Eliminating Weak-Links HF ANTENNAS

Aside from acquiring the perfect radio QTH, I would have to say erecting HF antennas is the aspect of our hobby, most, through necessity, are compelled to compromise.
All within the fraternity admire with much envy the magnificent installations we drive past or hear being used by the gun DX stations. Unfortunately, our admiration is not shared. XYLs, neighbours, local bodies et al, view them more as an abomination, or worse nowadays, a severe community health risk !
Unfortunately, the lower the frequency we use the longer the wavelength, the bigger the antenna needs be ! Without the available space, we are compelled to compromise.
So if you are blessed with a 15M + tower, supporting your HF yagis, or have paddocks full of Rhombics, read no further. Instead go work the DX that many simply won't hear.
I know it is true. I once had a TH6DXX, now I have a trapped dipole under the tiled roof.
I know a huge difference exists, so, here, I can only provide information to help others
Maximize the Compromise !
Of course, and it is understandable, you want to work all the bands your licence allows, however, you may need to begin the compromise here.
If Dxing is your preference, then 10,15 and 20M would be logical choices. (Later, I'll single out the small WARC bands on 10,18 and 24MHz for special mention.)
A TriBand Yagi, commonly of 3 elements is, fairly considered, more a benchmark than a compromise, but compared with stacked arrays of monobanders, a compromise it remains.
They are not small, cheap, or unobstrusive, and require a substantial support and a rotator.
HyGain TH3jr ($995), TH3Mkiv ($1345) and **Explorer 14 ($1650)** are examples we stock.
If you are fortunate enough to be able to erect one, then do so. The world is your oyster and you will be pretty competitive in any DX contest !
To assist in your negotiations with neighbours, try this:::: Tell them you've just bought a new large screen TV and need a bigger aerial to get the bigger pictures properly !

A Monoband Yagi, especially on 10 or 15, can be a great compromise if you prefer to ragchew with DX stations. They are smaller, easier to support, and without traps, much cheaper.
HyGain 103BA 3 ele on 10M $ 358
HyGain 105BA 5 ele on 10M $ 780
HyGain 153BA 3 ele on 15M $ 550

Unfortunately, these bands are not always open, and to chat among your ZL mates, you should have an antenna on 80 and 40M.
MultiBand Antennas become a very attractive compromise. You maximise the terms of your licence, can enjoy DX when the bands are open, and chat up and down ZL.
You can, of course, easily construct a half-wave dipole for any particular band, by cutting wire to a resonate length (468/*F(MHz) = L (ft).*
I suggest a centre balun (**Diamond BU50 $85)** for 50Ω coax, configure it as an inverted-vee (80 or 40) or sloper (20.15.10M) and you'll radiate plenty of RF. You can cut lengths and make dipoles for each band or alternatively you could use traps.
Traps, are convenient devices that, in effect, provide different points of resonance along one length of wire. You can see from the formula above, an 80M dipole, requires a fair hunk of space. An inductive trap has the advantage of effectively shortening the overall length of the antenna. Of course, this affects the Q, so the disadvantage is reduced bandwidth, but given that the antenna now fits in the available space, and works all bands **Trapped Dipoles** are a popular choice.
Diamond W80-10 covers 80,40,20,15 and 10M With overall length < 20M, it is very popular. Wire, centre balun, all sealed traps, tuning stubs, end insulators and ties are only **$300.**
Diamond W735 is for 80 and 40, ideal if you have a tri-band yagi and looking for a good antenna to cover the lower bands…… **$250**

For an increasing number, 20M of free space to string a wire antenna is simply not available.
Trident's 4 Band HF Dipole, is a fine option. *(Refer this Issues Personal Profile, ZL1AOT)*
Only 5M long, made of lightweight aluminum, it requires little support and is not a neighbourhood-attention-seeker. Unfortunately, it does not cover 80M, but performs very well on 40 and handles DXing on 20.15 &10. At CC, we have ours rotatable, under the V/UHF LPY. This enables us to capitalise on the b*roadside gain* inherent in a dipole, but I do not consider it a pre-requisite for this antenna to perform on the DX bands.
In any location where compromise is compulsory, I believe this antenna fills the bill perfectly, and being ALL-ZL-Made is a big plus. It is simple to install, has tuning stubs to centre it on your preferred part of the band and best of all costs only **$ 295**

