The OMNI Transmitter

INSTRUMENTATION
ELECTRICAL
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AUGUST 2019 NEWSLETTER

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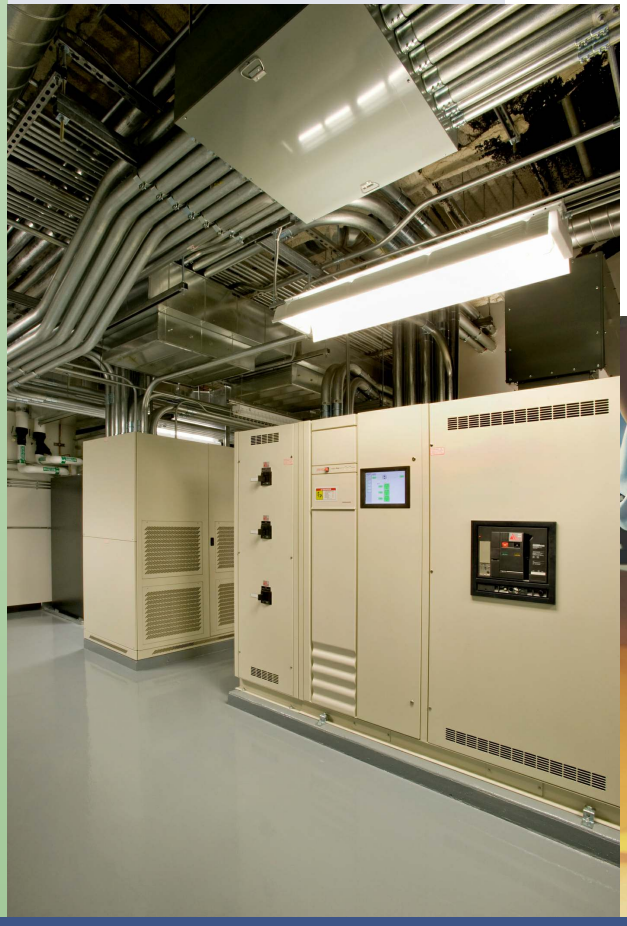
Inside This Issue…

Technical Collaboration Was the Key to This Project's Success

by Craig Drabyk

Projects often have very aggressive schedules, tight budgets, and missing technological design details, which can lead to multiple Requests for Information (RFIs) that must be answered quickly to maintain schedule and avoid finger pointing. To avoid this all-too-common scenario, we've found the best approach to avoiding problems is a proactive one.

On a recent large laboratory project in Maryland, Omni was awarded the electrical distribution, tele-data and A/V wiring, lab environmental monitoring system, and lighting controls including daylight harvesting and shade controls. In the spirit of team collaboration, Omni reached out to the other subcontractors and CM to request weekly Monday morning meetings to review technical aspects of the project and address questions and concerns. Omni produced and distributed detailed minutes soon after each meeting to allow contractors to address issues before the next meeting.



The team effort paid off immediately as weekly attendance grew larger, eventually including the owner. Though some issues did crop up, as they inevitably do on typical large construction projects, many were identified before they could occur, and issues were resolved with greater efficiency than usual. In the end, interconnected systems worked as designed, the client was satisfied, and the general consensus among all was that close collaboration among trades was extremely beneficial and the project was an overall success.

