Lighting Protection

A Lightning Protection system is designed to protect a structure or building and its contents from damage caused by the intensely high voltage currents of a lightning strike which can exceed 1,000,000,000 Volt Amps. A typical Lightning Protection system includes lightning rods, metal conductors and ground electrodes which offer a low resistance path to the ground to take a high voltage current strike away from the structure of the building.

Lightning Protection systems act like a Faraday Cage for buildings. In protecting the building and its contents from external electric fields by migrating that energy around the cage instead of through its contents, a lightning protection system offers a lightning strike a safe path to the ground where the enormous energy is then safely dispersed.

Without lightning protection, any grounded object that provides a path to earth will emit fingers of electrical charge called positive streamers upwards into the sky. These intercept the downward negative leaders from a thunderstorm and create a channel for the voltage currents of a lightning strike to travel on. If the grounded object is a building the high voltage currents will then travel along any low resistant paths within the structure causing serious heat damage.

With a lightning protection system, lightning rods or air terminals are strategically sited on a structure to increase the chances of intercepting a lightning strike before it hits the property being protected. The highly conductive lightning rods of a lightning protection system are normally made of copper or aluminium. A lightning protection system improves the chances of keeping a building safe from the damage caused by lightning and not its probability of being struck.

The Electricity at Work Regulations 1989 say that lightning protection systems should be tested in accordance with the relevant British Standard (either BS 6651:1999 or BS EN 62305:2006, depending upon when the system was installed). The frequency of test and inspection depends on the particular system installed. BS 6651 recommended test and inspection at fixed intervals not exceeding 12 months. The interval under the BS 62305 is less prescriptive and takes into account the complexity of the system installed. A simple system may only require combined test and inspection every 3-5 years.

'Lightning *Protection: A UK guide to the practical application of BS EN 62305' is published by the BSI and available from their bookshop* http://shop.bsigroup.com