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There are no specific rules for Antennas unless there is electrical equipment mounted on them. In that case they must be bonded to ground via the circuit bond conductor (ground wire) when it is in reach of a person standing on the ground.

Notwithstanding the above, it may behoove amateur radio operators to ground the antenna for lightning protection.

OESC rule 10-400 is the rule most closely related to Antennas.

Only where electrical equipment is on a structure does that structure require bonding. The intent is to prevent the structure becoming energized due to a fault in that equipment.

10-400 Fixed equipment, general

10-400

Exposed, non-current-carrying metal parts of fixed equipment shall be bonded to ground if the equipment is

- (a) supplied by means of metal-enclosed wiring;
- (b) supplied by means of wiring that contains a bonding conductor;
- (c) located in a wet location and is not isolated;
- (d) located within reach of a person who can make contact with any grounded surface or object;
- (e) located within reach of a person standing on the ground;
- (f) in a hazardous location;
- (g) in electrical contact with metal, metal foil, or metal lath; or
- (h) to operate with any terminal at more than 150 volts-to-ground, except for
 - (i) enclosures for switches or circuit breakers that are accessible to qualified persons only;
 - (ii) metal frames of electrically heated devices that have been exempted in accordance with Rule 2-030 and are permanently and effectively insulated from ground; and
 - (iii) transformers mounted on wooden poles at a height of more than 2.5 m above grade level, provided that the installation is in compliance with the requirements of the supply authority.

10-402 Fixed equipment, specific

10-402

- (1) Exposed, non-current-carrying metal parts of the following kinds of fixed equipment shall be bonded to ground:
 - (a) frames of motors operating at more than 30 V;
 - (b) cases of controllers for motors;
 - (c) electric equipment of elevators and cranes;
 - (d) electrical equipment in garages, theatres, and motion picture studios, except pendant lampholders on circuits of not more than 150 volts-to- ground;
 - (e) motion-picture projection equipment;
 - (f) electric signs and associated equipment;
 - (g) generator frames in an electrically operated organ, unless the generator is effectively insulated from ground;
 - (h) switchboard frames and structures supporting switching equipment, except that frames of direct-current, single polarity switchboards shall not be required to be bonded to ground if effectively insulated;
 - (i) X-ray equipment used in therapy;
 - (j) equipment supplied by Class 1 and 2 circuits falling within the scope of Section 16 where such circuits require grounding to meet the intent of Rules 10-100 to 10-114; and
 - (k) data processing equipment.
- (2) Electrostatic shields of transformers shall be bonded to ground.
- (3) All non-current-carrying metal parts of luminaires and associated equipment that could become energized shall be bonded to ground if they are
 - (a) exposed; or
 - (b) not exposed, but in contact with exposed metal parts.
- (4) Electrical equipment, such as livestock waterers, installed in feedlots and open feeding areas shall be bonded to ground by a separate stranded copper bonding conductor not less than No. 6 AWG terminating at a point where the branch circuit receives its supply.

10-114 Circuits of less than 50 V

10-114

Circuits of less than 50 V shall be grounded

- (a) where run overhead outside of buildings; or
- (b) where supplied by transformers energized from
 - (i) systems of more than 150 volts-to- ground; or
 - (ii) ungrounded systems, unless the circuits are provided in accordance with Rule 10-112.

I forgot about these specific rules regarding antennas and transmitter grounding. The section 10 rules are general, these are specific to amateur radio.

54-008 Receiving equipment and amateur transmitting equipment Rules

54-008

Rules 54-800 to 54-1006 apply to

- (a) radio and television receiving equipment; and
- (b) amateur radio transmitting equipment

54-800 Lightning arresters for receiving stations

54-800

- (1) A lightning arrester shall be provided for each lead-in conductor from an outdoor antenna to a receiving station, except where such a lead-in conductor is protected by a continuous grounded metal shield between the antenna and the point of entrance to the building.
- (2) Lightning arresters for receiving stations shall be located outside the building or inside the building between the point of entrance of the lead-in and the radio set or transformer, and as near as practicable to the entrance of the conductors to the building.
- (3) Lightning arresters for receiving stations shall not be located near combustible material nor in a hazardous location.

54-802 Lightning arresters for transmitting stations

54-802

Each conductor of a lead-in to a transmitting station from an outdoor antenna shall be provided with a lightning arrester or other suitable means that will drain static charges from the antenna system, except

- (a) where protected by a continuous metal shield that is grounded; or
- (b) where the antenna is grounded.

Grounding for receiving equipment and amateur transmitting equipment

54-900 Material for grounding conductor

54-900

The grounding conductor shall be of copper, aluminum alloy, copper-clad steel, bronze, or other corrosion-resistant material unless otherwise specified.

