

SERVICE WORKS

"UP ON TOP" NEWS

Lightning Protection Systems and Roofs

Lightning-protection systems commonly are installed on roofs located in areas prone to frequent lightning strikes. Although roofing contractors typically do not install lightning-protection systems, when such systems are integrated inadequately into a roof system or not maintained, roof-related problems can arise and the lightning-protection systems may be rendered ineffective.

Manufacturers of lightning-protection system components, roofing material manufacturers, and roof system designers typically provide vague or inadequate details for securing lightning-protection systems to roofs and protecting roofs from damage by lightning-protection systems. The following information should help clear up some confusion and provide ways to avoid potential problems.

The most common lightning-protection system is the traditional Franklin rod system, which is based on the lightning rod Benjamin Franklin invented in 1752. This type of system does not prevent lightning from striking a building; rather, it controls a lightning strike and prevents damage to nonconducting parts of a building by providing a low-resistance path for the discharge of lightning energy.

The Franklin rod system consists of placing air terminals (commonly referred to as lightning rods) around a roof's perimeter (and also in the field of the roof on large roof areas) and along ridges of steep-slope roofs. The air terminals are connected with either copper or aluminum conductors, or cables. Metal bodies, such as mechanical equipment and roof hatches, often need to be "bonded" to a lightning-protection system by secondary conductors connected to the primary conductors that interconnect the air terminals. There also are instances where a metal body needs to be protected by air terminals and primary conductors that form part of the lightning-protection system.

Conductors are attached to a roof and or parapet with various types of connectors, or clips, spaced at a maximum of 3 feet on center. The roof conductors are connected to through-roof or through-wall connectors, which are specially made bolted assemblies. Down conductors are connected to the interior side of through-roof or through-wall connectors and then connected to ground rods.

Until a few years ago, air terminals had

sharp, pointed tips. However, because research has shown blunt tips are better receptors of lightning strikes than conventional sharp-tipped terminals, blunt-tipped terminals are becoming more common. In addition to their improved receptor properties, blunt-tipped terminals offer a safety advantage. If someone on a roof were to accidentally fall or step on a terminal, impalement is less likely with a blunt-tipped terminal.

When reroofing a building that has an existing lightning protection system, you should consider the following:

- Have a lightning protection contractor attend a pre-roofing conference with the roofing contractor and owner.
- Make sure the building owner knows that the system will be disconnected and non-functioning during the reroofing work.
- Have a certified lightning protection contractor remove the existing system.
- If the system is UL Master Labeled, the reinstallation work must be performed by a contractor listed by UL.
- Reinstall the system on sacrificial strips of extra membrane.
- Recommend that a certified lightning protection contractor inspect the system each year to verify the integrity of the terminal bases and conductor connections.



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