

Purpose Of Grounding

Personnel Safety

Effective bonding and grounding of all conductive components, including metallic frames and raceways, should reduce voltage potential differences among the components during normal operation, fault conditions or lightning strikes.

Proper grounding of power sources should prevent system source voltages from permanently appearing on metallic frames that personnel physically come in contact with. Effective grounding will maintain a minimum voltage difference between metallic objects that personnel may touch simultaneously. The protection system must be designed to allow protection devices to operate quickly and safely when voltage faults occur.

All metallic parts of any isolated ground plane shall have the ground plane designed so that shock voltages are not transmitted to personnel.

Equipment and Distribution Circuit Protection

To prevent electrical fires and limit damage to equipment and associated circuit conductors, the Building Safety Protection System shall provide a low resistance/impedance path for lightning currents to flow to earth when lightning strikes. The Building Safety Protection System shall provide a sufficiently low resistance/impedance path for fault currents so that circuit breakers and fuses can quickly and safely remove voltage to the faulted circuit.

Electrostatic Discharge (ESD)

Electrostatic Discharges (ESD) should be reduced by maintaining low resistance/impedance paths between grounded points throughout any ground plane. Metallic parts of any isolated ground plane are bonded and grounded so they cannot store electrostatic charges. This should reduce electrostatic discharge problems by maintaining all equipment at the same voltage potential during a lightning impulse.

Equipment Operation

The equipment should always operate properly and safely when connected to the Building Safety Protection System.

Conducted Noise Reduction (RFI)

The Building Safety Protection System establishes the lowest possible resistance/impedance between all equipment to prevent external sources of noise currents from being conducted into any isolated ground plane.

Building Safety Protection Systems shall provide current-free reference buses throughout any isolated ground plane so transmitting and receiving circuits, which require an equalized ground reference, can operate with the least interference

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