54-902 Insulation of grounding conductor

54-902

The grounding conductor shall be permitted to be uninsulated.

54-904 Support for grounding conductor

54-904

The grounding conductor shall be securely fastened in place and may be directly attached to the

supporting surface without the use of insulating supports.

54-906 Mechanical protection of grounding conductor

54-906

The grounding conductor shall be protected where exposed to mechanical injury.

54-908 Grounding conductor to be run in a straight line

54-908

The grounding conductor shall be run in as straight a line as is practicable from the lightning arresters or antenna mast, or both, to the grounding electrode.

54-910 Grounding electrode

54-910

The grounding conductor shall be connected to a grounding electrode as specified in Section 10.

54-912 Grounding conductors

54-912

The grounding conductor shall be permitted to be run either inside or outside the building.

Transmitting stations

54-1000 Enclosure of transmitters

54-1000

Transmitters shall be enclosed in a metal frame or grille, or thoroughly shielded or separated from the operating space by a barrier or other equivalent means.

54-1002 Grounding of transmitters

54-1002

All exposed metal parts of transmitters, including external metal handles and controls accessible to the operating personnel and accessories such as microphone stands, shall be grounded.

54-1004 Interlocks on doors of transmitters

54-1004

All access doors of transmitters shall be provided with interlocks that will disconnect all voltages in excess of 250 V when any access door is opened.

54-1006 Amplifiers

54-1006

Audio-amplifiers that are located outside the transmitter housing shall be suitably housed and shall be located to be readily accessible and adequately ventilated.

Grounding electrodes

10-700 Grounding electrodes

(see Appendix B)

10-700

- (1) Grounding electrodes shall consist of
 - (a) manufactured grounding electrodes;
 - (b) field-assembled grounding electrodes installed in accordance with this Rule; or
 - (c) in-situ grounding electrodes forming part of existing infrastructure as defined in this Rule.
- (2) Δ Manufactured grounding electrodes shall
 - (a) in the case of a rod grounding electrode, consist of 2 rod electrodes (except for a chemically charged rod electrode where only one need be installed) spaced no less than 3 m apart,
 - (i) bonded together with a grounding conductor sized in accordance with Rule 10-812; and
 - (ii) driven to the full length of the rod; or
 - (b) in the case of a plate electrode, be
 - (i) in direct contact with exterior soil at no less than 600 mm below grade level; or
 - (ii) encased within the bottom 50 mm of a concrete foundation footing in direct contact with the earth at not less than 600 mm below finished grade.
- (3) A field-assembled grounding electrode shall consist of
 - (a) a bare copper conductor not less than 6 m in length, sized in accordance with Table 43 and encased within the bottom 50 mm of a concrete foundation footing in direct contact with the earth at not less than 600 mm below finished grade; or
 - (b) a bare copper conductor not less than 6 m in length, sized in accordance with Table 43 and directly buried in earth at least 600 mm below finished grade.
- (4) For the purposes of Rule 2-024, an in-situ grounding electrode shall not be considered electrical equipment and shall provide, at 600 mm or more below finished grade, a surface area exposure to earth equivalent to that of a similar manufactured electrode.
- (5) Where a local condition such as rock or permafrost prevents a rod or a plate grounding electrode from being installed at the required burial depth, a lesser acceptable depth shall be permitted.

10-702 Spacing and interconnection of grounding electrodes

10-702

Where multiple grounding electrodes exist at a building, including those used for signal circuits, radio, lightning protection, communication, community antenna distribution systems or any other purpose, they shall be

- (a) separated by at least 2 m from each other;
- (b) bonded together with not less than a No. 6 AWG copper conductor protected by location from mechanical injury; and

- (c) in the case of lightning protection systems, bonded together in accordance with Item (b) at or below ground level.

Δ 10-812 Grounding conductor size for alternating-current systems and for service equipment

(see Appendix B)

10-812

The size of the grounding conductor connected to a grounding electrode conforming to Rule 10-700 shall be not smaller than No. 6 AWG.

10-814 Bonding conductor size

(see Appendix B)

10-814

- (1) The size of a bonding conductor shall be not less than that given in Table 16, but in no case does it need to be larger than the largest ungrounded conductor in the circuit.
- (2) Δ Where circuit conductors are paralleled in separate cables or raceways, the bonding conductor shall be paralleled and the size of bonding conductor in each parallel run shall not be less than that specified in Table 16 based on the ampacity of the circuit conductors contained in the raceway or cable.
- (3) Notwithstanding the requirements of Rule 12-108, the size of the bonding conductor in each parallel run shall be permitted to be smaller than No. 1/0 AWG.