Vertical Antennas, it is argued provide an alternative when space limitations dictate the only way to expand is upward. Persons well qualified on the subject have long debated the Vertical vs Horizontal polarity argument. Some would argue space is not an issue, Verticals perform better ! I have no intention of entering the debate here, other than to mention practical experience, and remember all is said in the confines of compromise.
I would argue space is a very relevant issue, before you even enter the performance debate. Before it will load, a standard ¼ wave vertical requires a counterpoise. For RF, this is, ideally, a ground mat, made up of ¼ wave length radials. If you have that sort of space available, perhaps you fall into the very lucky group I eluded to at the beginning, and you need read no further ! Vertical antennas can be compromised in the same way as dipoles, with traps. Traps themselves, don't remove the requirement for a counterpoise. The **Diamond DP-CP5 Trapped Vertical** solves this problem by not only having traps in the Vertical radiator, but 5 trapped radials, each tuned to a different band. This provides an artificial ground plane, allowing the antenna to be erected independent of a true ground mat, a true limited space Vertical.
In Japan, I was amazed to see this antenna adorning virtually every high-rise tenant building. The Vertical element is only 4.5M long and the longest radial 1.8M which, of course, presents a relatively high Q and therefore narrow bandwidth on the lower frequencies. Given that is "self-contained" and covers 80 through to 10M it remains my preference among the vertical antennas available at a cost of **$735.**
We are regularly asked by different manufacturers, particularly from the US, to consider stocking and marketing their **All New Concept Multi-Band Vertical Arrays.**
To date, I have not seen any "new concept" Plenty of different pieces of hardware and appendages attached to "create" resonance, plenty of nuts and bolts to seize ! Plenty of $'s but I remain unconvinced of their true worth.
Unfortunately, this section of the market is susceptible to gimmickry, and understandably so……..
If you can come up with an antenna that resonates from DC to Daylight, would radiate RF at an appropriately low angle, takes up no space and is virtually invisible, please let me know ! I'm confident we can both retire !

The WARC Bands & Wide-Band Antennas.
Given the relatively small segments of spectrum the 10.18 and 24MHz bands offer,
it is not surprising a lack of demand means many manufacturers have not mass produced a range of antennas for these bands.
An interesting aside, however, is that these bands remain relatively quiet, not being the common domain of the Big-Gun Dxers.
It is therefore possible to work an amazing amount of good DX with little more than a wire dipole and on these frequencies, the lengths are none too demanding. Give it a go!
A sort of associated problem exists when you want to listen or need operate outside of the normal Amateur Bands. SAR, Marine Bands, shortwave, aircraft and utility services are spread across the entire HF spectrum. We have this problem with our remote site at Port Waikato, where we required one antenna to cover 2-30MHz without a tuner. We settled on
Yaesu's YA30, which is based on the military **T2FD (Terminated Folded Dipole).**
It is approx 20M long, and configured as a centre-fed folded dipole. Complete with Balun and 25M low-loss double screened coax this package is available ex-stock @ **$ 695.**
Its undoubted plus is its broad-band overage, one antenna and you can transmit across HF.
It performs particularly well up to about 16MHz and satisfactorily above, but to be fair my old TH6DXX would have crucified it on 20,15 & 10.
But, then again, a TH6 sets you back well over 2K and you only cover 3 bands
See, it is all a matter of compromise, isn't it !
Listeners and Long Wires: Joe Bloggs, believing he is improving the performance of his tranny on SW, will tell you he's using a long wire antenna. When questioned further, this amounts to something akin to 5M of wire strung under the eaves, the end stripped and clipped to the telescopic whip.
A true, long wire antenna is a great array, providing it is many multiple wavelengths long so it highly unlikely you've got the space !
From **Alpha-Delta (US),** we import a range of antennas specifically for this market.
Please, if you know such a fella, have him contact us. First a decent antenna, plenty of advice, then a real receiver, who knows,
he'll be sitting the Ham Exam anytime soon !
I assure you, he wouldn't be the first !