Poor reception? Go through the roof!

Bill Wright champions an unusual but effective way to mount an aerial above your roof

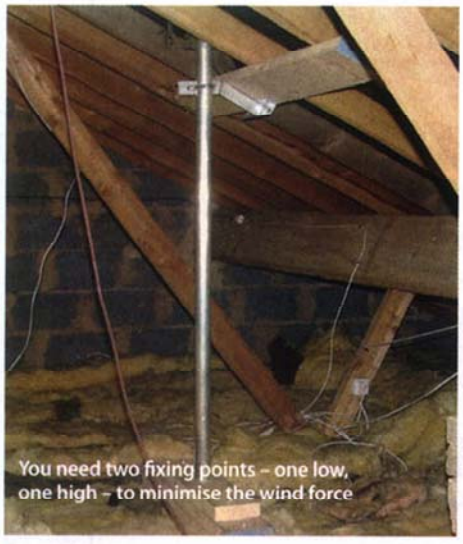
If your house doesn't have a chimney or high gable to fix a TV aerial on, a loft aerial might seem like the only choice, despite the poor reception they usually deliver.

Loft aerials are nearly always a compromise, yet sometimes there's no alternative. It might be that outside aerials are forbidden, but if the problem is purely the practical matter of where to fix the damned thing, then there might be a solution; fit an aerial mast right through the tiles.

All that's necessary is to obtain a secure fixing in the loft and find a way to keep the roof watertight. You might think that this is a big DIY job, but techniques for poking tubes up through roofs and making good after are well-developed in the building trade and not unknown to aerial installers.

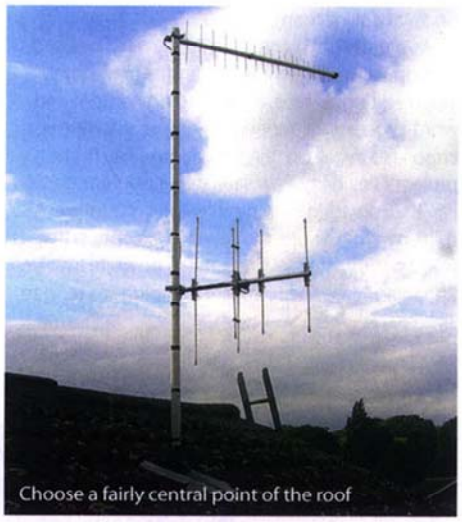
First, decide whether the exact location of the aerial on the roof is going to make a big difference to reception, for instance, if there's a taller building next door. Next, get into the loft, but remember that stepladders and lofts can be dangerous.

The usual place for the mast is somewhere central on the roof, two or three tiles down from the ridge on the side where the visual impact will be minimised. The exact position is determined by



You need two fixing points – one low, one high – to minimise the wind force

what fixing points are available in the loft. You need two: one high up and one low down, as far apart as possible. If the loft is reasonably high the fixing points can be perhaps 2m apart, minimising the leverage exerted by the mast when there's a gale. The mast usually only needs to extend about 1.5m above the top fixing, as it is at the top of the house.



Choose a fairly central point of the roof

The top fixing must be close to the tiles so that any movement at the roof seal is small, so the rafters are the obvious choice. To spread the effects of the sideways forces caused by the wind, tie four or more rafters together by nailing one or two lengths of timber across them. These timbers can also provide the fixing point for the top bracket.

The bottom fixing might be what determines the exact position. At the top you can fix to the rafters almost anywhere, but it might not be so easy to find a good fixing on the 'floor' of the loft. If you're lucky you might find a stout purling (a horizontal timber perhaps 250mm x 75mm). Otherwise, you will need to 'tie' four or five rafters together. Again, the timber that does this can also form the fixing for the mast. Modern buildings often have prefabricated roof trusses rather than traditional timberwork, and these have cross members that can provide additional fixing points.

Having found your fixing points, decide which

Make sure the point of entry is totally watertight

tile you are going to remove. This is roof work, so you must use a proper ladder, roof crawler, and safety harness, and take great care. Most tiles are easy to lift. They are usually held by one nail. A slate roof is different; unless you know what you're doing don't disturb slates or slate-effect composites.

The pole should be a 2in diameter aerial mast – no thinner. If the mast is to extend more than 2m above the top fixing point, use a more rigid aluminium scaffolding tube. Insert the pole through the hole (in dry weather), being careful not to insert it through the bedroom ceiling as well! Back in the loft, you can finalise the fixings, making adjustments so that the mast goes through the middle of the hole and not near one side.

Then it's back on the roof to lower the roof seal over the mast and integrate it with the tiles. Essentially, the seal consists of a rubbery bellows that clamps to the mast, bonded to a sheet of lead. The lead can be easily moulded to follow the contours of the tiles, using a wooden mallet. The overlap must be arranged so that rainwater is sent down the outside of the roof, not the inside!

Roof seals can be bought at builders' merchants

You can buy the roof seal can be bought from a builders' merchant (often called a 'boot for an upstand'). Aerial firms also sell fixing kits, one as Vision and Hirschmann. Some products include a fixing kit as well as the roof seal.

Take the cable down the mast and feed it carefully around the lead seal, or alternatively run it inside the mast, fixing cable ties every 400mm with the long tails left on. This prevents rattles. Don't drill the mast low down to provide a cable route because it will be weakened; take the cables out of the top of the mast.

Finally, seal the top of the mast by shoving a ball of newspaper down it and topping this with a cone of silicone sealant. Now you can get up there and fix your aerial – or a dish just above the roof ■