

The Value of Hiring a Qualified Fire Protection Engineer



SEBENCH ENGINEERING

Unlike other fire protection design firms,

Sebench started in the insurance industry. Our first contract was to provide the insurance approval and oversight for all of US Steel's fire protection projects around the world. Over the past eight years, Sebench has grown to offer consulting as well as complete fire protection design services for our clients' projects. Our level of expertise ensures that a project is done correctly the first time. If we have to find a unique solution, we will work with the fire marshal, insurance companies, and many of our manufacturers' representatives to find the best solution and get it approved.

The way Sebench works is that we design a sprinkler system, pump house, or alarm system and take it out to bid to several manufactures/installers for you. You then have the contract with the installer directly so there is no mark-up. This gives you, our client, the purchasing power to have competitive pricing on the job, with less change orders, and the comfort of knowing that you will have a system that will work and meet required local codes and standards.

With Sebench comes purchasing power with the major suppliers. Sebench has designed systems well over \$200 million over that past 8 years, and has/is working on several very large construction projects. What this gives our clients is the ability to address supplier problems quickly.

On every pre-fabricated fire pump house Sebench has designed, we have always saved more than our engineering cost. Add on to this the additional cost savings from competitive bids of sprinkler designs and alarm systems, and you may learn that hiring a dedicated Fire Protection Engineer for your project becomes very cost beneficial. Sebench can also oversee an installation, verify that that work is being done correctly, and if necessary, can put a foreman on the job to verify that the work gets done correctly.

Comprehensive services include:

- ✓ **Complete Fire Protection Design for new construction and upgrades: Suppression, Detection, Notification**
- ✓ **Special Hazard Assessment for heavy hazard industry: steel, mining, chemicals, and petroleum**
- ✓ **Review of Insurance Recommendations**
- ✓ **Code Reviews**
- ✓ **Project estimating: +/-15% estimates**
- ✓ **Project and Bid Management: issue bid documents and specs, interview prospective contractors, provide guidance on bid award**
- ✓ **Special Hazard Assessment for heavy hazard industry: steel, mining, chemicals, and petroleum**
- ✓ **Alternative Design: work with AHJ for approvals for unusual applications or variances**
- ✓ **Project Management: on-site supervision for fire protection installations**
- ✓ **Third Party Reviews: a final check on any contractor's plans for fire protection**

The photo shows the impact that a fire can have on a building that burns for 8 hours. Because of Sebench's proper design, the Fire Protection system stopped the fire from impacting the propane tanks just 50 feet away.





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Planning for your safety and future...

Sebench's roots in performing fire protection engineering services for high hazard industrial occupancies and the insurance industry give us a strong understanding of risk. We are knowledgeable not only in compliance with building, fire, and life safety codes, but also the prioritization of hazards, cost benefit analysis, and alternate methods of achieving fire safety.

Unequal Substitution

Sebench designed an AFFF foam fire suppression system for the rim protection of a 1 million barrel crude oil tank. Our construction administration services on this project were limited to witnessing the acceptance testing a week prior to the first scheduled shipment of crude oil. Just prior to the test date, we got a call from the refinery. The system wasn't working properly, and modifications needed to be completed in time to get the system accepted before the oil arrived, or the refinery would have to shut down. The entire Sebench team jumped on the project that evening and narrowed the problem to an Unequal Substitution with the AFFF solution. The new AFFF solution used had a much higher viscosity than what was originally specified in the design. Modifications to the system piping was necessary, but the 30,000 gpm foam system had to be redesigned in hours to find and limit the modifications so the system so it could be approved in days. The entire issue could have been avoided by including FPE approval of the construction submittals, since we would have caught the difference in foam performance at that time.

Emergency Fire Pump Replacement

One Friday morning, the fire pump went out of service beyond repair at a chemical plant where Sebench has been working to upgrade all the fire protection systems. Normally, replacement of this pump would involve lengthy lead times and require procuring a temporary fire pump in the interim to avoid the shutdown of production lines. Due to the close relationship we have with Peerless Pump based on the collective buying power of all of our clients, Sebench and Peerless were able to work together to have a new permanent pump delivered and installed over the weekend. The facility did not experience any downtime associated with the loss of this fire pump, or excess costs associated with a temporary pump.

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Sebench Engineering is a great unbiased resource for review, coordination, and resolution of all design and field-related construction life safety issues. Gary Seelbinder, Project Manager, Rock Industries, Inc.

