**Staying Cool with Copper**

New HVAC design uses substantial amount of copper for shifting electricity loads during peak hours

When the temperature soars outside above 90 degrees, walking into a building that’s well-air-conditioned is a welcome respite. This instant rejuvenation comes with a cost, paid in demand on the electrical supply. In warmer climates, the constant demand for energy during hot summer’s days requires adding “power plants,” to kick in quickly to support the load when air-conditioning demand is at its highest. These “power plants” are rooftop-mounted cooling units, expensive to build and operate.

Ice Energy in Windsor, Colorado has come up with a solution to keep offices cool by tapping into the electrical grid when it’s used the least, without having to build additional “peaker plants” to support the demand.

Ice Energy, a leading provider of intelligent energy storage solutions for the utility industry, first introduced the Ice Bear® Storage-Conditioner in 2004. The thought process behind this new solution was to divert electricity at night to store energy in the form of ice, by making the ice when electricity is less expensive and more abundant, and use that stored energy the next day to provide cooling with less electrical input during times of peak demand.

The actual system is about the size of a regular commercial refrigerator, with one to two attacks to the pre-existing unit. The Ice Bear system will store the ice in a tank in the form of ice block under the control of the control unit. The Ice Bear can be controlled remotely with both an Ice Bear® controller and a web-based interface.

The new technology is now being used at healthcare facilities where proper cooling ventilation is critical for patients and its visitors.-glendale-objective-center and the Glendale Cancer Treatment Center recently installed systems on their rooftops.

“Utilities benefit because they can postpone building new peaker plants, and society benefits because society is cleaner and water and energy are less expensive,” Giordano said. “It’s embraced by the utilities and the end users. The Ice Bear is the equivalent to taking one car, and its electricity is the equivalent to the ice that the Ice Bear can cool about 4,000 square feet, and its application is well beyond HVAC applications.”

Giordano said copper is used because it’s strong, easy to use, and a good thermal conductor.

“We use copper for all the reasons you’d use copper,” said Giordano. “It has good electrical conductivity, it needs heat transfer capability, and because traditionally it’s the preferred metal used by the HVAC industry. Furthermore, the copper is in contact with water and dissolves atmospheric gasses throughout its entire life, so the application demands the fine environment tolerances offered by copper.”

Currently, Southern California is where a majority of these systems have been installed. Ice Energy is completing the first of a 5-year program with the Southern California Public Power Authority (SCPPA) to install as many as 3,000 units. The company estimates that the programs, once completed, will shift 64 gigawatt-hours each year of on-peak electrical consumption for the SCPPA.

For more information on Ice Bears visit: www.ice-energy.com

**For more information on copper in HVAC visit:** www.copper.org

**Copper Provides Protection Underneath the Surface**

A one-of-a-kind MRI machine is held in a room completely lined with copper

For centuries, copper has been viewed as one of the most versatile and valuable metals known to man. Today, copper is the plumbing for building applications and the building tradesman expects that when we open our façade, water will be there, hot and cold. Copper is used to prevent freezing of water in the pipe, and to prevent corrosion of the water and its conduit, which is beneficial for health and comfort. But what if a life is hanging in the balance.

Copper medical gas delivery systems deliver gases necessary for the correct patient treatment at the correct time. Copper’s purity and reliability are assured in that no other metal is used as a substitute. Copper magnets, used in the MRI room. The metal is also being used to improve the diagnostic functionality of the MRI technology. Because of the magnetic shielding provided by copper, the MRI room is over one million square inches.

Proper delivery of nitrous oxide and oxygen to patients who rely on these gases as part of their treatment can mean life or death. The medical gas delivery system therefore needs to be clean, efficient and reliable. Many other metals that are substitutes for copper have obvious choices. According to Dale Powell, President & CEO for Copper Development Association (CDA), copper is the obvious choice. Copper is a host to many advanced MRI systems in the world and they require materials that must meet strict requirements and standards. Copper is the obvious choice. According to Dale Powell, the Copper Development Association (CDA), copper is the obvious choice. According to Dale Powell, the Copper Development Association (CDA), copper is the obvious choice. According to Dale Powell, the Copper Development Association (CDA), copper is the obvious choice. According to Dale Powell, the Copper Development Association (CDA), copper is the obvious choice. According to Dale Powell, the Copper Development Association (CDA), copper is the obvious choice.

Copper is also impervious, says Powell, “so as unlikely as it may seem, it will not allow substances to contaminate the gas stream, such as in the cases of spills of cleaning chemicals or other substances.”

It should also be known that copper piping can be used on a variety of speciality materials. This flexibility of copper, according to various studies. This is important because medical gas needs to be kept as sterile as possible on the way to the patient. Copper prevents the build-up of microbial growth on the interior tube walls, ensuring a clean and contamination-free gas stream. Copper is the only choice for delivering these gases.

The MRI machine is held in a room completely lined with copper. The technology allows surgeons to safely capture images within a fully integrated operating room with a diagnostic functionality of the MRI technology. Because of the magnetic shielding provided by copper, the MRI room is over one million square inches. It’s the kind of reliability and endurance that medical practitioners have come to rely on for copper for their facilities, especially hospitals, medical gas delivery systems. As Schelkle explains, the proper and reliable delivery of medical oxygen “is base but basic. Without it, it becomes a life support system.”

Besides the aforementioned ability to talk about life support in the system, there are other reasons why medical oxygen is so critical. Copper is a product that is highly desirable, it is not going to be replaced.

With the weakened building and construction markets, some people are choosing copper; architects, builders and developers choosing copper, steel, stainless and aluminum. It is during these times that copper provides advantages.

Copper became the preferred material for medical gas applications because it is long lasting, flexible and virtually no maintenance is required. To learn more about copper and its use on copper for this basic but essential medical treatment. www.copper.org

**Copper Provides Protection Underneath the Surface**

A one-of-a-kind MRI machine is held in a room completely lined with copper

If you’ve ever needed medical treatment for a severe injury, you know how copper can be turned to healing by back pain, most likely you’ve undergone Magnetic Resonance Imaging (MRI). One of the most advanced MRI machines is the one in the Providence St. Vincent Medical Center in Portland, Oregon. It is one of the most advanced MRI machines in the world and it has been placed in a room entirely encased in copper.

The Providence St. Vincent Medical Center in Portland, Oregon is one of the most advanced MRI machines in the world and it has been placed in a room entirely encased in copper. The advanced neuroimaging system is called “MRIRoom.” The hospital has the ability to use this MRI machine.

While the technology is complex, the MRI machine is relatively straightforward. The MRI machine is relatively straightforward. The MRI machine is relatively straightforward. The MRI machine is relatively straightforward. The MRI machine is relatively straightforward.

“DRAHGE Imaging System Imaging leverages all of the diagnostic functionality of the MRI technology to allow physicians to diagnose and treat the patient better,” said Giordano. “The MRI application software gives the physician high resolution, timely images for use in surgical planning, neurological and other clinical applications.”

But that makes this new technology unique. DRAHGE Imaging System Imaging leverages all of the diagnostic functionality of the MRI technology to allow physicians to diagnose and treat the patient better. The DRAHGE Imaging System Imaging leverages all of the diagnostic functionality of the MRI technology to allow physicians to diagnose and treat the patient better.

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