

## Piping Design Engineering Services

Piping system design engineering is a core competency at Glowsworth CAD works. We offer a variety of piping design services for oil & Gas, Petrochemical, HVAC, Build Services, Pharmaceuticals, Construction, Manufacturing, Process Industries, construction, Mining, Naval, Marine and Power Generation Industries. Our team has spent over a decade providing expert design services to solve complex piping and distribution problems. Using AutoCAD, PDMS CEASAR 11, CAE pipe, and AFTIMPULSE, PipeflowExpert, we develop custom solutions to meet your flow rate efficiently and nozzle requirements. Our team brings value as your piping system design partner, from 2D to 3D pipe layout to stress and flexibility analyses. We optimize your design to reduce complexity, design, and maintenance cost, while adhering to international standards including ASME, ASTM, ISO, SAE, ANSI, BS, DIN etc.

### Piping Engineering Expertise at Glowsworth CADworks

Our piping system Design services include core competencies in the following areas.

#### Piping Design Services:

Our core offerings include initial and conceptual piping layout, 2D and 3D, conceptual routing, and pipe sizing. We design high flow systems for Oil & Gas, municipalities, buildings and marine vessels, Manufacturing Industries, Process Industries.

#### Piping Detailed Drawings

As your design partner, we will take conceptual layouts and provide detailed drawings to support your utility or plant layout, HVAC Solutions or Machinery design.

#### Other Piping Support

In addition to designs and drawings, we offer the following additional services.

#### 3-D Modelling of Component and Piping

3D models provide additional insight into your design and ensure seamless interfaces with your existing structures.

#### Pipe Stress & Flexibility Analysis

Pipe and pipe networks are subjected to a variety of temperatures, vibrations and stresses. Analyzing your pipe network ensures safety, reliability and the design for worst case loading scenarios.

#### Material Take off for Piping

Once your blueprints are complete, our team provides materials take off services to determine which types and quantities are necessary for your design. We generate Bills of Materials (BOMs) to see your design and can team you up with suppliers offering metal and plastic and pipes, connectors, peripherals and accessories.

## **Process Engineering**

Heat and Mass Transfer Calculations

Pipe Sizing Calculations

Flow Diagram Preparation

Piping & Instrumentation Diagram (PID)

Line List Preparation

Pressure Drop Calculations

Network Analysis (PIPENET)

Process Data Sheets

As Built

## **Piping Engineering**

Site Master Plan

Plot Plan

Equipment Layout Plan & Elevation

Civil Information Drawings

Piping Layouts Plan & Sections

Isometrics

Nozzle Orientation

Piping Support Drawings

Insulation & Painting Specifications

Material TakeOff

Drawing & Statutory Approvals

Stress Analysis

## **Mechanical Engineering**

Specifications and Data Sheets

Procurement Assistance

Material Handling Study and Reports

Static Equipment Design and Drawing

Assistance to package Engineering.

### **Our Piping System Work Compliance**

Our team of professionals are proficient in delivering the best suited services as per the requirements. We also keep in mind the following quality parameters that include;

ASME (American Society of Civil Engineers)

ASMEST (American Society of Mechanical Engineers – Structural Engineering)

ASCE (American Society of Civil Engineers)

SME (Society of Manufacturing Engineers)

ASTM (American Society for Testing and Materials)

API (American Petrol Institute)

EN Standards (Euro Norms)

PED (European Pressure Equipment Directive)

ANSI (American National Standard Institute)

DNV (Det Norske Veritas)

At Glowsworth CADworks, we provide value added services to our clients by giving them the flexibility to choose from the list of advance software mentioned below.

PDS (Plant Design System)

PDMS (Plant Design Management System)

CAESAR – II

P & I Diagram AutoCAD

PV – Elite

MicroStation

SPPID

AutoCAD

Bentley

TRIFLEX Windows

## **Why Outsource Piping Design Engineering to Glowsworth CADWorks?**

- Compliant and licensed software with latest updates
- Ensure MIS report is available to the client at every phase of the project
- Dedicated workforce capable of completing tasks with utmost diligence
- Availability of advanced infrastructure resources to deliver the project within the set timeline and budget.
- Ability to scale-up workforce depending on the complexity and size of the project.
- Follow quality control parameters conforming to international standards and norms.
- Qualified professionals having industry experience in piping engineering services.

### Our Piping Design Process Management:

A process document will be sent to the client for approval and to gather more insights into technical aspects of the project. Once we received, resources will be assigned to task within 24 hours. A project manager is appointed to overlook and oversee the entire process ensuring results are delivered in their desired outputs as per the process documentation.

Finally Contract and Non-Disclosure Agreement (if required) will be signed.

