

From Challenge to Success: Installing a 10-Lane Computerized Tote System



Our client presented us with a unique challenge: installing a large 10-lane tote handling system complete with elevators, shuttles, and all associated hardware, instrumentation, and controls. This would be the largest single computerized tote system the vendor had ever developed to date. Installing this system represented the first challenge—the second would be testing, startup, and commissioning.

A team of experienced riggers and millwrights worked closely with the manufacturer to lay out and erect the large stainless steel structure to exacting measurements. Omni developed a detailed plan to meet the aggressive schedule and deployed four crews to handle all control panel installations, pneumatic piping and tubing, electrical wiring, and instrument installation throughout the tote system.



Three large NEMA 4X PLC control panels were positioned along with 12 pneumatic control panels. Two motorized elevators, two weigh station turntables, and two high-speed shuttles all required power and controls as well. Due to the vast quantity of pneumatic brakes and electrical positioning sensors, Omni partnered with several millwrights to expedite instrument installation.

After four weeks of installation work, we were positioned to begin pressure testing all pneumatic tubing, bump testing and checking VFDs/motors, and individually testing hundreds of pneumatic brakes, controls, electrical proximity sensors, and limit switches. Dozens of totes were then placed into the system, weighted with 50 pounds of water in place of product.

After two weeks of sequence testing, adjustment, and fine-tuning, the new computerized tote system was ready for service. Omni worked closely with the rigging team, millwrights, and electricians to make this system a working reality.

Safety Innovation

One specific challenge was working safely and efficiently throughout the installation. The team developed wooden work platforms with rails that could move along the racks, making installation much easier. This innovation eliminated the need for extension ladders and over-reaching, significantly reducing fall risks.



Complete Electrical Testing: Your Project's Bridge to Successful Operation

Transitioning from construction to commissioning requires extensive planning and represents the most critical project phase—where buildings come to life through permanent power. This transition demands comprehensive electrical equipment testing, including hipot and megger testing, plus implementing proper breaker settings from electrical coordination studies.

Comprehensive System Testing

At Omni, we install and thoroughly vet multiple electrical systems: electrical power distribution, emergency power systems, fire alarm systems, building automation systems (BAS), process control systems, IT/AV infrastructure, distributed antenna systems (DAS), and security systems. Each demands specialized testing protocols and meticulous attention to detail.



Critical Testing Components

Wiring and Infrastructure: All wiring, cabling, and fiber optic connections require proper labeling, testing, and termination with detailed documentation for future maintenance. **Equipment Verification:** Motors need rotational checks while control systems require comprehensive point-to-point and loop checks. **System Integration:** After individual system testing, functional testing begins where systems work together as an integrated whole.

The Cost of Cutting Corners

Incomplete testing or late-stage documentation creates schedule delays, costly rework, and eroded team confidence. Investing in thorough upfront testing ensures smooth commissioning when time is critical, paying significant dividends throughout the project lifecycle.

Complete Solutions

As one of the few electrical and controls contractors providing complete installation and testing services, Omni ensures seamless transitions from construction to successful commissioning and operation.

The Piri Reis Map: A 16th Century Engineering Marvel

In engineering and technology, precision is paramount—yet a remarkable artifact discovered in 1929 challenges our assumptions about ancient capabilities. The Piri Reis map, drawn in 1513 by Ottoman Admiral Piri Reis, demonstrates cartographic precision that defies conventional understanding of 16th-century surveying technology.

The map's compelling mystery lies in its accurate depiction of coastlines across Africa, South America, and Antarctica—despite Antarctica not being officially discovered until 1820, over 300 years later. Most intriguingly, the continent appears without ice, suggesting Piri Reis accessed ancient sources depicting Antarctica during an ice-free period.



This precision is remarkable considering the technological limitations of the era. Before the 18th century, sailors couldn't calculate longitude accurately, facing constant danger from rocky coastlines. The first reliable marine chronometer wasn't developed until 1790.

Piri Reis acknowledged, in his own annotations, that he compiled information from more than twenty source maps, some allegedly dating back to Alexander the Great or earlier. This raises profound questions about the origins of such advanced geographical knowledge.

Despite some inaccuracies, the map demonstrates sophisticated surveying techniques including triangulation and precise latitude measurements—technical achievements that suggest access to knowledge exceeding the apparent capabilities of the time. The Piri Reis map reminds us that ancient engineering achievements may have reached heights we have yet to fully comprehend.

The Power of Prevention: Why Recognizing Safety Hazards is Your First Line of Defense

In instrumentation and electrical work, the difference between a safe workday and a dangerous incident often comes down to one critical skill: the ability to spot potential hazards before they become real problems. Recognizing safety hazards before they happen truly is half the battle in maintaining a secure work environment.

Building Your Safety Vision

Think of hazard recognition as developing a "safety sixth sense." Just as experienced electricians can instinctively identify potential wiring issues, safety-conscious workers learn to scan their environment with trained eyes that catch what others might miss. The most effective safety programs train teams to anticipate problems before they occur, transforming safety from a reactive measure into a preventive practice.



Common Hazards in Our Industry

In instrumentation and electrical work, trained workers learn to automatically scan for key risk factors: electrical warning signs like discolored outlets or burning smells, environmental conditions such as wet areas around equipment or poor lighting, damaged tools or equipment showing wear, and human factors like fatigue or time pressure that can lead to shortcuts. Recognizing these recurring hazards allows teams to address problems before they escalate into incidents.

Developing Your Recognition Skills

The ability to spot potential hazards improves with intentional practice. Start each job with a deliberate safety scan, asking: What could go wrong here? What conditions might change during work? Make hazard identification a team effort—multiple eyes catch different issues. Regular safety training focused on real industry scenarios helps sharpen these critical skills.

Creating a Culture of Anticipation

The most successful safety programs create environments where anticipating hazards becomes part of company culture. This happens when leadership values taking time for safety assessments and workers feel empowered to pause work to address concerns. A few minutes spent addressing a potential hazard is always preferable to hours dealing with an actual incident.

The Bottom Line

In our industry, technical expertise and safety awareness must work hand in hand. By developing sharp hazard recognition skills and maintaining constant vigilance, we protect ourselves, our coworkers, and our clients. The next time you step onto a job site, challenge yourself to identify three potential hazards before beginning work. Make this assessment as routine as checking your tools.

Remember, in safety, what you see coming is what you can prevent. Stay alert, stay trained, and stay safe.