

LIGHTNING STRIKE: RISK ASSESSMENT REGARDING ELECTROSTATIC DISCHARGES

According to the Italian Consolidation Act the employer is required to evaluate the risk of lightning strike in order to provide protection against electrostatic discharges. According to art. 80 of the Italian **decree-law** 81/08 the employer has to take all the appropriate measures in order to safeguard his employees against the risks of direct and indirect lightning strikes. For this reason, he is obliged to carry out a risk assessment and to take all the technical and organisational measures in accordance with the findings of this assessment.

THE SERVICES PROVIDED BY ECO NEXT

ECO Next conducts risks assessments concerning lightning strikes and deals specifically with the risk assessment procedures pursuant to the **new standard IEC/EN 62305-2** in force since March 2013. This is the **information required** for a correct assessment of the lightning risk:

- ✓ ENVIRONMENTAL CONDITIONS AND LIGHTNING DENSITY
- ✓ CONDITION OF THE BUILDING, INSTALLATIONS, SUPPLY LINES AND EQUIPMENT
- ✓ EXTENT OF THE FINANCIAL AND SOCIETAL LOSSES, THE ENVIRONMENTAL IMPACT OF THE DAMAGE AND THE COST FOR REPAIRS

Generally speaking, **lightning protection** is achieved by means of an adequate protection system and appropriate measures against electrical discharges. The most suitable protection system can be identified through the relevant features of a building (type of construction, occupants and inventory).





CLASSIFICATION OF THE EVENTS

Standard **IEC/EN 62305-2** identifies **different classifications** of lightning events and the possible effects of lightning.

CAUSES OF DAMAGE:

They are identified with the letter S, i.e.:

- S1: Lightning strike in a building;
- S2: Lightning strike near a building;
- S3: Lightning strike on the supply lines;
- S4: Lightning strike near the supply lines.

TYPES OF DAMAGE:

They are identified with the letter D, i.e.:

- D1: damage to living beings through electric shock;
- D2: fire, explosions, chemical effects, mechanical destruction and other material damage;
- D3: failure/malfunctioning of electronic systems due to overvoltages.

TYPES OF LOSS:

They are identified with the letter L, i.e.:

- L1: loss of human lives (including permanent damages);
- L2: loss of public services;
- L3: loss of irreplaceable cultural heritage;
- L4: loss of economic value (of the building, its inventory and/or its function).

TOLERABLE LIGHTNING RISK (RT)

If the calculated lightning risk is lower than the **tolerable risk (RT) level**, then it is not necessary to install any lightning protection. If this is not the case, appropriate measures are to be adopted in order to bring the risk below the critical value. If several loss types are identified in a building, the risk value must be reduced for each loss type. In any case, in order to fully comply with the legal obligations, it is very important that the employer is assisted by a specialised technician who conducts a correct assessment of the lightning risk.