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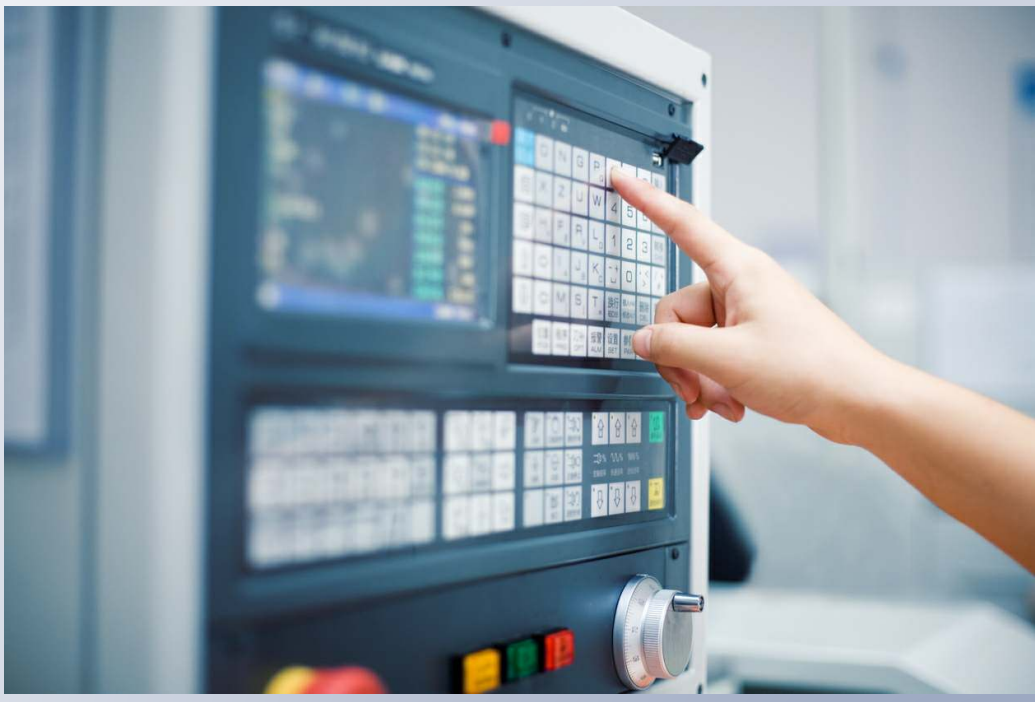
OMNI TECH TALK: Functional & Performance Testing

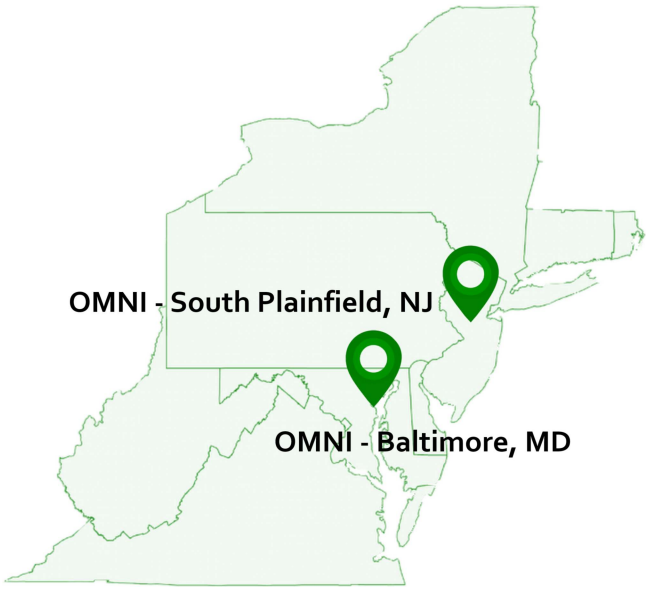
When electrical, mechanical, and process systems are installed and equipment is successfully started up and verified, a good contractor doesn't just collect payment and walk away. This is only the halfway point. Functional testing and performance testing play an essential part in ensuring delivery of a successful project



Functional testing should be performed using a detailed Sequence of Operation that has been thoroughly reviewed and approved. Anomalies that arise must be corrected and retested to satisfaction. Systems that must be tested include building automation, fire alarm, security, emergency and UPS power, lighting controls, etc. On large projects, sequence testing can go on for weeks, often continuing around the clock, when systems are often turned off and back on, to determine after-hours function. Verifying that safeties and critical alarms work properly and shut down systems when needed is a top priority. If it becomes necessary to make sequence modifications, the changes must be documented accordingly.

Performance testing occurs after functional testing has been completed and the facility is up and running. Systems are subject to operating conditions that may range from normal to worst-case-scenario to determine its performance,

OMNI Relocates Maryland Office to Baltimore



Omni is pleased to announce that we've relocated our southern office to **Baltimore, Maryland.**

In addition to our company headquarters in South Plainfield, New Jersey, our centrally-located offices are ideally positioned to service clients throughout the Mid-Atlantic Region even more effectively than before.

