The OMNI Transmitter

INSTRUMENTATION
ELECTRICAL
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Prolonged Lead Times: Overcoming Project Delays with Alternative Power Distribution Solutions

Among the most pressing issues currently affecting construction project timelines are the prolonged lead times associated with obtaining electrical components and equipment. Sometimes stretching to as long as 90 weeks, these lead times can seriously hinder even the most meticulously planned project. Permanent power, which is usually an essential early deliverable, often becomes a scheduling bottleneck due to delivery delays. Moreover, additional last-minute postponements at the end of an interminable wait can leave project managers scrambling for solutions.

In this landscape, rethinking the standard approach and exploring alternatives to specified brand-name electrical components becomes imperative. Omni understands the dynamic challenges of navigating the various design and sourcing options and can assist clients with selecting and procuring comparable, more readily available components for their projects.

First, exploring **reputable alternate manufacturers** for specified name-brand components is a solution that oftentimes can provide high-quality alternatives with significantly reduced lead times. Most of these manufacturers offer engineering assistance and should be able to provide references from recent satisfied clients.

Remanufactured, refurbished, and rebuilt products can also be effective alternatives to designer-specified components, and it is important to understand the differences. **Remanufactured** components undergo a comprehensive and rigorous process by which a previously used product is returned to a condition that meets or exceeds the manufacturer's factory standards and maintains the original warranty. **Refurbished** or **reconditioned** components are restored by the manufacturer or a third party to like-new condition. These products are tested and verified to function properly but do not meet the higher standards for remanufacturing. A **rebuilt** component simply means that worn or broken parts have been cleaned or replaced. Functionality is restored, but the remaining parts will have varying levels of wear and tear. Rebuilt components should only be considered if remanufactured or refurbished components are unavailable.

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Overcoming Long Lead Times with Alternative Power Solutions

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Owners may want to consider **reusing** existing electrical equipment where possible if the condition is still good and it can be effectively integrated into the new design. Oftentimes, these components can be shipped to the manufacturer for remanufacturing or refurbishment.

Another effective interim solution is the **rental** of electrical components, transformers, and switchgear. In the past, this option was primarily utilized in failure emergencies, but electrical equipment rentals are increasingly being sought to salvage project schedules and keep progress on track.

Omni Instrumentation and Electrical Services has been selecting and procuring alternative electrical equipment, components, and instruments for nearly four decades. Through our years of experience, established supplier partnerships, and advanced expertise in new and ever-evolving technologies, we can help clients confidently navigate the maze of sourcing viable power distribution solutions.

NAVIGATING HAZARDS: A Guide to Preventing Slips, Trips, and Falls

In the construction realm, where every project comes with its unique challenges, ensuring workplace safety is paramount. According to the Occupational Safety and Health Administration (OSHA), slips, trips, and falls are the second-most common cause of workplace injury, costing tens of billions of dollars each year, and are the leading cause of worker compensation losses in the construction industry.

Workplace falls can be broadly classified into two categories: same-level falls and elevated falls. While falls from heights are notorious for causing severe injuries, same-level falls are the most common cause of construction injuries in general. From minor strains, sprains, and contusions to debilitating back injuries and concussions, consequences of same-level slips, trips, and falls can range from negligible to life-altering.

Construction sites, by nature, are ever-changing and require a high level of vigilance from employers and workers. Uneven surfaces and elevations, gaps and holes, damaged or irregular steps and walkways, mud and soft soil, water, ice, construction debris, tools, and cables are among the many hazards that contribute to slips, trips and falls. Other common risk factors are improper footwear, poor lighting, and bulky PPE.

To combat these hazards, a robust Site-Specific Safety Plan should be developed for each project and reviewed by all employees onsite. This plan outlines maintenance, training, and inspection procedures, covering housekeeping practices, stairs, ramps and handrails, fencing, walking surfaces, floor and wall openings, lighting, cords and hoses, PPE, signage, scaffolding, and ladders. Safe access and egress routes should be designated and clearly marked for all to see. Proper safety training and awareness programs, combined with the implementation of rigorous prevention measures, go a long way in protecting workers and significantly reducing the incidence of slips, trips, and falls.

Project: High-Pressure Steam Dryer Power, Controls, and Instrumentation

Omni recently completed a project in which we were tasked with installing all power, controls, and instrumentation for three high-pressure steam dryers as part of a larger process project.

The identical dryers, designed to turn wet slurry into dried sheets of product ready for milling and pelletization, each featured a stainless steel main electrical distribution panel that also contained VFDs, PLCs, distribution breakers, Festo pneumatic solenoids, contactors and relays, termination blocks, and multiple Panduit raceways. Also constructed from stainless steel were the operator control panels, pneumatic panels, and all conduit for electrical and pneumatic tubing.

As the installation neared completion, all components were labeled, wiring was megger tested, and pneumatic tubing was pressure tested. All instruments, including steam control valves, actuators, temperature and pressure transmitters, and various limit switches, were loop-checked and functionally tested. A complete multi-team lockout/tagout procedure was performed during start-up to protect workers from hazardous energy.

Can Space-Based Solar Power Illuminate Earth's Future?

A team of Caltech researchers believe they've found the solution to powering our planet: space-based solar power. In their vision, solar panels unobstructed by clouds, seasons, and day-night cycles will wirelessly send vast amounts of energy to Earth. Earlier this year, the team demonstrated the technology's feasibility when solar panels attached to a space prototype converted electricity into microwaves and transmitted them to nearby receivers. They also successfully beamed a small but detectable amount of energy to a receiver on the roof of their lab in California. These achievements, coupled with a decline in rocket launch costs, are revitalizing interest in space-based solar power. If it can be made to work on a commercial scale, NASA analysts believe that it could contribute as much as 10% of global power by 2050.

There are hurdles that must be overcome, however, including myriad technical challenges, ensuring safety, and complex regulations. Researchers are currently working on developing lightweight spacecraft that, using billions of small antennas, can transmit focused beams of usable energy to Earth. Also in development are solar power structures that will be several thousand feet wide – much larger than the 357-ft. International Space Station – and assembled in orbit by robots. Proponents are optimistic; with increased funding and exploration, they believe that space-based solar power could become a reality within the next few decades.