

Electrical-Safety Sense: PESDs Meet And Exceed NFPA 70E 120.1

Written by Phil Allen, President, Grace Engineered Products
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An electrical-safety program is safer when workers can determine a zero-electrical-energy state without exposing themselves to voltage. Article 120.1(1)–(6) provides a six-step procedure for creating an electrically safe work condition. Here is a portion of the steps:

- **120.1(1) *Identify all sources of electrical energy.***
- **120.1(3) *If possible, visually verify the isolator blades.***
- **120.1(5) *Use an adequately rated voltage detector.***
- **120.1(5) *Physically contact the voltage source.***
- **120.1(5) *Checks voltage phase-phase-ground.***
- **120.1(5) *Ensure the voltage detector functions before and after the procedure.***

Permanent Electrical Safety Devices (PESDs) mounted to the outside of your control panel and wired to every voltage source entering your panel provide a way to verify and identify all sources of electrical energy without exposing workers to that energy (120.1). An illuminated 3-phase voltage indicator verifies the isolator blades of disconnects and circuit breakers while giving a visual indication outside the panel (120.3). The CAT III/IV rating of thru-door voltage indicators and non-contact voltage portals are adequately rated for use in power-distribution systems. Because both devices are physically wired to the voltage source, they meet the 120.1(5). A voltage indicator not only checks voltage phase-to-phase and phase-to-ground, but it performs this function every second of every minute of every day. When a non-contact voltage detector (NCVD) is used in conjunction with voltage portals, each device checks the other to ensure proper functionality before and after the procedure. Furthermore, the NCVD can be checked to another voltage source.

Voltmeters test voltage, then are put back in the tool belt, but a voltage indicator hardwired to the source voltage stays on the job and tests voltage all the time. It is like a lifeguard watching out for workers to make sure no voltage shows up during the work or task. It finds voltage so voltage doesn't find you. **MT**

To learn more about specific recommendations and practices, email the author: philallen@grace-eng.com.

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