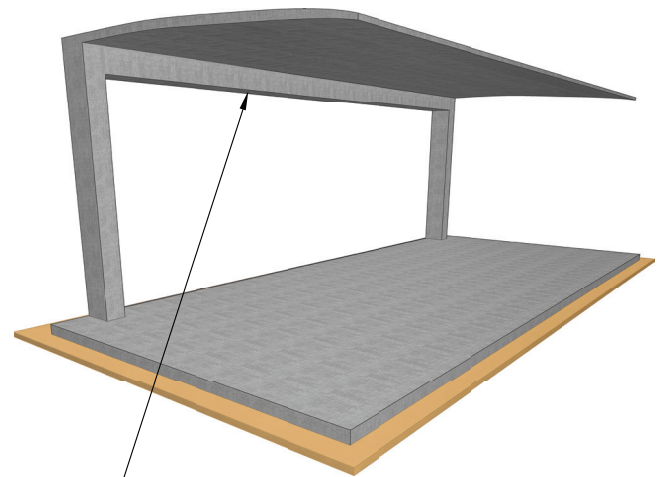


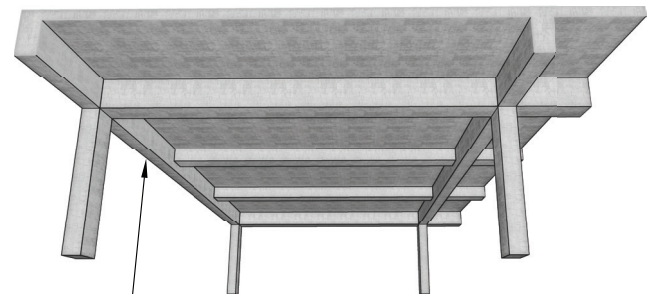
CODE

COMMENTARY



Design torsional moment may **not** be reduced because moment redistribution is **not** possible

Fig. R22.7.3a—Equilibrium torsion, the design torsional moment may not be reduced (22.7.3.1).



Design torsional moment for this spandrel beam may be reduced because moment redistribution is possible

Fig. R22.7.3b—Compatibility torsion, the design torsional moment may be reduced (22.7.3.2).

22.7.4 Threshold torsion

22.7.4.1 Threshold torsion T_{th} shall be calculated in accordance with Table 22.7.4.1(a) for solid cross sections and Table 22.7.4.1(b) for hollow cross sections, where N_u is positive for compression and negative for tension.

R22.7.4 Threshold torsion

The threshold torsion is defined as one-fourth the cracking torsional moment T_{cr} . For sections of solid members, the interaction between the cracking torsional moment and the inclined cracking shear is approximately circular or elliptical. For such a relationship, a threshold torsional moment of T_{th} , as used in 22.7.4.1, corresponds to a reduction of less than 5 percent in the inclined cracking shear, which is considered negligible.

For torsion, a hollow section is defined as having one or more longitudinal voids, such as a single-cell or multiple-cell box girder. Small longitudinal voids, such as ungrouted post-tensioning ducts that result in $A_g/A_{cp} \geq 0.95$, can be ignored when calculating T_{th} . The interaction between torsional cracking and shear cracking for hollow sections is assumed to vary from the elliptical relationship for members with small voids, to a straight-line relationship for thin-walled