawings, instrument application engineering, PLC programming, SCADA, HMI, etc. We have broad experience with providing E&IC design, bid package development, and implementation.



Our team is skilled in high-performance, high-reliability controls systems.

Key Services

- Controls system assessment and optimization
- Exceptional system documentation
- Batch management and historian programming
- Instrumentation and control system design
- PLC, HMI, SCADA, DCS, MC programming and troubleshooting
- Manufacturing execution systems
- Network configuration
- Energy management and control

ENVIRONMENTAL SERVICES

Our environmental services encompass environmental planning, resource survey and analysis, permitting, and monitoring and compliance. We develop practical alternatives that are environmentally sound and publicly acceptable to help meet your project goals and minimize impacts.



We provide tailored water and wastewater solutions to meet treatment and regulatory needs for your facility.

Key Services

Siting assistance:

- *Water source availability and quality*
- *Wastewater discharge regulations*
- *Permitting*

Process water:

- *Efficient process development*
- *Reuse of waste streams*

Wastewater treatment:

- *Direct, indirect, and categorical discharge*
- *Wastewater sampling, analytical coordination, and interpretation*
- *Treatability testing*
- *Performance assessments and recommendations*
- *Regulatory compliance and permitting*

PROJECT/PROGRAM MANAGEMENT

Project Managers: Our project managers (PMs) are responsible for working directly with clients to determine project requirements, scope, and approach; to develop a full work plan; negotiate the contracts; and to interact with the project team throughout the project to ensure design standards, schedule, and budget are met. Our PMs are accorded significant authority, allowing for real-time decisions and responsiveness.

Project Engineers: Project engineers (PEs) assist the PM in providing additional leadership and coordination for the technical elements of our projects. PEs help develop the technical scope and pull together effective project teams. They are responsible for supervising the technical quality of deliverables, and provide reviews as required. They work with our leads to establish design criteria and CAD standards, ensure deliverable deadlines are met, and direct the team's technical scope.

Program Management: Choosing POWER means you're not just hiring a proven program manager, but a consultant that will staff programs efficiently by drawing on our talented engineering staff. We communicate regularly with you, but handle the day-to-day decision making, allowing you to focus on your strategic responsibilities.



Whether you're looking for design management, capital program support, or an on-site embedded team member, POWER's project managers are here to help.

Total Project Execution (TPE)

TPE is the system we use to coordinate and prioritize resources for the entire project and manage overall associated costs and risks.

As part of our TPE approach, we operate as an extension of your staff,

advocating for your best interests while coordinating and managing all aspects of the project.

We do this by using the most up-to-date program management tools and building a program approach that is centered on your needs and priorities.