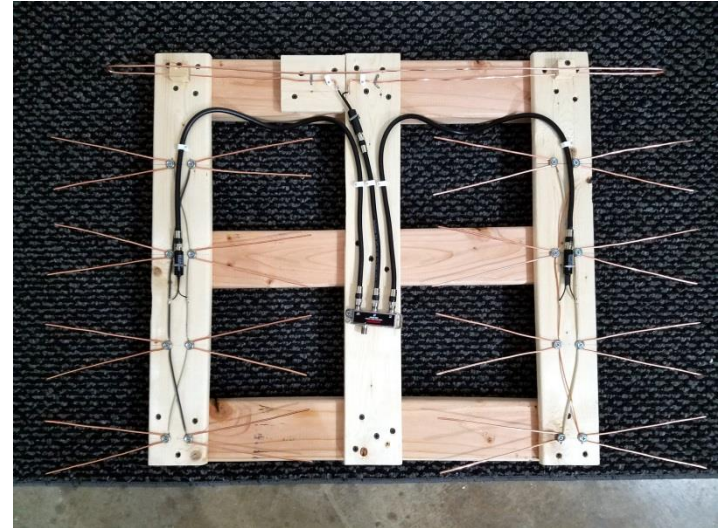


# DIY Bow Tie Antenna with Folded Dipole

By Buzz Harrison

## Parts list:

- 1 – Three 36" lengths of 2x4". If you are using this antenna outdoors, I would use 1 ½" PVC for the frame instead of wood. Use the dimensions for the 2x4" for the PVC.
- 2 – 72" of a 1x4" cut into 24" lengths for indoor use.
- 3 – Sixteen #10 fender washers.
- 4 – Twenty #10 screws ¾" long.
- 5 – Three impedance matching transformers, [like this one](#).
- 6 – A 32' spool of #10 AWG solid, bare copper wire, [like this one](#).
- 7 – Enough RG6 "coax" cable to wire it all up.
- 8 – A 3-way splitter, [like this one](#).
- 9 – A handful of screws to hold the wood together. I just used 1 5/8" drywall screws.