Please feel free to stop by our new office and say hello if you happen to be in the area!

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Energy Vault Stores Renewables in Concrete Block Towers

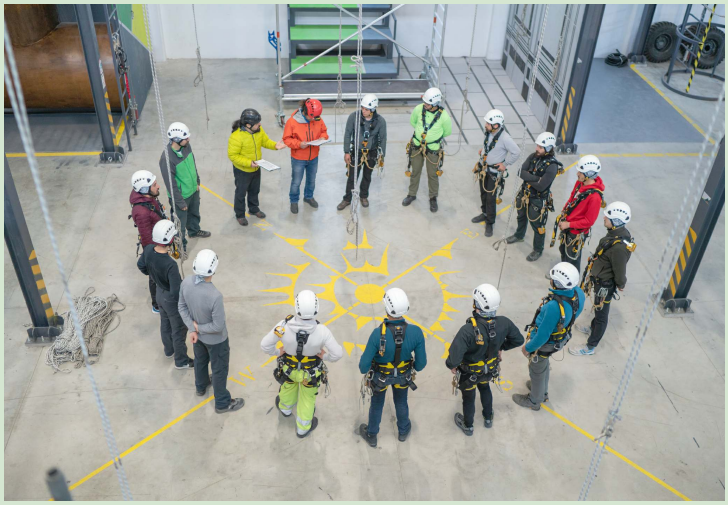
One of the main stumbling blocks in the movement toward renewable energy sources has been storage of electricity, which can be prohibitively expensive. The most cost-effective grid storage technology until now has been pumped hydroelectric energy storage, but the technology is limited by geography, so the search has been on for storage alternatives for cheap-but-intermittent solar and wind power. Now, a company called Energy Vault has come up with the Energy Storage Tower, an ingenious alternative that might just be the solution to the ongoing storage dilemma.

Energy Vault took their inspiration from pumped-hydro's use of gravity in developing their new technology. In times of high demand, pumped-hydro plants release water through turbines to produce power, and when generation exceeds demand, the excess electricity is used to pump water back up the dam. The Energy Storage Tower, known as Evie, utilizes the same fundamentals of physics and kinetic energy, but instead of water and dams, it uses a 35-story, six-armed crane and a tower of 35-ton concrete blocks. Here's how it works:

In times when there is excess wind or solar or power in the grid, Evie's specially-engineered control software directs one or more of the cranes to lift blocks from the ground and stack them into a tower, expending the excess electricity. When the grid is running low and electricity is needed, blocks are lowered to the ground, generating power in their descent. These plants will have a capacity of between 10 and 35 MWh of storage and a power output of between 2 and 5 MW.

Energy Vault has partnered with India's Tata Power Company to construct the first full-size Energy Storage Tower, expected to be deployed this year. Watch this intriguing technology in action here.

Fall Protection in Construction



According to OSHA, falls are the leading cause of fatalities in construction, accounting for about one-third of all fatalities in the industry. OHSA's Fall Protection in Construction standard lays out the requirements and criteria for fall protection in construction workplaces, including the 6-foot rule, slips, trips and falls, falling objects, and protection when walking and working around dangerous equipment without regard to height.

Workers engaged in electric power generation, transmission and distribution activities must adhere to additional requirements to guard against hazards inherent in this industry. This includes use of fall arrest and restraint systems when working more than 4 feet above the ground on poles, towers, or similar structures, and fall arrest systems must be capable of passing a drop test after exposure to an electrical arc with heat energy exceeding 40 ±5 cal/cm^2.

Employers must assess a worksite before work begins to determine if fall risks exist, and the appropriate fall protection equipment must be provided when required. Administrative and engineering controls such as signs, barricades, guard rails, etc., should be employed wherever possible. Fall PPE must always be inspected prior to each use; belts, harnesses and lanyards with frayed edges, broken fibers, pulled stitches, cuts or chemical damage should be removed from service replaced according to guidelines, and buckles, grommets, rivets, etc., showing signs of looseness, distortion, cracks, dents, bends, rust, or sharp edges must be repaired or replaced immediately. Harnesses must be properly fitted and readjusted as needed.