

# NEC® Update: Design for SCCR

Changes in the 2017 *National Electrical Code* (NEC) have increased awareness of the proper application of equipment with regard to short-circuit current rating (SCCR). As NEC 2017 is adopted and enforced, original equipment manufacturers (OEMs) can expect customers, end users, inspectors, and contractors to become more aware of SCCR. The pressure is on to provide SCCR ratings that meet varying needs.

The proper alignment of equipment with specific application needs generally ensures safer working environments. For OEMs, SCCR means mastering the ability to pass fault current through a piece of equipment so that it operates safely and efficiently. But available current can vary due to the equipment's location within the electrical distribution system. Often, manufacturers do not know where the equipment they produce will be placed in a customer's facility.

It is difficult to fix inadequate SCCR once equipment has been installed. Long-term equipment maintenance also needs to be factored in. Electrical distribution system upgrades occur commonly today; these changes can inadvertently increase available fault current levels. Products that address such safety factors up front are better positioned to support longevity, which improves relationship-building and trust.

## 2017 NEC UPDATES

The NEC and the Occupational Safety and Health Administration (OSHA) require that electrical equipment provide sufficient protection against short-circuit current events:

- Section 409.22 of the NEC prohibits installing industrial control panels in locations where available fault currents exceed the equipment's assembly SCCR.
- 1910.303(b)(5) of the OSHA regulation requires that all electrical equipment (already installed or being installed) meet this requirement. Exemptions are not provided.

Under the 2017 NEC, OEMs need to calculate panel SCCR, address weak spots, and document ratings. Other important changes include updated rules for increased shock protection, product listing and suitability, arc-flash awareness, surge protection, and maintenance. The 2017 NEC has also expanded



marking or documentation of the available short-circuit current for various types of equipment at the location where the equipment is installed.

Avoid common mistakes by remembering three essential points: available fault current must always be less than or equal to the SCCR rating, don't confuse SCCR and interrupting ratings, and solving SCCR issues after an installation is complete should be avoided.

## SAFETY IS MANDATORY

Manufacturers must consider manufacturing equipment beyond low 5kA ratings. This imperative is very simply stated: safety is mandatory.

Inadequate short-circuit current protection may expose personnel to life-threatening dangers while also causing severe damage to equipment that results in costly repairs and downtime. Major hazards and safety risks include short-circuit shock, burns (via arc flash or contact with heated surfaces), injury associated with flying debris, damage to equipment or facility, arc blast (shock waves, shrapnel, etc.), and vaporized metal.

Equipment solutions that do not have SCCRs greater than 5kA can create safety situations at the installation that are difficult to solve when the available short-circuit current is greater than 5kA. OEMs must be vigilant about asking the right SCCR questions for the safety of the equipment they produce as well as for the safety and investments in their own facilities.

To optimize safety, compliance, and commissioning, partner with vendors who can provide a comprehensive list of SCCR protection options. These lists identify components quickly without adding the need to research or compare component ratings. Ⓞ

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