SAMAY ELECTRIC
IVANAH

ELLECH TECHNOLOGIES
We Protect...

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SAMAY ELECTRIC

COMPLETE LIGHTNING PROTECTION SYSTEM

Lightning Protection

Principle - Lightning rods were originally developed by Benjamin Franklin. it's a pointed metal rod attached to the roof of a building. It connects to a large section conductive wire which is connected to an earth pit buried in the ground nearby.

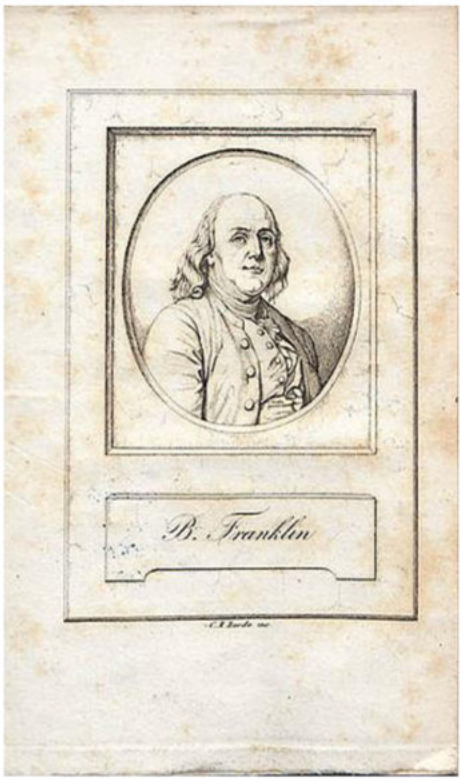
The purpose of lightning rods is often misunderstood. Many people believe that lightning rods "attract" lightning. It is better stated to say that lightning rods provide a low-resistance path to ground that can be used to conduct the enormous electrical currents when lightning strikes occur.

If lightning strikes, the system attempts to carry the harmful electrical current away from the structure and safely to ground. The system has the ability to handle the enormous electrical current associated with the strike.

Franklin's kite experiment was performed in Philadelphia in June 1752

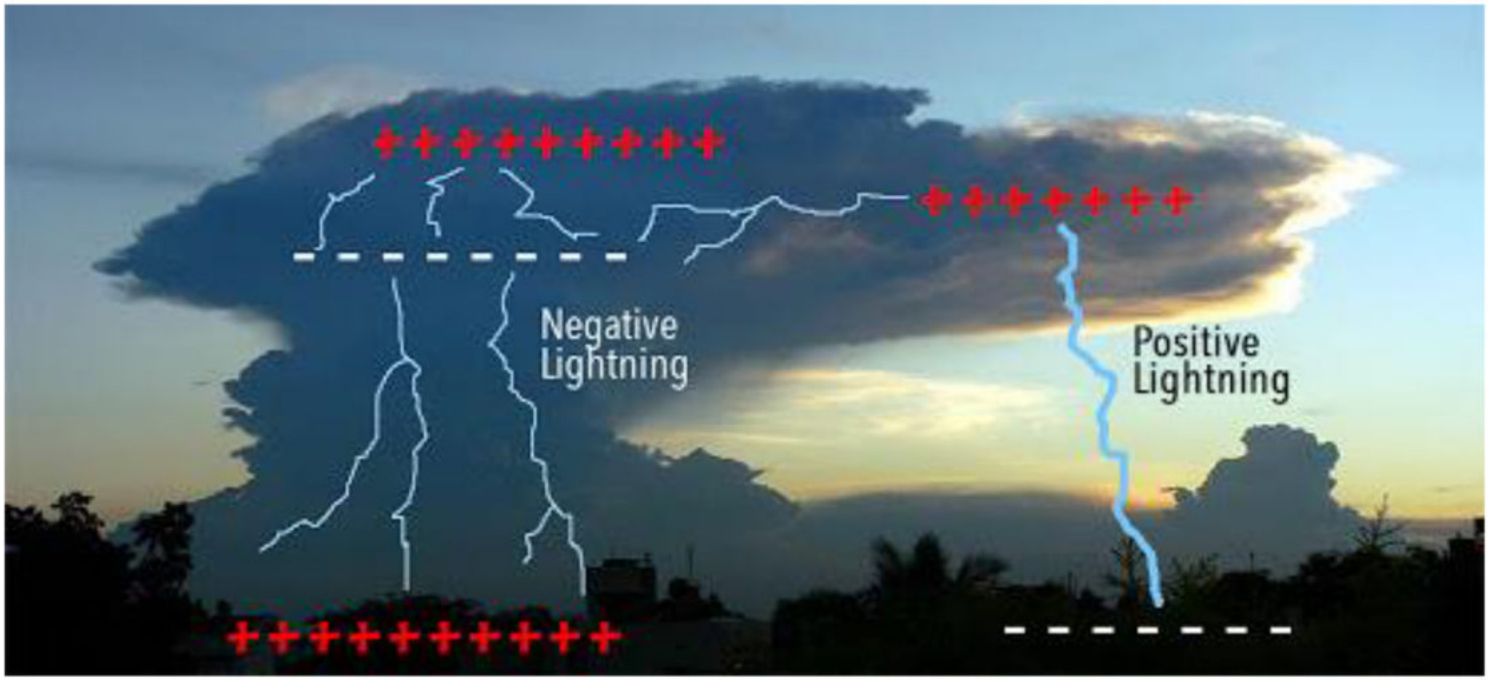
The preliminary systems have been since then improved. Based on Faraday findings, the Belgian physicist MELLSENS, recommends protecting buildings by covering them with metal wires connected to a series of spikes on the roof and then well earthed. This was the very first meshed cage in the late 19th century.

Franklin's Birthplace, Milk Street.

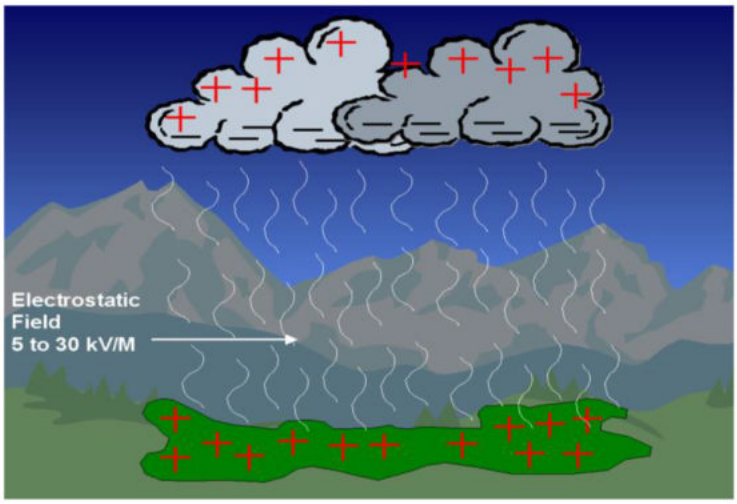


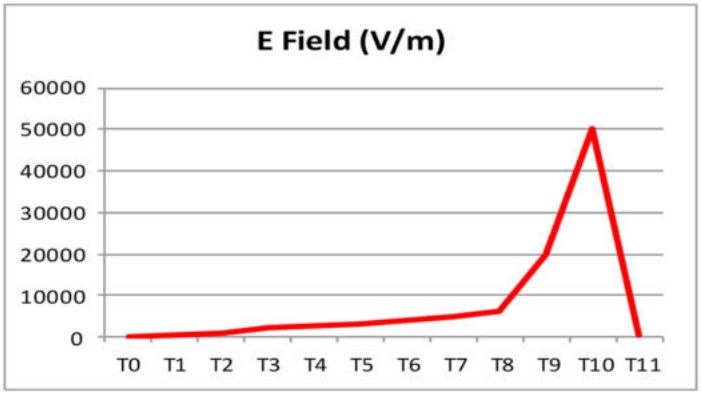
Lightning is a naturally occurring electrostatic discharge during which two electrically charged regions in the atmosphere or ground temporarily equalize themselves, causing the instantaneous release of as much as one gigajoule of energy.

