1 General
1.1 All grounding conductors shall be insulated and enclosed in a raceway.
1.2 All ground conductors shall be "GREEN".
1.3 The use of bare conductors is not permissible except where located in building footings, or specified in Job Scope.

2 Feeder Conduits
2.1 Provide a separate, insulated, "GREEN", grounding conductor in each feeder conduit. Bond conductor to each end of enclosing metal raceway.

3 Branch Circuit Conduits
3.1 Provide a separate, insulated "GREEN", grounding conductor in each branch circuit conduit.

4 Bus Duct
4.1 All bus duct flange ends (when cable connected) shall have a properly sized ground bar with lug (as required) for bonding to the equipment ground bus in switchboards as well as to "XO" in the power transformer throat.

5 Panelboards
5.1 All panel boards and switchboards shall have an equipment grounding bus.

6 Separately Derived Systems
6.1 Separately derived systems shall be grounded per NEC
6.2 Where a neutral conductor is derived a grounding electrode conductor shall be routed to one of the following:
   6.2.1 The building grounding electrode system bus bar
   6.2.2 A common electrode grounding conductor designed as described in 2008 NEC 250.30(A)(4) for such applications shall be provided in each electrical room containing sub-distribution level equipment. Review proposed locations with Purdue Engineering.
   6.2.3 The nearest available effectively grounded structural member

6.2.4 Metal water pipe grounding electrode as specified in 2008 NEC 250.30(A)(1).

Note: This grounding method must be approved by Purdue on a case by case basis.

7 Grounding Electrode System
7.1 Within the building main electrical room, install a copper bus bar, 1/4 by 4 inches of sufficient length (two feet minimum) to act as the grounding electrode system termination point for all grounding electrodes as described in NEC 250.52 A. The bus bar shall be capable of accepting NEMA 2-hole pattern lugs. This bus bar shall be called the building grounding electrode system bus bar. Each conductor terminated thereon shall have a label affixed to it identifying the conductor's opposite end (i.e. Ufer ground).
7.2 All terminations shall be by exothermic welding "Cadweld".
7.3 Ground rods shall be ten feet in length by ¾" diameter.

8 Transformers serving buildings on main campus
8.1 Transformers serving the buildings of the main campus are considered to be separately derived systems. The bonding of the neutral will take place at the transformer only.
8.2 An equipment (supply side) bonding jumper will be routed from the X0 of the building transformer to the ground bar of the first building disconnecting means. This conductor will be continuous and one piece of wire with no intermediary splices.
8.3 Size to be based on NEC or 12.5 percent of the largest phase conductor, whichever is larger.

9 Building grounding
9.1 At the A/E’s discretion, buildings shall be encircled with an appropriately sized (per NEC) bare, stranded copper conductor.
   9.1.1 Conductor shall be buried outside the building foundation and below possible frost line.
   9.1.2 A (10’) ten-foot copper-weld ground rod shall be installed at each corner and at 100 to 150 foot intervals along building walls.
9.1.3 The ground loop shall be connected to the main building-grounding electrode.

9.2 All grounds shall be bonded to the ground loop. The ground loop shall be connected to the main building-grounding electrode.

9.3 All exposed building columns shall be bonded to this ground loop.

9.4 Concealed building columns shall be grounded at 50 to 75 foot intervals around building.

9.5 All connections of grounding conductors to columns, ground rods, etc., shall be by exothermic welding “Cadweld” or approved for the purpose mechanical crimp splices.

10 Ufer Grounding

10.1 Ufer grounding systems shall be per NEC Article 250 Section III. The foundation rebar shall be connected to the building column and the ground loop. The ground loop shall be connected to the main building-grounding electrode. All connections of grounding conductors to columns, foundation rebar, other ground conductors etc., shall be by exothermic welding “Cadweld”.

10.2 An external electrode shall always be present to prevent foundation damage that can result from high fault currents.

11 Triad and other ground rod arrangements

11.1 Where two or more ground rods are installed, spacing shall be a minimum of twice the rod length between any two adjacent ground rods.