

Ham Radio operators who live in an apartment or in a housing development with homeowner association antenna restrictions have few options for HF amateur radio antennas. I have been an apartment-dweller for several years, and I have good success using an indoor random wire antenna on the HF amateur bands. Random wire antennas are extremely easy to make and require a minimum of equipment. The following instructions will teach you how to make an indoor random wire antenna that you can use for both transmitting and receiving on the HF amateur radio bands.

As the name suggests, a random wire antenna is simply a random length of wire used as an antenna. Because a random wire will create an impedance mismatch with a transmitter, you typically must use an antenna tuner in conjunction with your transmitter so that the transmitter has the proper load across its output. A length of random wire and an antenna tuner are the two basic parts that you need to make a random wire antenna.

You can use nearly any type of wire for an indoor random wire antenna, and the wire can be insulated or uninsulated. Radio Shack sells a package of 50-foot tinned solid bus wire (catalog no. 278-1341) that I have used to make several random wire antennas. The solid bus wire is easy to work with and difficult to notice when strung along the corner of an apartment ceiling. Although you can use other wire, such as speaker wire or telephone wire, for a random wire antenna, I find that the Radio Shack bus wire is easy to mount and easy to work with. Use pushpins, spaced every few feet, to hold up the bus wire and snake it around a room or an apartment.

The straighter you can run the random wire antenna the better, but random wire antennas are tolerant of bending and shaping as needed. In my last apartment, I used an indoor random wire antenna that had several 90-degree bends and snaked around the ceiling of several rooms. With a good antenna tuner and 50 feet of antenna wire, I made contacts with other Ham Radio operators all around over the world.

As mentioned above, an antenna tuner is necessary for an indoor random wire antenna. You can use nearly any antenna tuner, such as an MFJ manual or auto tuner, so long as the tuner has a connection for a random wire antenna (some basic antenna tuner models do not). I have had excellent results using the LDG Z-100 autotuner with my indoor random wire antennas, but I also used a manual MFJ tuner with good results. Because an indoor random wire antenna is inherently a lossy and inefficient antenna system, a higher-quality antenna tuner will help guarantee the highest possible true output power from your antenna system. But the first rule of antennas is that any antenna is better than no antenna, so do not be too choosy about which antenna tuner you use with your indoor random wire antenna.

With an indoor random wire antenna and an antenna tuner, you must retune your antenna tuner with even the slightest frequency change. It is also unlikely that you will receive a 59 or 599 RST signal report using an indoor random wire antenna. But you will have a working antenna system that is completely hidden from the outside world, and from your neighbors and landlord. As a courtesy to your neighbors, you should make sure to use a low-pass filter so that you do not cause television interference (TVI) while

transmitting. Sticking to an unmodulated mode such as CW or one of the digital modes will simultaneously minimize any interference you might cause and maximize your chances of making successful contacts with such a handicapped antenna system. You should usually limit your power output to under 100 Watts when using an indoor antenna, both to minimize RF radiation exposure and to minimize interference to nearby household electronics.

Here is a list of items that you need to make a simple but effective indoor random wire antenna:

- \* Approximately 50 feet of wire (e.g. Radio Shack bus wire no. 278-1341)
- \* pushpins or nail-in clips to mount the antenna wire
- \* Antenna tuner (I recommend the LDG Z-100 autotuner, along with the RBA 1:1 Current Balun for random wire antennas)
- \* short RG-8 or RG-58 coax cable (to connect the antenna tuner to your HF transceiver)
- \* low pass filter (to minimize TVI and RFI)

An indoor random wire antenna really is as simple as using a random length of wire (the longer the better) connected to an antenna tuner for impedance matching. Using a stealth antenna like this can be challenging, but it will make every contact memorable and feel like a real achievement. You should not expect spectacular performance, but the indoor random antenna will allow you to make contacts. Many contacts will be local, but I have talked with other Ham Radio operators in Australia, Japan, and South America from my first-floor apartment using a 50 foot indoor random wire antenna run along my ceiling and an LDG Z-100 autotuner.

The first time I heard my own callsign (KD6DXA) coming back to me from Australia while using an indoor random wire antenna, I simply could not believe it. Do not let other Ham Radio operators tell you that indoor random wire antennas do not work. It is true that they do not work as well. But they do work, and I have the QSL cards to prove it. Just follow the instructions above, and you will be back on the air in no time, apartment or no apartment, and your neighbors will never be the wiser.