Lightning Charges: -
Positive & Negative Charges



The Electric Field: A region around a charged particle or object within which a force would be exerted on other charged particles or objects.



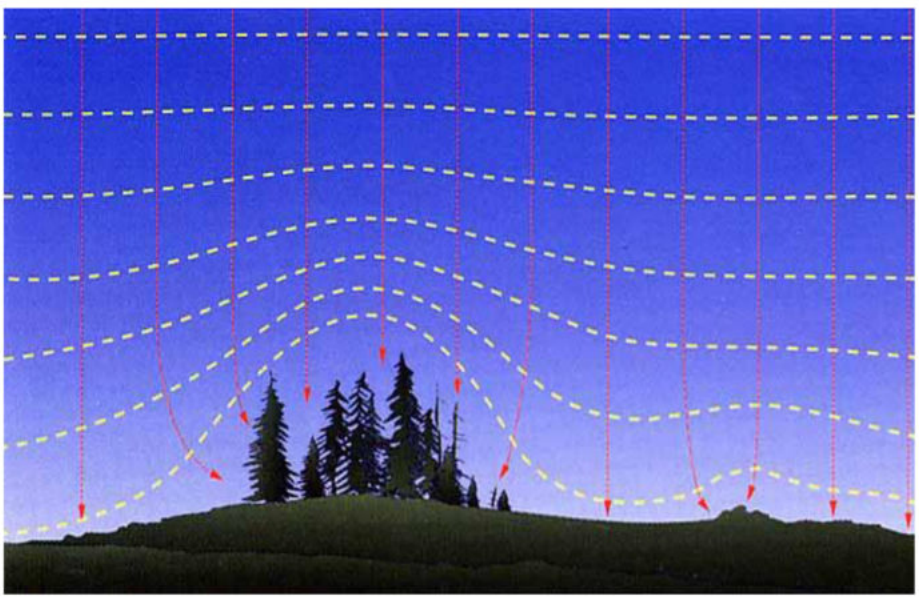


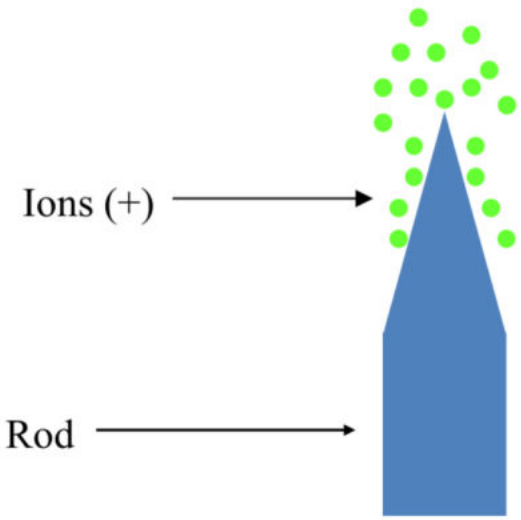
Corona Effect :

The electric field is constant on a flat surface. But, near sharp points, edges and elevated structures (trees, buildings, towers…) the electric field is much more intense:

On a semi-sphere, the electric field value is three time more important than on a flat surface under same conditions. On the top of a sharp rod, the E field reaches 300 times more important values than on a flat surface.

Due to the increased E field values, the air molecules become ionised near the sharpest points. This is called the CORONA EFFECT.





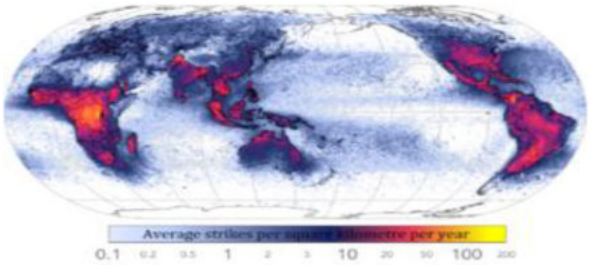
Lightning Discharges

1- Ionization of the elevated points and apparition of the corona effect
2- Downward stepped leaders
3- Upward streamer
4- Connection
5- Return strokes

Lightning Activities:

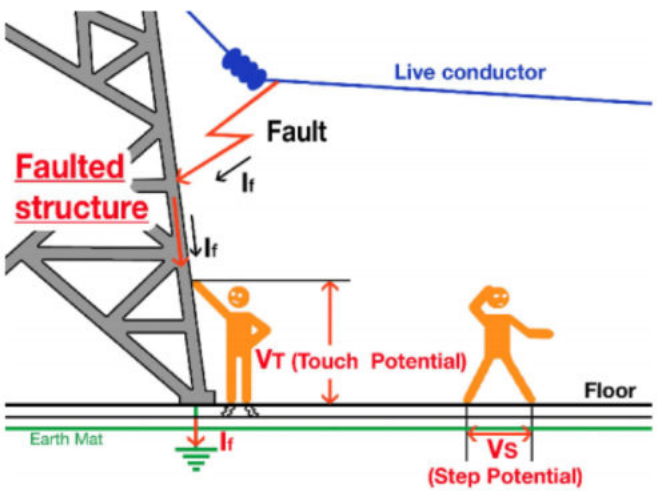
Lightning Activity depends on two main factors:

- The location of the site (approximately 70% of lightning occurs in the tropics)
- The season



Lightning Density: Number of Discharges per year per square kilometer
Keraunic Level: Number of thunder storm days in a year
Lightning density data available in IS 2309 : 1989

Lightning Effects :
Touch Potential & Step Potential



Lightning spark over:

Direct lightning discharge:

Lightning damages to structures:









Lightning Properties :

Peak Current	Up to 500 kA
Average Peak Current (50%)	≈ 30kA
Polarity Negative	> 90%
Time between Flashes	> 10 seconds
Strokes per Flash	Up to 26
Time Between Strokes	10 to 30 ms
Duration (99%)	30 to 200µs

Direct & Indirect Lightning Protection:

Today, both the direct and indirect effects of a lightning discharge are taken into account to design a complete lightning protection system. The IEC 62-305 standards requiring the installation of type 1 SPD together with the installation of an air terminal (conventional).

Most people see lightning danger as a bolt of electricity coming from the sky and directly striking a person or object. This type of lightning, called a direct strike, only accounts for 3-5% of all lightning related injuries.

Often overlooked are the dangers of indirect strikes. Two of the most common indirect strike dangers include ground current, or step potential, and side flashes. Ground current/step potential occurs when lightning strikes the ground near a person or object. The current passes from the strike point, through the ground, and into that person or object. A memorable example from 2016 is when more than 300 reindeer in Norway where killed by ground charge from a nearby lightning strike.

