

LIGHTNING PROTECTION DETAILS

Materials

1. Ese Lightning protection system ES60 as per NFC 17-102 CODE and tested at any High Voltage laboratory of the world.
2. GI Pole and connector for installing the ESE system
3. Down conductor for Lightning protection can be 70 sqmm Copper cable , ISI Marked single core, insulated or bare GI strip 25x3mm (minimum 75 micron coating) as per NFC17-102
4. Earthing set consists of 17.2mm copper bonded rod (03 mtrs length) with clamp attached, the chemical must be tested for ohmic resistance at any laboratory(minimum 20 kgs per pit), The pit cover shall be polyplastic green 300x350mm with high resistance to breakage/ chipping.



ESE AIR TERMINAL

h	ES 15				ES 30				ES 45				ES 60			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
2	13	18	19	20	19	28	28	28	25	28	32	36	32	34	40	44
3	19	27	29	30	28	38	39	42	38	41	48	53	48	52	59	65
4	25	36	39	41	38	51	51	57	51	57	65	72	64	69	78	87
5	31	44	48	51	43	57	61	64	62	71	81	89	79	86	97	104
10	34	49	54	56	49	66	75	75	63	72	83	92	79	88	99	109
20	35	55	59	63	50	71	81	81	65	74	86	97	80	89	102	113

Coverage radius as shown by NFC 17-102, Level 1 protection to be taken only.

(if Level 2 protection is chosen, explanation and permission is required from consultant and client manager)

Protection Performance

The protection radius [R_p] of a ESE terminal is calculated using the following formula as defined in NF C 17-102 [September 2011], namely:

$$R_p[h] = \sqrt{2rh - h^2 + \Delta(2r + \Delta)} \quad \text{for } h \geq 5 \text{ m}$$

and

$$R_p = h \times R_{p_5} / 5 \quad \text{for } 2 \leq h < 5 \text{ m}$$

where **h** = height relative to the area being protected [m]

R_{p_5} = value of R_p from Eqn. [1] when $h = 5 \text{ m}$

r = 20 m for protection level I [Very High protection]

30 m for protection level II [High protection]

45 m for protection level III [Medium protection]

60 m for protection level IV [Standard protection]

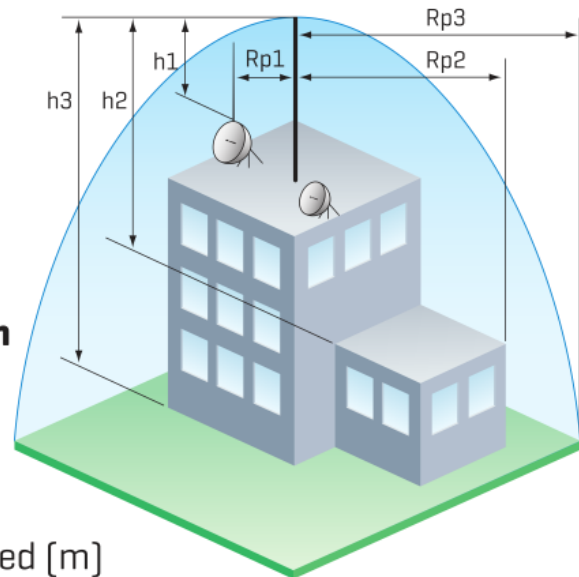
and **Δ** = ESE time and height advantage according to the ESE model installed:

Choices: ESE 30: $\Delta = 30 \mu\text{s}$

ESE 60: $\Delta = 60 \mu\text{s}$

ESE 67: $\Delta = 67 \mu\text{s}$

Model to be chosen in consultation with consultant and site manager ::



SAMPLE INSTALLATION SHOWN