Guidance Note on Lightning Protection for Tiled and Slated Roofs

All lightning protection systems should be installed by an approved specialist contractor.

The most common method of lightning protection used in the UK is the non-isolated method, often referred to as the Faraday Cage—which is a network of air terminations and down conductors over all facades of a building. The spacing of conductors will depend on the class or level of Lightning Protection System (LPS) that the designer has selected with the distances between conductors varying for the roof element known as the Air Termination.

BS EN 62305-3 2011 states;

5.2.4 Construction

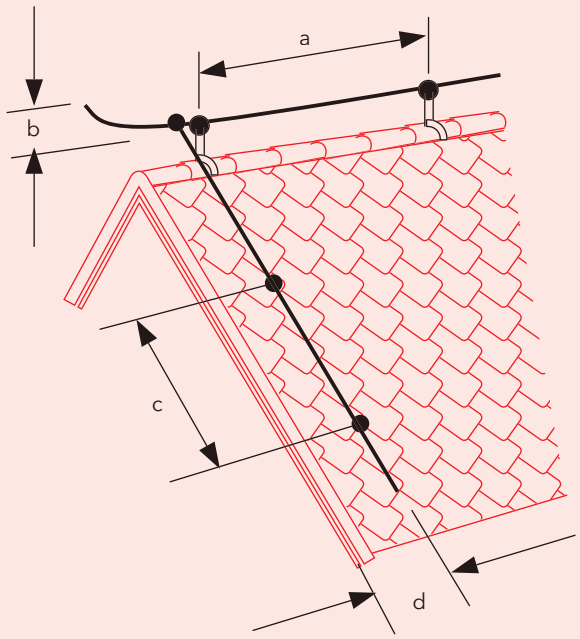
Air-terminations of an LPS not isolated from the structure to be protected may be installed as follows:

- if the roof is made of non-combustible material the air-termination conductors may be positioned on the surface of the roof

Figure 1 shows a conductor placed on a tiled roof, although it does imply that the conductor would be positioned off the tiles, this is not common practice in the UK. Drilling and fixing into the ridge tiles is not acceptable. If the ridge tiles have been bedded in mortar and fixings are required then these should be positioned within the mortar joint between two ridge tiles. Where a dry ridge fixing system is being used then the spike should be posited through the center of the ridge union and sealed with mastic (*please check with the system manufacturer).* A strike pad on a sliding clip can be used where the lightning conductor needs to be attached to the pitched roof coverings.

Figure 2 indicates an example of how an air rod or finial might be fitted to protect a chimney stack.

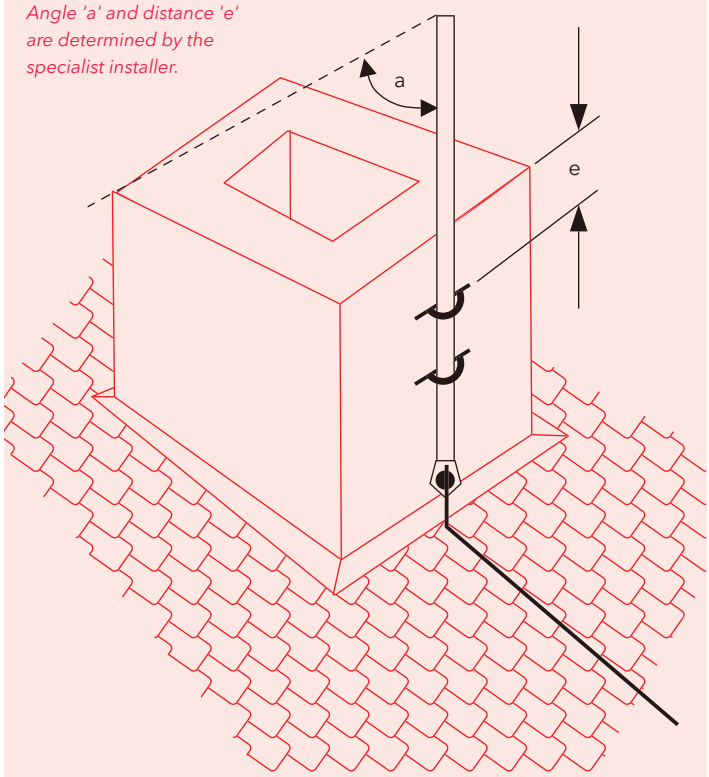
The distance between the fixings is determined by the specialist installer.



