Lightning Protection Guidelines

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A lightning strike to your antenna or tower can cause:

- Fire
- Shock or electrocution
- Roof tower damage or destruction
- Damage to connected electrical systems indoors (radios, routers, etc.)

Proper bonding and grounding helps dissipate the lightning strike into the earth, and reduces the damage that might occur as a result.

TOWER GROUNDING REQUIREMENTS

Ground Rod Installation

WARNING: Before driving a ground rod, make sure to legally identify any underground utility services (including water, gas, electrical, sewer, communications, etc). Many areas have legal requirements to “call before you dig” that must be followed to avoid severe legal penalties and safety consequences.

- Drive a copper-clad steel ground rod (minimum 8 feet long, 5/8" diameter) as close as possible to the tower base.
- If installed on a roof:
  - Ensure the grounding system can carry the lightning current safely to earth.
  - Use a conductor routed down the side of the building to a ground rod driven into soil at ground level.
  - Avoid routing through the building interior if possible.
  - Make sure the ground wire is properly supported above the roof surface using a suitable rooftop conductor supporting attachment.
- Where practical, bond your tower’s ground system to the building’s electrical service ground or lightning protection system. This reduces the risk of a voltage difference (ground potential rise) that can damage electronics inside the building.
- Avoid routing ground wires near:
  - Electrical panels
  - Gas lines
  - Sensitive electronics
- Never create isolated grounds — all grounds should be interconnected to form a single, equipotential system.

Bonding the Tower to Ground

- Use #6 AWG (or heavier) solid bare copper wire to connect tower base to the ground rod.
- Connect to an appropriate grounding lug or bolt on the tower frame.
- Ground wire requirements:
  - Make the grounding conductor as short and straight as possible
  - Do not use any sharp bends or loops
  - Make sure ground wire is securely fastened to the structure every 4-6 feet maximum.

COAXIAL CABLE GROUNDING

NOTE: Even if the tower is grounded, lightning current can still enter the home through the coax cable.

Recommended Coax Cable Grounding Practices

- Install a coaxial lightning arrestor (e.g., PolyPhaser, Alpha Delta) inline with the feed-line
- Bond the lightning arrestor to the same ground rod as the tower using a minimum #6 AWG bare copper conductor keeping it as short as possible.
- Use a grounding terminal block for multiple grounding connections if needed

FIRE & SURGE SAFETY

- Unplug or disconnect sensitive equipment during thunderstorms
- Consider using surge protectors on power lines and coax entry points.
- Label grounding connections for easy inspection and maintenance.

FINAL NOTES

- These are basic lightning protection guidelines, not a substitute for full NFPA 780 or NFPA 70 (National Electrical Code) compliance
- For critical or high-risk installations, consult a licensed electrician or lightning protection specialist.
- Always comply with local electrical codes, especially in commercial or public settings.