Complete lightning protection system

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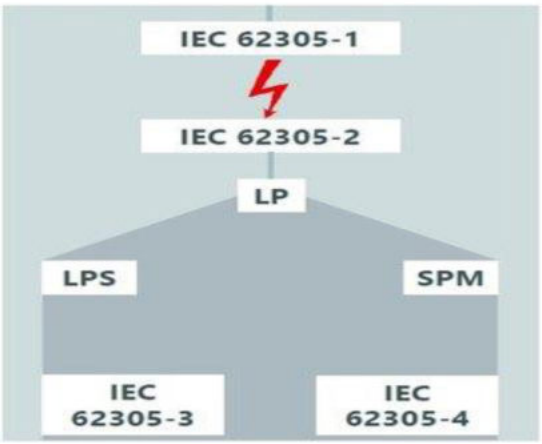
LA+

SPD

International Standards IEC: The international IEC standards for lightning protection have been very recently revised. The latest edition **IEC 62-305** has been published in 2006:

Part 1: General Principles
Part 2: Risks management
Part 3: Physical damage to structures and life hazard.
Part 4: Electrical and electronic systems within structures



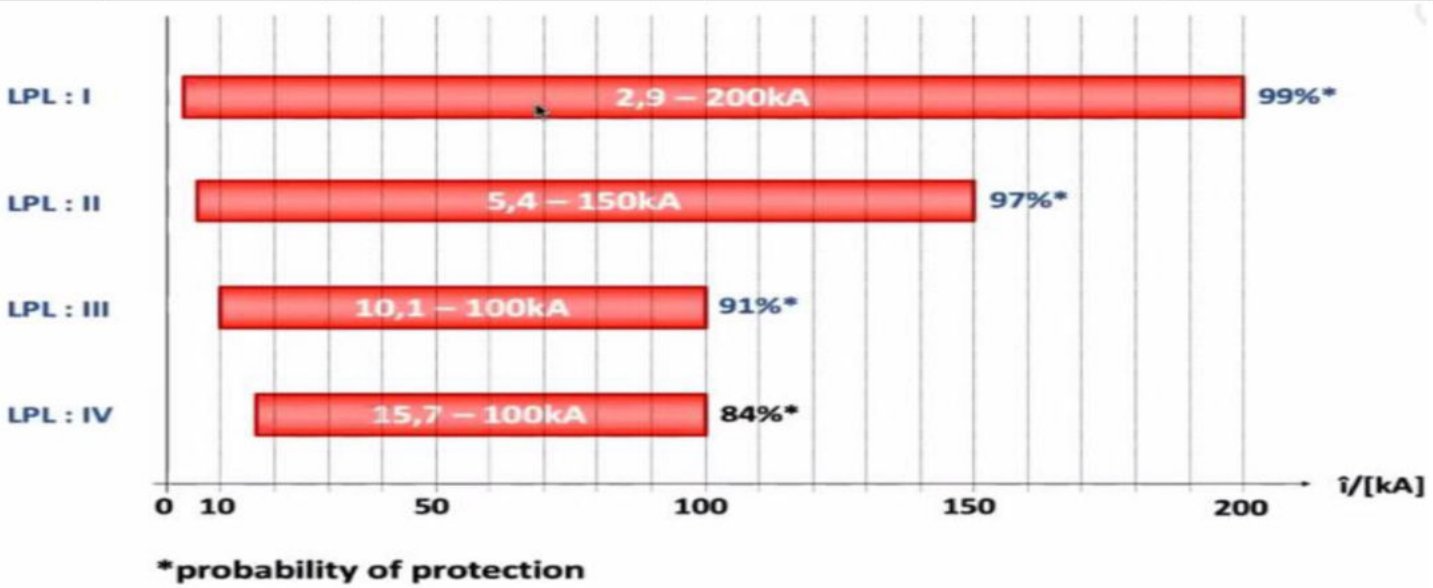
Lightning Threat
Lightning risk
LP: Lightning Protection
LPS: Lightning Protection System
SPM: Surge Protection Measures

IIEC 62-305-1 Ed. 1.0: Protection Against Lightning -- Part 1: General Principlest

- Basic Terms & Definitions
- Lightning Current Parameters
- Damage Due to Lightning & its effects
- Lightning Protection Level
- Lightning Protection Zone
- Protection of Structure
- Protection of services

Protection Level (LPL):

Probability Of Protection				
Level Of Protection LPL	LPL I	LPL II	LPL III	LPL IV
Peak Current (KA)	200	150	100	100
Minimum Peak Current (KA)	3	5	10	16
Probability Of Protection (%)	99	97	91	84



*probability of protection

IEC 62-305-2 Ed. 1.0: Protection Against Lightning -- Part 2: Risk Management

Whatever is the standard or the type of LPS specified, it is compulsory to conduct a risk assessment survey prior to designing or installing the lightning protection system. This survey will allow the calculation of the required protection level, depending on site characteristics:

Data collection for Risk Analysis to design Lightning protection system

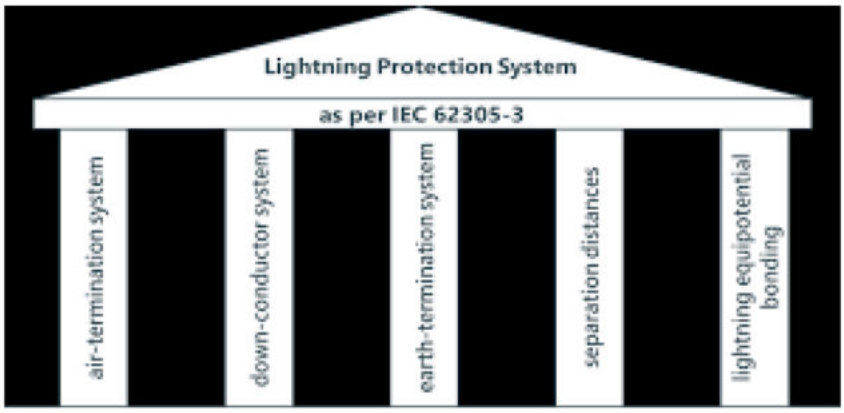
1	**Project Name**	Chemical Factory - ITCL					
2	**Project location address**	Mysure					
3	**Structure size**	over all Length in mtr = 50.75	over all width in mtr = 24.54	Roof Height in mtr =	Peak above Roof in mtr =	Refer Drawing	

Please put check mark ✓ OR fill green colour in the relevent box below : -

4	**Information around Site / Project / Structure**	surrounded by taller trees than the structure		surrounded by taller structures than the structure	surrounded by equal or smaller structures	Isolated, no objects in the vicinity	on a hill top or on a knoll
5	**Environment / Locality**	Rural		Suburban		Urban	
6	**Type of external Floor / Soil**	Agricultural land		Concrete		Gravel	
7	**Type of internal Floor**	Concrete	Marble	Ceramics	Asphalt	Carpets	Wood
8	**No.of persons occupancy in the structure in a day**	below 100		100 to 1000		above 1000	
9	**Duration in hours of stay by persons in a day**	up to 12 Hrs		up to 18 Hrs.		up to 24 Hrs.	
10	**Power Line installation**	Aerial	Buried	Guarded through Conduit Pipe	through Trench	Shielded with resistive cover	
11	**Data / Telecommunication Line installation**	Aerial	Buried	Guarded through Conduit Pipe	through Trench	Shielded with resistive cover	
12	**Distance of Transformer location from site / Structure**	within 100 mtr		within 500 mtr		within 1 Km	
13	**Equipments withstand capacity (which are connected by power line)**			up to 1KV		up to 1.5KV	
14	**Data & Telecommunication line withstand capacity**			up to 1KV		up to 1.5KV	
15	**Any Surge protection device fitted on Power line**			yes		No	
16	**Any Surge protection device fitted on Data / Telecommunication line**			yes		No	
17	**Any possibility of getting shock by touching the out side wall of Structure being conductive**			yes		No	
18	**Any possibility of getting affected due to induced voltage by stepping in to the area where Conductors are being laid.**			yes		No	
19	**Purpose of the Structure**	Industry	Hospital	Hotel	Temple/Church	School	Residential
		Chemical Factory		Commercial complex		Public Building	Museum
20	**Any hazardous Explosives, Chemicals or Gases stored in the Structure / premises**			If Yes, mention : Methanol		No	
21	**Fire Fighting facility**	No facility	Fire extinguishers manual		Fire extinguishers Automatic		
22	**In Lightning protection system, would you like to have down conductors inside through the Columns or on the outside walls of the structure**	Inside through Columns	On outside walls of the strucure	Name :	Gajanan Johari		
				Designation :			
				Signature :			

