CONNECT AND PROTECT

New Field Data on Lightning Protection Systems: What Engineers Need to Know

Lightning Protection Products

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WHAT ENGINEERS NEED TO KNOW ABOUT LIGHTNING PROTECTION

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WHAT ENGINEERS NEED TO KNOW ABOUT LIGHTNING PROTECTION

To protect buildings from lightning strikes, engineers and architects must take a holistic approach to lightning protection. That means evaluating the method for air terminal placement as critically as the products themselves.

New field data confirms that alternatives to conventional methods may prove advantageous in certain scenarios.

ABOUT THE STUDY

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ABOUT THE STUDY

An unprecedented field-validation study of the Collection Volume Method (CVM) for lightning protection systems sheds powerful new insights on optimum air terminal placement and the validity of the CVM's claimed interception efficiency levels.

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Interception Efficiency of CVM-based Lightning Protection Systems >>

THE QUESTION

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THE QUESTION

Could the Collection Volume Method serve as a viable, efficient alternative to conventional lightning protection methods?

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THE QUESTION

Rolling Sphere Method (RSM) uses a fixed striking distance regardless of structure height or width. The RSM does not account for the structure height or geometry of objects, and has a typical fixed striking distance of 45 meters.

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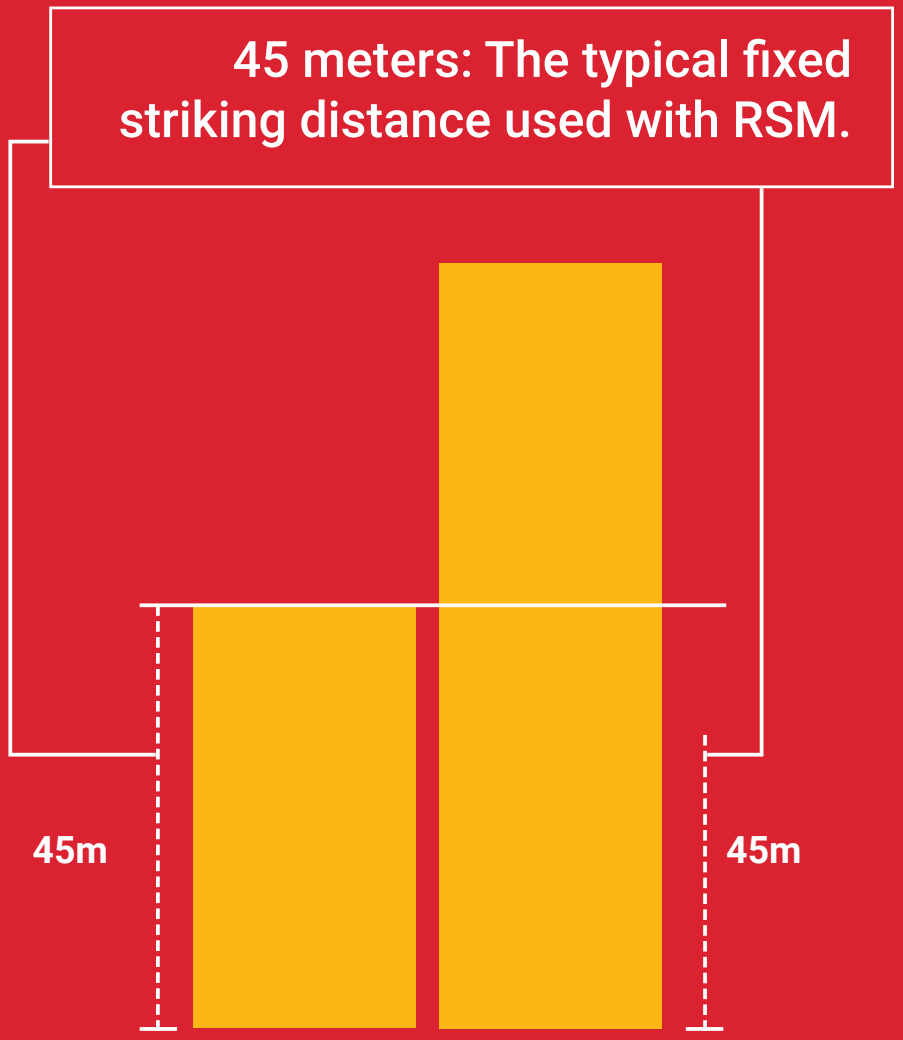
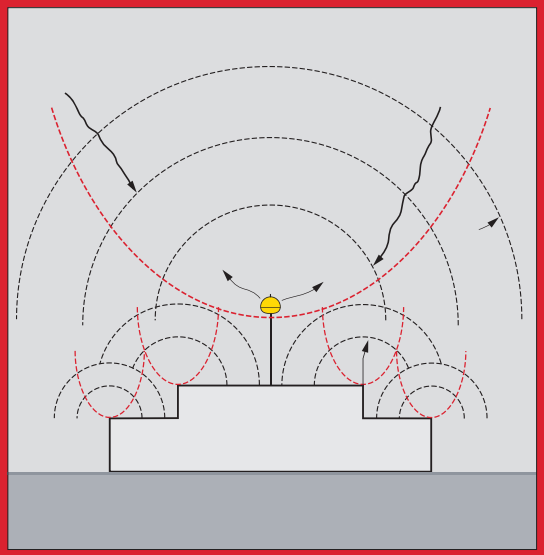
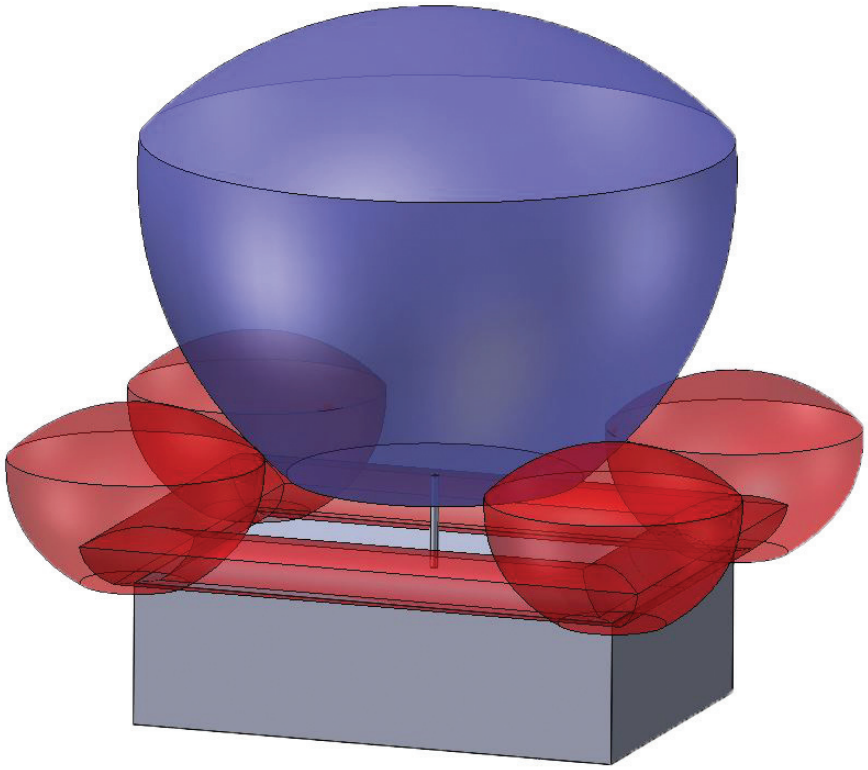


