

ASME TANK AND PIPING DESIGN

Mechanical engineering and design services

Piping and Fluid Flow Systems Design and Analysis

- Pumps, valves and component selection for piping systems
- Air, steam, condensate, gas and oil utility piping design
- Process and chemical industrial piping design
- Piping system thermal expansion analysis
- Fire protection systems design
- Tank and pressure vessel design

- Compressed air, gas and vacuum systems design
- Plumbing design
- Hydraulic power systems

Energy Systems Design and Efficiency Analysis

- Boiler plant facility design
- ASME pressure vessels
- Boiler combustion and efficiency analysis
- Stack gas analysis
- Heat transfer & heat exchanger

Project examples

Synthetech, Inc. Albany, Oregon

(Batch pharmaceutical plant)

- P&ID development
- ASME pressure vessel modification
- Batch process instrumentation
- Process safety management

- Formaldehyde plant electrical design
- Tank farms design

Willamette Valley Company Eugene, Oregon

- Coating line design
- Machine design
- Mixers/tanks installation

Momentive Springfield, Oregon & Mt. Jewett, Pennsylvania

(Batch resin & adhesive plants)

- P&ID development
- Railcar and truck chemical unloading systems
- Sulfuric acid system
- Tank farm design
- Plant electrical design
- Instrumentation

Relocation of Gasoline and Diesel Tanks Lane Community College

- Relocation of gasoline and diesel tanks for vehicle fueling
- Design included system piping and electrical
- Permit preparation and representation with Oregon Fire Marshall
- Incorporation of a proximity card system for tank access

Dynea (Neste Resins) Winfield, Louisiana; Springfield, Oregon; and Moncure, North Carolina

(Batch resin & adhesive plants)

- Batch plant expansion

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Addition of Two 10,000-gallon Tanks Borden Chemical, Inc.

(Resin production plant)

- Layout for capital estimating and project team review
- Flow sheet/P&ID
- Tank drawings with nozzle schedule
- Analysis of existing tank for seismic restraint requirements
- Foundation and containment area design
- Access road grading and concrete unloading apron
- Piping isometric to end of truss over railroad tracks and details at the pumps

Herb Extract Plant East Earth Herb, Inc.

(Food additives plant)

- Evaluation of existing building for installation of a food additives production facility
- Evaluation of residuals
- Architectural design
- Civil/structural design for the plant
- Tanks and equipment – containment
- Piping – analysis of materials and layout
- Permit preparation and representation with governmental agencies

Coating Line Modification Evanite Fiber Corporation

(Wood products coating plant)

- Modifications to existing coating line for UV and fill coat type coatings
- Development of optimum layout
- Specification of equipment needed
- Layouts for capital estimating and project team review
- Flow sheet/P&ID
- Contractor bid documents – minimal package
- Piping layout
- Specification of tanks as needed
- One line electrical and grounding drawing

Ammonia Etchant Bulk Storage System (VW & R Leased to) Circuit Technology

(Circuit board/IC assembly)

- Designed two bulk storage tanks (fresh and spent etchant), including:
 - duplex pump station
 - ammonia scrubbers
 - truck load/unload station
 - field distribution piping
 - level controls
 - alarms
- Designed all controls in conjunction with the customer's facilities engineer
- Supervised installation by subcontracted trades personnel and provided start-up testing and operator training



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Engineering and Construction Services

BARRY REICHELDERFER, PE

MECHANICAL DEPARTMENT MANAGER

Responsibilities include project management, engineering design, and supervision of project teams. Primary industries worked in have been chemical and steam generation. Experienced in steam, condensate, and thermal oil system design and trouble-shooting.

