



Lightning & Thunder

Lightning Protection News & Information from "The Manufacturer that Works for You!"

Court Ruling Requires ESE Lightning Rod Firms To Tell The Truth



An Early Streamer Emission Air Terminal? No. This is actually a model of the Jupiter 2 for the 1960s TV show "Lost in Space."

Two manufacturers of early streamer emission (ESE) lightning rods may find it difficult to convince customers that their products can adequately provide protection from strikes by lightning, thanks to a recent federal appeals court ruling. The two companies:

- *Heary Brothers Lightning Protection/Lightning Preventor of America*, based in Springville, N.Y.
- *National Lightning Protection Corporation*, of Denver, Colorado

are permanently forbidden from making any more false claims regarding the capabilities of their ESE lightning protection products.

In early January of this year, the U.S. Court of Appeals for the Ninth Circuit upheld a lower court's finding that the ESE vendors used false advertising claims to sell their ESE lightning rods. The lower court decision, issued on September 13, 2005, held that:

Claims that their ESE products provide a measurable zone of protection and protect against lightning strikes in open spaces are not supported by tests sufficiently reliable to support those claims and are 'literally false' under the Lanham Act.

To remedy these violations, the court issued a four-page permanent injunction against the two ESE vendors, under which they are:

- *Enjoined and restrained from advertising (orally or in written form) that they sell a lightning protection system utilizing air terminals that provide a measurable zone of protection, greater than systems installed in accordance with NFPA 780; . . .*
- *Enjoined and restrained from advertising that they sell an "improved," "enhanced," or "more efficient" lightning protection system utilizing air terminals that rely on calculations of an enhanced range of protection; and*
- *Enjoined and restrained from advertising that any "enhanced" air terminal system manufactured, marketed, and/or sold by Plaintiffs (including but not limited to the: "Early Streamer Emission" air terminal product, the "Electronically Activated Streamer Emission" air terminal product, so-called "Active" air terminal products, "Radioactive" air terminal products, and "Ionizing" air terminal products:*

-Are accepted by Underwriters Laboratories ("UL"), the National Fire Protection Association ("NFPA"), the Institute of Electrical and Electronics Engineers ("IEEE"), the International Electrotechnical Commission ("IEC"), the National Electric Code (NEC) and/or the Lightning Protection Institute ("LPI")

-Have been tested and certified by a private testing lab to provide a measurable zone of protection greater than systems installed in conformance with NFPA 780

-Are able to protect open areas, including but not limited to amusement parks, golf courses, stadiums and playing fields

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What's An ESE?

Although a variety of shapes and geometries of ESEs are on the market, most of them typically measure about a foot in diameter and bear an eerie resemblance to the Jupiter 2 from the 1960s television show "Lost in Space." Prior to the Court's injunction, these ESE vendors would claim that the device, mounted atop a flagpole on or near a structure, offered a broad range of protection from lightning strikes, many times greater than an entire system complying with national safety standards.

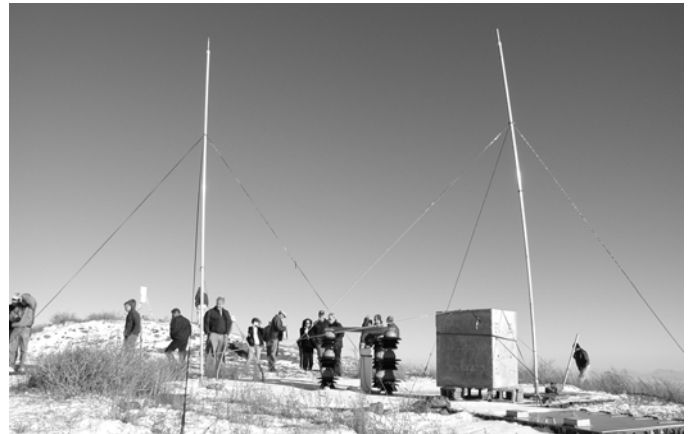
Touting ease of installation, decreased costs and the ability to protect open spaces -- including golf courses and ball-parks -- ESE vendors convinced customers ranging from homeowners to prestigious architectural and engineering firms to buy or recommend their products. Consequently, non-standard ESE systems can be found on homes, federal, state and municipal properties, dozens of airports, numerous college and university buildings and even major league football and baseball stadiums.

No Science to Support ESE claims

It is appalling, given the danger that lightning presents, that there is no competent scientific research to support the exaggerated areas of protection that the ESE vendors advertised. In fact, lightning experts have long been skeptical, saying the vendors' claims were based on scanty, inconclusive and just plain inaccurate data.

Dr. Martin Uman, the nation's foremost expert on the physics of lightning and lightning protection, has stated unequivocally that:

In my opinion, based on over 35 years experience in lightning, laboratory spark and gaseous electronics research, there is no basis for the claim that systems using so-called "early streamer emission" (ESE) air terminals provide superior lightning protection to the protection provided by a standard Franklin rod system as described in NFPA 780, and in fact, ESE air terminals can potentially be dangerous when used to protect large areas. Claims for the superiority of ESE devices are based on questionable theory, inconclusive laboratory experiments that are questionably extrapolated to natural lightning, and two inconclusive field experi-



Lightning Rods mounted atop masts were installed at Langmuir Laboratory at New Mexico Tech and instrumented to monitor their performance under lightning conditions.

ments on triggered lightning. The ESE theory is rejected by the majority of scientists in the field of lightning physics and protection; three recent papers in peer-reviewed scientific journals by internationally acknowledged experts severely criticize the ESE approach; and the claims and experiments of ESE proponents have not been presented by them for rigorous peer review in appropriate scientific journals.

