

$$\frac{V_{wp,Ed}}{V_{wp,Rd}} \leq 1.0 \quad (4.8)$$

where $V_{wp,Ed}$ is the design shear force in the web panel due to the action effects, taking into account the plastic resistance of the adjacent beams or connections; $V_{wp,Rd}$ is the shear resistance of the web panel in accordance with EN 1993-1-8:2004, 6.2.4.1. It is not required to take into account the effect of the stresses of the axial force and bending moment on the plastic resistance in shear.

4.3.3.6 – The shear buckling resistance of the web panels should also be checked to ensure that it conforms to EN 1993-1-5:2004, Section 5:

$$\frac{V_{wp,Ed}}{V_{wb,Rd}} \leq 1.0 \quad (4.9)$$

where $V_{wb,Rd}$ is the shear buckling resistance of the web panel.

4.3.4. Beam - column connections

4.3.4.1 – If the structure is designed to dissipate energy in the beams, the connections of the beams to the columns should be designed for the required degree of overstrength taking into account the moment of resistance $M_{pl,Rd}$ and the shear force ($V_{ed,G} + V_{ed,M}$) evaluated in **4.3.2.2**.

4.3.4.2 – Energy dissipating semi-rigid and/or partial strength connections are permitted, provided that all of the following requirements are verified:

- (a)** Connections have a rotation capacity consistent with the global deformations
- (b)** Members framing into the connections are demonstrated to be stable at the ultimate limit state (ULS);
- (c)** Effect of connection deformation on global drift is taken into account using nonlinear static (pushover) global analysis or non-linear response history analysis.

4.3.4.3 – The connection design should be such that the chord rotation capacity of the plastic hinge region θ_p is not less than 25 mrad for structures with $q > 2$.

4.3.4.4 – In experiments made to assess θ_p the column web panel shear resistance should conform to **Eq.(4.7)** and the column web panel shear deformation should not contribute for more than 30% of the plastic rotation capability θ_p .

4.3.4.5 – The column elastic deformation should not be included in the evaluation of θ_p .

4.3.4.6 – When partial strength connections are used, the column capacity design should be derived from the plastic capacity of the connections.