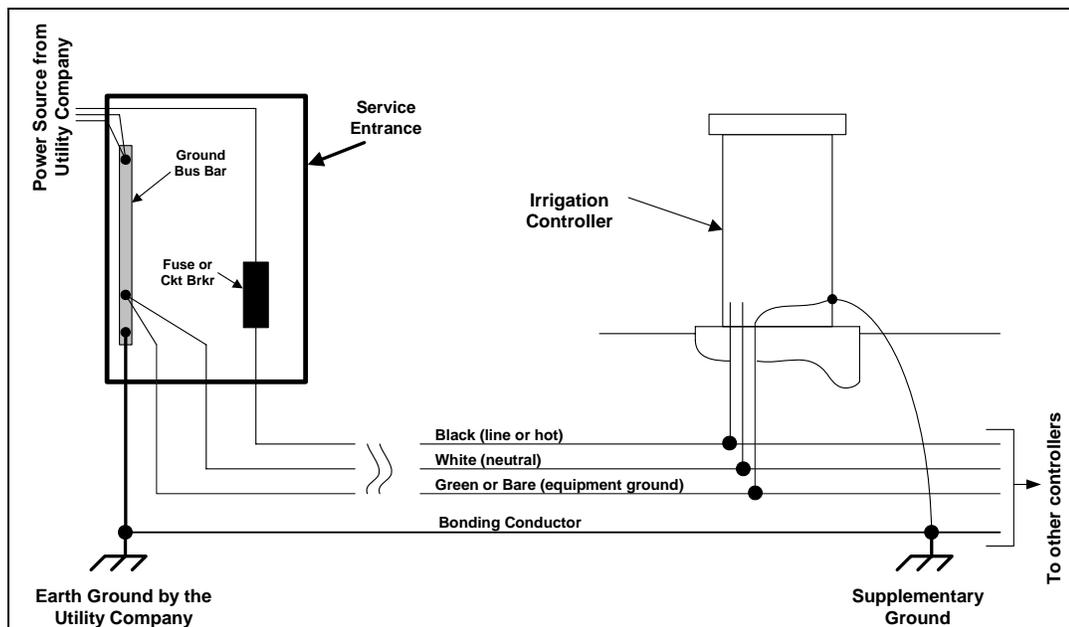


National Electrical Code® (NEC®)¹ requirements for "Bonding"

When irrigation controllers are installed a distance (typically more than 20 feet) from the "service entrance" (power source connection), it is advisable to ground the controller to earth. This is necessary in order to allow the lightning protection devices within the controller to effectively discharge the electrical energy during a storm or power disturbance. This is referred to as "supplementary grounding."

The NEC® requires that all supplementary grounds be "bonded" to the service entrance ground as shown below. Please note that this is in addition to the equipment ground, which is commonly referred-to as "the green wire." The Black, White and Green wires must always be kept together in a trench/conduit/tray/etc.



This requirement is further supported by The Institute of Electrical and Electronics Engineers, Inc.® (IEEE®) Standard 1100-1999, known in electrical engineering circles as "The Emerald Book." The IEEE® develops "recommended practices" based on the requirements of the NEC® (for safety) and sound engineering principles (for electronic equipment reliability.)

The following is a detail from IEEE® Standard 1100-1999 that interprets the NEC® requirements with regard to this subject:

¹ National Electrical Code® and NEC® are registered trademarks of the National Fire Protection Association, Inc., Quincy, MA 02269, USA

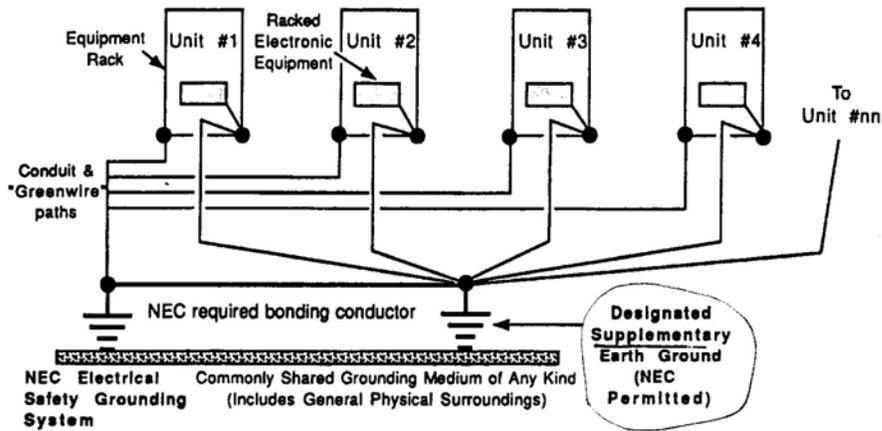
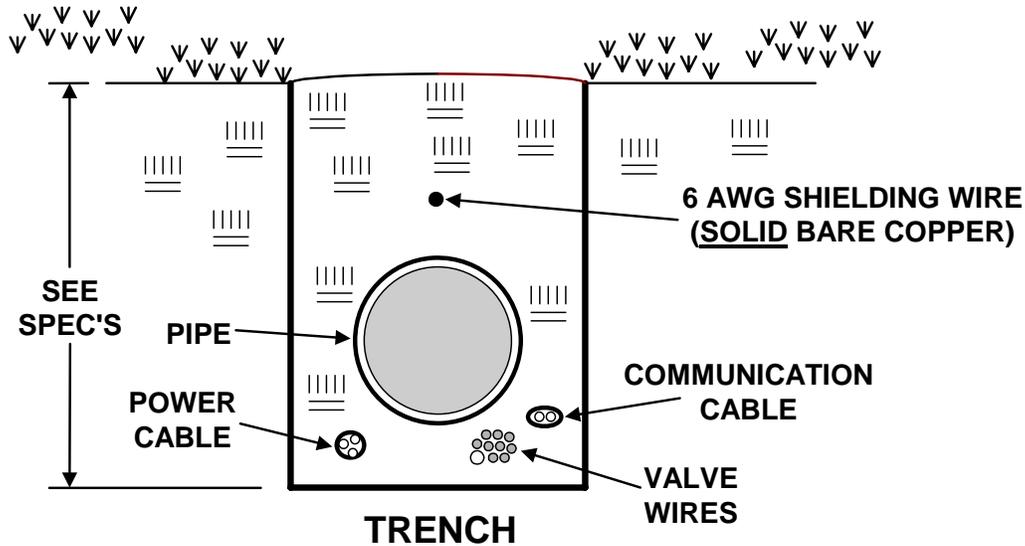


Figure 4-36—(NEC compliant) Equipment and system grounding employing a supplementary grounding system consisting of an interconnected second electrode at its associated grounding conductors

The bonding required by the NEC[®] can also be used for shielding purposes. By placing this wire above the major bundle of other wires and cables, a significant amount of lightning energy is absorbed and directed to the ground grids of the system. Here is a typical installation detail:



For more information see http://www.paigewire.com/wiring_guide.htm