IEC 62-305-3 Ed. 1.0: Protection Against Lightning -- Part 3: Physical Damage to Structures and Life Hazards

Design of Lightning Protection System :



Air Termination system

Air Termination system can be composed of any combination of the follow elements:

a) Rods (Including free standing Masts)
b) Catenary Wires
c) Meshed Conductors

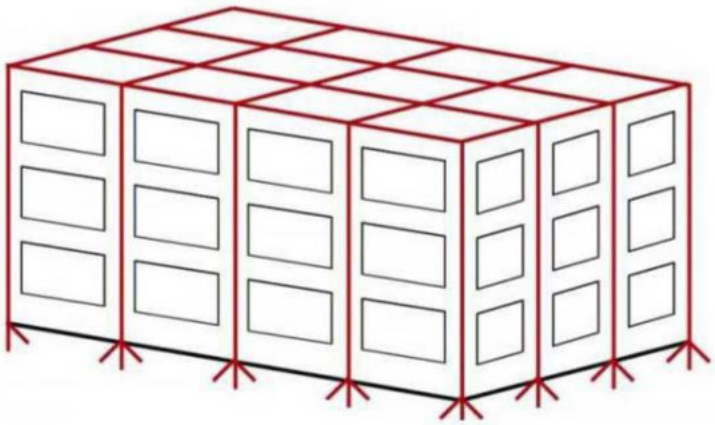
Positioning

a) Protection Angle Method
b) Rolling Sphere Method
c) Meshed Method

Air Termination is design Based on the lowest possible Lightning strike of That LPL

Class of LPS	Mesh Size in meters	Protection angle w.r.t height					Rolling Sphere radius
		10 Meters	20 Meters	30 Meters	45 Meters	60 Meters	
1	5 x 5	45	23	Cannot be used			20
2	10 x 10	54	38	23	Cannot be used		30
3	15 x 15	62	48	36	23	Cannot be used	45
4	20 x 20	65	54	45	34	23	60

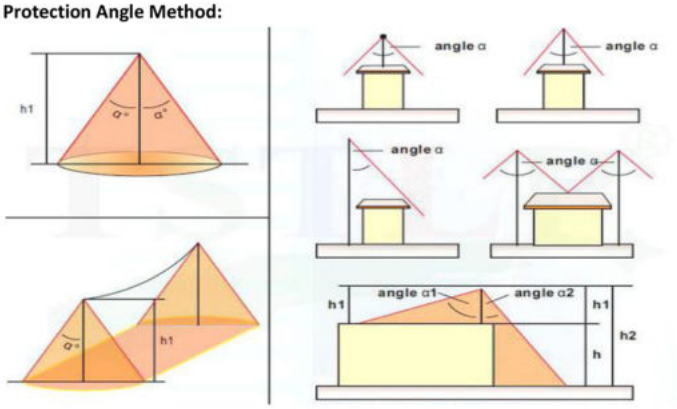
Meshed Method:



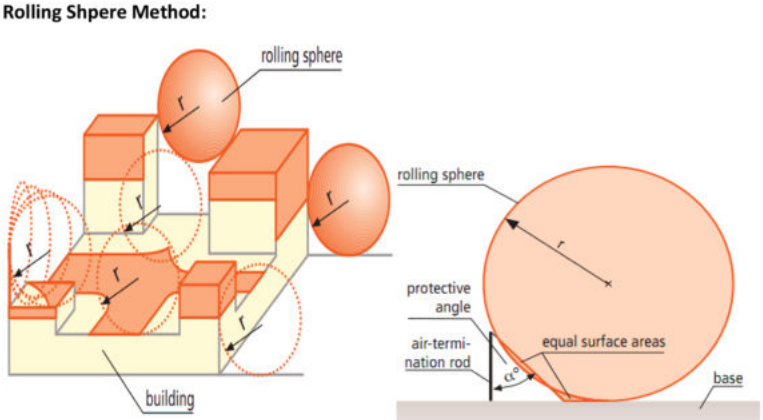
UPL	Mesh Size
I	5m X 5m
II	10m X 10m
III	15m X 15m
IV	20m X 20m

Mesh Size for mesh method

Protection Angle Method:



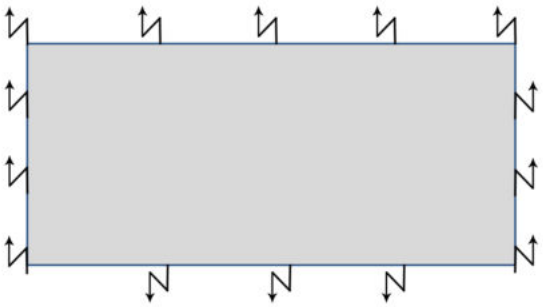
Rolling Shpere Method:



Down Conductor System:

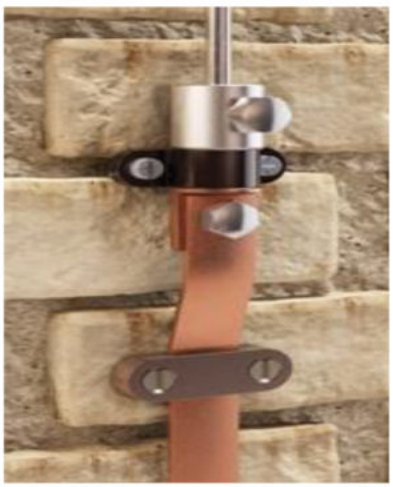
Class of LPS	Distance in Meter "d"
I	10
II	10
III	15
IV	20

- Outside of the Building
- Throughout the Perimeter
- Straight without ends If Possible
- Safety Distance need to be maintained to avoid flashover
- Not through shafts

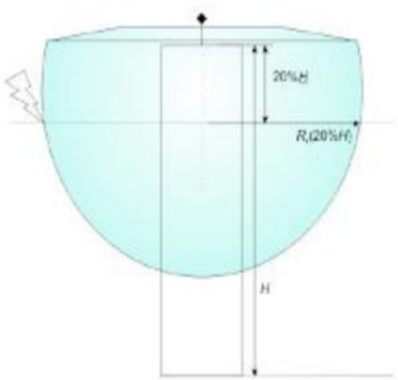


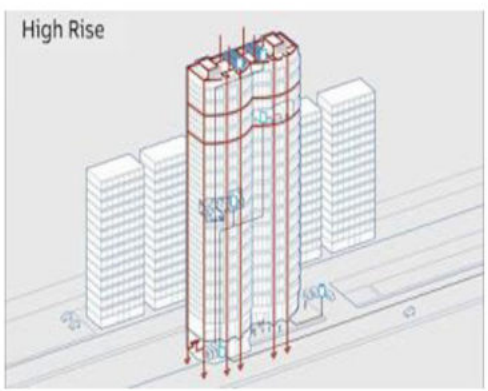
d- Maximum distance allowed between two down conductors

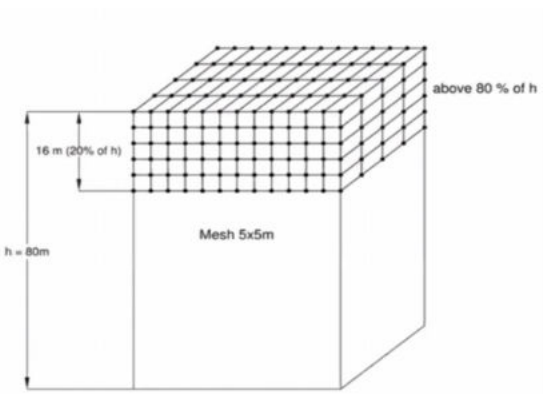
- **Test Joints**



Air Termination - Tall Buildings with more than 60 meters height:





