Ham 22B - Antenna installation

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Just as no two houses are the same, no two antenna installations can be the same. We can only provide suggestions. Actual installation is a hands-on affair. Virtually all antenna mounts are for a round pipe.

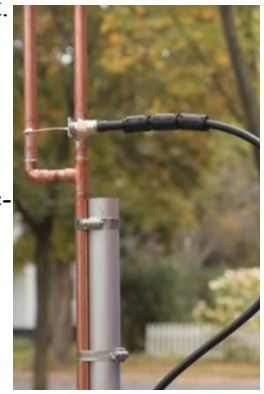
A simple, generic mount is a floor flange, which can be installed on the floor or the wall. We suggest 1-1/4" size, since that will support most any size under roof antenna. 1" size is adequate for less than 6'. The flange is galvanized steel, but Schedule-80 PVC works well for the pipe if a metal pole is not needed.

If the flange is mounted to a base or floor, a single vertical pipe of desired length is required. If the flange is mounted on a wall, then a nipple is required to extend to an elbow, with another nipple placed vertically to support the antenna.

Attach the antenna base to support pipe with u-clamps or hose-clamps. Be careful to avoid damage to antenna.

These antennas are DC-grounded (look at the photo). Nearby metal objects will couple. Keeping antenna 6-feet away from large metal objects will reduce impact on the SWR and signal.

Put silicone grease dielectric on coax threads. Avoid on electrical contact surfaces.



Connect coax to antenna base. Hand-tighten only. Wrap with electrical tape to keep moisture out.

Snap at least 4 ferrite beads around the coax near the antenna feed. Mix 31 material is preferred. Wrap with Scotch 33 or 88 electrical tape to hold in place. These reduce common mode noise, including lightning, on the shield. They isolate coax from being a counterpoise.

Route the coax to enter the building. Near the building entrance, install a PolyPhaser lightning protector on the coax. Ground to the earth and bond to other grounds following NEC Article 810. According to the PolyPhaser engineer, *if the coax is more than 30' long use two* lightning protectors on either end.

If entering from outside, penetration of the wall can be a challenge. A simple window feed-through can be constructed from a metal strip attached to a piece of ¾" wood cut to fit the width of the window opening. Drill the metal strip to mount a SO-239 barrel bulkhead connector. The PolyPhaser can be installed here.

Lower the window to seal against the feed-through. Put screws in the window casing so it cannot be opened from outside. Alarm contacts must be moved. A feed-through will require two pieces of coax, one outside and one inside. Use silicone grease dielectric on the threads only.

If the PL259 connector is already on the coax, a ¾" hole is required. If the coax does not have an end, drill the size hole required for the coax, then install the coax end. Be sure of where drilling. Do not do like I did through our hardwood floor, but it is close to the wall.

If routing from inside a wall, use a low-voltage old-work box, which allows a variety of face-plates. Inside the room, leave enough coax to connect to your radio.

For surge suppression, some suggest making a common-mode balun/choke consisting of at least 5-turn-coil. I do not recommend these because of coupling and problems introduced. My preference is to use ferrite beads near the antenna and on any noise source such as switched mode power supplies.

Install a common point ground where the coax enters the building. Mount and bond a PolyPhaser. Run #10 AWG wire to a ground rod. Bond the radio and power supply chassis to the common point, if there are connections. Bond all ground rods together.

Life is good. Enjoy.