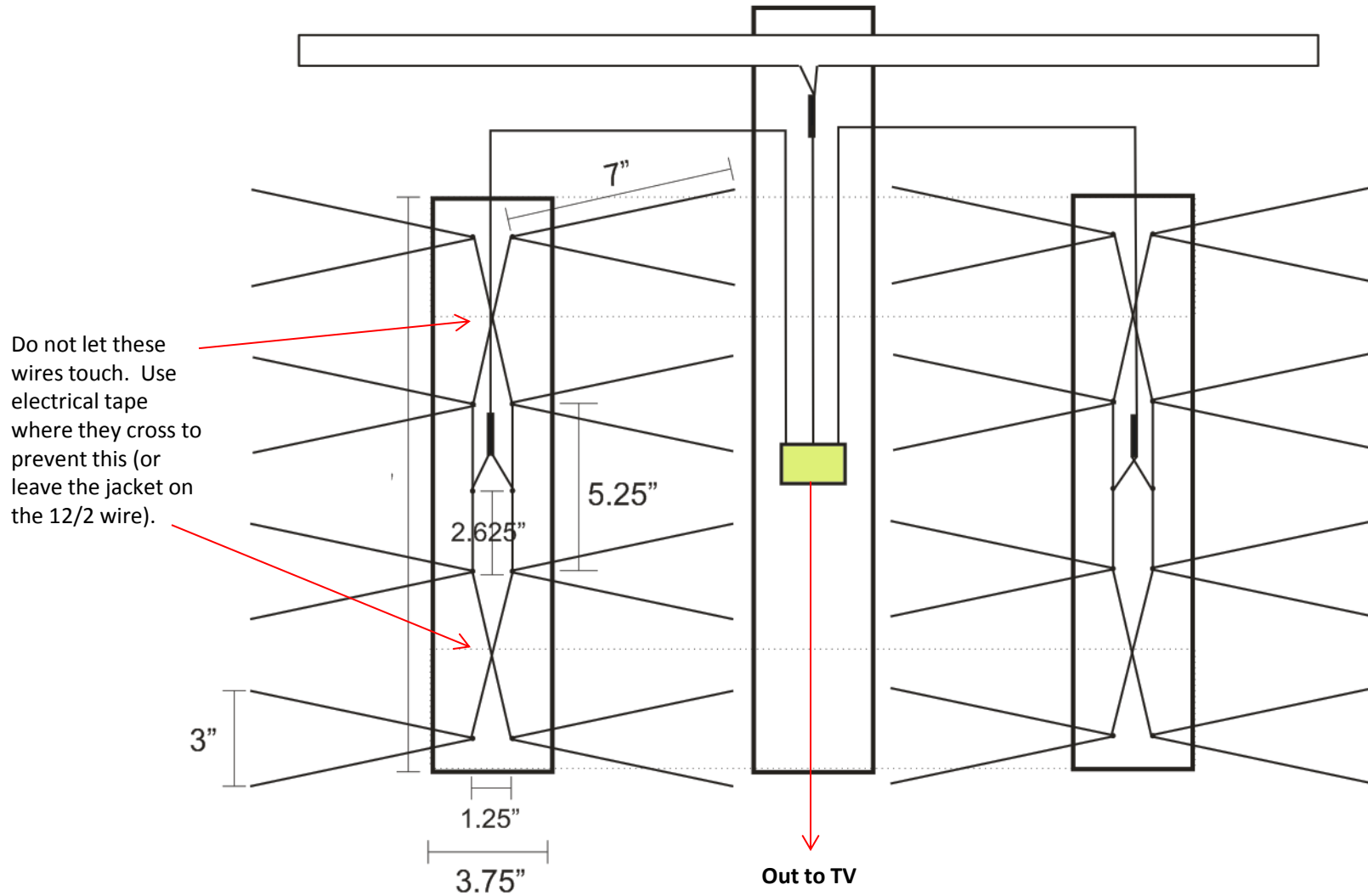


## Instructions:

- Build the 2x4" and 1x4" frame first. Make sure you pre-drill the holes for the drywall screws or the 1x4" will split.
- It is important to follow the measurements on the next page exactly for best reception.
- Cut sixteen 15" long pieces of the copper wire and bend it appropriately.
- Use the fender washers with the #10 screws to hold down each piece of copper wire.
- Use a piece of 12/2 Romex to hook all the elements together. Do not let crossed wires touch each other.
- Cut the dipole to ½ wavelength based on the VHF frequency you are trying to receive. (See page 3)
- Strip the ends off each impedance matching transformer and solder to the elements/wires as shown in the picture.
- Use RG6 (for best results) to hook each array and the folded dipole together to the 3-way splitter.

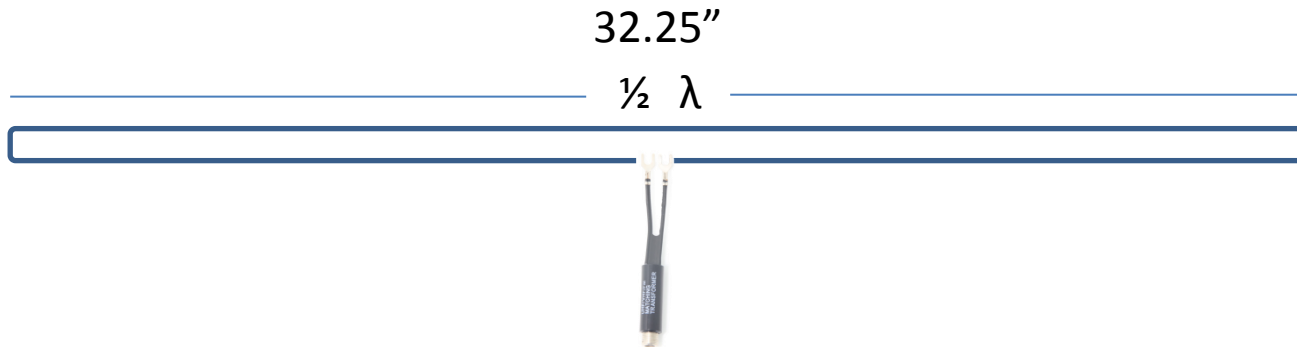
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1 – If there are any VHF channels in your area, determine the exact frequency so you can construct the folded dipole to receive them. The one above is based on Channel 8 (183 MHz).

2 – The formula for figuring out the wavelength for a given frequency is:

$$\lambda = \frac{v}{f}$$

$\lambda$

(Lambda) is the wavelength

$v$

is the velocity of the wave (default is velocity of light in vacuum: 300,000 Km/s)

$f$

is the frequency

3 – For example, if your frequency is 183,000,000 Hz (or 183 MHz)

$$\lambda = \frac{300000000}{183000000}$$

$$\lambda = 1.639 \text{ meters}$$

4 – Then convert the meters to inches and divide by 2 to get  $\frac{1}{2}$  wavelength. That's how long your Folded Dipole should be.