THE QUESTION

The Collection Volume Method (CVM) determines the ideal placement of a lightning protection system.

The CVM considers the building's features, evaluating the physical criteria of air breakdown.





THE STUDY

THE STUDY:

Lightning Event Counters (LEC) were placed around the current downconductor cable to record the number of strikes to the structure's protection system via the Collection Volume Method (CVM) lightning system.

33

The number of buildings that collected a combined 37 terminal years of exposure during the study.

Kuala Lumpur, Malaysia: The location the study was conducted

2010-2012

Time frame that field data was collected.

THE STUDY

A study of 33 buildings was conducted between 2010 and 2012, in Kuala Lumpur, in the Klang Valley region of Malaysia. The buildings were protected by a system of air terminals optimally placed according to the CVM.

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THE STUDY

The number of strikes to the protection system of the structures were obtained from “lightning event counters” (LEC) placed around the lightning downconductor cable.

Over the course the study, independent experts surveyed the buildings, documented evidence of lightning damage, and recorded the readings of captured lightning events.

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THE FINDINGS

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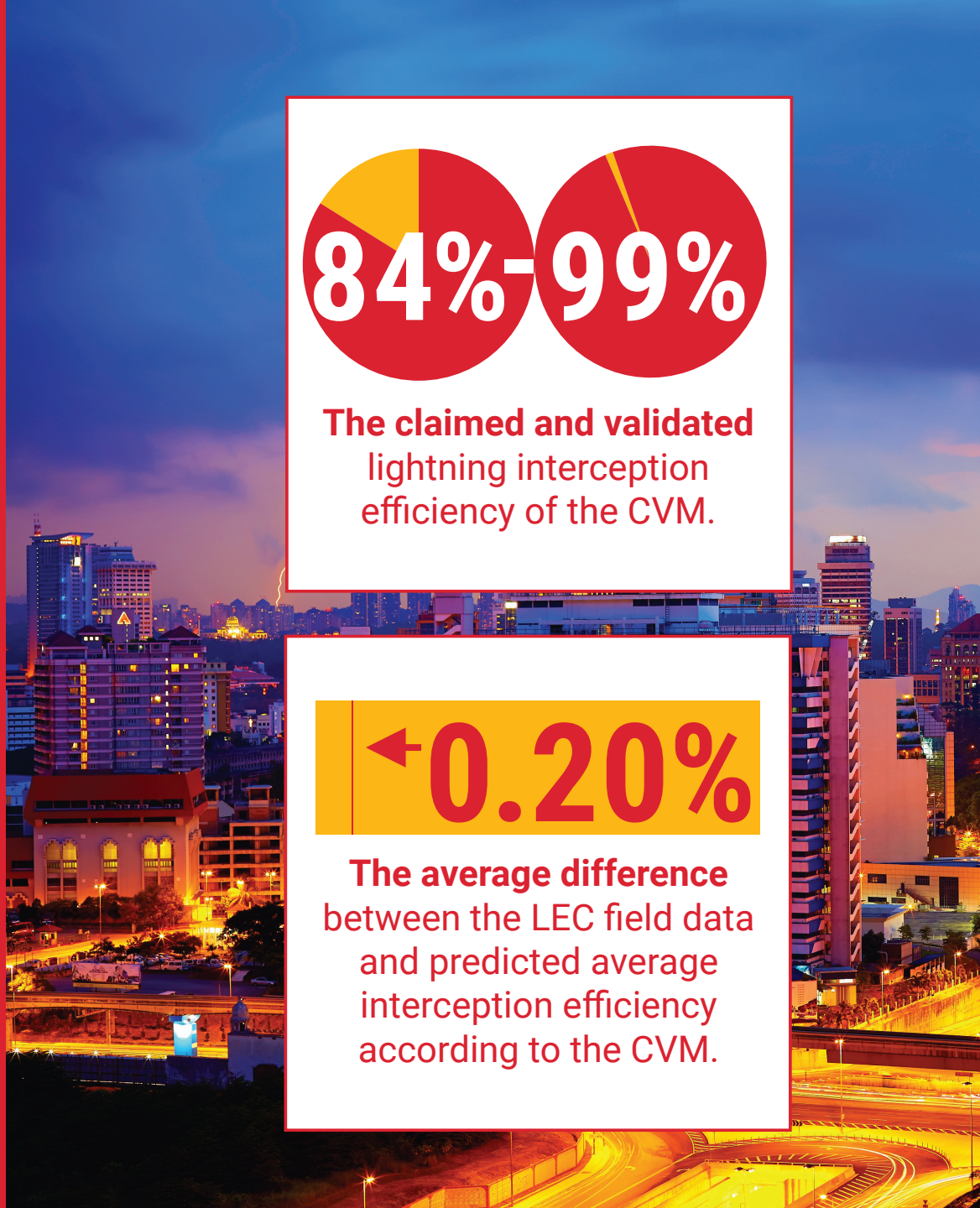
THE FINDINGS

The data confirms that enhanced air terminals with CVM placement offer a level of protection consistent with claimed levels. The average interception efficiency was found to differ by only 0.20% from the predicted efficiency.

Therefore, the lightning interception rate is at least as high as the claimed protection levels (84% – 99%).



IT WAS CONCLUDED THAT THE

ACTUAL (FIELD-TESTED) EFFICIENCY OF A CVM-BASED LIGHTNING PROTECTION SYSTEM

IS CONSISTENT

WITH THE PROJECTED (THEORETICAL) EFFICIENCY.

THE APPLICATIONS

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THE APPLICATIONS

Complex architecture does not allow for application of a standard installation method.

The architecture of a structure deems the application of a conventional lightning protection system impractical.

No installation method has been specified and an enhanced solution is advantageous.

