External Openings – Fall Protection policy

a. Steppable surface is any surface where a human being can step on with reasonable ease – generally, the accessible foot landing space of this surface should be at least 75 mm in depth.

b. For safety reasons, it is to be ensured that the height of the fall protection for all external openings is at least 1050 mm from the final height (finished) of the last steppable surface (if building height exceed 100 m above ground, 1200 mm fall protection to be used).

c. To ensure that last steppable surface is not above the finished floor level, adequate care needs to be taken with respect to the structural design (because edge beams / ledges can raise the last steppable surface) and the location of the railing (should be as close as feasible to the point where the structure becomes higher than the general finished floor level).

d. If there is a deck/accessible surface of min. 1.2m depth outside the window line, a railing is to be provided at the edge of the deck/accessible surface (height as per b.).

e. If there is no deck/accessible surface outside the window line (or these is a flower bed or equivalent < 1.2m), following options are available:

   i. Window should start only at height of 1050/1200 mm (see applicable height as per b.) above the last steppable level. In such cases, grill as per ii. below is required only from if needed from marketing perspective, but not from fall protection perspective.

   ii. In exceptional cases, if window start at height < 1050/1200 mm (see applicable height as per b.) above last steppable surface , following options can be used:

      1. An internal railing with location such that the floor level inside the room becomes the last steppable surface and the height such that the requirements of b. above are fulfilled.
      2. Alternatively, if the window is not a sliding window and has restricted opening (max. 200 mm) such that no child > 2 years can possibly go through the opening, the railing shall not be needed. It should be noted that in such cases, the window is itself acting as railing/protection due to its limited opening.

Guidelines for railing design:

a. For any area falling outside a wall+window enclosure eg. decks, utility etc., following types of railing/edge protection are to be used:

	Casa (or Aspirational)	**Aspirational, Hi-end, Luxury**	**Office (all types)**	**Retail (all types)**
Deck / Sky Garden / equivalent	MS railing	SS +Glass railing	SS +Glass railing	SS +Glass railing
Utility with AC ODU's, Service slab with AC ODU's	If said area is <u>not</u> visible from road side (external or internal), then MS railing only with height as per External Openings – Fall Protection Policy. If the said area is visible from road side (external or internal), then full height fins/louvers are to be used to 'block the view' and two horizontal MS railing bars are to be placed for 'safety', with upper one as per top height required as per External Openings – Fall Protection Policy and second bar at halfway between the top bar and the finished floor level.			
Utility without AC ODU's, Service slab without AC ODU's	RCC Parapet wall with height as per External Openings – Fall Protection Policy. If the said area is visible from road side (external or internal), then fins/louvers are to be used to 'block the view'.			

b. **For MS or SS railings, MS plate inserts are to be placed in the RCC at time of RCC casting, in order to receive the MS or SS railing vertical members.** The vertical members are to be welded prior to floor finishing, so that the welding joint is hidden through the floor finishing.
c. These inserts are to be placed at 900-1200 mm apart, in multiples of 50 mm, depending on the dimensions of the area. This spacing has to be decided by the Architect.
d. In case of railing with vertical members (not glass), the members should not be more than 150 mm (clear) apart. In case of railing with horizontal members, the clear gap between railing members should not be more than 250 mm.

e. Illustrative Diagram for MS Railing:

