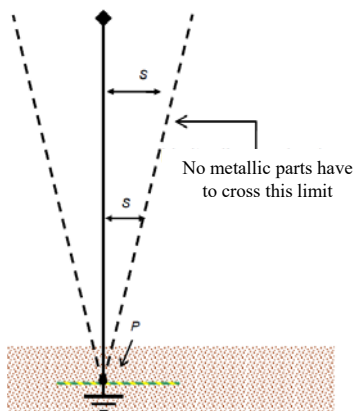# Lightning Protection
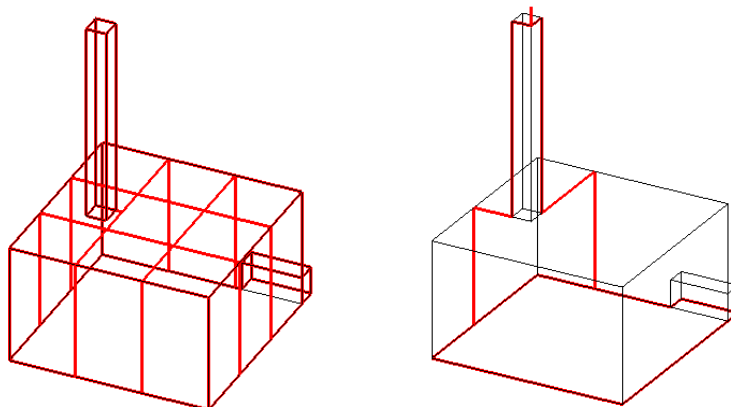# Calculation of the separation distance
SPARC software

Separation distance around a mast equipped with a lightning rod

Installing a Lightning Protection System (LPS) need an electrical insulation between the lightning collection circuit or down conductors and earthed metallic parts of the structure or internal / external electrical systems connected to conductive services (antenna, lighting, air conditioner, etc.) on the structure. This insulation is achieved by a minimum distance which have to be fulfilled by the LPS (real distance or equivalent insulation) : This distance is called separation distance « s » .

This separation distance is a critical part of a technical study, and it can be calculated with simplified methods proposed in IEC 62305-3 standard. These simplified methods are limited, but they come from complex methodologies used by the SPARC methodology (SPArkover Risk Calculator).
Using this software allows to get accurate separation distances quickly and on several points of the LPS .

Calculations can be applied to several building configurations. The possibility of adding elements in the structure's roof or walls allows to get closer to the real structures (presence of a chimney, of an electrical substation along the building, ...)

The installation of the LPS can be customized. A structure initially equipped with meshed conductors can become a structure protected with a lightning rod. The LPS editor allows to modify the length and the location of conductors and lightning rods.
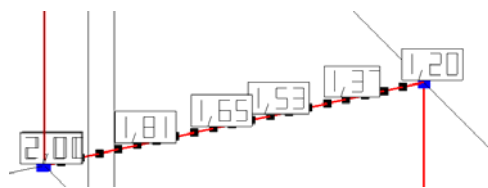

A structure with a chimney and an adjacent building, equipped with meshed conductors (left figure) or a lightning rod (right figure)
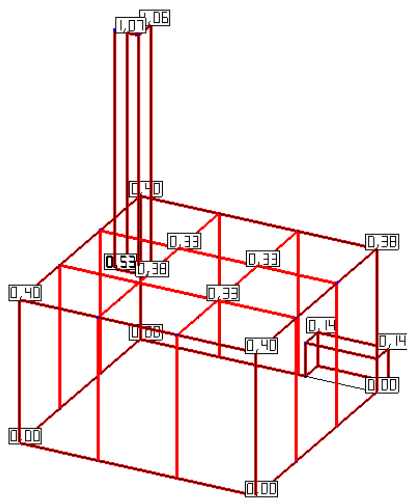
Separation distances display

When the structure characteristics and LPS details are defined, the calculation of the separation distance is displayed on every LPS' node. We can also calculate the separation distance on a chosen point in the structure's roof with the discretization system.

Discretization of the calculation of the separation distance on a roof conductor

Model D

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