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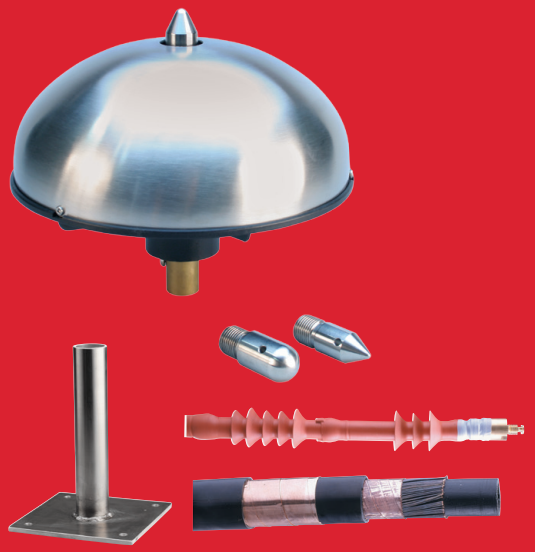
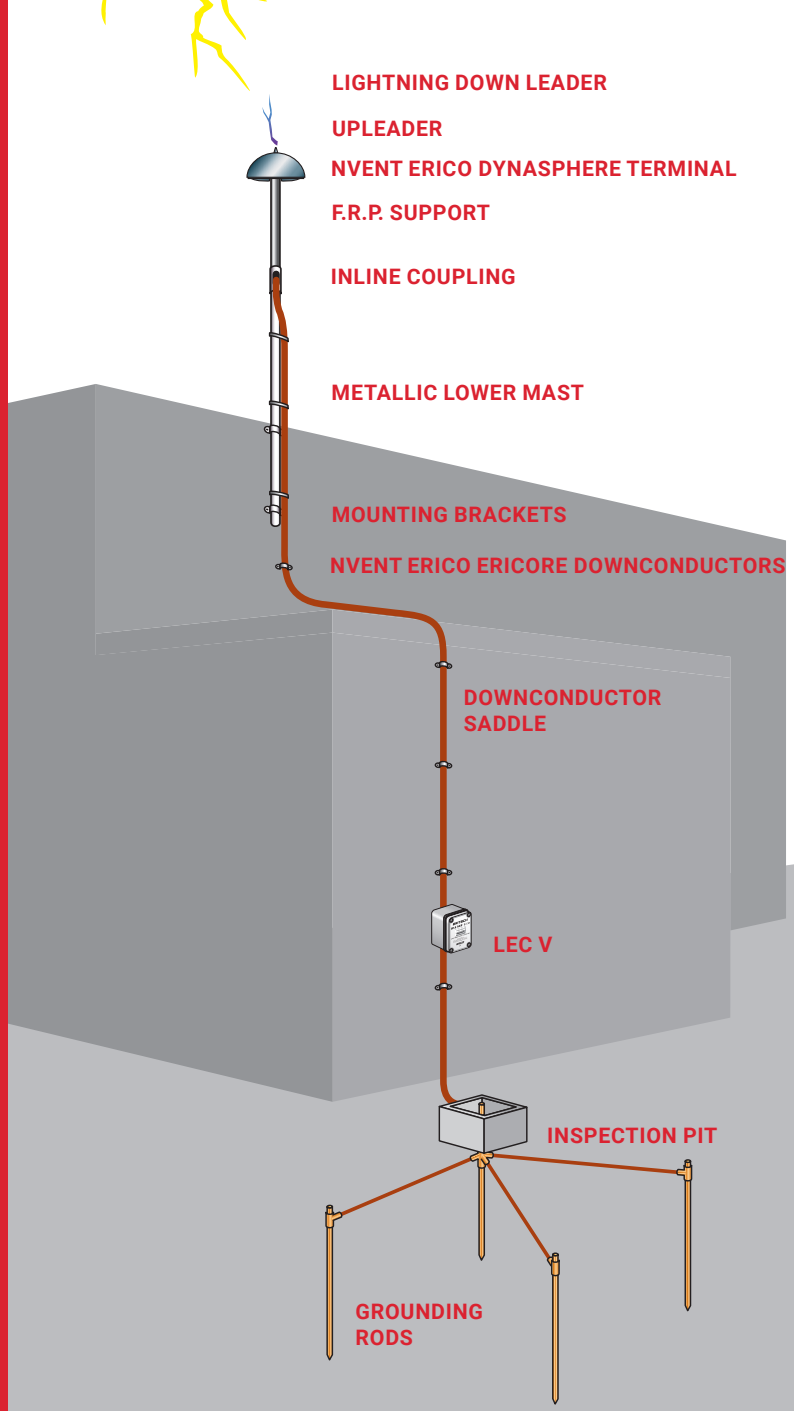
THE APPLICATIONS

nVent ERICO System 3000 products, when used together, create a technically advanced lightning protection system.

The unique features of this system allow the achievement of reliable lightning capture and control, when combined with CVM placement.





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Interception Efficiency of CVM-based Lightning Protection Systems

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DOWNLOAD THE FULL REPORT

Want more information about how the CVM is a practical alternative to conventional lightning protection models?

DOWNLOAD THE FULL REPORT:

Interception Efficiency of CVM-based Lightning Protection Systems

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