IEC 2696/10

Figure 1—Installation of air-termination conductor on the ridge of a sloped roof and a roof down-conductor

Angle 'a' and distance 'e' are determined by the specialist installer.



IEC 2697/10

Figure 2—Installation of air-termination rod for protection of chimney using the protection angle air-termination design method

An example of an LPS with concealed conductors

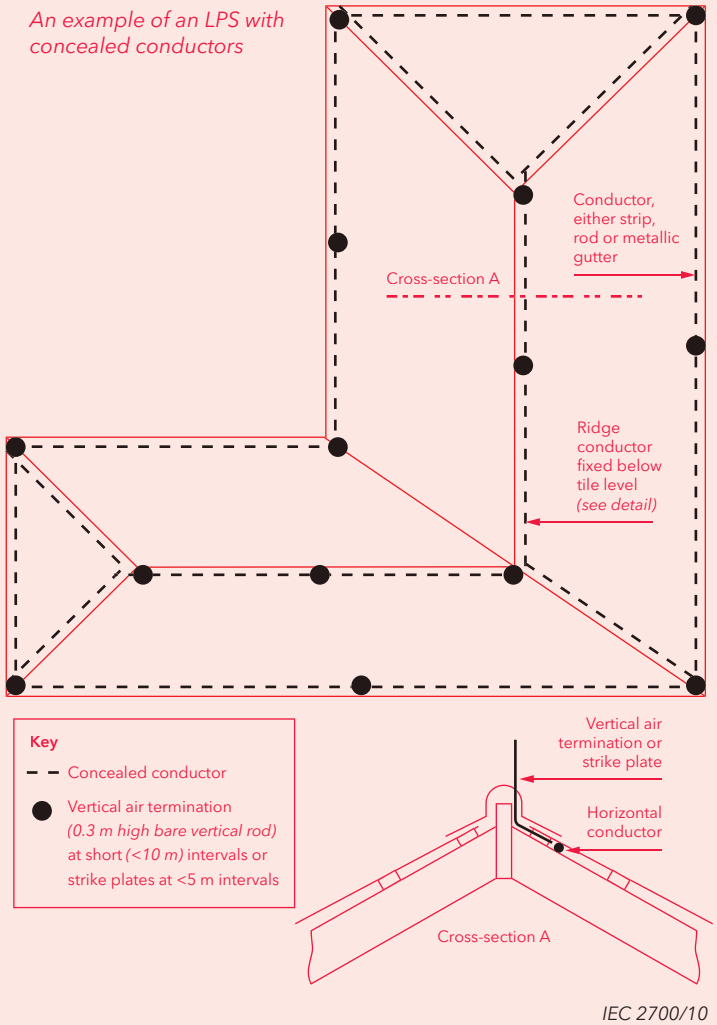


Figure 3–Air-termination and visually concealed conductors for buildings less than 20 m high, with sloping roofs

Figure 3 shows a typical layout for an air termination system for a tiled sloping roof with the conductors placed below the tiles but above the membrane and so would be installed following felt and battening.

Although mounting it under the tiles has the advantage of simplicity and less risk of corrosion, it is better, where adequate fixing methods are available, to install it along the top of the tiles *(i.e. externally)* so reducing the risk of damage to the tiles should the conductor receive a direct flash.

Installing the conductor above the tiles also simplifies inspection and maintenance of the system. Conductors placed below the tiles should preferably be provided with short vertical finials which protrude above roof level and are spaced not more than 10 m apart to intercept a lightning strike, or alternatively appropriately exposed metal strike plates may also be used *(see figure 3)* provided they are spaced not more than 5 m apart.

Any joints not visible externally should be inspected regularly.

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