

Omni's Comprehensive Preconstruction Services Reduce Costs, Save Time, and Improve Overall Project Quality



Some of the most important decisions made on a new construction or renovation project occur before the project even begins. Omni Instrumentation & Electrical Services, Inc. offers comprehensive preconstruction services for owners, designers, engineers, and construction managers to provide opportunities to reduce costs, save time, and improve overall project quality.



Areas in which Omni can provide real value to clients are electrical power and distribution, BAS and process controls, fire, security, IT/AV, network systems, and lighting and lighting controls, as well as low voltage and wireless systems. Considering that these areas can often account for 30-35% of total project costs, Omni's electrical and instrumentation preconstruction services, which can also include advanced value engineering services and scheduling assistance, usually result in substantial project savings.

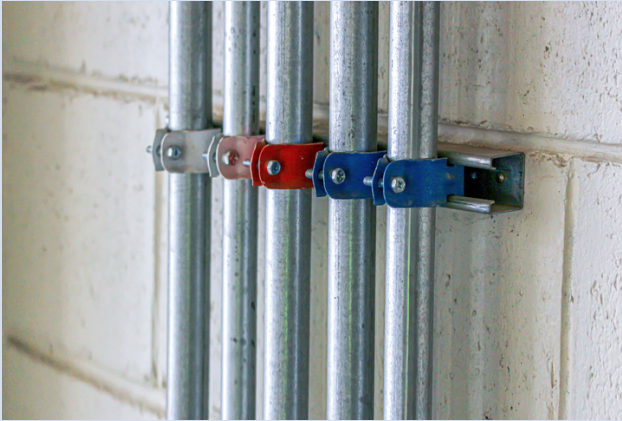
As a multi-discipline electrical and instrumentation contractor with over 30 years of award-winning experience, from purchasing through commissioning

and validation, Omni has the distinct advantage of knowing the pros and cons of a broad spectrum of systems, equipment, parts, and instruments, product line dependability, and installation techniques. We provide estimating, pricing and budget solutions that best fit design intent. We can also assist in equivalent alternates for a wide range of electrical and control products and instruments based on our decades of experience. This includes insights into accessory selection, product availability, lead times, discount pricing, and vendor dependability.

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EMERGENCY CALL: Short Circuits Caused by Forklift Mishap Wreak Havoc with Lighting Control System

Omni was in the midst of finalizing loop checks at the completion of a large process controls project when about half the lighting in the new facility suddenly went out. The lights wouldn't stay on for more than 30 seconds when turned back on, and multiple tripped breakers in the lighting control panel would trip again almost instantly when reset. Omni hadn't installed the electrical system on this project, having only been involved in process controls, but the client asked us to investigate because we happened to be on site. We quickly agreed and set aside our scheduled work to address our client's urgent situation.

After a quick survey, our technicians surmised that some sort of physical damage had occurred and set off on a walk through the facility. Before long, we spotted a large container that had been pushed up against a block wall with a forklift, crushing an exit sign and EMT conduit on the wall behind it. The next several hours were spent repairing the damaged wiring, but when the lights were turned back on, the system was still malfunctioning. It became apparent that the damage extended into the central processing unit controlling the lighting system's sequence and functionality, so we contacted the manufacturer to request help. Unfortunately, however, a technician wouldn't be available until the following week.

With operations effectively shut down for at least a week, the plant owners implored Omni to do whatever we could to repair the system and get the facility back up and running, so we got back on the phone with the manufacturer and conferred with them at length. After much discussion and active troubleshooting, it was determined that the lighting control software in the CPU was irreparably damaged by the short circuits and would need to be replaced. The manufacturer located a copy of the software and forwarded it to Omni for download. With their guidance, we were able to fully-restore the lighting controls by late that same day, allowing the facility to return to normal operation.

