

Designing to Budget Early in the Game Helps Preserve Client Needs and Prevents Painful Value Engineering Cuts Later On

The ultimate goal of any project is keeping costs as lean as possible while getting everything that's needed, nothing less. This usually can only be achieved when the client has a clear vision of what they want and effectively communicates their specific requirements to a receptive designer. It is a team effort that requires close, consistent collaboration, adherence to a schedule, and accountability from both sides.

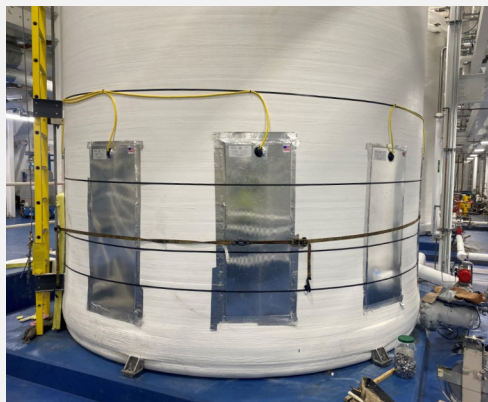
This might seem like a no-brainer, but it's much easier said than done. During the design phase, projects often morph into something much different from the original vision. Once the design has been substantially completed and costs are applied, the client may go into sticker shock when they see a price tag 10-15% higher than anticipated.

What usually follows next is value engineering (VE), the sometimes painful task of reducing project costs to fit the budget. VE may entail eliminating scope, substituting lower-cost materials, devising stripped-down processes, and deep cuts in other areas of the project. Clients and designers are dismayed at having to make unwanted sacrifices and settle for a "lesser" version of the project, leaving everyone involved in an uncomfortable position.

At Omni Instrumentation & Electrical Services, we work to avoid this all-too-common scenario by collaborating with owners and designers from the beginning of a project whenever possible, providing input and budget pricing throughout the process to keep the project in line with the budget. Electrical, controls, and instrumentation are a significant part of any project and require close attention, including continual progress updates and pricing exercises. By following this course, value engineering will play a much smaller role in the end, helping to eliminate unpleasant decision-making crises and hard feelings among all parties involved.



Process Tank Problem Solved with External Electric Heating Blankets



Omni was recently challenged with devising a way to provide heat for several existing 15,000-gallon process tanks. This was somewhat of an uncommon request as process tanks typically come equipped with built-in heating features. These tanks, however, did not, and our client was facing an issue where the tank contents increased in viscosity as it cooled, making it difficult to pump. They needed a way to maintain the product at a minimum temperature of 160°F for extended periods of time. Various options, such as steam, hot water, and internal electric coils, were considered but deemed too costly and disruptive. After thorough research, we proposed the most efficient solution:

custom-fabricated electric heating blankets mounted externally on the tanks.

The blankets required four weeks for production, so we utilized this time to run all the necessary power wiring and install control panels and terminal blocks for each tank. Once the blankets arrived, we promptly tested them with an ohmmeter for functionality before mounting and wiring them. We then conducted megger testing on the blankets and control wires to ensure there were no anomalies. After filling the tanks with water, we monitored the systems over a weekend to verify that tank contents maintained the required temperature of 160°F or above for 72 hours. With successful results, the facility was cleared to proceed with insulation installation on Monday morning.

SAFETY: Protective Eyewear in the Workplace

Eye protection has been a workplace requirement for many decades, so it is far from a new concept in American industry. However, although sheer common sense should tell us that using proper eye protection vastly minimizes work-related eye injuries, many workers neglect to utilize it. Here are some startling statistics:

- Each day, about 2,000 workers receive medical treatment for eye injuries sustained on the job.
- 10-20% of all workplace eye injuries cause temporary or permanent vision loss.
- 90% of job-related eye injuries – about 270,000 each year – could have been prevented with the appropriate protective eyewear.

Employers are required to provide appropriate eye protection based on the specific hazards that may be encountered in the workplace, but overcoming worker resistance to wearing it requires diligence.

Fortunately, manufacturers are continually working to improve the fit, weight, performance, and comfort of their products, and there are countless types and styles of protective eyewear on today's market to fit every need. Safety lenses are available in prescription, bifocal, trifocal, progressive, photochromatic, anti-glare, and polarized, and wraparound frames provide increased protection. Workers often cite lens fogging as a reason for not wearing eye protection, but many advances have been made recently in anti-fog technology.



WPA safety poster, circa 1936

Emergency Power System Testing Critical to Prevent Losses



Emergency power systems can deteriorate over time due to a lack of maintenance, parts failure, system changes, human intervention, and various other causes. If these critical systems fail in the event of an emergency, product, equipment, production losses can range from moderate to catastrophic.

To prevent such occurrences, it is recommended that routine preventive maintenance, system exercise, and operational testing be performed on a regular basis to ensure that individual system components are working properly. According

to NFPA 110 standards, recommended intervals for testing items such as EPSS components, batteries, ATSS, generator fuel, and breakers should occur as frequently as weekly or monthly. Many manufacturers, electrical and mechanical contractors, engineers, insurance providers, and local jurisdictions also recommend or require annual “pull-the-plug” power interruption testing, also known as loss of power response (LOPR) testing. These tests verify that all generators and ATS systems will start as required in an emergency and that electrical distribution from the main service will rapidly return to normal once utility power is restored.

For more information or assistance with emergency power system testing, please contact Omni at (908) 412-7130 or (240) 341-7915.

Ben Franklin’s Shocking Electrical Feast

American Founding Father Benjamin Franklin was a highly accomplished statesman, diplomat, writer, prolific inventor, and scientist. Franklin was particularly captivated by electricity, conducting many successful scientific experiments on the subject, and was well known for taking delight in performing electrical stunts and parlor tricks. In a 1749 letter to a friend, he described plans for an elaborate electrical feast that he hoped would help spread the word about the fascinating phenomenon.

The party was to take place in Philadelphia on the banks of the Schuylkill River, beginning with a cocktail hour featuring spirits set aflame by a wire “sent from side to side through the river” and connected to a Leyden jar on the opposite bank. Guests would dine on a turkey “to be killed for dinner by the electric shock, and roasted by the electrical jack, before a fire kindled by the electrified bottle.” Franklin believed that “birds killed in this manner eat uncommonly tender,” having vigorously tested the theory on numerous unfortunate fowl during his lifetime. (He once received a severe shock attempting to electrocute his Christmas dinner).

Following the meal, partygoers would drink a toast “under the discharge of guns from the electrical battery” from glasses specially designed by Franklin to issue a mild shock to the lips when sipped. Though there is no record of whether the electrical gala ever took place and it’s thought that it may have been meant as a joke, it stands as wonderful example of Ben Franklin’ famous wit and sense of humor.