### **Quality Assurance from Glowsworth CADworks**

- Highly experienced and well qualified Drafters and Engineers having years of industry experience.
- Thorough review of project by supervisors and Quality Managers for Approval.
- Quality measures in compliance with ISO9001:2008 certified standards
- Project deliverables exceeding/ meeting 99.9% accuracy.

### **Security Systems at Glowsworth CADworks**

Certified Drafters who have completed all the rounds of background verification. High security internet access which restricts from using it for personal purposes. Sophisticated access controlled infrastructure which limits the entry of an unknown person into the production floor without the access card.

### **Pricing Structure**

Glowsworth CADWorks provide superior piping design related services from USD6.5 per hour for basic assignments and we also offer FTE options at competitive pricing.

Please contact us today to get a custom quote for you.

Mechanical Engineering

CAD Modelling

Product Animation

Mechanical Concept Design

Product Design Development

Product life cycle Management

Finite Element Analysis

Plant Design Engineering

Rapid Prototyping

Value Engineering

HVAC Plumbing and Fire Protection

Piping Design

Reverse Engineering

Machine Design

Automotive Engineering

Plastic Injection and other Mold Design

CNC Programming

Solidworks Service

CATIA Services

Industrial Automation Engineering

Design Validation and Optimization

Fluid Oil Analysis

Computational Fluid Dynamics

CAD Conversion

CAD Migration

2D Drafting and Drawing

3D Modelling

3D Animation

3D Sketchup Modelling

3D Printing Support.

## **Mechanical Design Engineering Services**

The mechanical design team at GlowsworthCADWorks is devoted to providing affordable high quality, design services for your HVAC, Plumbing, Fire protection and Structural design needs. With over a decades of experience, numerous advanced degrees and professional affiliations and an unmatched dedication to meeting the needs of our customers. Our team will assist every step of the way. From concept to fabrication, our team delivers high quality, sustainable solutions for both residential and commercial applications. Our solutions are tailored to your needs, whether you are a small company, individual, manufacturer or wholesaler.

If you need expertise in developing an HVAC solution for your facility with sophisticated energy and temperature control or need to implement exhaust and dust collection systems that meet environmental standards, look no further. Glowsworth CADWorks is here for you. We will solve your plumbing design problems with the provision to handle complex water distribution and waste/toxic waste disposal. Or perhaps you need fuel/compressed gas storage with fire sprinkler and chemical fire suppression systems to ensure safe storage of your combustibles. Whatever your mechanical design engineering needs may be Glowsworth CADWorks has the solution for you. Our team is dedicated to solving your challenging problems.

### **Our Mechanical Design Service Expertise**

At Glowsworth CADworks, we provide a variety of mechanical systems in oil & gas and structural solutions for the industrial, commercial and residential spaces. We design heating systems, ventilation systems, air conditioning systems, packaged air cooled and water cooled systems, high velocity/high pressure duct systems, Plumbing solutions, water and waste water distribution designs, grey water treatment systems and fire sprinklers and chemical suppressions systems. LPG, LNG AND CNG piping.

### **HVAC Systems**

Our Hvac systems designs can be tailored to your building needs. We emphasize the use of 'GREEN' engineering in our design through the use of sophisticated Energy Management Systems Temperature Control Systems and Energy Recovery Systems. Our engineers will provide you with Industrial Exhaust and Dust Collection system to meet your needs. Industrial Boilers and Steam pipes systems, process, piping systems.

### **Plumbing Design**

Let our Design Engineers handle your plumbing design. Our team is experienced in designing water and waste water systems, Toxic waste systems, Rainwater systems, Drainage System, Liquidified Petroleum Gas Systems, Natural Gas Pipelines, Compress Natural Gas (CNG) Systems and Piping Systems, Petrol Station, Medical Gas system, Process Piping, Fuel Storage tank/Piping Systems and Compressed Air Systems. Irrigation and lawn pipping for Agricultural and lawn sprinklers systems, water fountains design for monumental parks, architectural beauty.

### **Site Utilities**

Our expert design team will help you design transmission and distribution electric lines for industrial or residential applications, circuit maintenance and reliability solutions to enhance your network, electric substation design, LPG, LNG, NG – Gas transmission and Distribution Design, Natural Gas Regulation Design. Our team will conduct site surveys when needed and provide GIS mapping of electrical and gas lines.

## **Fire Protection Design**

When it comes to Fire Safety, Glowsworth CADWorks has the experience to design, install and Commission fire protection systems to protect your people facility and assets of high rise building, Shopping mall, Industrial complexes, Oil & gas Industries e.t.c.

Our team will provide you with Advance Fire Sprinkler Systems.

