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### ***EXCERPT FROM THE DATAHOG / MINIMET INSTALLATION MANUAL***

*A copy of the whole manual is supplied with each weather station.*

## **CHOOSING A SUITABLE LOCATION FOR AN AUTOMATIC WEATHER STATION**

The ideal location for siting an automatic weather station would be a flat area of short kept grassland, minimum 10m x 10m in size, fenced and surrounded by a larger flat area with no height obstructions in the near vicinity.

Very few locations meet these ideal conditions, so the following guidelines should be used when choosing a suitable installation site.

### **1. Ground Based Installations**

The weather station mast can be fixed into a grassy surface using guylines and pegs, or can be bolted or concreted in place for a more permanent fixture, using the guylines as steadying structures. The area required for a concrete base can be seen in Figure 1.

The standard mast height is 2m, although other heights, either higher or lower may be more suitable to your own application. If there are any tall obstructions nearby, such as trees or buildings, make sure that the mast is placed at least twice the distance away, of the height of the tallest obstruction. See Figure 2.

Most sensors will be mounted on a central pole, but a raingauge is fixed at a distance of 3-4m from the base of the pole. Usually the raingauge is pegged or bolted to the ground so that the collecting rim is at a height of 50-60 cm above the ground. However, if a solid fence is to surround the weather station in a small area, this may interfere with rain collection, and in this case the raingauge should be raised so that its top rim should be at least as high as the top of the fence.

It is not always essential to enclose the weather station with a fence, but it is advisable in many cases, to prevent physical interference and damage to cables laying on the ground. A minimum area to be considered should be around 5 x 5 m.

If theft or vandalism may be a problem, a surrounding fence is advised. A large notice saying 'Danger - High Voltage' or such similar message should deter most intruders, even though there actually is no danger at all!

## **2. Roof Top Installations**

In applications where there is no suitable open space, or it is more convenient for mains power or permanent linking to the PC, the weather station can be installed on the roof of building. The highest point of the tallest building should be chosen if at all possible.

Again, the standard mast height is 2 m, but the actual pole height should be chosen according to the immediate surroundings and obstructions, for example other buildings, tall trees, chimneys, exhausts etc. The same rule applies in that the mast should be placed at least twice the distance away, of the height of the tallest obstruction. See Figure 2.

A 3 m pole can be fixed to the side of the building, such as in a TV aerial installation, so that the lower 1 m is bolted to the wall, and the top 2 m is projected above the roof top. This can be done to the side of a flat roofed building, or at the apex of the roof as appropriate. Please see Figure 3.

If there is a handrail around the roof which is sturdy enough to prevent a person falling off, this could be used to clamp the 2m mast in place. Please see Figure 4 for details including weight and loading on the handrails.

Alternatively, a 2m pole can be attached to the roof top itself. The exact method will depend on the fabrication of each roof, as usually the roof surface cannot be punctured by bolts etc. Sometimes a large metal plate is used as a mast base, which is then weighted down with concrete blocks.

