AEP SPAN TECHNICAL BULLETIN #8

LIGHTNING PROTECTION SYSTEMS

INTRODUCTION

A lightning protection system provides a direct, continuous electrical path from the building rooftop down to earth. These systems are installed to reduce the risk to electrically and thermally sensitive building materials from lightning strikes. When these systems are properly designed and installed, the lightning's electrical discharge will follow a safe, conductive path to the ground.

Metal roofing also acts as an electrical conductor, dissipating the electrical charge across the roof surface during a lightning strike. Metal roofing is also a noncombustible material. Both of these benefits are significant and make metal a very desirable roofing material. That said, metal roofing is not a complete lightning protection system, so a properly designed and installed system is important in lightning prone areas.

INSTALLATION CONSIDERATIONS

Dissimilar Metals

Regarding the installation of lightning protection systems, one of AEP Span's primary recommendations is to always avoid the use of dissimilar metals. Galvanic corrosion will occur when two dissimilar metals come into contact with each other, especially in the presence of moisture. AEP Span's Zincalume® (aluminum-zinc) coated steel panels should not be in contact with, or be exposed to runoff from, roofing accessories (including lightning protection systems) that utilize copper, brass, graphite, and/or lead. AEP Span recommends that aluminum components be used for lightning protection systems. Aluminum does not significantly react when in contact with Zincalume® coated steel roof panels.

Contact AEP Span if there are further questions or concerns regarding the topic of dissimilar metals.

Attachment

AEP Span recommends that standing seam clamps (S-5!® clamps or similar) be utilized for the attachment of lightning protection systems. The use of seam clamps helps reduce unnecessary roof penetrations by allowing the attachment of lightning protection systems directly to the roof panel standing seams. In some applications there may not be a location for a seam clamp to be utilized (i.e. along gable edges or with corrugated panels). In these cases it may be desirable to utilize mounting pads that are adhesively attached to the panel surface.

It is important that mounting pads utilize an appropriate adhesive that will bond to Zincalume® or Kynar® coated steel panels. Using an adhesive that does not bond well to these surfaces, or that negatively reacts to these surfaces, can impact the overall performance of the lightning protection system and the metal roof system.

Note: AEP Span's limited warranties do not cover seam damage, paint scratches, paint or coating issues from adhesives, or other damage that occurs from installation or use of lightning protection systems and their components.