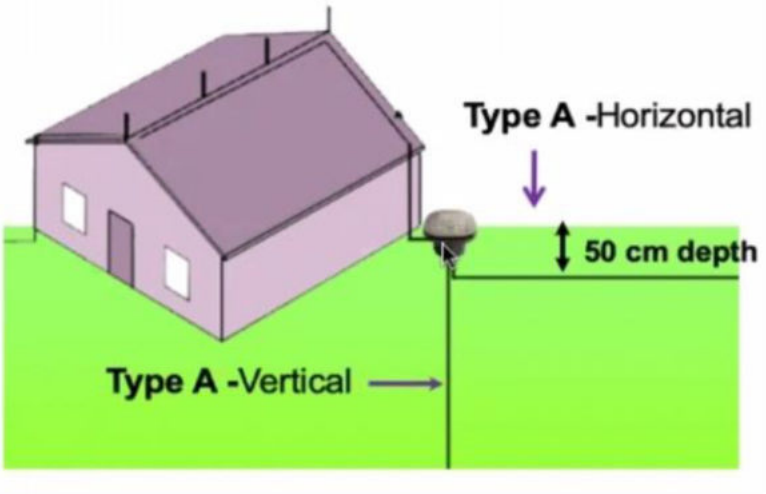


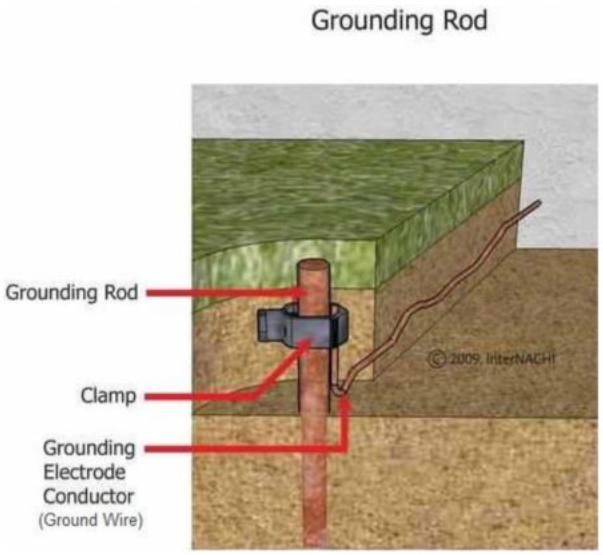
Note : Required only if electronic components are installed
LPL 1 to 4 can be considered depending upon the Risk involved
Aluminium Frame of glass wall cladding can be used

- **Earth Termination System**
  a) Type A Arrangement
  b) Type B Arrangement

LPS Earthing - Type A arrangement (IS/IEC 62305) Radial and Vertical Earth Electrodes

This type of arrangement comprises horizontal or vertical earth electrode installed outside the structure to be protected to connected to each down conductor. In type A arrangements, the total number of earth electrodes shall be not less than two (minimum 2 down conductors for a building)

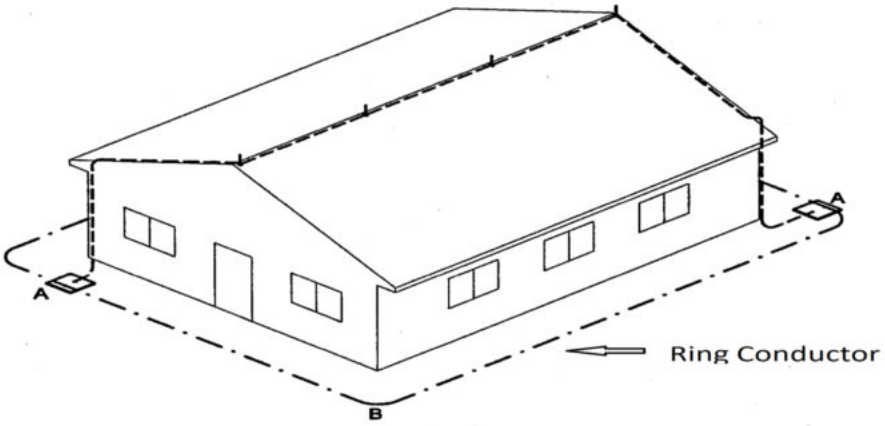




Suitable for small buildings with Electricity

LPS Earthing - Type B arrangement (IS/IEC 62305) Ring Earth Electrode

This types of arrangement comprises either a ring conductor external to the structure to be protected, in contact with soli at least of 80% of its total length or a foundation Earth Electrode.



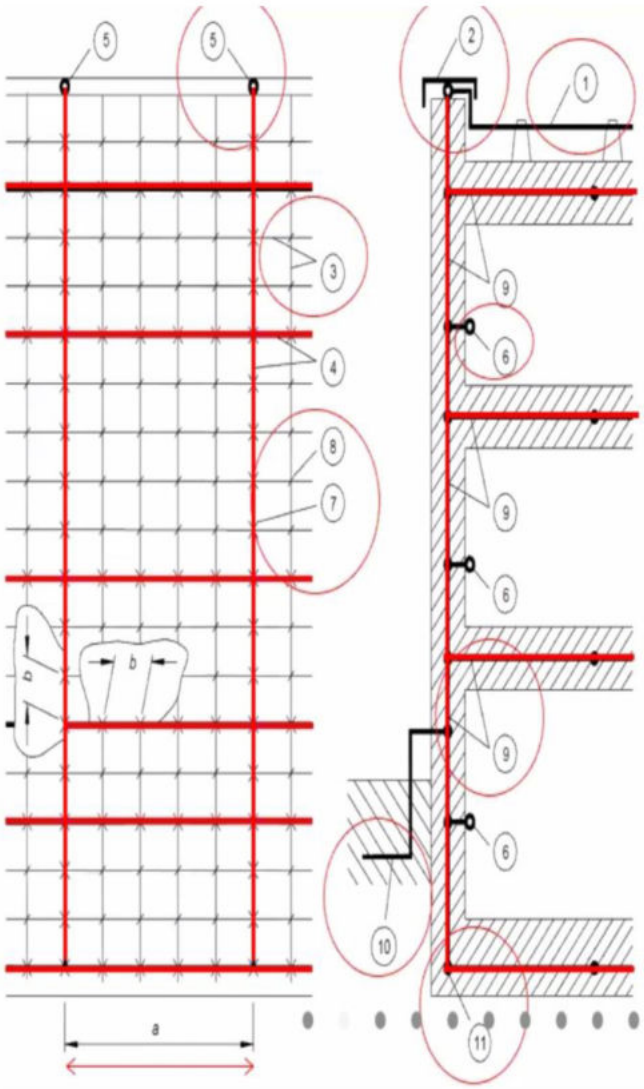
Suitable for Big buildings with Electronics System

Type A & Type B Earthing Electrod

IEC 62-305-4 Ed. 1.0: Protection Against Lightning -- Part 4: Electrical and Electronic system with the structure

Lightning Equipotential Bonding:

Shielding, Bonding and Earthing - Integrated into the building



Conductors inside an RCC structure (or below an RCC structure in soil) can be used for Earthing & Equipotential bonding.

