2.6. SAFETY VERIFICATION

2.6.1. Strength verification

The following relation shall be satisfied for all structural elements including connections and the relevant non-structural elements:

$$E_d \leq R_d \tag{2.19}$$

where E_d is the design value of the action effect, due to load combinations defined in **2.6.2** including, if necessary, second order effects defined in **2.6.3**, as well as due to capacity design rules, as described in **Chapters 3** and **4**. R_d is the corresponding design resistance of the element, calculated in accordance with the rules specific to the material used considering the requirements of **Chapters 3** and **4**.

2.6.2. Load combinations for seismic design

The load combinations given in **Eq.(2.20)** shall be used to define the design values of action effects. Live load participation factor n_2 is given in **Table 2.4**.

$$\begin{gathered} E_G + n_2 E_Q \mp E_E \\ 0.9 E_G \mp E_E \end{gathered} \tag{2.20}$$

Table 2.4 – Live load participation factor (n_2)

Loading areas	n_2
Domestic, residential and office areas	0.3
Shopping and congregation areas	0.6
Storage areas	0.8
Traffic areas (vehicle weight ≤ 30 kN)	0.6
Traffic areas (30 kN < vehicle weight ≤ 160 kN)	0.3
Roof areas	0

2.6.3. Second-Order Effects

Unless a more refined analysis considering the nonlinear behaviour of structural system is performed, second-order effects may be taken into account in accordance with **2.6.3.1**.

2.6.3.1 – In the case where *Second-Order Effect Indicator*, θ_i, satisfies the condition given by **Eq.(2.21)** for the earthquake direction considered at each storey, second-order effects shall be evaluated in accordance with the currently enforced specifications of reinforced concrete or structural steel design.

$$\theta_i = \frac{(\Delta_i)_{avg} \left(\sum_{k=i}^{N} W_k \right)}{V_i h_i} \leq 0.10 \tag{2.21}$$