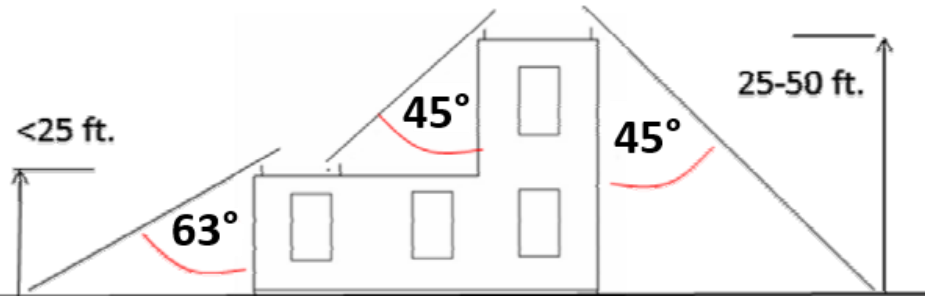


# Protective Angle Method

Suitable for structures  $\leq 50$  ft (15.2 m) in height

- Two protection angles based on height:
  - $63^\circ$  for structures  $\leq 25$  ft (7.6 m)
  - $45^\circ$  for structures  $> 25$  ft and  $\leq 50$  ft
- Applies to vertical plane from the rod tip
- All parts of structure must lie within protection cone



# Rolling Sphere Method

Used for structures of any height. It's the most general of methods.

- Assumes a sphere of radius equal to strike distance rolls over structure
- Areas touched by the sphere are vulnerable
- Areas under sphere's surface and point of contact are protected.
- Radius is calculated as:  $d_s = 10 I_p^{0.65}$

$d_s$  = strike distance (m)

$I_p$  = peak lightning current (kA)

Higher current  $\rightarrow$  longer strike distance

Common radius used: 150 ft for 10 kA

