

FLAGPOLE
VERTICALS
IN THE
VILLAGES



FLAGPOLE VERTICALS IN THE VILLAGES

- A discussion of alternatives based on club members' actual experiences.
- Not a technical presentation
 - No theory of radials
 - No modeling
 - No charts of take-off angles
- Not a discussion of other types of stealth antennas

FLAGPOLE VERTICALS IN THE VILLAGES The Villages Deed Restrictions

- Florida Law allows flagpoles up to 20 feet without approval of HOAs or CDDs
- Florida Statute Section 720.304 (2)(b) states: “Any homeowner may erect a freestanding flagpole no more than 20 feet high on any portion of their property, so long as the flagpole is not within or upon an easement and does not obstruct sightlines at intersections.”
- Within The Villages, you can get approval to install a flagpole up to 22 feet high.
- Approval for either a 20-foot or a 22-foot flagpole should be obtained from the Architectural Review Committee in The Villages.

FLAGPOLE VERTICALS IN THE VILLAGES

- There have been a handful of presentations on stealth antennas, particularly vertical/flagpole antennas
- The Villages Antenna Guide by Ed Crowell, W5TWR (2007)
- Flagpole Antenna Designs for The Villages by Dennis Hardouin (W4DIH) and Brad Castelli (KN9B) (2011)
- HF All Band: 6-160 Meters Flagpole Antenna by Tom Grosvenor, NV1U
- A series of articles/presentations by Don Crosby, W1EJM, notably: A Motorized Inverted-L Antenna for 80-10 Meters.
 - Honorable mention in the 2017 QST Antenna Design Competition.
- NP2B article in QST

FLAGPOLE VERTICALS IN THE VILLAGES

- These presentations, and practical experience, have led to a variety of types of flagpole antennas being used by hams in The Villages.
- Most of these flagpole antennas have some common elements.
 - A vertical radiator
 - A concrete base to hold the antenna
 - A system of ground radials (or equivalent) for greater efficiency
 - An antenna tuner to make it possible to operate on multiple bands
 - Landscaping around the base of the antenna
 - Oh, and the ability to fly a flag!
- Materials and designs vary
 - We have used commercial flagpole antennas and home brewed antennas, both with success.

TYPES OF FLAGPOLE VERTICALS IN THE VILLAGES

Home brew flagpoles constructed of aluminum pipe insulated from ground.

Home brew flagpoles constructed of PVC pipe and wire.

Commercial flagpole vertical kits.

