4.3.2.2 – For plastic hinges in the beams it should be verified that the full plastic moment of resistance and rotation capacity are not decreased by compression and shear forces. To this end, for sections belonging to cross-sectional classes 1 and 2, the following inequalities should be verified at the location where the formation of hinges is expected:

$$\frac{M_{\mathrm{Ed}}}{M_{\mathrm{pl,Rd}}} \le 1.0$$
$$\frac{N_{\mathrm{Ed}}}{N_{\mathrm{pl,Rd}}} \le 0.15 \qquad \textbf{(4.4)}$$
$$\frac{V_{\mathrm{Ed}}}{V_{\mathrm{pl,Rd}}} \le 0.5$$

where

$$V_{\mathrm{Ed}} = V_{\mathrm{Ed,G}} + V_{\mathrm{Ed,M}} \qquad ; \qquad V_{\mathrm{Ed,M}} = \frac{M_{\mathrm{pl,Rd,A}} + M_{\mathrm{pl,Rd,B}}}{L} \qquad \textbf{(4.5)}$$

For sections belonging to cross-sectional class 3, $N_{\mathrm{pl,Rd}}$, $M_{\mathrm{pl,Rd}}$, $V_{\mathrm{pl,Rd}}$ must be replaced with $N_{\mathrm{el,Rd}}$, $M_{\mathrm{el,Rd}}$, $V_{\mathrm{el,Rd}}$ in **Eq.(4.4)** and **Eq.(4.5)**.

4.3.2.3 – The condition in the second expression of **Eq.(4.4)** may not be verified, provided that the provisions of EN 1993-1-1:2004,6.2.9.1 are satisfied.

4.3.3. Columns

4.3.3.1 – The columns shall be verified in compression considering the most unfavourable combination of the axial force and bending moments. N_{ed} , M_{ed} , V_{ed} shall be calculated as:

$$N_{\mathrm{Ed}} = N_{\mathrm{Ed,G}} + 1.1\,\gamma_{\mathrm{ov}}\,\Omega\,N_{\mathrm{Ed,E}}$$
$$M_{\mathrm{Ed}} = M_{\mathrm{Ed,G}} + 1.1\,\gamma_{\mathrm{ov}}\,\Omega\,M_{\mathrm{Ed,E}} \qquad \textbf{(4.6)}$$
$$V_{\mathrm{Ed}} = V_{\mathrm{Ed,G}} + 1.1\,\gamma_{\mathrm{ov}}\,\Omega\,V_{\mathrm{Ed,E}}$$

where Ω is the minimum value of $\Omega_{\mathrm{i}} = M_{\mathrm{pl,Rd,i}} / M_{\mathrm{Ed,i}}$ of all beams, $M_{\mathrm{Ed,i}}$ is the design value of the bending moment in beam *i* in the seismic design situation and $M_{\mathrm{pl,Rd,i}}$ is the corresponding plastic moment.

4.3.3.2 – The resistance verification of the columns should be made in accordance with EN 1993-1-1:2004, Section 6.

4.3.3.3 – The column shear force V_{Ed} resulting from the structural analysis should satisfy the following expression :

$$\frac{V_{\mathrm{Ed}}}{V_{\mathrm{pl,Rd}}} \le 0.5 \qquad \textbf{(4.7)}$$

4.3.3.4 – The transfer of the forces from the beams to the columns should conform to the design rules given in EN 1993-1-1:2004, Section 6.

4.3.3.5 – The shear resistance of framed web panels of beam/column connections should satisfy the following expression: