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Inside This Issue...

Biomedical Fit-Out Project:

Omni Meets Demand for Electrical Single-Sourcing

By Craig Drabyk

A growing biomedical customer approved the fit-out of a 150,000 sq. ft. facility that would include an open office concept, state-of-the-art GMP suites and laboratories, and a variety of sophisticated smart-building technology. The owner, having run into issues on several previous projects, decided that a single electrical contractor would be hired to perform all power distribution, lighting, low voltage, and instrumentation work. Omni Instrumentation Services, Inc. was chosen to perform design-assistance and construction for the project because of our proven ability to do it all.

The new facility included a new power distribution system, LED lighting, teledata, and wireless access points (WAP) for internet and phone access. New IT/AV rooms on each floor housed switches and networks.

Omni electricians fitted huddle spaces and conference rooms with large wireless A/V displays for interconnected collaboration. Labs were provided with regular and UPS power, and custom LED fixtures were installed in ceilings and within casework and hoods. Electrical closets included oversized neutrals and K-factor transformers designed to withstand the heating effects of harmonics created by non-linear loads.

Omni furnished and maintained temporary lighting and electrical power needed by all trades to execute the project. The owner also contracted with Omni to perform hands-on commissioning of all new building systems to successfully complete the project.

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OMNI TECH TALK: Selecting a Flow Meter

A flow meter is used to measure linear, nonlinear, mass or volumetric flow rate of a liquid or gas. In order to properly select a flow meter, one must evaluate the particular application. Here are some key questions to ask when making a selection:

- What is being measured, gas or liquid? What type?
- What is the viscosity of the liquid?
- Is the fluid clean?
- Is continuous or totalized flow rate information required?
- Is the information needed locally or remotely?
- Analog, digital, or shared transmission?
- Minimum and maximum flow rates for the flow meter?
- Minimum and maximum process pressures?
- Minimum and maximum process temperatures?
- Is the fluid chemically compatible with the flow meter wetted parts?
- Is this a process application? If so, what is the size of the pipe?
- Where will the flow meter be located? Careful consideration must be given to size of upstream and downstream piping/ductwork to prevent turbulent, erratic, low- or non-flow.

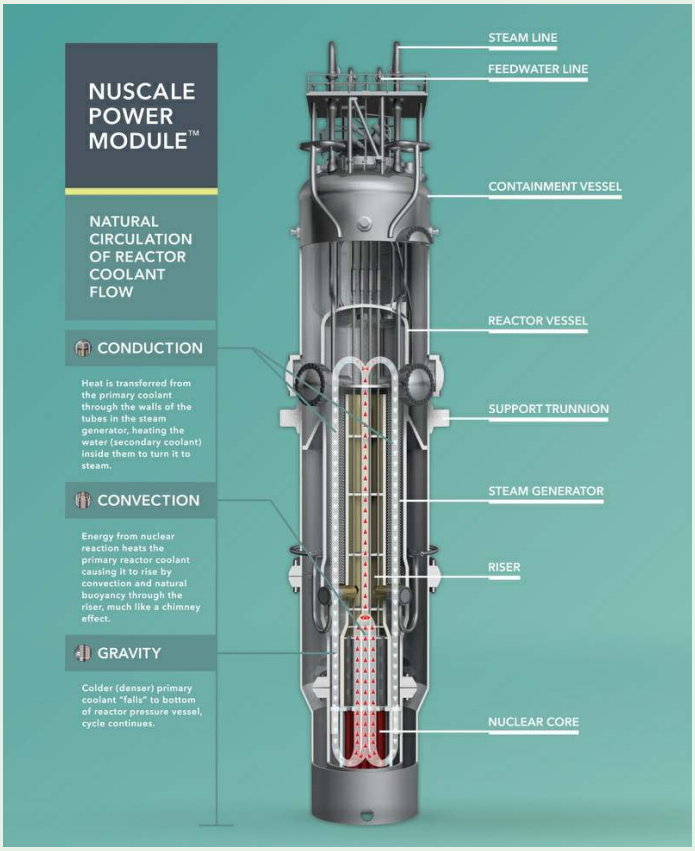
Other considerations should include abilities of plant personnel, their experience with calibration and maintenance, spare parts availability, etc., all of which factor in to calculating overall costs. Make sure the flow meter you choose has been factory-calibrated. Finally, as with any instrument, select a flow meter that will provide optimal performance for your application, rather than choosing based on initial cost and trying to make it fit your needs. The latter usually ends up costing far more in the long run.

Are Modular Reactors the Future of Nuclear Power?

Oregon-based NuScale Power has developed a small modular reactor (SMR) that can change the future of nuclear power. The U.S. Department of Energy (DOE) Office of Nuclear Energy has touted the groundbreaking technology as a “key part” of their goal toward developing “safe, clean and affordable nuclear power options”.

NuScale’s modular reactors are capable of generating 50 MW of zero-carbon electricity – enough to power 50,000 homes – using a small, scalable version of pressurized water reactor technology. They are described as the first “self-protecting” reactors that can safely shut down and self-cool with no operator action, no power, and no additional water. Their small size and large surface-area-to-volume ratio means they can’t melt down and, unlike large nuclear power plants, don’t require a large emergency evacuation zone. Other advantages of SMRs include lower capital investment, scalability, and, unlike solar and wind power, no intermittency.

Last April, NuScale’s SMR design became the first to be approved by the Nuclear Regulatory Commission (NRC), and the Utah Associated Municipal Power Systems (UAMPS) moved forward with its plan to build a 12-module SMR plant at the Idaho National Laboratory. If all goes as planned, the plant is slated for operation by the mid-2020s. Estimated cost for the project is $2.9 billion with a targeted levelized cost of energy at $65 per megawatt-hour.



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The Site-Specific Safety Plan: Keeping People & Projects Safe

A site-specific safety plan (SSSP) is a document that addresses specific safety concerns and challenges on a particular project. It serves as a communication tool to ensure safe working conditions and to protect the jobsite and environment. Omni develops and strictly adheres to the SSSP on every project.

The primary function of an SSSP is to make workers aware of existing and potential hazards and to outline the necessary work and safety procedures. Since every project is unique, hazards such as confined spaces, use of cranes, and the presence of hazardous substances and materials will vary from site to site. New or unexpected hazards may arise as work progresses, so the SSSP must be regularly amended and changed as working conditions evolve.

Project hazards are identified through an assessment of the scope of work and the tools, equipment, and materials needed to complete the project. The SSSP should outline policies, procedures and control measures to eliminate or mitigate the hazards, keeping all local, state and federal regulations in the forefront. A typical SSSP should include such things as fencing procedures, fall protection, fire and explosion hazards, lockout/tagout, and special PPE, such as respirators and arc-rated gear, for specific project tasks. SSSPs can also include job hazard analyses (JHA), which drill down to focus on specific requirements for individual project tasks.

The success of a site-specific safety plan hinges on consistent worker training and strict observation of the outlined procedures. Toolbox talks should take place regularly, and weekly safety meetings should be held with other involved trades. Workers should be made aware of emergency medical procedures, including phone numbers, medical transportation and nearby facilities.

10 Interesting Facts About COPPER

- Copper is the second most conductive metal next to silver. It is considered the standard benchmark for conductivity.
- Copper is one of the first metals to be used by humans, with discoveries of copper tools and decorative items dating back to 9,000 BC.
- One of the Dead Sea Scrolls was made of copper.
- Next to Chile, the U.S. is the second largest producer of copper. About 8% of the world's copper supply comes from the United States.
- About 2 million tons of copper is recycled in the U.S. each year.
- The average single-family home contains about 439 pounds of copper in the form of wire, pipes, tubes, appliances, hardware, valves, fittings and more.
- In 1948, the average automobile contained about 150 feet of copper wires. Today's cars contain about 1,500 copper wires adding up to about one mile in length.
- Today's pennies contain just 2.6% copper. The U.S. Mint ceased producing 95% copper pennies in 1982.
- Copper is an essential dietary nutrient. The RDA for adults is 0.9 mg per day.
- The average American born in 2008 will use over 1,300 pounds of copper in their lifetime.