



Industrial Facilities Engineering, Inc.
Design and Construction Management

SERVICES and QUALIFICATIONS

Offices in Phoenix, Denver, Chicago, and San Juan PR.

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IFE - Corporate Overview

Overview

Industrial Facilities Engineering, Inc. offers engineering services specializing in detailed engineering design and construction management for industrial and public infrastructure upgrades. IFE technical staff has significant experience in design and construction of public drinking water treatment and distribution systems, wastewater treatment facilities, pharmaceutical manufacturing, and food processing industries. IFE has offices located at client facilities and also maintains offices in Phoenix, AZ, San Juan, PR, Gurnee, IL, and Denver, CO.

Mission

Industrial Facilities Engineering, Inc. (IFE) will add value to our client's operations and financial interests by improving their municipal or industrial facilities through cost effective designs and construction management.

Clients

IFE industrial clients include Abbott Laboratories, Johnson & Johnson, Ferro Phansteil, BV Knoll Pharmaceuticals, Janssen Ortho, J.R. Simplot, Rooms to Go, US Gypsum, and Coors Brewing Company. Municipal clients of the IFE team include the City of North Chicago, City of Quincy, Illinois, and City of Denver, CO, City of Albuquerque, NM, and the World Bank.

Safety

IFE considers safety to be of the utmost importance both in our designs and in the field during construction. IFE has developed specific and security safety policies and procedures contained in the IFE Safety and Risk Management Plan. All IFE personnel are required to complete OSHA Construction Safety Training and any and all client and site specific safety training.

Security

IFE is a member of the Federal Bureau of Investigation's (FBI) Infragard. Infragard is an organization with invited public and private sector members dedicated to improving the security of the critical infrastructure of the United States, including drinking water systems. IFE is committed to checking references and completing background checks on all IFE staff members and subcontractors prior to starting any work assignment at our facilities or our client's. Our security assessment and design team includes former FBI Special Agents in Charge.

Drug and Alcohol Policy

IFE enforces a strict drug and alcohol policy including initial drug screening, random drug tests, and disciplinary action, including termination, for any use of drugs or alcohol at any IFE or client work place.

Sexual Harassment and Equal Employment Opportunity Policy

IFE's policy regarding sexual harassment requires all IFE staff members and subcontractors to complete training regarding sexual harassment and acceptable work place behavior prior to starting work.

Document Control and IFE's Secure Web Site



Access to files and project information on our secure web site is limited to IFE staff and clients with authorized access codes and is hosted on a dedicated server. The web site supports secure transfer of files and information using “ftp” technology to simplify file sharing and viewing drawings in commonly used “pdf” format. Therefore, clients do not need to have CAD software to view and comment on drawings in progress. IFE uses web based software to track all final design and construction documentation.

Quality Control

IFE always engages qualified and licensed professional engineers to complete quality control reviews of all projects. These reviews are always documented. For construction projects, IFE maintains field notes, photographs, and all documentation of responsible charge engineer approved field changes.

Subcontracting Policy

IFE maintains a policy of engaging small business concerns, small disadvantaged business concern, and women-owned small business concerns. The goal of this policy is to award up to 10% of total subcontracts to these 3 types of businesses.



Industrial Facilities Engineering Inc. (IFE) Services

Engineering Design

- Civil - Structural**
- Civil - Environmental – Water and Wastewater**
- Geotechnical**
- Mechanical**
- Electrical and Controls**
- Validation**
- Utilities**
- Aquifer Storage and Recovery**
- AutoCAD and Microstation**
- Land Surveying**
- Bid documents – drawings and specifications**

Architectural

- Laboratory and clean room upgrades**
- Production area upgrades**
- Building code review and feasibility**

Construction Management and Inspections

- Construction Observation and Technical Support**
- Safety watch**
- Progress/Quality checks and reporting**

Construction

- Water Treatment Plants**
- Wastewater Treatment Plants**
- Water Mains**
- Sewer Force Mains, Lift Stations**
- Sludge Processing Facilities**
- Odor Control Systems**
- Structural Steel, Foundations**
- Mechanical, HVAC, Process**
- Utilities**
- Instrumentation and Controls**



