

Mechanical / Piping Engineering

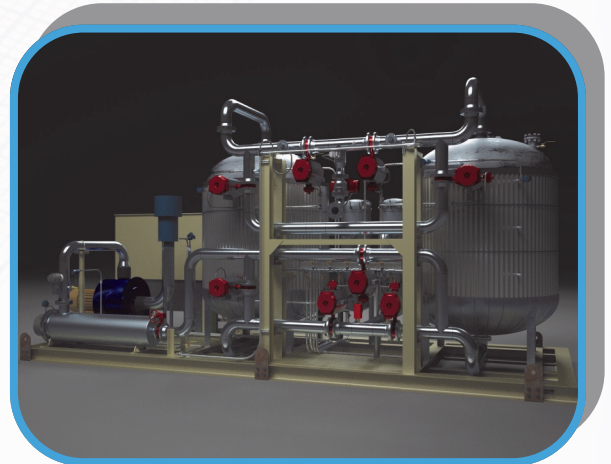
THE MECHANICAL DEPARTMENT OFFERS EXPERIENCE IN CHEMICAL PROCESS PLANT AND STEEL INDUSTRY LAYOUT AND DESIGN, FOSSIL FUEL AND WASTE FIRED POWER GENERATION, COGENERATION, AND UTILITY SYSTEMS DESIGN AND UPGRADE. OUR DESIGN TEAM BRINGS EXTENSIVE EXPERIENCE IN THREE-DIMENSIONAL PLANT MODELING, MECHANICAL AND PROCESS EQUIPMENT DESIGN AND LAYOUT, PIPING SYSTEMS DESIGN AND LAYOUT, POWER AND AUXILIARY SYSTEM EVALUATION AND IMPROVEMENT.

Equipment and Systems Specified

- △ Pumps
- △ Boilers
- △ Steam turbines
- △ Cogeneration
- △ Combined heat and power systems
- △ Pressure vessels
- △ Tanks
- △ Piping
- △ Combustion turbine systems
- △ Heat exchangers
- △ Cooling towers
- △ Compressors
- △ Blowers
- △ Fans
- △ Fuel recovery
- △ Processing, distribution and handling
- △ Water pre-treatment
- △ Waste treatment
- △ Bulk materials handling
- △ Pneumatic conveying
- △ Flue gas treatment equipment systems
- △ Landfill gas treatment equipment
- △ HVAC/process ductwork
- △ Fume scrubbers
- △ Pickle lines
- △ Hot mills
- △ Melt shops
- △ Rolling mills

Example Projects

- △ Boiler steam system
- △ Biofuels production plant
- △ Steam power cycle evaluation, optimization and application to plant design and upgrades
- △ Continuing mechanical and piping design services for capital and maintenance projects for utilities, refineries, fuel processing and chemical processing facilities
- △ Sizing and equipment selection for steam and power plants
- △ Landfill gas processing and power generation



Typical Focus

- △ Heat transfer
- △ Fluid dynamics
- △ Conceptual design through permitting support, final detail design, and construction support
- △ Landfill gas power generation systems
- △ Combustion generator power systems
- △ Engine generator power systems
- △ Material handling and conveying
- △ Piping systems:
air, water, fuel, chemicals, high temperature steam
- △ Slurries and pneumatics
- △ Acid/waste acid systems
- △ Wastewater treatment
- △ HVAC

Services

- △ Owner's engineer, lender's engineer
- △ Due diligence reviews
- △ Conceptual review and cost estimates
- △ Utility process and instrumentation diagrams
- △ Plant system review and upgrade design
- △ Problem identification, solution development and evaluation, cost benefit analysis, implementation
- △ Plant system
- △ Heat and mass modeling
- △ Mechanical equipment selection
- △ Brownfield and Greenfield

Tools

- △ AutoCAD Inventor 3D
- △ Thermoflex Energy Balance Software
- △ Caesar II Pipe Stress Analysis