## **Our Engineer Engagement Model**

Glowsworth CADWorks has a variety of engagement models available that are custom tailored to your project whether your project is small or massive, we have the necessary expertise and manpower to start your project immediately. For smaller projects, we offer both per hour rates or fixed price project fees for larger projects, we can provide dedicated full time equivalent (FTE) at rates to maximize efficiency. Contact us today to find out more about our pricing models.

## **Our Design Quality Assurance**

At Glowsworth CADWorks, we strive to provide the industry best quality, turnaround, and pricing. Quality is number one priority at Glowsworth CADWorks, and we strive for 100% customers satisfaction, combined with our rapid ontime turnaround times and most competitive pricing in the industry. We guarantee 100% customer satisfaction.

## **Benefits – Working With Glowsworth CADWorks**

Glowsworth's mechanical design team can rapidly and cost effectively iterate the design process to develop products that meet budget. Our mechanical design team helps customers to develop complex mechanical design and products to have fast to market advantage.

With an expert engineering team, GCW provides solutions in a variety of Mechanical engineering field with highest level of excellence. We use advance optimization algorithms to logically explore possible design problems. GCW processes reduce design and development costs and show time to market.

GCW engineers have working knowledge of mechanical parts as well as computer aided design (CAD) software such as AutoCAD, Solidworks, CATIA, Inventor, AutoDesk, Pipeflow Expert e.t.c.

GCW provides effective solutions to the development of process and product ranging from small component to extremely large plant, machinery or vehicles.

## **Organised Decision Making for all kinds of Applications**

We generate and create better alternatives that save you costs and help with enhanced designs.

## **Mechanical Value Analysis and Value Engineering**

Glowsworth CADWorks Value Engineering is economical way to get the most out of your product. As a designer, developer or engineer, how do you ensure that your product can be built with high quality low cost, and at a high value to your customer?

Outsource your value engineering service needs to Glowsworth CADWorks. From failure mode and effects analysis to design for construction, installation, and reliability, ease of manufacturing and lower production costs.

Trust our team with experience to deliver services that will set your design apart from competitors.

### **Our Value Engineering Expertise**

We provide value engineering services for a variety of industries, including Oil & Gas, Building and Properties Industries, automotive, manufacturing process industries, general appliances and consumer products.

### **Failure Mode and Effects Analysis (FMEA)**

Identifying and eliminating concerns and flaws early in the development of a process or design is paramount to improving your internal and external customer satisfaction. We perform root cause analysis to develop failure mode before they can become an issue. When others fail, we identify and mitigate.

### **Design for Assembly (DFA)**

As your design matures, Design for Assembly becomes increasingly more important. We can ensure that your product is easy to assemble. Contains the minimum number of parts required and can be produced at minimum cost.

### **Design for Manufacturability (DFM)**

In today's competitive environment, the time to market for your product is critical. Our design for manufacturability process & fabrication or installation ensures that your products will be designed rapidly. With a low cost, high quality design that meets the tenets of lean production. You can be sure your products will not only be well designed but ready for production.

### **Design for Reliability (DFR)**

When designing your product, reliability is your reputation. Put very simply your design is only as reliable as its weakest component. By performing component by component design for reliability. It will meet its intended usage lifecycle by properly designing and analyzing each component.

### **Value Analysis and Value Engineering (VAVE)**

How much is your product worth? What should it cost? Glowsworth Engineering will guide you through the VAVE process to ensure your design maximizes product value while minimizing cost.

### **Value Engineer Engagement Models**

Glowsworth Engineering CAD Engine offers a large variety of value engineering services to support your needs, from hourly support to FTE support for longer duration projects. No matter what the size of your project, we have the necessary manpower to start your project immediately.

### **Value Engineering Quality Assurance**

By leveraging our expert knowledge of the design process, our team will provide you with the right solution.



## **Benefits – Working with Glowsworth CADEngineer**

GCE combines six sigma and lean manufacturing with value engineering expertise to get you reliable and effective services. Glowsworth CADEngineers (GCE) Value engineering team is staffed with certified value specialists, engineers, financial managers and CAD/CAM specialists which have consulted on hundreds of projects across domains and across the world. GCE engineers will help you get more profits on your products or services by suggesting changes to reduce costs. Improve quality and supplier base. GCE's value engineering train focuses on delivering the product or services at the best price by integrating value considered most important by the client.

Our value engineering services are enabled by a hearty service process that helps decision makers achieve better costs and quality products services.

## **Fabrication Drawing Services**

We have a very experienced and skilled staff that can handle a variety of engineering and drafting projects for your company with ease. One of the services we specialize in is fabrication drawing. Our team is able to provide you with structural solutions for a variety of projects.