1. air termination conductor
2. metal covering of roof parapet
3. steel reinforcing rods
4. mesh conductors superimposed on the reinforcement
5. joint of the mesh conductor
6. joint for an internal bonding bar
7. connection made by welding or clamping
8. arbitrary connection
9. steel reinforcement in concrete (with superimposed mesh conductors)
10. ring earthing electrode (if any)
11. foundation earthing electrode a typical distance of 5 m for superimposed mesh conductors

Sr. No	Products Name	Part Nos.	Page No.
1	Air termination rods	EL-IV-1111602 EL-IV-1111604 EL-IV-1111606	16
2	Spike rods	EL-IV-1110801	16
3	Side Wall Clamp for Air Termination Rod	EL-IV-1229001	16
4	Self supporting Concrete Base for Air Termination Rod	EL-IV-1269001 EL-IV-1269002	16
5	Tripod Stand	EL-IV-2229001	16
6	Fixture to hold ATR on the Ridge of a Metallic sloping Roof	EL-IV-2239001	16
7	Parallel Connector to clamp Spike, Parallel Conductors	EL-IV-1219003	17
8	ATR Clamp cum Connector	EL-IV-1119001	17
9	Al.Round Conductor	EL-IV-1210801	17
10	GI Flat Conductor	EL-IV-1232502	17
11	SS.Round Conductor	EL-IV-1221001	17
12	Copper cable Conductor	EL-IV-1240801	17
13	Steel Roof Conductor Holders with Plastic base	EL-IV-1209001	18
14	"Roof Conductor Holder Press to Fit" type without Plastic Base	EL-IV-1222201	18
15	"Roof Conductor Holder Press to Fit" type with Plastic Base	EL-IV-1202601	18
16	Snap Type Plastic Roof Conductor Holders	EL-IV-1289001	18
17	Snap Type Plastic Roof Conductor Holder without Round Base	EL-IV-1289002	18
18	1 Kg Concrete Roof Conductor Holders on Flat Roof (Snap Type)	EL-IV-1269001	18
19	1 Kg Concrete Roof Conductor Holders on Flat Roof (Cleat Type)	EL-IV-1269002	19

Sr. No	Products Name	Part Nos.	Page No.
20	Standing seam with Cleat on sloping Metallic Roof	EL-IV-1227003	19
21	Standing seam with Cross Connector on sloping Metallic Roof	EL-IV-1227004	19
22	Standing seam for sloping Metallic Roof vertical Joints	EL-IV-1227002	19
23	"Girder Clamp - Horizontal Flange" with Clamping Shoe	EL-IV-3233001	19
24	"Girder Clamp - Vertical Flange" with Clamping Shoe	EL-IV-3233002	19
25	Splicer/Straight Connector	EL-IV-1219002	20
26	Extension Piece	EL-IV-1219001	20
27	Fixed earth terminal	EL-IV-1329001	20
28	Strike Pad with stud	EL-IV-1329002	20
29	U-Clamp with conductor Holder	EL-IV-1329004	20
30	Multi Clamp	EL-IV-1229002	20
31	Saddle Clip with Pad for "Copper Cable with PVC Sleeve"	EL-IV-1329005	20
32	Shoe Clamp for Conductors	EL-IV-3222501	21
33	Epoxy Insulated Holder	EL-IV-1389001	21
34	Cross Connector Round to Flat	EL-IV-1329012	21
35	Cross Connector Round to Round	EL-IV-1329011	21
36	Cross Connector Flat to Flat	EL-IV-1329013	21
37	Disconnecting Clamp round to Flat	EL-IV-1329006	21
38	Disconnecting Clamp round to Round	EL-IV-1329008	21
39	Disconnecting Clamp Flat to Flat	EL-IV-1329007	22
40	Lightning Strike Counter	EL-IV-1309001	22

LIGHTNING PROTECTION SYSTEM COMPONENTS

1. AIR TERMINATION ROD & ACCESSORIES

The length of ATR and No. of ATR to be selected in the lightning protection system. Material is AlMgSi. In Lightning protection system this is mounted vertically on the top most point of the structure.

General Tehnical Data

Material of Air Termination Rod	AlMgSi
Standard	EN62561-2

Part No.	EL-IV-1111602	EL-IV-1111604	EL-IV-1111606
ATR	1Mtr.	2Mtr.	3Mtr.
O.D.	16mm	16mm	16mm
Total Length	1 Mtr.	2 Mtr.	3 Mtr.
No. of Clamps	1	2	2
Max gust wind speed	186 Km./h	186 Km./h	188 Km./h

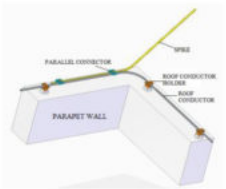
2. SPIKE

The length of Spike is 0.5 Mtr. And it has additional fixing length of 0.5 Mtr. It will be fitted at 0.4Mtr. apart at two points in fixing length.

General Tehnical Data

Material of Spike	AlMgSi
Standard	EN62561-2

Part No.	EL-IV-1110801
Spike	0.5Mtr.
O.D.	8mm
Effective Length	0.5 Mtr.
No. of Clamps	2
Max gust wind speed	186 Km./h



3. SIDE WALL CLAMP

Side Wall Clamp is a vertical mounting bracket for Air Termination Rod. It maintains 50mm distance from mounted wall surface.

General Tehnical Data

Material of Side Wall Clamp	SS
Standard	EN62561-1

Part No.	EL-IV-1229001
Clamping range	15 - 20 mm
distance from wall	50mm
Dist. between 2 Fixing Screws	90mm

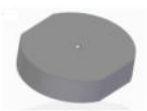
4. SELF SUPPORTING CONCRETE BASE

Concrete base provided to ATR is a self supporting base.This is used on flat roofs. This support to ATR, either as a single support or in multiples, as the case may be. The ATR will be fixed in the GI bush of Concrete Block with the glue.

General Tehnical Data

Material of Concrete Base	Concrete C45/55

Part No.	EL-IV-1269001	EL-IV-1269002
Weight	18 Kgs	9 Kgs
Base Diameter	340mm	240mm
Supporting Height	90mm	90mm
Compressive strength	28MPa	28MPa



5. TRIPOD STAND

To support ATR vertically on Flat roofs, Tripod Stands are used. It is having a SS Tube to hold ATR. ATR is fixed by gluing in the tube. There are three resting points, equqlly distributed on a circle of 1 Mtr.Dia. It is a rigid support to ATR

General Tehnical Data

Material of Tripod Frame	GI/SS
Standard	EN62561-1

Part No.	EL-IV-2229001
Support	Dia.16mm
Required space	Circle of ø1Mtr.
Wt.	20 Kgs.

6. Fixture on the Ridge of sloping Metallic Roof

Frame of GI Stip of size 25X6 mm ,is fabricated keeping a moderate clearence over the ridge of sloping metallic roof. A base plate is fastened over the Frame. A GI bush is welded to Base Plate, so that the ATR can be mounted on it vertically.The length of Bush depends upon the length of ATR.

General Tehnical Data

Material of Fixture	GI
Standard	EN62561-1

Part No.	EL-IV-2239001
GI Strip for Frame	25X6mm
Restig Length on either side	0.5 Mtr.each side
No. of fastening on either side	2Nos on each side
Max gust wind speed	186 Km./h

7. PARALLEL CONNECTOR

The Parallel connector is mainly used to connect two ends of parallely laid conductors. In the same way it can also be used to clamp Spike rods.

General Tehnical Data

Material of Parallel Connector	SS
Standard	EN62561-1

Part No.	EL-IV-1219003
Material Sheet Thickness	2.8mm
Clamping Range round	ø8- ø10mm
No. of Screws	1
Size of Screw	M8-20L

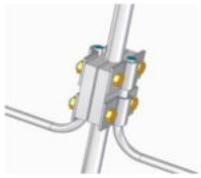
8. ATR CLAMP CUM CONNECTOR

ATR Clamp cum connector is clamped on ATR. Maximum two conductors can be held in this connector to connect with ATR.

