

Published in: NEC Digest (Oct 07)

Mobile Classrooms Make Smart Moves with Plug & Play Connectors

Providing power to mobile classrooms that are used to accommodate the fast-growing needs of the Clark County School System is made easy with combination plug/receptacle and disconnects switches. The school system uses Meltric DECONTACTOR™ Series switch-rated plugs and receptacles that allow workers to safely and quickly make and break electrical connections that provide power to portable classroom buildings.

The 50-year old Clark County School District is fifth largest school district in the United States and currently has 326 schools. The area it serves includes Las Vegas and is one of the fastest growing population centers in the country. To keep up with the expanding need for schools, the School District uses a large number of portable classroom buildings that can be moved wherever and whenever there is a need for additional space until permanent buildings can be built. Mr. Thomas Crocker is the Electrical Construction Supervisor for the School District's Special Projects Department, states that the School District opens approximately 10 to 12 new schools each year.



Mobile classroom buildings such as this one being set up at Elaine Wynn Elementary School are easier to move since the Clark County, Nevada School system started using Meltric switch-rated plugs and receptacles instead of hard wiring electrical power

Classrooms on the Move

Mr. Crocker reports that the School District has approximately 1,327 mobile buildings. These include 25' x 25' single-classrooms and 25' x 60' double-wide classroom modular units that are split for transport and provide two classrooms when rejoined at their new location. He says that the School District moves approximately 450 to 500 of these units every year.

Each time a building is moved, electrical power must be disconnected and reconnected at the new location. Previously, this entailed disconnecting all the wiring and conduit before moving a building and again repeating the process once the buildings are in place at their new location. Typically, it takes one or two journeyman electricians eight hours or more to run all of the needed conduit and wiring to reconnect one modular building. Mr. Crocker worked with Matt Guild of Nedco Supply, Las Vegas, to implement a better way to make these connections.



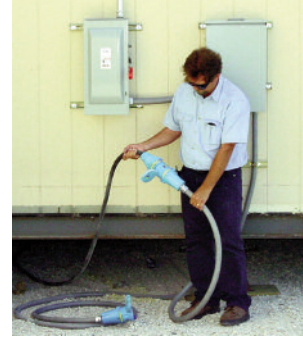
Previously, conduit and overhead wires like this had to be removed each time a building was moved, then new ones cut and installed at the next location.

Safer and Faster Connection

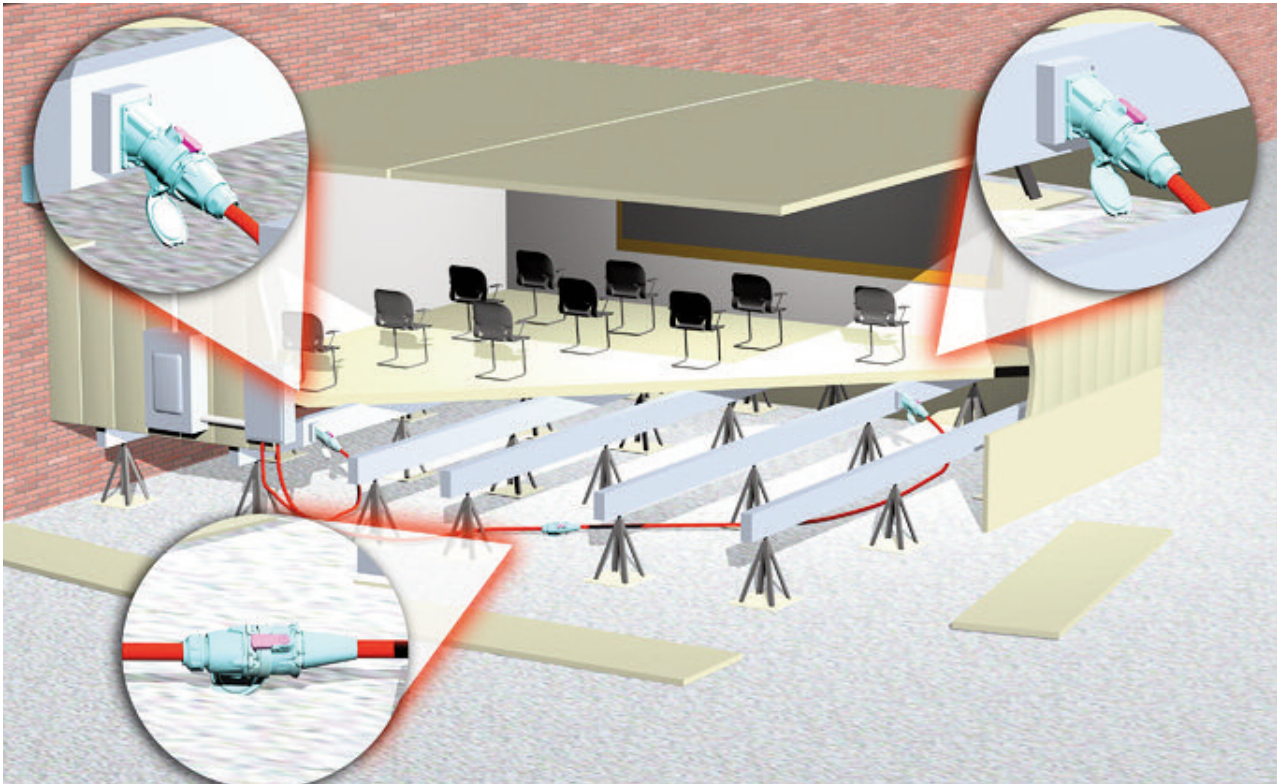
To speed up the process, the School District is equipping the existing buildings that are relocated with Meltric's DECONTACTOR™ Series switch rated plugs and receptacles. Mr. Crocker explains, "Previously, during the installation process the conduit and wiring had to be cut to size each time, and because each location is unique, it usually couldn't be re-used, which in turn creates waste. Now, we are installing the male inlet fittings of the Decontactors on the electrical panels of the modular buildings." The wiring to the inlets always stays in place; so reconnecting power is a simple "plug and play" operation that takes minutes instead of hours.