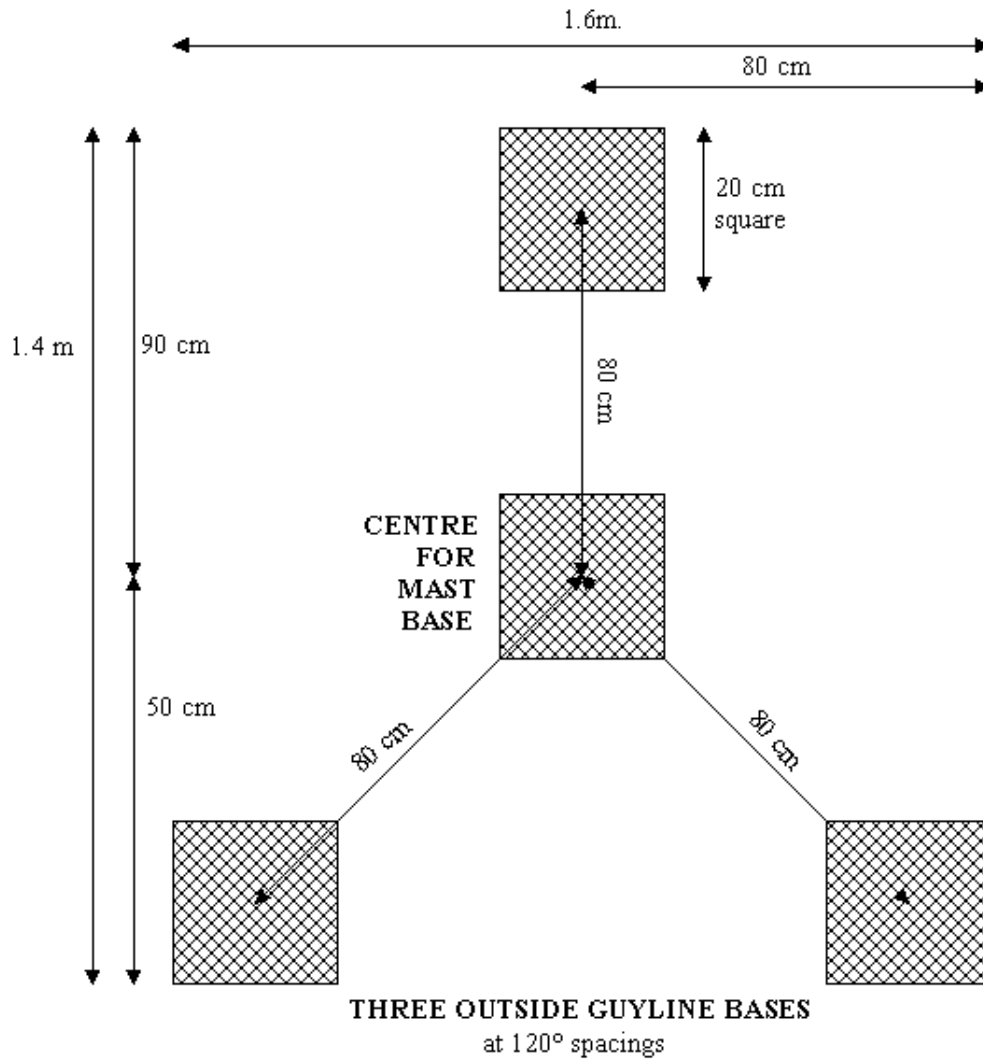
**Figure 1**

**Preparation of a concrete base for 2m mast and guylines installation**

There are two options for a concrete base:

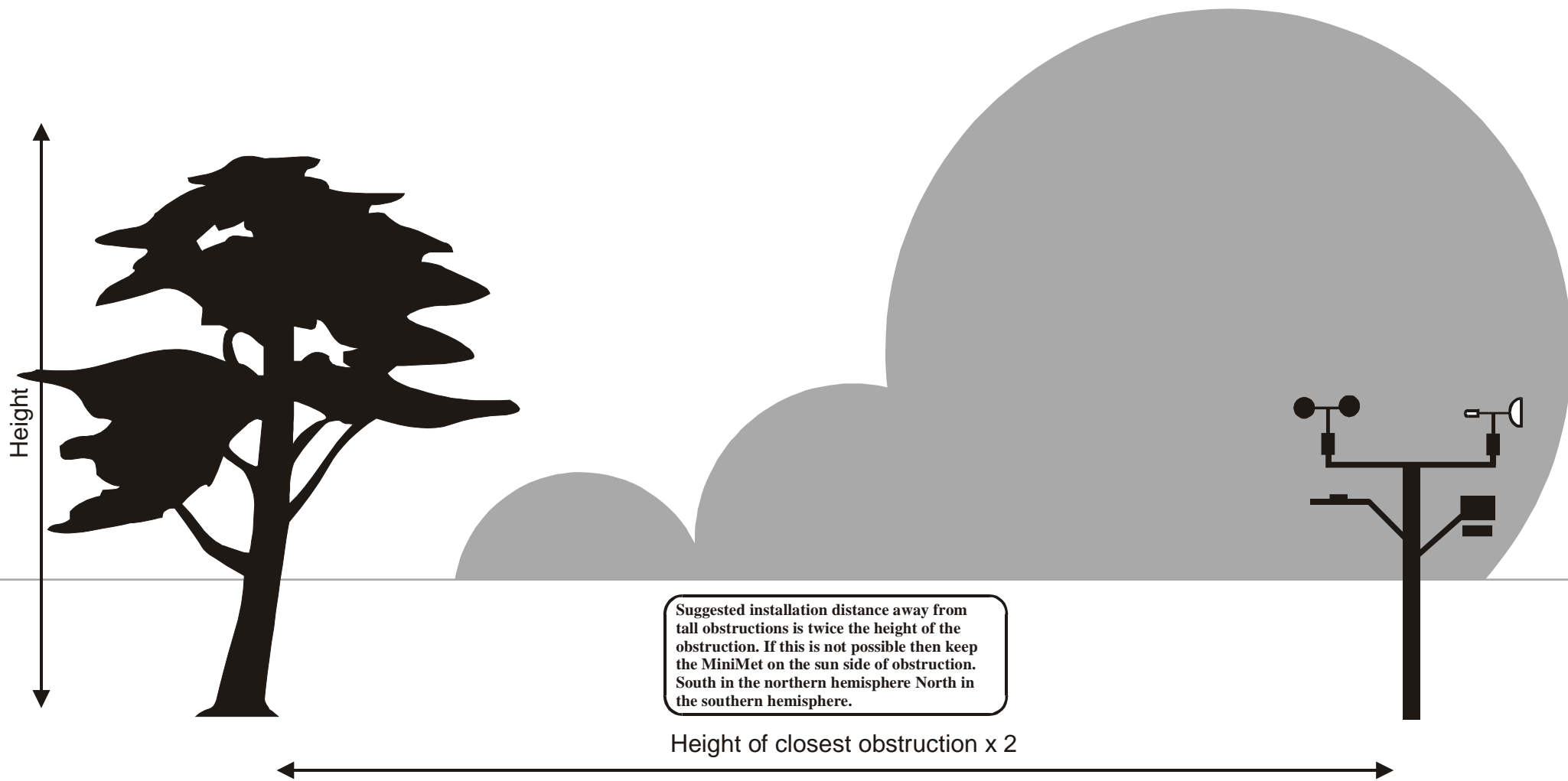
1. one large rectangular area of 1.6 x 1.4 m
2. four smaller square areas of 20 x 20 cm, one for the base of the mast and one each for the 3 guylines (see drawing below).

