

The lightning phenomenon eventually brought to you



French Lightning Training Center

Program



The need for training in lightning risks

Lightning is a disruptive discharge which happens together with an explosion (thunder) and light (flash) between two clouds or between the cloud and the ground.

Lightning is a natural, universal and permanent phenomenon. It happens intensely under particular latitudes, and daily around the Equator. Even if lightning costs millions of damage each year per country; it's also very dangerous for human beings. Each year many people are hit by Lightning particularly in open areas.



The training session topics are as follows :

The lightning risk

Effects of Lightning and means of protection.

Overvoltage

Effects of transient phenomenon and means of protection.

Detection

Advanced storm detection: a tool of prevention.

The radioactivity

The removal of the radioactive lightning conductors.



Main topic

Lightning risk	DE 1
Duration	1 day

Lightning phenomenon

- Stormy cloud creation
- Impact mechanism
- Modelization
(electromagnetical modele)
- Standards and rules



Lightning phenomenon

- LRA (Lightning Risk Analysis)
- Different types of protection
- Method of a lightning conductor choice
- Implementation and installation rule

Main topic

Overvoltage	DE 2
Duration	1 day

Overvoltage protection

- Overvoltage origins
- Reference standard
- Neutral earthing systems and protection mode
- Characteristic parameters
- Aim of a protection
- Ranges of protection
- Low voltage protections
- Very low voltage protections
- Coaxial protections
- Implementation principles
- Recommendations for installators



Main topic

Protection against direct impact : surge protective device	DE 3
Duration	3 days

Day 1 - Protection against direct impact : the lightning conductor

- Stormy cloud creation
- Impact mechanism
- Modelization (electromagnetical modele)
- Standards and rules
- LRA (Lightning Risk Analysis)
- Different types of protection
- Method of a lightning conductor choice
- Implementation and installation rules

Day 2 - Protection against indirect impact : surge protective device

- Overvoltage origins
- Reference standard
- Neutral earthing systems and protection mode
- Characteristic parameters
- Aim of a protection
- Ranges of protection
- Low voltage protections
- Very low voltage protections
- Coaxial protections
- Implementation principles
- Recommendations for installators

Day 3 - Practical examples - Case studies

Main topic

Storm phenomenon	DE 4
Duration	1 day

Storm detection

Storm phenomenon.

- Effects of Lightning.
 - Direct effects
 - Indirect effects
- The “Storms Advanced Detection”: a preventive tool.
- Normalization.
- Physical phenomenon and storm detector.
 - Electromagnetical detection
 - Electrostatic field measurement
 - Detection by microwave frequency (radar)
 - Use of satellite.
- Examples of installation.



Main topic

Removal of radioactive lightning conductor	DE 5
Duration	1 day

According to 11/10/83 decree it is forbidden to manufacture, trade and import radioactive lightning conductors.

- Information on radioactivity
- Americium
- Radium
- Different types of radioactive lightning conductors
- Disposal procedures of radioactive lightning conductors (according to ANDRA leaflet - National agency for the management of the radioactive scraps)
- Storage rules
- How to fill in the “removal form” before collection.



Main topic

The global approach of lightning	DE 6
Duration	5 days

Full training on every subject

- Lightning risk and lightning conductors
- Overvoltage
- Case studies: Protection against direct and indirect lightning impacts
- Storm detection
- Removal of radioactive lightning conductors

Day 1 - Lightning risk

Day 2 - Overvoltage

Day 3 - Case study: Protection against direct and indirect lightning impacts

Day 4 - Storm detection

Day 5 - Removal of radioactive lightning conductors





Modules	Training topics	Targets	Recommended for	Required knowledges
DE1	Lightning risk	To present the lightning phenomenon. To explain the regular and standard prescriptions concerning lightning protection against direct impacts to quote the protection equipments.	Engineers Installators Architects	General knowledge and/or Construction knowledge
DE2	Overvoltage	To explain the needs and functioning of overvoltage protections following the standards. To determinate an efficient protection	Engineers Technicians	Knowledge in Electrotechnics and Electronics
DE3	Lightning / Overvoltage / Case studies DE1 + DE2 + Cases	To merge DE1 and DE2 with practical case studies	Engineers, Technicians, Security Maintenance Manager	Knowledge in Electrotechnics and Electronics, Construction knowledge
DE4	Storm detection	To introduce the phenomenon To explain Advanced storm detection	Engineers Technicians	Knowledge in Electrotechnics and Electronics
DE5	Removal of radioactive lightning conductors	Information about radioactive risks Introduction to different radioactive lightning conductors and removal procedures	Installators, Security Maintenance Manager	No specific knowledge required
DE6	Full training	Global approach of lightning phenomenon and introduction to the different protection, implementation and maintenance means.	Engineers, Technicians, Installators, Architects, Security Maintenance Manager	Knowledge of trainings DE1 to DE5

On-site trainings in France or abroad: contact us



How to register

Your registration will be effective by sending your company's order confirmation with the name(s) of participant(s), the title of the module and the price.

You can book by phone. This booking will be fully effective upon reception of the order sheet before the session starts.

We will confirm the registration by sending a notice to the trainee indicating date, place, schedule and all other useful information.

In case of unexpected events

If you can't replace the trainee by another one, we will ask you to inform us seven days before the beginning of the session; otherwise, 100% of the training cost will be charged.

Any started training must be fully paid for.

C3F Cancellation

C3F may cancel a session if the minimum number of registered trainees is not enough.

Trainees will be immediately forwarded; the registration may be postponed to another session.

Participation cost

Lunch will be offered by C3F. The training payment shall be made by swift bank transfer before the beginning of the training session.

Together with the invoice, trainee(s) will receive their training convention and the attendance certificate.

Training tools

Equipment : show-room, computer, videoprojector and video tape recorder

Training materials are given to the trainee(s) at the beginning of the session and are included in the training fees. All the copyrights remain C3F's property. Any duplication, modification or divulgation to anyone is strictly forbidden.

Miscellaneous

For any further request, do not hesitate to contact Marylin ECALARD on tel : + 33 (0)1 60 34 54 44, by fax: + 33 (0)1 64 40 35 43 or by e-mail : contact@C-3F.eu

Other training sessions

Other training sessions can be organized upon request at C3F or in your company. Do not hesitate to contact us for any specific request.

Trainings available in French, English or Spanish languages.

Trainings available all over the world...



For any further information, please contact Marylin ECALARD
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