

SECTION 28 1150 – COMMUNICATIONS GROUNDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. This section includes parts and equipment required for a communications grounding system installation.

1.02 SYSTEM DESCRIPTION

- A. The grounding system from the ground bar in each communications room to the electrical ground shall be installed by the Electrical Contractor.
 - 1. This shall include connection of the ground bar in each communications room to the electrical ground. Shall also include:
 - a. Connection of ground cables in the cable tray,
 - b. Ground connections to electrical panels,
 - c. Grounding of any riser conduits.
- B. Telecommunications grounding systems shall be connected to the electrical ground at the Main Distribution panel.

1.03 INSTALL BASED ON STANDARDS INCLUDING:

- A. NFPA 70-99,
- B. National Electrical Code (latest edition adopted by AHJ)
- C. TIA-607-C Generic Telecommunications Bonding and Grounding

1.04 COORDINATION

- A. Coordinate ground connections to ground bar with Electrical Engineer and Contractor.
- B. Coordinate the location of ground bars in the communications room with the Electrical Contractor prior to installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approved equals for ground components are:
 - 1. Newton.
 - 2. Erico
 - 3. Hubbell

2.02 MATERIALS

- A. Ground Bar shall be Hubbell #HBBB14210A or equal
- B. Compression (crimp) type ground lugs for connection of ground cables shall be Burndy No. YCA series or equivalent.
 - 1. Use only manufacturer approved crimp tools with all crimp lugs.
- C. Ground wire shall be No. 6 AWG for all ground connections from the equipment to the ground bar. Ground wire in plenum areas shall be bare with no insulation. All other ground wires shall have green insulation.
 - 1. Approved ground cable vendors are Southwire, The Okonite Company, and Pirelli or equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Location of the ground bar shall be finalized in the communications room prior to installation.
- B. Locate and note all equipment to be connected to the ground system. Routes for ground cables shall be planned prior to final location of the ground bar.
- C. Identify location of racks, cabinets, and all electronic equipment. Connections from the ground bar to these are required for a complete ground system.
- D. Connect the cable ladder to the ground bar in each communications room. Connect with a #6 AWG ground cable.

3.02 PREPARAION

- A. Plan routes of all ground cables.
- B. For components that are to be connected to the ground system, remove paint from the connecting point and attach to the ground cable with a star washer.
- C. Ground cables shall be connected from the ground bar in each communications room with a No. 6 AWG ground cable. Items to be connected by the Communications contractor include, but are not limited to:
 - 1. Each individual rack and cabinet
 - 2. Cable ladder.
 - 3. Cable tray.
 - 4. Audio Video Systems
 - 5. Protected entrance terminals (PET).
 - 6. Splice cases.
 - 7. Video and audio systems.
 - 8. Access Control Panels

3.03 INSTALLATION

- A. Cabling Contractor shall Install the ground bar to the wallfield.
 - 1. Coordinate location with other systems.
 - 2. Work with Electrical contractor to have them connect the ground bar to the electrical service panel and building steel.
- B. Ground connections shall meet all applicable codes, and shall be located such that they are accessible for maintenance.
 - 1. All grounding conductors shall be continuous without splice.
 - 2. Metal boxes, cabinets and fittings, or noncurrent carrying metal parts of other fixed equipment, if metallically connected to grounded cable armor or metal raceway, are considered to be grounded by such connection. If not connected, they shall be grounded in 1 of the following ways:
 - a. By a grounding conductor run with circuit conductors, this conductor may be uninsulated. But if it is provided with an individual covering, the covering should be finished to show a green color.
 - b. By a separate grounding conductor installed the same as grounding conductor for conduit and the like.
 - 3. Metal raceways, cable armor, cable sheath, enclosures, frames, fittings, and other metal noncurrent carrying parts that are to serve as grounding conductors shall be effectively bonded where necessary to assure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them.
 - a. Any nonconductive paint, enamel, or similar coating shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings so designed as to make such removal unnecessary.
 - 4. Continuity of metal raceway or metallic sheathed cable shall be assured throughout the system.
 - 5. National electrical code shall be used as guide for grounding in hazardous areas.
- C. Ground cables shall be installed in a neat and workmanlike manner.
 - 1. All cables shall be supported or routed against a wall and attached to the wall. No free-floating cables between components will be allowed.
 - 2. Fully support ground cable so that it does not sag between connections.
 - 3. There shall be no sharp bends in the ground cables.
- D. Terminate and connect all ground cables with crimp type connectors.
 - 1. Use star washers on all connections of ground cables to ground bars and racks and equipment.
- E. Ground systems shall be tested after installation to ensure proper installation and connectivity.
 - 1. Test procedures shall be fully spelled out. They shall minimally include, the time and date of the test, name of tester, device used to test ground potential, and test results.

2. The Contractor shall provide test results, to the Engineer for final approval and sign off.
3. Ground connections shall be tested at each rack in each communications room. The system shall not be considered complete until the ground tests have been completed and acceptable results are provided.

END OF SECTION 28 1150