



## Job Description

<b>Job Title</b>	Mechanical Engineer/Designer	<b>Job Category</b>	Salaried (Exempt)
<b>Experience Level</b>	2-5 years	<b>Travel Required</b>	Based on needs of business
<b>Location</b>	Sioux Falls, SD Office	<b>Position Type</b>	Full Time
<b>Reports to</b>	Travis Vander Stouwe	<b>Title</b>	Engineering Manager

### COMPANY OVERVIEW

Nelson Baker Biotech (NBB) has quickly established a reputation as one of the most innovative renewable industry design builders in the upper Midwest. Nelson Baker Biotech combines engineering expertise, a solid business background and practical field experience to provide its clients with true, value-added advice and craftsmanship. Nelson Baker recognizes the renewable energy and products industry as an exciting new market that includes clients of all sizes with varied needs. NBB's experience and flexible approach allows it to work with all types of clients and project requirements. Our focus in the renewable industry includes Ethanol, BioChemicals, BioPlastics, and BioMass. Of course, as this industry continues its rapid transformation, our goal is to guide our clients to the most efficient and cost-effective solutions in these constantly evolving markets.

At Nelson Baker Biotech we offer an excellent benefit package to all our regular full-time employees, including health, dental and vision insurance, 401(k) with company contributions, flexible spending accounts, paid time off, and the opportunity for personal and professional growth.

### GENERAL DESCRIPTION

Perform all routine mechanical engineering calculations. Perform mechanical engineering duties; plan, design, and oversee the equipment and materials selection for industrial projects. Develop engineering details into equipment specifications, requests for proposal and a final design. Gather, analyze, interpret, act upon, and pass on all pertinent project data. Maintain an informational database on all pertinent equipment information. Coordinate with structural, electrical, and chemical disciplines during the engineering for design-build projects. Four (4) year engineering degree required.

Develop subcontractor bid packages for piping, millwrights, insulation, etc. Perform periodic site visits to verify subcontractor conformance to drawings and specifications. Coordinate with site superintendent to address construction questions and issues. Perform cost estimating and create proposal documents for the mechanical scope of potential projects. Assist with equipment commissioning and startup as required. Coordinate with equipment vendors to solicit quotes and generate equipment purchase orders.

Develop 3D piping and equipment models, drafting, designing, and detailing various projects for which you are the mechanical engineer. Coordinate with electrical and structural engineers for pipe routing, equipment placement and other space considerations following established design/drafting policies/procedures and practices. Prepares detailed drawings of mechanical layouts, plans, equipment and piping according to project specifications.

Be aware of all safety, health, and environmental issues that impact the project and all personnel.

### ESSENTIAL DUTIES/RESPONSIBILITIES

- Ability to comprehend and perform calculations related to heat and mass transfer, fluid dynamics, and thermodynamics
- Coordinate with equipment vendors to specify and procure equipment
- Utilize engineering knowledge for project management; estimate timelines and schedules; anticipate risks and costs related to the technical aspects of the project
- Provide overall strategy and technical solutions as warranted for project challenges in the mechanical engineering scope of work
- Manages project plans including cost estimates, timelines, and blueprints; interpret and recommend changes to plans
- Manages projects regularly to ensure successful completion on time and on budget
- Perform detailed engineering, specification preparation, engineered equipment and material procurement, and on occasion, manages the work of a subcontracted engineer or consultant
- Perform engineering studies to determine the best course of action to take to resolve a particular problem or select a particular process or piece of equipment
- Completion of feasibility studies and economic assessment of process/project alternatives
- Development of equipment layouts, piping layouts, construction packages, and occasionally PFDs and P&IDs
- Coordinate with and communicate pertinent information in a timely manner to other departments (i.e., electrical, structural, process, accounting, drafting, etc.)



- Answer technical inquiries, make technical recommendations, provide process and equipment troubleshooting, improve mechanical engineering tools, and develop process procedures
- Provide front end and detailed engineering for minor and major capital projects
- Review general project objectives and establish engineering requirements for the whole project or major system. This involves interpretation, definition of scope, and development of concepts
- Ability to plan, develop, coordinate, and direct the engineering effort for the major system(s) of a large complex project or for a total project of moderate scope
- Identify and assess improvement opportunities which will add value
- Identify and participate in the evaluation of new technological developments and processes for feasibility and cost effectiveness
- Assist operations training by presenting technical details to plant staff
- Continue to grow technically by enhancing job skills
- Build and maintain good relationships with NBB Partners and Affiliates
- Must be available to travel and work more than standard hours when necessary
- Participate and attend staff training, programs, and other training sessions
- Utilize software and other available tools proficiently and effectively
- Perform additional duties as directed or assigned
- Minimum B.S. Mechanical Engineering or Chemical Engineering required
- Responsibilities include standard detailing and fabrication practices as well as reading and understanding design documents/drawings.
- Makes any changes necessary to drawings due to direction from owners or engineers.
- Draws finished designs from sketches.
- Details and checks simple mechanical piping and equipment layouts with minimal oversight.
- Understands engineering of simple piping systems and produces clear, concise, and complete drawings and bill of material for shop or field fabrication, with all information needed for the contractor.
- Perform solid modeling of plant assemblies and piping system including vessels, tanks, heat exchangers and other equipment utilizing CADWorx Plant 3D.
- Create, modify, organize, and optimize large and complex assemblies using AutoCAD software.
- Create bid drawings, construction drawings, and as-built drawings using AutoCAD software.
- Read, interpret, create, and organize blueprints, piping and instrumentation diagrams (P&IDs), and process flow diagrams (PFD's).
- Follow NBB's drafting standards.
- Qualified candidates may be asked to walk down P&IDs at customers' plants and perform occasional site visits to verify existing plant layouts.

#### **KNOWLEDGE BASED SKILLS**

- Microsoft Office Products
- Adobe Acrobat Professional or Bluebeam Revu
- CADWorx Plant 3D or similar 3D Modeling experience preferred
- AutoCAD experience preferred
- Document Tracking Database
- Excellent verbal, written and computer communication and technical skills
- Superior organizational skills and the ability to multi-task
- Ability to work independently with minimum instruction
- Ability to maintain accurate records