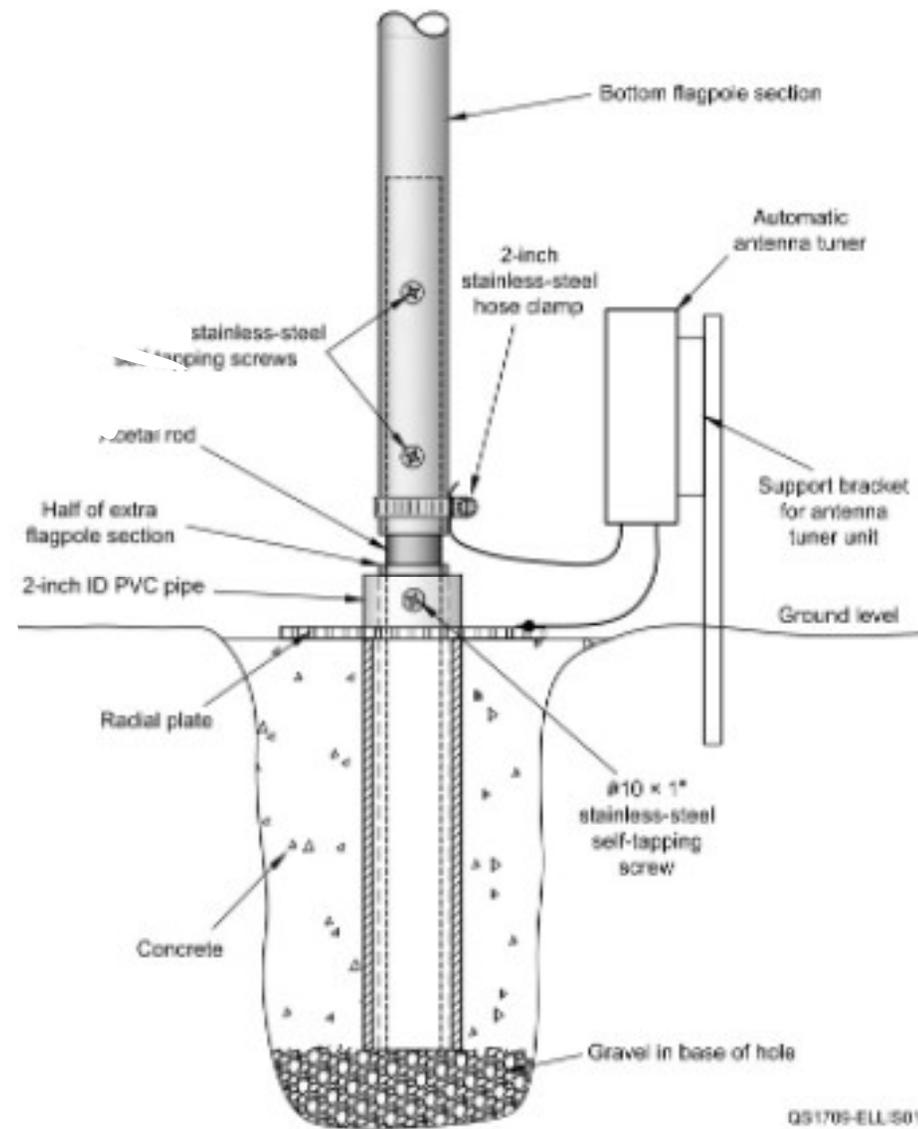
Commercial Off-Center-Fed (OCF) vertical flagpole kits.

Commercial multiband trap vertical antennas overlaid with PVC tubing.

Home brew aluminum pipe verticals with extension wires coming off the top for the low bands.

HOME BREW FLAGPOLES – ALUMINUM TUBING INSULATED FROM GROUND

- We might call this the NP2B special. John has helped a handful of locals install this antenna.
- John published an article on this antenna in the September 2017 issue of QST magazine. The article includes construction details.
- This antenna is a hybrid in that it starts with a 20-foot flagpole kit from a commercial vendor.
- John describes a technique for insulating the flagpole from ground and for feeding the vertical radiator. It makes for a very clean and effective installation.
- This antenna requires a remote antenna tuner and a system of ground radials.



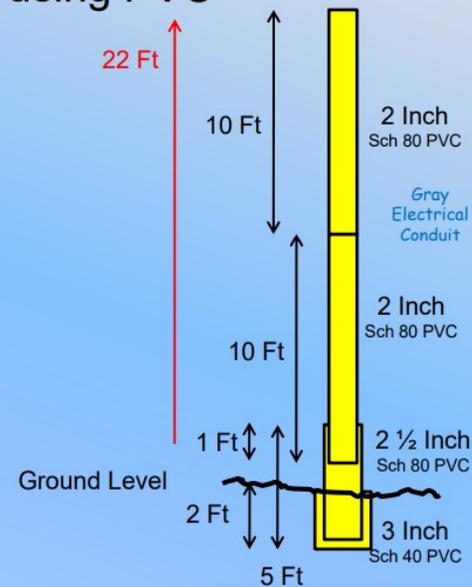
PVC WITH A WIRE INSIDE

- This inexpensive approach involves constructing a flagpole from PVC and conduit and hiding the radiating wire inside.
- Construction details are contained in Flagpole Antennas Designs for The Villages.
- This approach also requires a remote antenna tuner and a system of ground radials.
- K4ZDM and I used a variation on this theme for two years. We threaded a wire up the inside of a commercial flagpole. The pole was a non-conductive composite material that had four push-up-and-twist-to-lock sections.