General Tehnical Data

Mat.: ATR Clamp cum connector	Al
Standard	EN62561-1

Part No.	EL-IV-1119001
Material Thickness	30mm
Clamping Range round	ø16mm
Holding Range of conuctors	2 X ø8-ø10mm
No. of Screws	4
Size of Bolt,Nut,Thrust Washer	Hex Hd.M8
No.of Cleats	2



9. ALUMINIUM ROUND CONDUCTOR

Aluminium Round Conductor of ø8mm is used of Lightning Prtection System according to EN62561-2 as Roof and Down conductors.

General Tehnical Data

Material of Al.Round Conductor	AlMgSi
Standard	EN62561-2

Part No.	EL-IV-1210801
OD of Conuctor	ø8mm
Cross section	50mm^2
Material condition	Semi Rigid
Coil Weight	App.21.5 Kgs.

10. GI FLAT CONDUCTOR

GI Flat Conductor of size 25X6mm is used in Lightning Prtection System and in Earth Termination system, according to EN62561-2.

General Tehnical Data

Material of GI Flat Conductor	low carbon steel
Standard	EN62561-2

Part No.	EL-IV-1232502
Size of Flat Conuctor	25X6mm
Cross section	150mm^2
GI Coating	80 microns

11. SS ROUND CONDUCTOR

SS Round Conductor of ø10mm is used in Lightning Prtection System and in Earth Termination system, according to EN62561-2.

General Tehnical Data

Material of SS Round Conductor	SS
Standard	EN62561-2

Part No.	EL-IV-1221001
Size of SS Round Conuctor	10mm
Cross section	78.5mm^2

12. COPPER CABLE ROUND CONDUCTOR

Copper Cable Round Conductor of ø8mm is used in Lightning Prtection System and in Earth Termination system, according to EN62561-2.

Mat.: Copper Round Conductor	Copper
Standard	EN62561-2

Part No.	EL-IV-1240801
Size of Copper Round Conuctor	8mm
Cross section	50mm^2
Outer Dia. With PVC Sleeve	13mm
No.of Strands X Wire Dia.	19NosXø1.8 mm

13. STEEL ROOF CONDUCTOR HOLDER WITH PLASTIC BASE

Roof Conductor Holder with Plastic Base is used in LPS system to hold conductors of size ranging from ø8 to ø10mm. It is used to hold horizontal & vertical conductors.

General Tehnical Data

Material of Steel RCH	SS
Standard	EN62561-2

Part No.	EL-IV-1209001
Holding Range	ø8 to ø10mm
Height of Conductor	(20 + 20)mm
Holder Fixing Screws	2 X M8 Screw

14. "ROOF CONDUCTOR HOLDER PRESS TO FIT" TYPE WITHOUT PLASTIC BASE

"Roof Conductor Holder Press to Fit" type without Plastic Base is used in LPS system to hold conductors of size ranging from ø8 to ø10mm. It is used to hold horizontal & vertical conductors.

General Tehnical Data

Material	SS
Standard	EN62561-1

Part No.	EL-IV-1222201
Base Size of RCH	34 X 30 mm
Height of Conductor	22mm
Holding Range	ø8 to ø10mm

15. "ROOF CONDUCTOR HOLDER PRESS TO FIT" TYPE WITH PLASTIC BASE

"Roof Conductor Holder Press to Fit" type with Plastic Base is used in LPS system to hold conductors of size ranging from ø8 to ø10mm. It is used to hold horizontal & vertical conductors.

General Tehnical Data

Material	SS
Standard	EN62561-1

Part No.	EL-IV-1202601
Height of Conductor	26mm
Holding Range	ø8 to ø10mm

16. PLASTIC ROOF CONDUCTOR HOLDER WITH ROUND BASE

Plastic Roof Conductor Holder with round base is used in LPS system to hold conductors of size ranging from ø8 to ø10mm. It is used to hold horizontal & vertical conductors.

General Tehnical Data

Material of Plasic RCH	Plastic
Standard	EN62561-2

Part No.	EL-IV-1289001
Base Size of RCH	ø65mm
Height of Conductor	37mm
Holding Range	ø8 to ø10mm

17. PLASTIC ROOF CONDUCTOR HOLDER WITHOUT ROUND BASE

Plastic Roof Conductor Holder without round base is used in LPS system to hold conductors of size ranging from ø8 to ø10mm. It is used to hold horizontal & vertical conductors.

General Tehnical Data

Material of Plasic RCH	Plastic
Standard	EN62561-2

Part No.	EL-IV-1289002
Height of Conductor	37mm
Holding Range	ø8 to ø10mm

18. 1 KG CONCRETE ROOF CONDUCTOR HOLDER- SNAP TYPE

Concrete Roof Conductor Holders are used in LPS system to hold conductors on Flat roof only. The holding range is from ø8 to ø10mm. It is used to hold horizontal conductors.

General Tehnical Data

Material of Concrete RCH	C35/55

Part No.	EL-IV-1269001
Holding Material	Plastic
Holding Range	ø8 to ø10mm
Height of Conductor	70mm

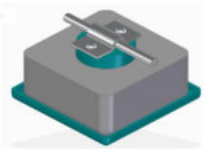
19. 1 KG CONCRETE ROOF CONDUCTOR HOLDER CLEAT TYPE

Concrete Roof Conductor Holders are used in LPS system to hold conductors on Flat roof only, by fixing with cleat. The holding range is from ø8 to ø10mm. It is used to hold horizontal conductors.

General Tehnical Data

Material of Concrete RCH	C35/55

Part No.	EL-IV-1269002
Holding Material	Plastic
Holding Range	ø8 to ø10mm
Height of Conductor	60mm



20. STANDING SEAM WITH CLEAT

Standing Seam with Cleat is used in LPS system on sloping metallic roof where this can be clamped to one of the elements on or near the roof sheet. The roof conductor will be held in Cleat.

General Tehnical Data

Material	SS / GI
Standard	EN62561-2

Part No.	EL-IV-1227003
Clearence below Condctor	70 mm
Holding range	ø8 - ø10 mm

21. STANDING SEAM WITH CROOSS CONNECTOR

Standing Seam with Cross Connector is used in LPS system on sloping metallic roof where this can be clamped to one of the elements on or near the roof sheet. The roof conductor as well as Down Conductor will be held in Cross Connector.

General Tehnical Data

Material	SS / GI
Standard	EN62561-1

Part No.	EL-IV-1227004
Clearence below Condctor	70 mm
Holding Range	ø8 to ø10mm

22. STANDING SEAM ON VERTICAL ROOF JOINT

Standing Seam on vertical Roof Joints is used in LPS system on sloping metallic roof where this can get clamped to the roof sheet vertial joint. With a set of 2 or 4 Nos ATR Base Plate can be mounted on it. It can also be used as a single clamp with cleat to hold roof conductors

General Tehnical Data

Material	SS / GI
Standard	EN62561-1

Part No.	EL-IV-1227002
Clearence below Condctor	70 mm
Holding Range	ø8 to ø10mm

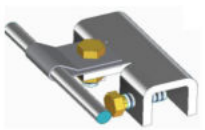
23. GIRDER CLAMP - HORIZONTAL FLANGE WITH CLAMPING SHOE

This combination is used in LPS system on sloping metallic roof where this can be clamped to Girder and the roof conductor will be held in Shoe clamp.

General Tehnical Data

Material	GI
Standard	EN62561-2

Part No.	EL-IV-3233001
out side Size	30 X 25 X 75 mm
Holding range	3 - 18 mm



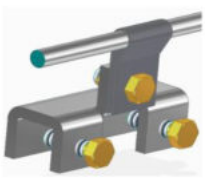
24. GIRDER CLAMP - VERTICAL FLANGE WITH CLAMPING SHOE

This combination is used in LPS system on sloping metallic roof where this can be clamped to Girder and the roof conductor will be held in Shoe clamp.

