

# Recall unsafe lightning rods

**THE** fire at Putrajaya Hospital on April 11 has raised some concerns about the types of lightning protection systems used to protect public and private buildings.

The health minister had raised the question as to why the lightning rods installed on the building did not protect it from the lightning strikes. While the real cause of the fire is still under investigation, it should be pointed out that the lightning rods used at the Putrajaya Hospital are of the early streamer emission (ESE) type that do not comply with the Sirim lightning protection standard, MS-IEC62305.

Based on information from Wikipedia, the effectiveness of the ESE lightning rods, which were introduced in this country 20 years ago, have never been proven. This information is based on numerous studies by lightning scientists and engineers a decade ago. ([http://en.wikipedia.org/wiki/Lightning\\_protection\\_system](http://en.wikipedia.org/wiki/Lightning_protection_system))

The University of Florida, which is renowned for its lightning research, published a comprehensive report in 2002 that highlighted the ineffectiveness of the ESE and other non-conventional lightning rods in protecting buildings from direct lightning strikes. This report is frequently mentioned by scientists and engineers when the subject of ESE lightning rods is brought up. ([www.lightning.ece.ufl.edu/PDF/umanrakov.pdf](http://www.lightning.ece.ufl.edu/PDF/umanrakov.pdf))

In fact, the ESE lightning rods have already been declared as a risk to public safety in a warning issued in 2005 by the International Conference on Lightning Protection (ICLP), an international scientific organisation that focuses on lightning research and safety. ([www.iclp-centre.org/warning.html](http://www.iclp-centre.org/warning.html))

The warning was issued because the ESE lightning rods were found to be no better than the ordinary lightning rods (aka Franklin rods) in field studies by researchers in New Mexico, US and Malaysia. The studies, conducted using natural lightning

bolts, found that the ESE lightning rods failed to “attract” lightning bolts as claimed by their manufacturers and this had led to many buildings being struck and damaged by lightning bolts. ([tinyurl.com/ynkjcs](http://tinyurl.com/ynkjcs))

Hence the use of a single ESE lightning rod on the roof of a home or building is considered to provide inadequate protection against direct lightning strikes when compared to using several Franklin rods designed and installed according to Sirim standards.

The authorities were informed about the ESE problem in 2004 when a public forum was conducted by the Association of Consulting Engineers Malaysia (ACEM) to thrash out the validity of using the ESE and other non-conventional lightning rods. ([www.lightningsafetyalliance.com/documents/acem\\_air\\_terminals.pdf](http://www.lightningsafetyalliance.com/documents/acem_air_terminals.pdf)) When the ICLP issued the warning a year later, ACEM was the only organisation to respond positively and issued an advisory to all its members not to use the ESE rods. Unfortunately, the authorities and other engineering bodies had ignored the problem and this had led to the continued proliferation of the ESE lightning rods.

The problem is compounded when buildings belonging to the Works Ministry, Sirim and many universities also used the ESE rods, thus giving the public the wrong perception that the use of the ESE rods was acceptable. Since the ESE rods do not comply with Sirim standards, it is only proper that ministries and agencies set the right example by replacing them with Franklin rods that are designed and installed according to Sirim standard.

It makes no sense to allow the use of ESE rods since they have been declared dangerous. The proper action against the ESE rods is for the Science, Technology and Innovation Ministry to recall them.

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