## **Fabrication Drawing Services Offered**

Our highly qualified drafters utilize the latest CAD technology to its best potential to produce a comprehensive range of fabrication drawings for commercial, Industrial, Oil & Gas, Marine, Offshore Structure, and residential Structures.

We are able to draft column connection to foundation with base plate details such as riveted, welded, or bolted connections. In addition, we can lay out connection for moment resisting or ordinary moment resisting frames. The fabrication drawing services offers are not limited to the following.

-Steel member detail drawings: beams, bracings, columns, connecting members

-Connection details for steel trusses

-Summary for field and shop bolt

- Tender Drawings

- Sketch Drawings

- Schematics Drawings

- Detailed Design Drawings

-Installation Drawings

- Record Drawings

-Builder's Working Drawing

## **Tools and Software**

We use the latest in tools and software to contribute to the ability of our work. The following are some of the tools and software that we use to provide clients with amazing results

-CATIAR<sup>R</sup>

- Solidworks<sup>R</sup>

- SolidEdge<sup>R</sup>

- Inventor<sup>R</sup>

- AutoCAD<sup>R</sup>

## **HVAC Design services**

Glowsworth CADWorks is thoroughly proficient in all types of HVAC system design projects, including heating cooling, ventilation, and exhaust systems in a variety of markets, and will provide steadfast support for your projects from start to finish. Whether designing a shopping mall, hospital, a kitchen, warehouse, or apartment tower, high rise building, industrial facilities, Glowsworth CADWorks offer complete HVAC design services that will stay on time, or a budget, and meet all expectations.

Glowsworth CADWorks project teams offer engineering and design services to turn your preliminary requirements or calculations for a commercial, residential or industrial HVAC system into a detailed final design. Our skilled engineers are capable of supporting any project and will work directly with your contractor, architect, in house engineers, project manager or another point of contact to simplify the process.

## **HVAC Design Services Offered by Glowsworth CADWorks**

Our project team members are experts in their fields, and also extensive experience across a variety of disciplines and specializations. This allows us to support any industry, cover every system and provide a wide variety of services including (but not limited to) all the options listed below.

### **Industries**

Residential: We support all drawing types, from single- family homes to multi- story apartment complexes.

Commercial & Industrial: Restaurants, hotels, Shopping malls, individual stores and any other commercial buildings are well within our capabilities. Our expert designers and engineers can assist with warehouses, large manufacturing facilities, data centers and server rooms, power plants, and any other industrial facility.

### **System Types**

Heating: Our engineering experts are highly skilled in furnaces, boilers, oil and gas burners, and other heating systems.

Ventilation and Peripheral Equipment: Filters and air purifiers, humidifiers and dehumidifiers, exhaust hoods, whole- house ventilation, temperature control and energy management systems and other peripheral equipment are also well within the abilities of our project teams.

Cooling: We support refrigeration systems, chillers, air conditioners of all capabilities and other cooling systems.

## **Services**

GlowsworthCADWorks offers the following standalone services which can be integrated into design packages to meet the exact needs of your project.

### Sizing and Layout Calculation

Our engineers will perform all the necessary calculations for new systems as well as review or perform your calculations on existing systems.

### Detailed Equipment Specifications

We provide the exact specifications of the equipment required by your system, so you know exactly what you need.

## **Glowsworth CADWorks' Streamlined Process**

One of our dedicated project managers works closely with each client to ensure not a single component of the scope and objective is missed throughout the process, the project manager will be the point of contact. Our team closely monitors the progress and provides regular, detailed reports on the status of your project. Should you need any assistance at all, our project manager and the entire project team are ready to support you!

Our team of professionals is proficient in delivering the highest quality services tailored just for you. Examples of what you can expect from our excellent customer service include.

- Carefully assemble teams to meet the exact of your project
- Collaboration with any other subject experts to ensure all design specifications are included and that the final product meets every requirement.
- Effective scaling of our project team to support whatever size project you need to accomplish – no projects are too big or small.

## **Benefits of Working with GlowsworthCADWorks**

- Experience: Our unrivalled depth of experience across industries and disciplines provides nothing but the highest quality work and adds significant value to your projects.
- Quality Assurance: Regardless of whether your project must adhere to the latest ACCA Manual CS or meet the specifications of Europe's Energy Performance of Buildings Directive, we have staff proficient in all quality standards to support you.

We continually evaluate and improve our services to ensure compliance with all the most current major design standards and processes.

- United States (ACCA, ASHARE, e.t.c.)
- European Union (CEN, EPBD, e.t.c)

-Australia (AS/NZS)

-Other major standards (ISO, IMO, e.t.c.)