

Table 1.3 – Irregular Buildings

A – IRREGULARITIES IN PLAN	Related Items
<p><u>A1 – Torsional Irregularity :</u> The case where <i>Torsional Irregularity Factor</i> η_{bi}, which is defined for any of the two orthogonal earthquake directions as the ratio of the maximum storey drift at any storey to the average storey drift at the same storey in the same direction, is greater than 1.2. $[\eta_{ti} = (\Delta_i)_{\max} / (\Delta_i)_{\text{avg}} > 1.2]$ <i>Storey drifts shall be calculated in accordance with 2.3, by considering the effects of \pm %5 accidental eccentricities.</i></p>	1.5.2.1
<p><u>A2 – Floor Discontinuities :</u> In any floor; I - The case where the total area of the openings including those of stairs and elevator shafts exceeds 1/3 of the gross floor area, II – The cases where local floor openings make it difficult the safe transfer of seismic loads to vertical structural elements, III – The cases of abrupt reductions in the in-plane stiffness and strength of floors.</p>	1.5.2.2
<p><u>A3 – Projections in Plan :</u> The cases where projections beyond the re-entrant corners in both of the two principal directions in plan exceed the total plan dimensions of the building in the respective directions by more than 20%.</p>	1.5.2.2
B – IRREGULARITIES IN ELEVATION	Related Items
<p><u>B1 – Interstorey Strength Irregularity (<i>Weak Storey</i>) :</u> In reinforced concrete buildings, the case where in each of the orthogonal earthquake directions, <i>Strength Irregularity Factor</i> η_{ci}, which is defined as the ratio of the shear strength of any storey to the shear strength of the storey immediately above, is less than 0.80. $[\eta_{ci} = V_i / V_{i+1} < 0.80]$ <i>Shear strength of a storey is the sum of design shear strengths of vertical elements according to Chapter 3 or Chapter 4, as appropriate.</i></p>	1.5.2.3
<p><u>B2 – Interstorey Stiffness Irregularity (<i>Soft Storey</i>) :</u> The case where in each of the two orthogonal earthquake directions, <i>Stiffness Irregularity Factor</i> η_{ki}, which is defined as the ratio of the average storey drift at any storey to the average storey drift at the storey immediately above is greater than 1.5. $[\eta_{ki} = (\Delta_i/h_i)_{\text{ort}} / (\Delta_{i+1}/h_{i+1})_{\text{ort}} > 1.5]$ <i>Storey drifts shall be calculated in accordance with 2.3, by considering the effects of \pm %5 accidental eccentricities.</i></p>	1.5.2.1
<p><u>B3 - Discontinuity of Vertical Structural Elements :</u> The cases where columns are removed at some stories and supported by beams or columns underneath, or structural walls of upper stories are supported by columns or beams underneath.</p>	1.5.2.4