TECH TALK: Dynamic Line Rating Can Help Pave the Way for Electric Vehicles

Our nation's shift to electric vehicles is moving forward, and at a rapid pace. In addition to various state and federal initiatives, Ford recently announced plans to invest \$50 billion in EV technology by 2026, G.M. has committed to selling only zero-emission vehicles by 2035, and Tesla is on track to deliver well over a million EVs in 2022. Naturally, this raises questions about our national grid's readiness to supply the electricity that will be needed. But while meeting these challenges will undoubtedly be difficult, there are various technologies that can be implemented now to help smooth the transition. One of them is called **dynamic line rating**.

Dynamic line rating, or DLR, is the ability to vary the thermal capacity of overhead transmission lines in real time depending on environmental conditions, with the aim of maximizing load without compromising safety. Traditionally, transmission line static ratings have been intentionally conservative to account for worst-case scenarios, but this theoretical approach limits actual current-carrying capacity, or ampacity. These static thermal ratings fail to take into account ampacity variations that occur due to constantly-changing environmental conditions. DLR technology monitors weather conditions and measures line tension to calculate the real-time rating of a transmission line, enabling lines to carry significantly more power without new construction. DLR relieves grid congestion, maximizes asset utilization, and allows for more renewable energy integration and load growth. Where implemented, DLR has resulted in increased line capacities ranging from 10% to 30%.



HEAT-RELATED ILLNESS: Prevention, Symptoms and Treatment



Heat-related illnesses can occur when the body is unable to properly cool itself. With summer just around the corner, it is important to take steps to prevent heat-related illness and learn to recognize the symptoms in ourselves and others. These illnesses can range from heat rash, heat cramps, and heat syncope (fainting), which are relatively mild, to serious conditions like heat exhaustion, rhabdomyolysis, and potentially-deadly heat stroke. Construction industry workers are particularly susceptible to these illnesses.

The first defense against heat-related illness is rescheduling work when extremely hot weather is forecast. If this is not possible, plan the most demanding work for the coolest part of the day and gradually ramp up to avoid overexertion. Workers should

hydrate before starting work and rehydrate frequently throughout the day with at least 16 oz. of cool water or sports drink per hour. Frequent breaks should be taken in cool or shaded areas.

Breathable, lightweight, light-colored clothing should be worn in direct sun and extreme heat. High-tech fabrics that wick sweat and increase evaporation are widely available and highly effective. Sweat evaporation helps the body dissipate excessive heat, so it's a good idea to bring a change of clothing in case yours become overly saturated. Take extra care when wearing PPE like vests, hardhats, harnesses, gloves, etc., as they can increase overheating risks.

Recognizing and treating the symptoms of heat-related illness

Heat stroke is a life-threatening emergency that occurs when the body's heat regulating system fails and body temperature rises to critical levels. It is usually preceded by heat exhaustion. Symptoms include confusion, altered mental status or slurred speech, loss of consciousness, seizures, high body temperature (103° or higher), and hot, dry skin or profuse sweating. If a worker shows symptoms of heat stroke, **call 911 immediately** as permanent disability or death can occur. Move the victim to a shaded or cool area and remove outer clothing while waiting for EMTs to arrive. Quickly cool them down with a cold water or ice bath, or soak clothing with cool water. Place ice or cold compresses on the head, neck, armpits, and groin. Circulate the air to speed cooling.

Symptoms of **heat exhaustion** include headache, nausea, dizziness, weakness or lack of coordination, irritability, thirst, heavy sweating, elevated body temperature, and decreased output of urine. If you or someone else exhibits symptoms, immediately move to a shaded or cool area. Drink fluids and encourage frequent sips. Remove unnecessary clothing, including shoes and socks. Apply cold compresses or have the worker wash their head, neck and face with cold water. If symptoms don't improve within 30 minutes, seek medical attention.

Rhabdomyolysis, also known as rhabdo, is a serious condition that occurs when muscle tissues damaged by heat exposure, physical exertion, or direct trauma release their proteins and electrolytes into the blood. These substances can cause damage to the heart and kidneys, sometimes resulting in permanent disability or even death. Symptoms of rhabdo include severe muscle cramps, aches, or pains, abnormally dark (tea or cola-colored) urine, weakness, and inability to complete job tasks or finish an exercise routine. Should symptoms occur, stop activity immediately, drink fluids, and seek immediate medical care.