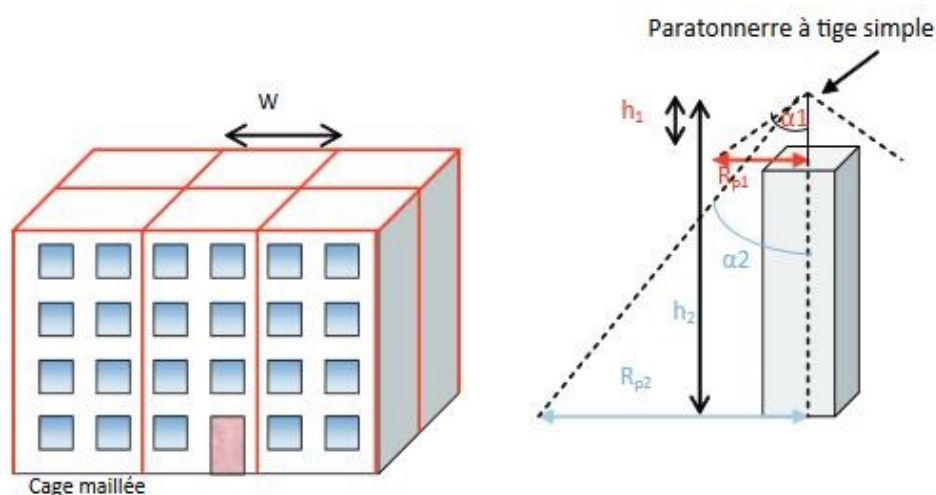


## 4.3 Lightning Protection (France)

| OECD GP Activity                                                            | UN SF Activity                                         | UN SD Goals / Targets                                                                                                                 |
|-----------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 4. Natech prevention: consideration of natural hazards in design and layout | 3. Investing in disaster risk reduction for resilience | 3.D Strengthen the capacity of all countries ... for early warning, risk reduction and management of national and global health risks |

Classification according to OECD Guiding Principles, UN Sendai Framework Priorities/Activities, and UN SDGs and Targets

Figure 1: Example for a lightning conductor placement recommendation



Source: © INERIS 2011

Figure 2: Correlation between the level of protection for the installation and the required installation systems

| Level of protection based on the lightning risk analysis | Types of lightning protection installation systems | Efficiency of protection | Probability of breakdown of the lightning protection installation system | Probability of breakdown of internal networks see <sup>3</sup> and <sup>4</sup> |
|----------------------------------------------------------|----------------------------------------------------|--------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| IV                                                       | IV                                                 | 80%                      | 0.2                                                                      | 0.03                                                                            |
| III                                                      | III                                                | 90%                      | 0.1                                                                      | 0.03                                                                            |
| II                                                       | II                                                 | 95%                      | 0.05                                                                     | 0.02                                                                            |
| I                                                        | I                                                  | 98%                      | 0.02                                                                     | 0.01                                                                            |
| I+                                                       | I <sup>1</sup>                                     | 99%                      | 0.01                                                                     | 0.005                                                                           |
| I++                                                      | I <sup>2</sup>                                     | 99.90%                   | 0.001                                                                    | 0.001                                                                           |

Source: © INERIS 2011

| Short Facts:                                                                                                                                                                                                                                                      | Natural Hazard(s) Considered:                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Governance approach:</b> Guide<br><b>Source:</b> National Institute for Industrial Environment and Risks (INERIS)<br><b>Entry into force:</b> 2011<br><b>Targeted Stakeholders:</b> ICPE's<br><b>Scope of applicability:</b> Enterprises, sites, installations | <ul style="list-style-type: none"> <li>Lightning</li> </ul> <b>Climate change:</b> Not included |

## Description

Lightening is an atmospheric phenomenon that hits the ground about 2 million times a year in France alone. It is responsible for about 20,000 cases of damage and 15,000 serious fires every year. Financially, lightening damage causes a loss of tens of millions of euros annually. It should therefore be of high interest to protect establishments as much as possible from lightning damage.

In 2011, the French National Institute for Industry Environment and Risks (INERIS), part of the Ministry of Sustainable Development, published a report on the risk of lightning strikes for establishments. It is structured along the following issues: risk analysis (including statistics and probability calculations), a scientific description of lightning phenomenon, the French regulatory context, a study of lightning protection, as well as the installation and maintenance of lightning protection systems.

The construction study precisely describes prevention arrangements and protective installations, their fitting location, as well as verification and maintenance.

The report further details the classification of protection levels and how much lightning protection should be installed. The level of protection takes into account whether loss or damage human life, the environment, cultural heritage or the economy is expected.

## Link/Contact:

<https://www.ineris.fr/sites/ineris.fr/files/contribution/Documents/omega3-copie-v10c-1387269692.pdf>

## Comments by the UN/OECD Natech-Steering Group:

The system is designed for hazardous installations (installations classes) and not for all types of constructions.

## Imprint

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