Antenna Element Options



DIY using PVC



Feb. 15, 2011



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COMMERCIAL FLAGPOLE ANTENNAS - ZeroFive

- ZeroFive Antennas markets a variety of heavy-duty vertical antennas.
- They have a 20-foot flagpole kit for 6M through 30M and a 24-foot kit for 10M through 40M. Very heavy duty!
- The kit includes the flag, rope, cleat, pulley and gold ball.
- Kit also includes a matching transformer.
- Radials are required for best results.
- An antenna tuner is required for multi-band operation. Can be remote at the base or at the operating position.



COMMERCIAL FLAGPOLE ANTENNAS - Greyline

- Greyline markets a 20-foot flagpole antenna of the Off-Center-Fed design.
- Unlike a dipole antenna, which is fed in the middle, an OCF antenna is fed at a calculated distance from the middle.
- The aluminum tubing of the Greyline flagpole is separated at the feedpoint, and the two pieces are joined by a non-conductive rod.
- The feed system uses ladder line at the antenna.
- No radials needed.
- 160M – 6M with remote tuner at the base.

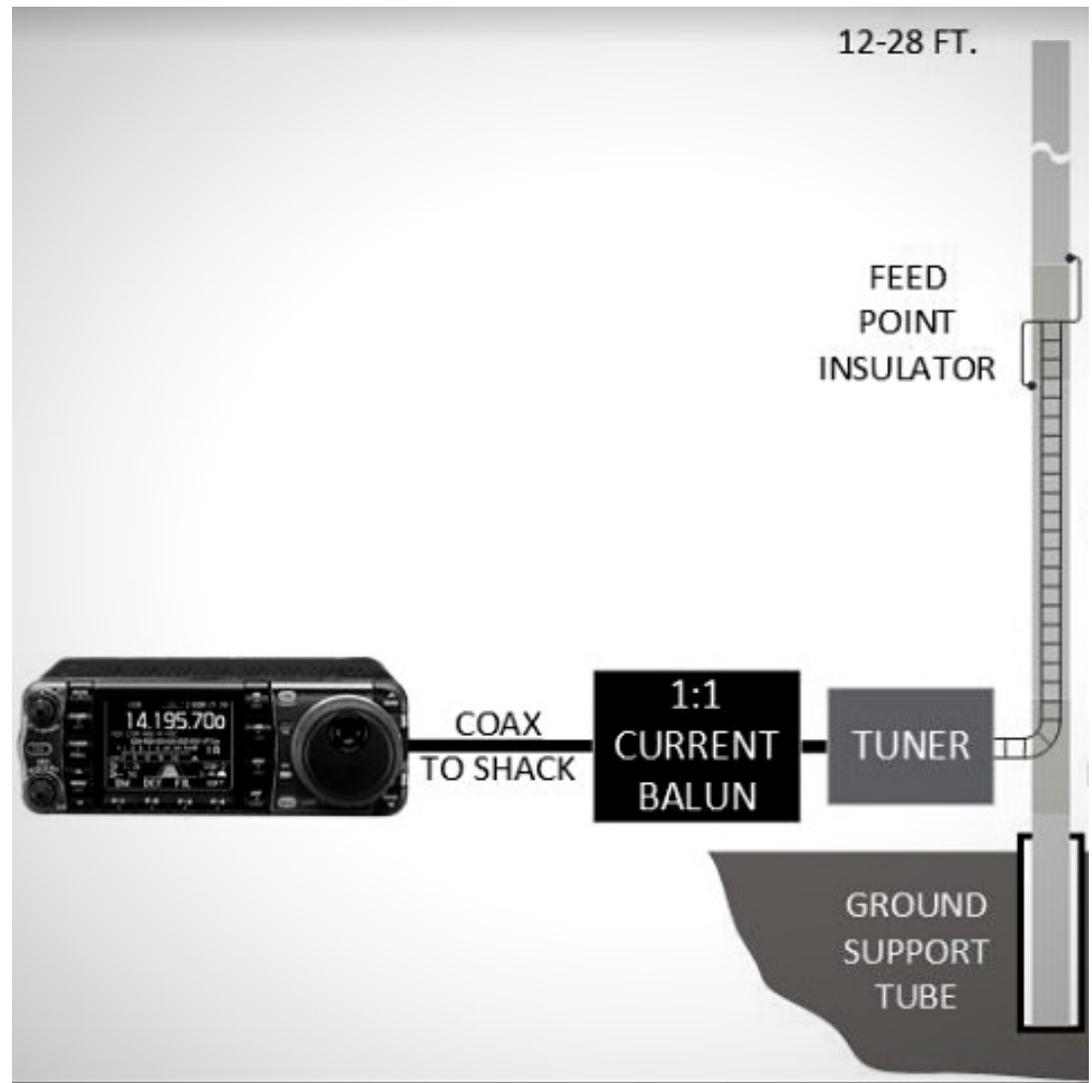
GREYLINE FLAGPOLE ANTENNA



GREYLINE FLAGPOLE ANTENNA



GREYLINE FLAGPOLE SCHEMATIC





COMMERCIAL “FLAGPOLE” ANTENNAS – Hustler 6-BTV

- Hustler makes a trap vertical antenna that covers 10M – 80M.
- While not exactly a ‘flagpole’, you CAN slide a length of PVC tubing over the antenna to make it look like a flagpole.
- You can even install a pulley and rope to the PVC and fly a flag when it is not windy out.
- No antenna tuner required.
- Radials required.
- Handles the full legal limit of power.