No US Standards Recognition

The National Fire Protection Association (NFPA), the quasi-public organization responsible for maintaining hundreds of American fire safety standards, including the National Electric Code, has maintained a standard governing traditional lightning protection systems since 1904.

When contrasted with lightning protection systems, as defined by this NFPA standard, ESE systems require significantly less material and labor to install. Typically an ESE system calls for just one rooftop rod and one or two ground connections, in situations where a standards-compliant system would use a rooftop network of tens or even hundreds of interconnected rods and dozens of paths to ground.

The NFPA spent nearly a decade investigating the merits of ESE systems, and at one point even allowed a technical committee composed almost entirely of foreign interests to draft a proposed standard for ESE system installation. That draft document, titled NFPA781, was ultimately rejected. A 1995 written decision by the NFPA Standards Council stated that,

"Given the absence of reliable evidence that ESE terminals offer an increased zone of protection over that of conventional terminals, it seems clear that a sound technical basis for proposed NFPA 781 has not been demonstrated."

The NFPA's refusal to publish a standard for ESE systems resulted in the litigation that was wrapped up by the Federal Appeals Court this January.

Lengthy Legal Fight

Within the lightning protection industry, ESE vendors had long held a reputation for litigious bullying, issuing threats of legal complications to just about anyone questioning the ambitious protection claims made for ESE devices.

In 1996, on the heels of the NFPA's rejection of the proposed ESE standard, ESE vendors Heary Brothers and National followed through on their threats and filed a lawsuit against the National Fire Protection Association, lightning protection manufacturers Thompson Lightning Protection and East Coast Lightning Equipment, and a lightning protection trade association known as the Lightning Protection Institute.

The federal suit alleged anti-trust conspiracy and false advertising claims in connection with the NFPA's rejection of the proposed standard for ESE systems. The ESE vendors portrayed themselves as victims of a coordinated conspiracy to keep their products off the market and to deprive U.S. consumers of a "superior" means of protection from lightning.

NFPA settled out of the suit in 1998, agreeing to take another look at the ESE technology in exchange for release from the lawsuit. The third-party review resulting from that settlement was issued in 1999, and contained no information to persuade the NFPA to reverse its position that a standard for ESE systems was inappropriate.

The ESE vendors forged ahead with their litigation against the remaining defendants, and even twice amended their complaint with additional accusations. The heart of the lawsuit was the vendors' assertion that the NFPA should have published the proposed ESE standard. A national standard would have been an automatic stamp of approval for these ESE devices, by providing the third-party endorsement ESE systems had never enjoyed.

Nearly seven years after Heary Brothers and National filed their initial complaint, Federal Judge Roslyn Silver summarily dismissed all of their claims, citing a complete failure on the part of the plaintiffs to establish that the defendants were in any way responsible for the NFPA's decision to reject a standard for ESE devices.

Counterclaim Backlash

The permanent injunction recently affirmed by the Federal Court of Appeals is the result of a successful counterclaim raised by one of the defendants sued by Heary and National. In addition to tossing the ESE vendors' suit, the judge granted summary judgment on a counterclaim against Heary Brothers and National Lightning Protection filed in 1997 by defendant East Coast Lightning Equipment. The court found that both ESE vendors had engaged in false advertising when they claimed that their ESE lightning rods provided a significantly expanded, measurable zone of protection far greater than conventional lightning rods, without having any reasonable scientific basis for making such claims.

Now What?

Now that nearly 15 years of litigation is nearing a close, what issues remain to be resolved?

1000s of these unproven systems may have been installed

While the federal injunction dealt a blow to the sellers of the ESEs, the purchasers of ESE systems also face a serious problem. What now happens with the properties on which ESE systems have been installed? Purchasers of ESE systems presumably bought the systems to protect their property from lightning. Lacking any evidence that the ESE terminals actually provide the protection as claimed, what recourse do these consumers have?

"Unfortunately, in many cases, retrofitting these facilities with real lightning protection systems will be difficult," points out Mark Morgan, president of East Coast Lightning Equipment. *"Many property owners who were sold an ESE system in lieu of a system that complied with national lightning protection standards have been deprived the opportunity of having cost-effective lightning protection installed on their buildings."*

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Foreign ESE standards

France currently has a standard for ESE devices that was written by a committee consisting mostly of manufacturers of those devices. Through reciprocity it has been accepted by some other small European countries that lack their own standards-development capabilities. The French Standard relies upon the exact same theories and methodologies that the NFPA found to be unreliable. Efforts are underway in Europe to pursue the withdrawal of the French standard based on the lack of technical justification for the claims it makes. In the meantime, firms in Europe and Asia that are willing to sell non-effective lightning protection gadgets are making a tidy profit at the expense of public safety.

A detailed study of ESE installations in Malaysia has documented dozens of ESE system failures in that country. According to a 2004 report by researcher Z.A. Hartono:

More than 80% of the buildings in Kuala Lumpur that have been installed with the unconventional air terminals have at least one lightning strike damage feature.

Enforcement of the Injunction

Now that the Court has spoken, the lightning protection industry will largely be responsible for monitoring how these ESE firms will market their systems moving forward. The Federal Court in Arizona retains jurisdiction over the parties, and presumably further false claims and violations of the injunction can be brought to the court's attention for action. Given the history, it is likely that the ESE vendors' interpretation of the injunction will differ from the view taken by the rest of the industry.

Contact ECLE if you are interested in receiving a full copy of the Permanent Injunction against the ESE vendors.

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