

Severe Undersupply of Grain-Oriented Electrical Steel a Main Contributor to the Ongoing Transformer Shortage



Since 2020, lead times for distribution transformers have increased from several months to well over a year, and prices have gone up by as much as 400% or more. Construction industry professionals that haven't been living under a rock for the last few years are well aware of the severe and ongoing transformer shortage, but few can put a finger on what's driving it.

One of the largest contributing factors to the current crisis is a shortage of grain-oriented electrical steel (GOES), a critical component in transformer cores and laminations. Just one producer of electrical steel remains in the U.S., and that company, Cleveland-Cliffs Inc., is unable to meet high domestic demand at prices that are comparable to imports. Because the two mills that produce GOES are unprofitable, Cleveland-Cliffs is considering shutting them down. This would leave the country entirely dependent on imported electrical steel, and the situation only becomes more complex from here.

In 2019, the United States imposed a 25% tariff on steel imports with exemptions for Canada and Mexico. This move was expected to spur new domestic production, but these changes never materialized. Instead, U.S. companies found a way to circumvent the tariffs by importing GOES into Mexico and Canada, using it to manufacture transformer components, then shipping these parts to the U.S. tariff-free. As a result, American steel manufacturers have become even more reluctant to invest in electrical steel production while loopholes still remain.

Cleveland-Cliffs and some lawmakers are currently pushing to impose import restrictions on transformer components that contain GOES and other electrical steel to help boost

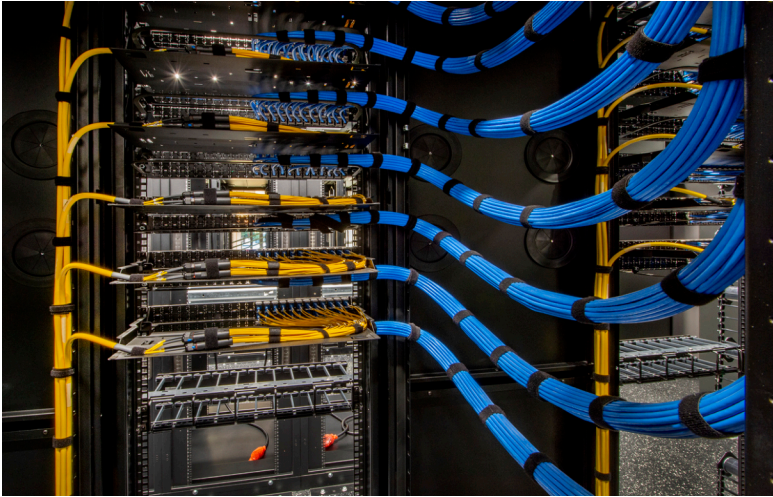


domestic production. Transformer manufacturers, however, are against more restrictions, citing higher costs, limited supplies, and fears of monopoly in the sector. NEMA, which represents more than two dozen transformer manufacturers, has long opposed additional tariffs and actively lobbies against them.

In June 2022, the U.S. government invoked the Defense Production Act (DPA) to allow an increase in domestic production of transformers. The Department of Energy is now in the process of formulating an effective production program under DPA Title III.



Fast-Tracking IT Rooms Key to Meeting Overall Project Schedules



Today's world is increasingly driven by digital technology, and for many organizations, IT rooms serve as the heart of their building.

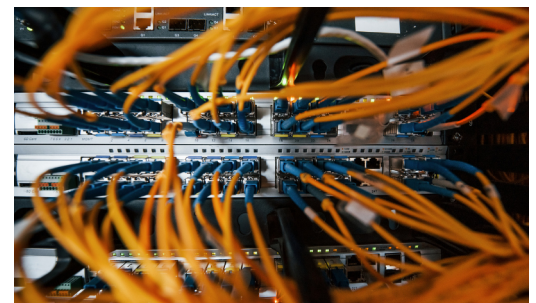
On large construction and renovation projects, fast-tracking the completion of IT rooms and the various networks, building automation systems, and controls contained in them is key to supporting the overall construction schedule. Systems must be installed, configured, tested, and ready for early start-up, so ideally, construction of

these rooms and completion of electrical, data, and IT/AV should run on a separate, detailed schedule.

As obvious as this may seem, however, delays in completing IT room construction still commonly hold up many construction projects.

So how can this be avoided? First and foremost, the building's IT, MDF, and IDF rooms should not be treated like other areas under construction. These rooms require the early installation of static flooring, doors, painted walls and ceilings, and other finishes so they're ready for cabinets and racks. Though it may be convenient for the construction management team to order, receive, and install all of the building's flooring at the same time, this approach can potentially hold up progress toward completion of the IT room and snowball into overall project delays.

The next step is the installation of UPS, electrical power, and grounding. CAT6 and fiber optic cables must then be run throughout the facility and ready for testing and termination on the proper patch panels. Next, cooling and ventilation must be in place and operating in the IT room before electronic hardware switches and servers can be installed on racks and in cabinets.



IT, MDF, and IDF rooms are often designated to contain other systems and control panels including building automation, fire alarm, WAPs, lighting controls, etc., most of which are vital to the building's operation. These rooms must be completely finished, including punch list items, and thoroughly cleaned before expensive electronic components and equipment can be installed.

Now, with the networks complete, HVAC and building ventilation systems can be started to support construction finishes and provide comfort heating and cooling. Lighting control systems can be programmed, wireless antenna systems and WAPs can be brought online, and fire alarm systems can be tested and put into operation.

The Dangers of Dropped Objects and How to Prevent Accidents and Injuries

On job sites with elevated work areas or holes in the floor, one might think the primary safety concern would be protecting workers from falls. The reality is that more workers are injured or killed when struck by falling objects than from falling from elevation themselves. There are more than 50,000 “struck by falling object” OSHA recordables each year in the U.S., or about one every 10 minutes. Dropping objects like hand tools, tape measures, cell phones, materials, and even nuts and bolts from elevation can have very serious consequences.



In addition to employing safety measures like debris nets, catch platforms, and canopies to catch or deflect falling objects and hardhats to mitigate injuries, preventing objects from falling from heights in the first place is imperative. Toe boards and guardrail screens are very effective and required in most jurisdictions. Workers should utilize tool tethers, lanyards, wristbands, and belts, as well as spill-proof buckets, bags, and pouches. Always ensure that loose objects are removed from atop loads during crane lifts.

Incandescent Light Bulb Ban Officially Takes Effect in 2023



It's been a long time coming, but the phase-out of incandescent light bulbs in favor of LEDs will finally take effect in the U.S. by July 2023. Though incandescent bulbs have served us well, lighting our homes and businesses for well over 100 years and changing our way of life, they are very inefficient. Good-quality LED bulbs last 30 to 50 times longer than incandescent light bulbs and use a fraction of the electricity.

The new laws will expand light bulb energy-efficiency requirements and ban the sale of bulbs that produce less than 45 lumens per watt. According to the Department of Energy, these stricter standards will cut carbon emissions by 222 million metric tons over the next 30 years, an amount equivalent to the emissions generated by 28 million homes in one year. Once the changes are fully in place, consumers will collectively save \$3 billion annually on their utility bills.



World's Longest Burning Light Bulb

Incandescent light bulbs have never been known for their longevity, but one hardy bulb has been burning almost continuously for 122 years. The Centennial Light Bulb was originally installed in 1901 by the Livermore, California fire department, and its unusually-long life was first noted in 1972. Since then, it's been deprived of electricity only twice, once for 22 minutes when it was moved to a new location, and for a brief time in 2013 when its dedicated power supply failed. Guinness World Records lists it as the world's longest-burning light bulb.