The typical double wide mobile classroom configuration for the School District now includes an externally mounted distribution panel with two female Meltric connectors extending from it via liquid tight flexible conduit. One of the female connectors is then mated directly to a hard-wired male inlet from the electrical panel of the classroom. The other female connector is mated to a heavy-duty 4/4 so rated electrical cord, which extends power to another male inlet mounted at the opposite end of the classroom. In total, there are three sets of inlets and receptacles used per classroom.

Disconnecting a classroom is a simple operation that is initiated by pressing a pawl on the Decontactor, which causes it to break the circuit and eject the plug to its rest position. Then, a simple quarter-turn of the plug allows it to be totally withdrawn from the receptacle in complete-safety, since the circuit is already dead. While the plug and receptacle are separated, electrical safety is ensured because a safety shutter on the receptacle prevents access to live parts.



Compared to hard wiring, connecting the switch-rated plugs and receptacles on the extension cord that runs power to the opposite side of a portable building is safer, faster and easier.



This model demonstrates how power is connected to a mobile classroom in Clark County utilizing Meltric's switch rated plugs and receptacles.

Mr. Crocker estimates that the School District's investment in the new Meltric plugs and receptacles will pay for itself by the second or third year, especially in labor savings. He says, "One of our goals is to cut down on the overtime needed to move and hook up the buildings. Another is to reduce the cost of wire, conduit and other materials we use. It's going to save so much time, material and labor expense in the future that it is well worth the investment."

Safety is another benefit of the new connectors. "They disconnect with a safe, quick press of the pushbutton pawl and then a twist," Mr. Crocker points out, "and the female receptacles on the lines that come from the main distribution panel have a dead front that protects anyone from contacting live parts. Around children, that's a great thing because they can't hurt themselves, no matter what they do."

The Decontactors are UL switch-rated and incorporate spring-loaded butt-style contacts to provide a secure connection over thousands of operations. The solid silver-nickel contact material withstands wear, corrosion, oxidation and other factors that contribute to premature failure of brass pin and sleeve-type devices that are sometimes used in similar applications.

To date, approximately 350 of the portable buildings have been equipped, with more than 100 additional devices ordered. Looking to the future, the District now is ordering all new portable buildings to be equipped with the Decontactors. Mr. Crocker says, "They will be pre-wired at the factory, so all we have to do before we plug them in is to check to see they are wired properly."



A male inlet is installed at the mobile classroom corner opposite the panel. The female connector is easily mated to the inlet providing a safe and neat power connection.