IFE - Representative Projects

IFE is an Illinois corporation offering engineering and architectural design services for preparing calculations, drawings, and specifications for bidding and constructing municipal waster and wastewater and manufacturing utility and facility capital improvements. Our staff members have completed numerous municipal and industrial facilities design projects. A brief list of representative projects is presented below:

1. **Municipal Drinking Water Treatment Plant - Pressure Controlling Surge Tank** - Municipal Water Treatment Plant – Detailed design and construction for hydro pneumatic surge tank needed to control pressure surges and extend the life of aging water mains. Excavation, foundations, structural steel, architectural, mechanical piping, mechanical HVAC, electrical, and controls drawings, specifications and bid packages were prepared.
2. **Municipal Water Treatment Plant** - Electrical System Upgrade - Design and construction for replacing 2 - 350 HP pump motors with variable frequency drives (VFDs) to reduce energy costs and add operating flexibility. Included wiring, controls modifications, commissioning, startup, and water plant staff training.
3. **Industrial Wastewater Treatment System** - Preliminary design and budget estimating for biological wastewater pretreatment system for large biotech pharmaceutical production facility.
4. **Overhead Utility Rack Upgrades** - Detailed design and construction supervision for integrating a new rack system at a major pharmaceutical production facility to supplement or replace 4 separate overhead utility rack systems totaling more than 4000 lineal feet. (structural steel, foundations, mechanical, and temporary shoring)
5. **Fast Track Pharmaceutical Clean Rooms Renovation and Validation** – Equipment removal, demolition, new terrazzo epoxy flooring, new epoxy paint, HVAV evaluation, new equipment pads, new air lock design and construction management and validation all completed in 8 weeks.
6. **Pharmaceutical Quality Assurance Laboratory Upgrade** – Detailed design including architectural and engineering services to prepare construction plans and specifications for new sheet PVC welded flooring system, office space upgrade, and laboratory hood ventilation system upgrade.
7. **Water Distribution System Isolation Valves and Line Stop** – Prepared detailed design drawings and specifications for replacing existing water main valves that no longer functioned. Project included use of line stop mechanism that enabled valve replacement work on a live main. Provided technical support and observation during construction.
8. **Municipal Water Treatment Plant – Navy Privatization** – Detailed engineering evaluation of all water treatment unit processes to identify capacity limitations and required capital modifications for doubling the capacity. Design and budget estimating for improvements to head works, mix tanks, flocculators, sedimentation basins (hollow tube separators), filter controls, and clear well hydraulics.
9. **Municipal Water Treatment Plant Control System Upgrade** – IFE completed a status inventory of all instrumentation and identified current and upcoming water quality and



disinfection monitoring requirements. IFE worked closely with plant personnel to identify past upset conditions and instrumentation that could have prevented them. Detailed designs were then prepared for controls improvements including turbidity, residual chlorine, water levels, and operator alarms. Detailed design drawings and specification of equipment included all instrumentation, electrical, and mechanical drawings and SCADA system upgrades.

10. **Municipal Wastewater Treatment Plant – 160 MGD** – Engineering for Security system upgrade for large municipal system with over 200 miles of collection and force mains, and numerous pump stations. Developed specific list of improvements for pump station emergency power, contingency planning, and improvements to instrumentation and controls systems to decrease vulnerability.
11. **Explosive Powder Charging Facility** - Feasibility, preliminary engineering, and budget estimating for solids charging equipment addition to production vessels.
12. **Reactor Vessel Placement into Active Production Area** - Detailed contractor's scope of work and budget estimate for new reactor placement into existing, active, Class I, Div I production area.
13. **Clean Room Upgrade** - Detailed design drawings, contractor's scope of work and budget estimate for Class IV clean room production upgrade including flooring, HVAC, and wastewater collection.
14. **Pharmaceutical Process Building and Carbon Sorption System** - Detailed design (structural steel, foundations, mechanical, electrical, controls) of large carbon filter system and process building design to meet MACT air emissions regulations.