EXPERIENCE

NuScale Power, LLC, Corvallis, Oregon – Mechanical Engineering Supervisor

Responsible for supervision and technical oversight of a team of mechanical engineers designing various balance of plant systems in support of the power plant design certification application to be submitted to the U.S. Nuclear Regulatory Commission. Plant systems design responsibilities included Main Steam and Feedwater / Condensate Systems; Turbine Generator System; Cooling Water Systems; Reactor and Fuel Pool Cooling and Cleanup Systems; and Reactor Building Crane and Fuel Handling Systems

Evergreen Engineering, Inc., Eugene, Oregon – Mechanical Engineer

Designed piping and pump systems to applicable code and customer requirements using manual calculations and Pipe-Flo software. Provided engineering staff support for projects in the pulp and paper, semiconductor, alternative fuels, and wood products industries. Mechanical design, layout, and drafting of material handling equipment for various customers as needed. Provided on-site contractor management to customers in the pulp and paper industry to support their maintenance and shutdown activities.

Weyerhaeuser Company, Albany, Oregon – Project Engineer

Managed capital and maintenance expense projects for the paper mill operations department. Defined scope, prepare cost estimates, prepare bids, select contractors and manage documentation. Hired and managed outside contractors and procure equipment and services to ensure on time and on budget project completion. Managed maintenance, inspections and document all work on paper mill area pressure vessels.



Registered Professional Engineer in:

- Oregon

Education:

B.S. in Mechanical Engineering from Oregon State University

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EVERGREEN ENGINEERING, INC.

Engineering and Construction Services

JASON McLAUGHLIN, PE

MECHANICAL ENGINEER

Responsibilities include preparing mechanical, piping, and HVAC drawings and specifications for new and retrofitted facilities, structures, equipment, services, and utilities; preparing basic design studies and developing cost estimates for all types of construction, repairs, and alterations; conducting field verification/observation; attending client meetings to maintain effective liaison with client and other project personnel.

PROJECT EXPERIENCE

Hollingsworth & Vose, Corvallis, OR, **Drum Filter Media Replacement Frame** – Mechanical Engineer

Responsible for the design and generation of plans of the media unloading frame for additional filtration of the facilities current wet scrubber exhaust to meet their air quality permit requirements. Designed in accordance to plant guidelines and requirements.

Hestia, Eugene, Oregon, **Biogas Production Facility** – Mechanical Engineer
Responsible for PFD's and P&ID's based on the client's smaller scale proven process. Designed and produced plans of a custom receiving and processing bin; sized, specified and selected various pumps, grinders and heat exchangers. Provided plans for fabrication of process digesters based on API vessel design code, sized and specified process piping

HM3 Energy, Troutdale, Oregon, **Torrefaction Pilot Plant** – Mechanical Engineer

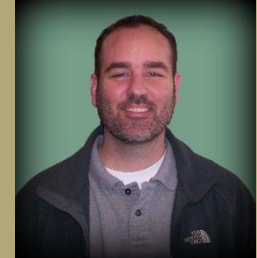
Responsible for design and plan production of a torrefier based on client's specification and process requirements. Specified and selected process equipment based on unique feedstock characteristics and associated off gas by-products and elevated temperatures.

Roseburg, Dillard, Oregon, **Step Feeder Replacement** – Mechanical Engineer

Responsible for modification of existing log in-feed decking and associated support structure, relocation of operators cab, modification of adjacent building and reject conveyor modification. The project involved modelling of existing equipment and remaining buildings while incorporating vendor supplied models to provide a '3-D' presentable view to plant foremen and operators. Provided construction drawings for upgrade and oversaw construction modifications during shutdown.

Columbia Biogas, Portland, Oregon, **Biogas Production Facility** – Mechanical Engineer

Responsible for PFD and P&ID's based on the client's process requirements for initial plant and incorporating future expansion plans. Assisted and verified mass flow calculations based on client's pro forma projections. Assisted with equipment selection of pumps, sorters, grinders, conveyors, heat exchangers and CHPs. Specified material and sized piping, provided piping layouts and drawings.



Registered
Professional
Engineer in:

- California
- Oregon
- South Carolina
- NCEES

Education:

B.S. in
Mechanical
Engineering from
California State
University

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