

October 2016

Supersedes 09-07-FL

## Isolated ground receptacle connected wrong

A receptionist received a shock when she touched the back of her computer. Investigations concluded a previously installed "Isolated Ground circuit" had been altered and the insulated, red, bond conductor was connected to a breaker, thus energizing the metal computer case.

### *This could have been lethal.*

Rules 10-904(6) & (7) require that every receptacle has a jumper between the box and the receptacle. However because of sensitive electronic equipment, Subrule 10-904(8) allows these Isolated Ground Receptacles to use a separate insulated bonding conductor all the way back to the distribution equipment.

For installation of isolated ground receptacles (see Photo F1), where AC90 (BX) cable or similar was being used, it was common practice to use a three conductor cable and tape the Red conductor Green at both ends. It would appear in this case, someone somehow placed this red conductor under the terminal of a circuit breaker, thus sending potentially lethal voltage down the insulated conductor to whatever device was plugged into the isolated receptacle.

Checks with many wholesalers, suppliers and manufactures indicate that the proper cable, with both a bare bond and insulated green bond conductors are available (see Photo F2). Installations with taped green bonding conductors will not be accepted if of # 2 AWG or smaller, as per Rule 4-038 (1)(b). Please check all of your existing isolated ground receptacles with a proper tester to ensure they have not been altered in this manner.

**Photo F1 – Isolated Ground Receptacle**



An "Isolated Ground" Receptacle is a special receptacle, identified by a small triangle on the face and usually identified by their orange colour, but not always.

**Photo F2 – Cable with both a bare bond and insulated green bond conductors**