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SEBENCH ENGINEERING

A Fire Protection Engineer offers innovative and cost effective ways to make things better.

Our first design is rarely the final product. Through this thinking process, a more cost effective and thought out design can be achieved for the client after all their needs and future growth are considered. In contrast, a contractor bidding on a project is forced to design to the minimum requirements or they risk being outbid. This is not conducive for a well thought out design plan that meets anything other than the lowest bid.

Understanding the entire vision of the customer

We act as a conduit between meeting a cost effective minimum code required basis (what the owner will get from bidding contractors) and understanding owner operations and potential growth, as well as long term ownership of their investment. Through this, we are able to potentially save the owner thousands through recommendations based on their future growth.

Practical examples:

- ✓ Selecting components for a specific system or system components that would require less maintenance or inspection costs.
- ✓ Considering existing system types and manufacturers in order to keep new systems streamlined.
- ✓ Designing for both current operations and flexibility for the future.

If the Owner does not have specifications to go by, a contractor will typically bid to perform work to meet a minimum code required compliant system. Without a true understanding of the Owner's operations, the design selection may in fact not meet the requirements they need. If these issues go unchecked, then the system may not perform as expected and could result in unscheduled costs or upgrades later.

Practical examples:

- ✓ Materials and products that while are acceptable per codes, may not be the right choice for the Owner.
- ✓ Poor selection of applicable code requirements based on minimal working knowledge of the Owners operations may result in an installed system that does not meet the required codes.

Expertise that typical installation contractors do not have

Value added that can often pay for itself

The Fire Protection Engineer works for the Owner and has their interest in mind. This results in having a better working understanding of the Owners needs than the low bid Contractor. The Fire Protection Engineer can help Owners decide where it is more cost effective to invest in system components and designs and where not to invest.

Practical examples:

- ✓ Ensuring that Owners specification are being met by the installing contractors and that cost effective bids are received.
- ✓ Assisting in keeping projects on track meeting operational deadlines.
- ✓ Ensuring that the correct systems are installed and designed to meet the actual facility operations.

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SEBENCH ENGINEERING

Some of our more complex projects include...

- 300-foot diameter crude oil tank
- High pile storage of Aerosols
- Federal Government Buildings throughout the US
- Refinery process equipment

CLIENT LIST

Companies

US Steel	BP
Dow	Pfizer
Zep Chemicals	Holly Refining
PBF Energy	General Mills
Essar Steel	PPG
Toledo Refinery	Welch's
Hemlock Semiconductor	

Government

US Department of Defense
US Navy
US Army
US Air Force
CDC

A&E Firms

SSEOE
Krech Ojerd & Associates
Omega Construction
John Manville
BMH
LehnerAssociates, Inc.
Middough
Nexus
CRB
Pro Services
JDI
Rock Industries

Dust Hazards

Sebench has designed numerous combustible dust hazard systems. This includes hazardous evaluation, explosion venting and isolation systems. Some of the dust we have worked with include coal, grain, paper, pharmaceutical, whey and specialty chemicals.

Vapor Suppression Systems

Some of our clients are concerned with harmful gas release. To control this hazard we have designed several vapor suppression system that will create a large envelope around the cloud and capture the gas in water droplets to control the hazard.

Fire Sprinkler Systems

There are over 1,000 Sebench specified or designed fire sprinkler systems installed around the world. These systems include:

- ESFR (Suppression Mode)
- Pre-Action
- In racks
- Foam
- Deluge
- Standard
- Drypipe

Fire Pumps

Sebench has significant experience with fire pumps. We have balanced systems with anywhere from 1 to 10 fire pumps simultaneously activating. Our specifications can be basic electrical fire pumps for an office building to a complex diesel fire pump with its own pump building. We designed and oversaw the first pre-fabricated peerless fire pump house with a 3-hour fire rated blast wall.

Fire Detection and Alarm Systems

Sebench can also design the fire detection systems. This includes everything from the basic fire alarm notification system/evacuation system to the activation of special hazards fire suppression systems.

“Peerless Pump has worked with Sebench on numerous fire pump projects over the past 6 years. Heavy industrial projects like steel mills and refineries where the risks are high and the design have to be beyond the normal commercial standards. This is what sets Sebench apart from the pack giving the end user the finest system available.”

Jeff Lukemeyer/District Sales & Service Manager/Grundfos