1 – PRELIMINARY PREPARATION

Before starting work, a lightning protection risk analysis will be carried out according to the TS EN 62305 standard of the facility; According to the result, the cage system and landing intervals
will be determined. For example, for the facility with protection level "1", the cage spacing will be 5x5 m and the down conductor spacing will be 10 m.

2 – CATCH TIP

Catching ends shall have the following features.

—The catching tips will have a diameter of 20 mm and a length of 80 cm, with chrome nickel plated inner copper.
—Connecting elements at the junction of the roofing conductors (especially the sharp points) in accordance with the structure and shape of the roof.
will be installed using
—The catch tips and bases used will have TS EN 62561-1, TS EN 62561-2 certificates.

3 – CATCH TIP BASE (BASE)

Catch tip bases shall have the following characteristics.

—It will be made of stainless material in accordance with the structure and shape of the roof.
—It will be designed in such a way that it can keep the catching end perpendicular to the ground where the roof is inclined.
—The catch tips and bases used will have TS EN 62561-1, TS EN 62561-2 certificates.

4 – ROOF TRANSPORT AND DOWN CONDUCTOR

Roof enclosing and down conductor shall have the following features.

—It will be made of 1x50 mm^2 solid copper.
—It will have a certificate of conformity with the TS EN 13601 stand.
—It will be lowered to the ground in the shortest possible way, and sharp curves will not be made.
—It will be laid at intervals specified in the TS EN 62305 standard (on average once every 1 m).
—In cases where down conductors cannot be installed on the facade of the building, they can be connected to the building carrier system and installed through the column.
—If it is necessary to make additions, the joints will be made by thermowelding.
— As far as possible, 0.5-2 meters from the building and the soil, asphalt or concrete areas around the building will be withdrawn and surrounded
will turn around the building.
—In case there is no soil area, the floors will be restored to their original state after the channel is opened in the floors around the buildings and the process is completed.
will be brought. The channel depth shall not be less than 50 cm.
—In large-scale structures where the basic grounding conductor and the down conductor are the same material, it is advantageous in terms of workmanship and installation.
Galvanized strip conductor used as grounding conductor can also be used as down conductor. (The architectural group, the control
organization and employer's representative in coordination and provided that the requirements specified in the standards are met.)

5 – FIXING ELEMENTS (CROCHES)

Fixing elements shall have the following features.

—It will be made of stainless steel or hot galvanized material, suitable for the type of conductor, with the least risk of corrosion.
—With the approval of the building inspection committee, concrete-filled plastic clasps can also be used at points (on roofs) that may be needed.

6 – LIGHTNING COUNTER (OPTIONAL)

Lightning counter will have the following features.

—It will be of analog or digital type.
—The test will be certified by LCIE or METU.
—It will be produced according to IP65 protection class.
—Analog devices will have a counting capacity of at least 2 digits (00–99).
—It shall have the feature of making connections without cutting the down conductor.
—It will be connected 10 cm above the test terminal.

7 – TEST TERMINAL

The test terminal will have the following features.

—The test terminal shall be made of copper or galvanized material in a way that it will not corrode with the down conductors.
—It will be located just above the casing pipe.
—All bolts, nuts and washers will be made of stainless material.
—It will be contained in a plastic protector.

8 – CASE PIPE

The casing pipe shall have the following characteristics.

—In order to protect the conductor from physical impacts where the down conductor descends to the ground, it shall be made of internally insulated galvanized pipe.
—It will be 3 meters in length and 5/4" in diameter, with 250cm of it being used above ground and 50cm of it being used underground.

9 – GROUNDING ELECTRODE

The grounding electrode shall have the following features.

—Grounding electrodes will be selected according to the nature of the soil. If the soil is soft, 20 mm diameter, 3.5 meters long solid copper or copper-plated
steel bar will be used.
—In case a copper-coated steel rod is used as the grounding electrode, the copper coating will be a minimum of 250 microns and the TS EN 62561-2 test
will have the certificate. Copper coated rods shall not be used by pipe insertion and plastering method.
—There will be a distance of at least 7 meters between the two grounding rods.
—In case the ground is rocky and a rod cannot be driven into the ground, 50x100 cm and 2 mm thick copper grounding net instead of the rod
will be used.
—The upper end of the conductors and electrodes will be installed at least 50 cm underground.
—If the required grounding transition resistance cannot be provided, the required resistance value by using additional electrode and grounding resistance reducing material.
will be provided.

10 – GROUNDING MANHOLE

The grounding manhole shall have the following features.

—It will be made of concrete or plastic material.
—In the case of plastic material, it has been subjected to 5 tons of durability test and will have the relevant test certificate.
—It will be installed on every landing. There will be 3.5 meters copper grounding rods and grounding busbars in each manhole. Busbar assemblies,
bolts will be made using nuts. Copper bar and conductive copper will be joined to each other by thermowelding method.

11 – THERMO WELDING MATERIALS

The materials to be used in the thermowelding process will have the following properties.

—All connection points under the ground (connections of grounding electrodes and down conductors, etc.) with thermowelding method
will be carried out.

—The ignition of the welding powder will be done by electronic methods (with an electronic crucible lighter) from a certain distance in accordance with occupational health and safety.

—Thermowelding products will have a domestic product certificate.

12 – GROUNDING RESISTANCE REDUCER MATERIAL (TDM)

If the desired resistance cannot be achieved, the resistance reducing material to be used shall have the following properties.

—It will not contain compounds such as coal and salt that reduce the life of the conductor, and it will not contain chemicals that will pollute the soil in any way.

—Galvanic corrosion with electrodes will not give acidic reaction like salt.

—TAEK (Turkish Atomic Energy Agency) certificate is preferred.

13 – SPECIAL SITUATIONS

—Equipotentialization will be done by combining the lightning installation and the building grounding.

—Mechanical, electrical-electronic devices and metal architectural elements on the roof, if any, will be connected to the lightning arresting system.

—In case the grounding resistance is not below the value of 10 Ohm specified in TS EN 62305-3, using the materials mentioned above
Additional grounding can be done.

—The coordinated approval of the architectural group, the inspection organization and the employer's representative and meeting the requirements specified in the standards
on condition; if the building carrier or facade cladding system is capable of carrying lightning current and guarantees the continuity of the conductor, and
At the same time, the roofing material has the properties specified in the standards and is used as a natural element of the lightning arresting system.

In case of a suitable structure, these structures will be able to serve as a part of the "natural lightning arresting system".

14 – WARRANTY

—All fasteners to be used in the installation comply with the TS EN-62561-1 standard; grounding elements according to TS EN-62561-2 standard.
will have certificates of conformity.

—The company that makes the installation will give a guarantee certificate approved by the Ministry of Industry and Trade for at least 2 years for the installation.

—At the end of the installation, the grounding resistance is measured by a qualified personnel and approved by the authorized engineer of the SMM certified company.
will be reported. This report will be valid for 1 year.

15 – REMOVAL OF RADIOACTIVE LIGHTNING LIGHTS

—Companies licensed by the Turkish Atomic Energy Agency for the disassembly, preservation, transportation and delivery of radioactive lightning rods to the relevant warehouse
required to be made by The personnel who will do the disassembly must be trained and certified by TAEK. Staff, calibrated
He must have a dosimeter and a lead container in his vehicle for storage during transport.

—The license certificate cannot be transferred to any person or organization under the name of the dealer. No company can dismantle on behalf of the licensee company.

16 – OCCUPATIONAL HEALTH AND SAFETY

—The personnel who will do the assembly and disassembly will have certificates of work at height or reports from a full-fledged hospital.