General Tehnical Data

Material	GI
Standard	EN62561-1

Part No.	EL-IV-3233002
out side Size	30 X 25 X 75 mm
Holding Range	3 - 18 mm



25. SPLICER / STRAIGHT CONNECTOR

Splicer / Straight Connector is used in LPS system to connect and clamp two ends of Conductors which are laid in a line. Holding range is from ø8 to ø10mm.

General Tehnical Data

Material of Straight Connector	Al
Standard	EN62561-1
Part No.	EL-IV-1219002
Holding Range	ø8 to ø10mm

26. EXTENSION PIECE

Extension Piece is used in LPS system to accommodate expansion/ Contraction of conductors, on roof, depending upon the seasons. It is fitted in conductors on roof after every 20 Mtrs. with Splicer / straight connectors

General Tehnical Data

Material of Expansion Piece	Al (AlMgSi)
Standard	EN62561-2
Part No.	EL-IV-1219001
Size	ø8 X 395mm L

27. FIXED EARTH TERMINAL

Fixed Earth Terminals are used in LPS system to enable to connect, concealed conductor either in Columns or in walls with the conductors which are laid on the surface of columns and walls.

General Tehnical Data

Mat.: Fixed earth terminal	SS
Part No.	EL-IV-1329001
Connecting Thread Sze	M10 / M12
Connection Round Plate	ø80mm

28. STRIKE PAD WITH STUD

Strike Pads, in LPS system, are used to arrest Flash currents if any exist, above 60 Mtrs. Of Structure. And its Stud connects the flash current to down conductors. They are mounted on a conductor ring laid around outer surface of the structure.

General Tehnical Data

Material of Strike Pad	Al
Standard	EN62561-1
Part No.	EL-IV-1329002
Size	Base ø80 X 35 ht
Fixing provision	M8 Tapped Hole

29. U-CLAMP WITH CLEAT

In Lightning protection system, when the conductors are cocealed in columns, U-Clamps will be clamped to reinforcement bars and the conductor will be held in its cleat. Similar application can also be done on Metallic roof.

General Tehnical Data

Material of U Clamp	SS /GI
Standard	EN62561-1
Part No.	EL-IV-1329004
Clamping & Holding Range	ø32 MM / ø8mm

30. MV CLAMP

To Clamp and connect two conductors in parallel or across, Vertically or Horizontally, this clamp is used in LPS System.

General Tehnical Data

Material of MV Clamp	SS
Standard	EN62561-1
Part No.	EL-IV-1229002
Holding Range	ø8 to ø10mm
Hex Head / Truss Head Screw	M8 -25L

31. SADDLE CLAMP WITH PAD

This is used in LPS system to hold conductors of cable with PVC Sleeve.

General Tehnical Data

Mat.: Saddle Clamp	SS
Standard	EN62561-1
Part No.	EL-IV-1329005
Holding Range	ø10 - 13 mm

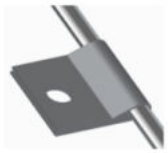
32. SHOE CLAMP

Shoe Clamps are used in LPS system to hold conductors at various locations.

General Tehnical Data

Mat.: Shoe Clamp	SS
Standard	EN62561-1

Part No.	EL-IV-3222501
Holding Range	ø10mm
Size	25x30 mm



33. EPOXY INSULATING HOLDER

These are used in LPS system to hold Flat Conductors Vertically / Horizontally.

General Tehnical Data

Mat.:Epoxy Insulating Holder	Red Epoxy

Part No.	EL-IV-1389001
Clamping Screws	2 X M8-12 L
Flat Size to Accommodate	25X3 / 25X6
Dist. from surface	10mm

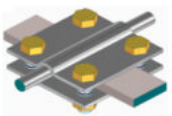
34. CROSS CONNECTOR ROUND TO FLAT

To Clamp and connect two conductors round & Flat across, this clamp is being used.

General Tehnical Data

Material of cross connector	SS
Standard	EN62561-1

Part No.	EL-IV-1329012
Holding Range	ø8-ø10mm/30mm
Screw Size	4XHex Hd M8 Sc.



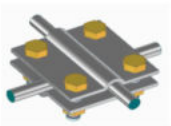
35. CROSS CONNECTOR ROUND TO ROUND

To Clamp and connect two conductors round & round across, this clamp is being used.

General Tehnical Data

Material of cross connector	SS
Standard	EN62561-1

Part No.	EL-IV-1329011
Holding Range	ø8-ø10mm
Screw Size	4XHex Hd M8 Sc.



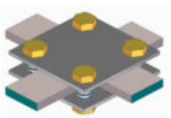
36. CROSS CONNECTOR FLAT TO FLAT

To Clamp and connect two conductors Flat & Flat across, this clamp is being used.

General Tehnical Data

Material of Cross Connector	SS
Standard	EN62561-1

Part No.	EL-IV-1329013
Holding Range	30 / 30 mm
Screw Size	4XHex Hd M8 Sc.



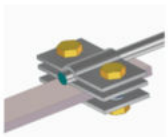
37. DISCONNECTING CLAMP ROUND TO FLAT

This is used to connect/diconnect down conductors with the link leadig to earth grid ring

General Tehnical Data

Material of disconnecting clamp	SS
Standard	EN62561-1

Part No.	EL-IV-1329006
Holding Range	ø10mm / 30mm



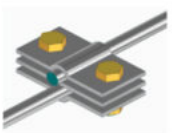
38. DISCONNECTING CLAMP ROUND TO ROUND

This is used to connect/diconnect down conductors with the link leadig to earth grid ring

General Tehnical Data

Material of disconnecting clamp	SS
Standard	EN62561-1

Part No.	EL-IV-1329008
Holding Range	ø8 - ø10mm



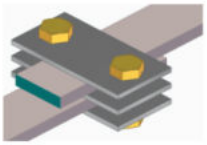
39. TEST CLAMP / DISCONNECTING CLAMP FLAT TO FLAT

This is used to connect/diconnect down conductors with the link leadig to earth grid ring

General Tehnical Data

Material of disconnecting clamp	SS
Standard	EN62561-1

Part No.	EL-IV-1329007
Holding Range	30mm



40. LIGHTNING STRIKE COUNTER

This is used to count the impulse current occurred between equipotential bonding busbar and earths termination system.

General Tehnical Data

Material of LSC	Plastic Body

Part No.	EL-IV-1309001
Digits displayed in counter	6 Digits
Size of Counter	45X60X55Ht.

ABOUT SAMAY ELECTRIC

Incorporated in the year 2021 our companies involved in following activities -

Sale & servicing of Electricals safety - Mainly Design, Supply, Installation, Testing & Commissioning of Lightning Protection System, Maintenance Free Earthing Systems, Surge Protection Devices , Under the name of "IVANAH & ELTECH".

We have register Head office in Mumbai, a branch office at Pune. Serving Area all Over India & supply of the materials throughout India.

Balkrishna Bapu Chavan

B.E. (Mech), MDBA

Certified profession by Siemens for 3D Modeling in Solid Edge Software. 30 Years experience in manufacturing field in various industries like Automobile, Foundry and Compressor for Railways & Ships, Sugar Plant Equipment Manufacturing etc. 18 Years experience in Design & Drafting

Mr. Pradeep Lahot

Electrical Engineer

Pradeep Lahot is an Electrical Engineer. He has work experience with French multinationals for 10 years before entering in to own business. He has traveled all over the country & to leading countries abroad on occasions & his exposed to the global developments & technologies. From the beginning of his career he dedicatedly involve only in the field of Lightning. He has vast knowledge in the field of Lightning Protection System Globally.

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