The standard recommended depth for these concrete areas is 50-60 cm. However, depending on ground type at the installation site, it may be necessary to increase this depth. Each location should be individually assessed.



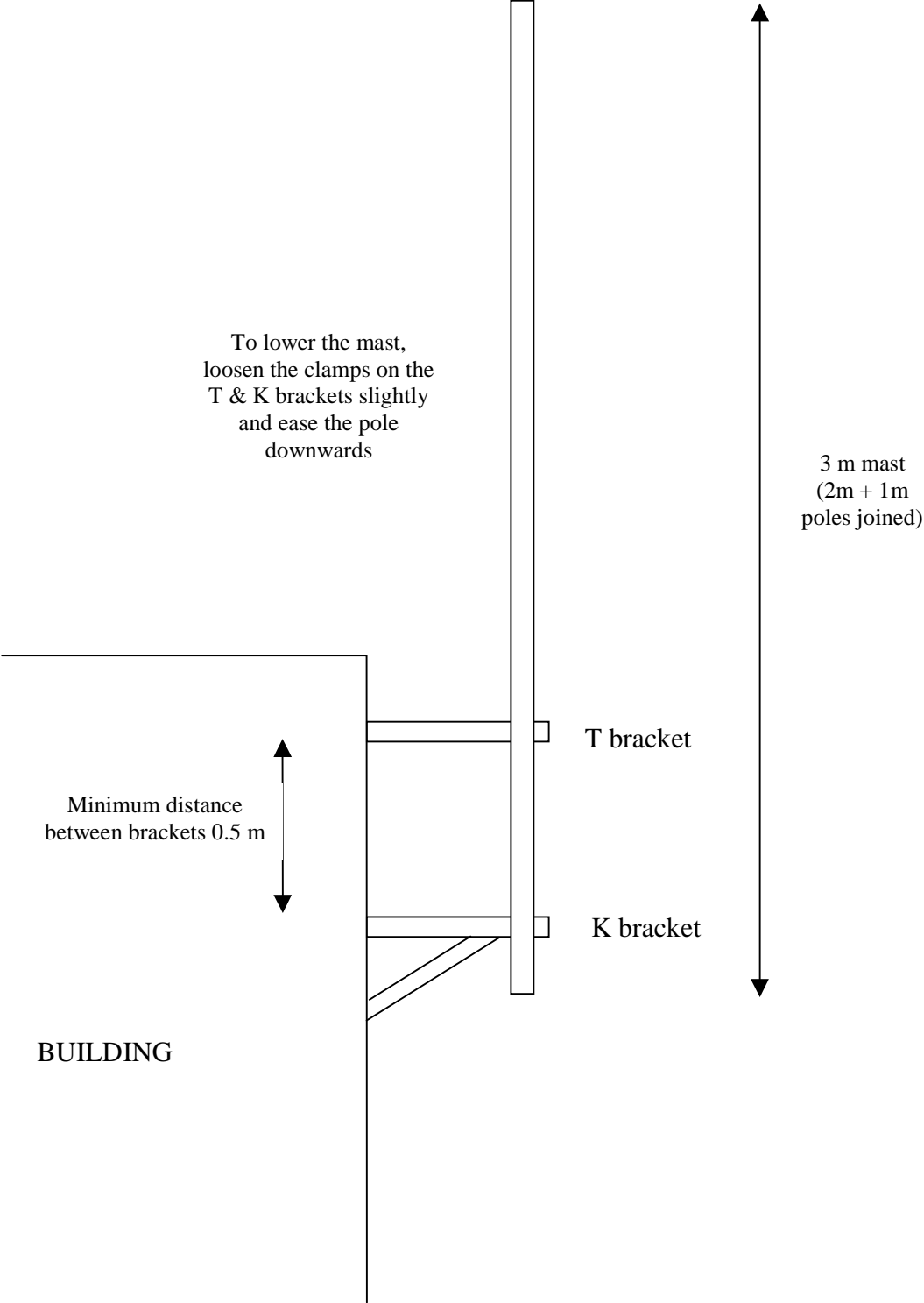
**Figure 2**

**SITE LOCATION**

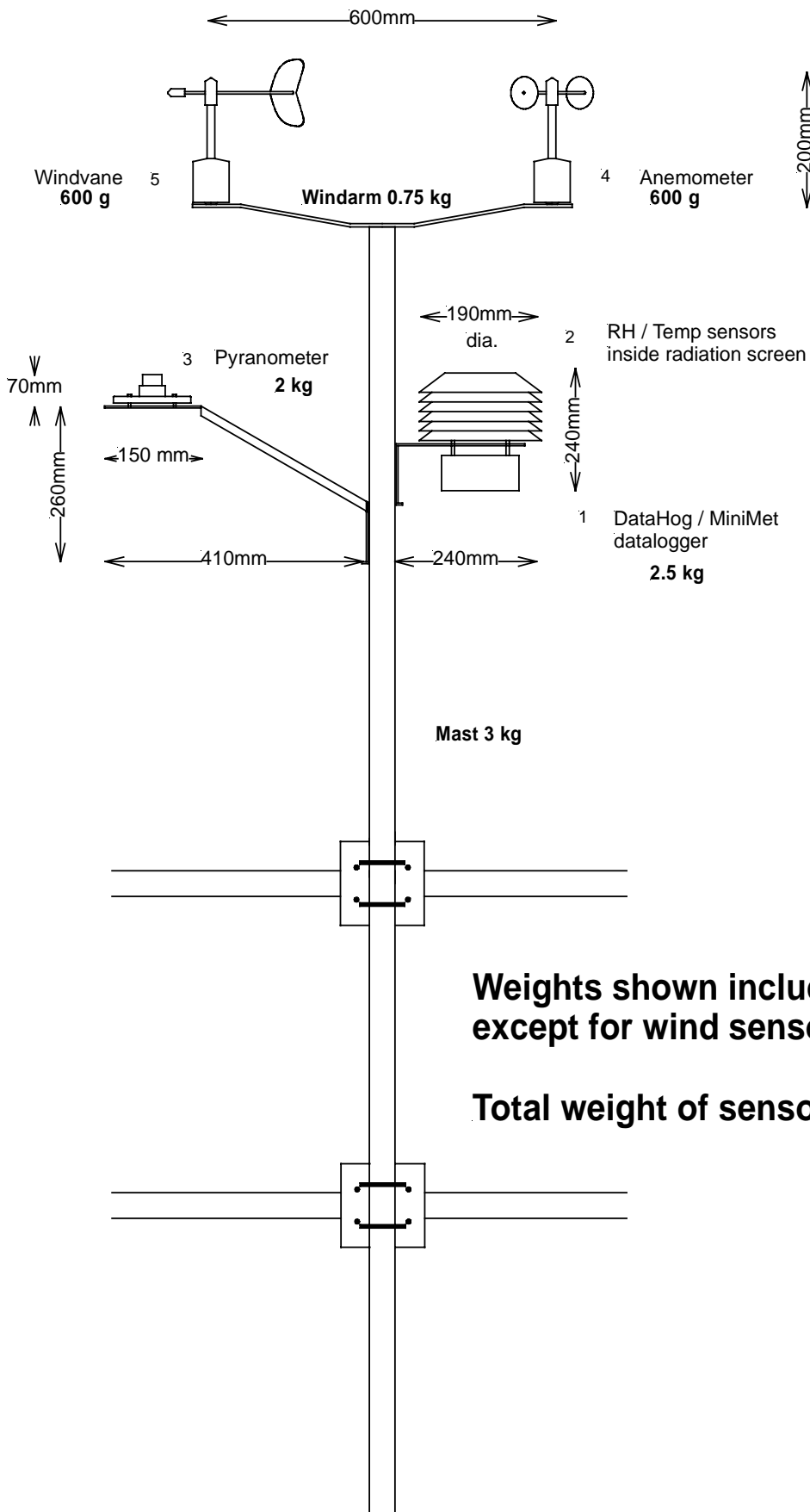


**FIGURE 3**

**WALL MOUNTING A 3 METRE MAST**



**FIGURE 4  
FIXING THE MINIMET TO A HANDRAIL**



The pole itself is clamped to the horizontal bars of the handrail. If possible the bottom of the pole is also secured by a base plate (supplied). The base plate can be attached to the roof or ground by any appropriate method, e.g. bolts, glue etc.

Dimensions of the datalogger and sensors are shown. Their small size and weight provide very little wind loading on the structure.

**Weights shown include mounting arms, except for wind sensors.**

**Total weight of sensors plus mast is 9.45 kg.**