FLAGPOLE VERTICAL ACCESSORIES



Shown with Hustler BTV series antenna and optional parts

Shown partially tilted

EXAMPLE OF
RADIAL PLATE
WITH RADIALS



ALTERNATIVES
TO RADIALS –
ALUMINUM
SHEETS



ALTERNATIVES
TO RADIALS –
1942
PLYMOUTH

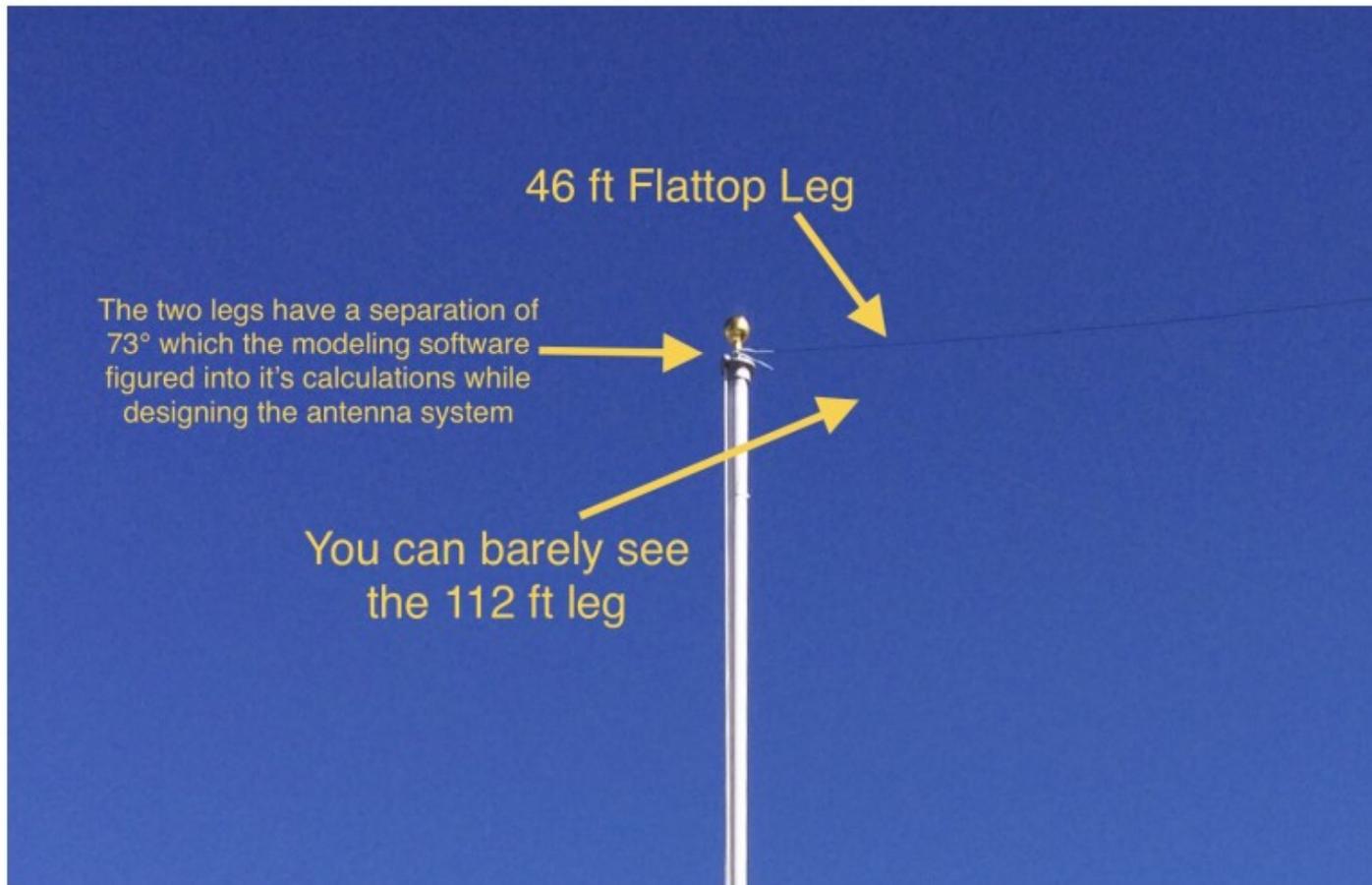




ANOTHER EXAMPLE OF TILT BASE

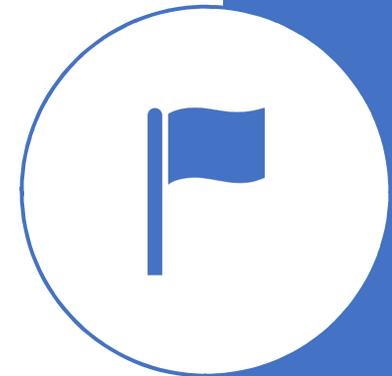


ADDING BANDS TO YOUR FLAGPOLE



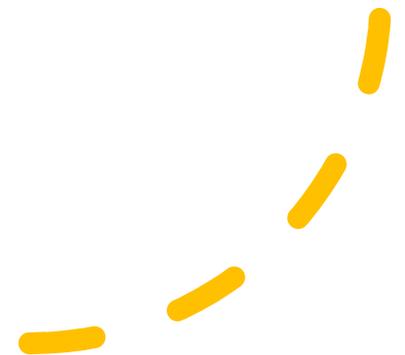
SO, LET'S RECAP

- The main elements of a flagpole antenna in The Villages are:
 - A vertical radiator
 - Roughly 20-22 feet tall
 - Insulated from ground
 - A concrete base to hold the antenna
 - A system of ground radials (or equivalent) for greater efficiency
 - A remote antenna tuner to make it possible to operate on multiple bands
 - Landscaping around the base of the antenna
 - Oh, and the ability to fly a flag!



ALTERNATIVES TO VERTICALS

- End-fed long wire
 - To a tall tree (like Ultimax Dxtreme)
 - Laid out on your roof
 - An antenna tuner is required
- Dipole in the attic
 - Make sure you don't have metal on the bottom of the roof



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