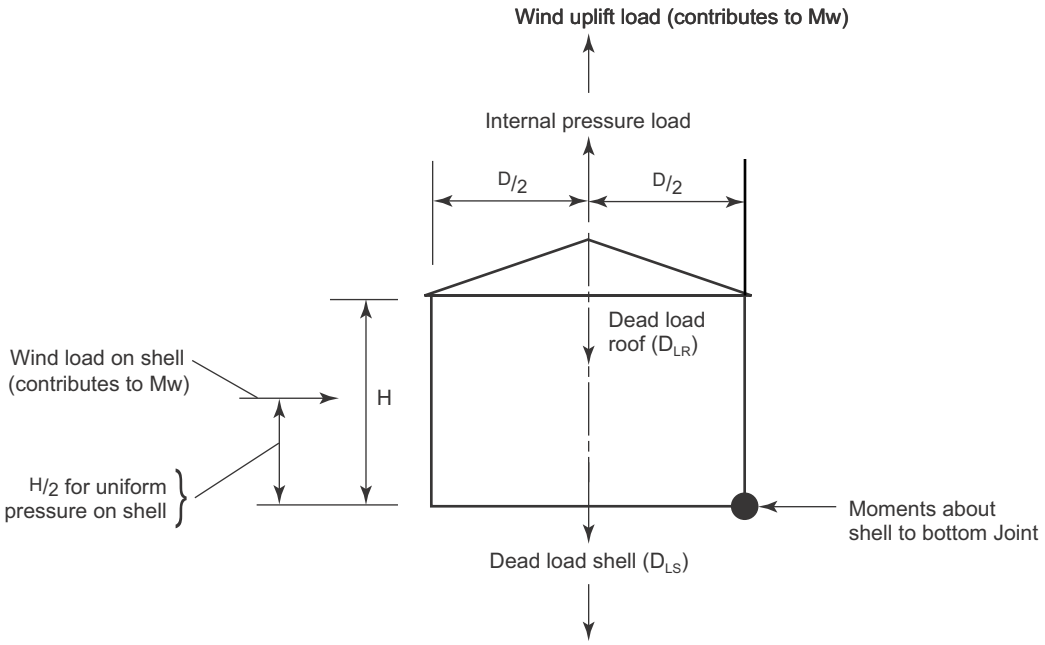
$$0.6M_w + M_{P_i} < \frac{M_{DL_S}}{1.5} + M_{DL_R}$$

$$0.6M_w + M_{P_{max}} = \frac{M_{DL_S}}{1.5} + M_{DL_R}$$

$$M_{P_{max}} = P_{max}\frac{\pi}{4}D^2\frac{D}{2}$$

$$M_{DL_S} = DL_S\frac{D}{2}$$

$$M_{DL_R} = DL_R\frac{D}{2}$$



Based on API 650/Figure 5-27—Overturning Check for Unanchored Tanks

$$0.6M_w + P_{max}\frac{\pi}{4}D^2\frac{D}{2} = \frac{DL_S\frac{D}{2}}{1.5} + DL_R\frac{D}{2}$$

$$0.6M_w\frac{4}{\pi D^2}\frac{2}{D} + P_{max} = \frac{4}{1.5\pi D^2}\frac{2}{D}DL_S\frac{D}{2} + \frac{4}{\pi D^2}\frac{2}{D}DL_R\frac{D}{2}$$

$$\frac{4.8}{\pi}\frac{M_w}{D^3} + P_{max} = \frac{4}{1.5\pi}\frac{DL_S}{D^2} + \frac{4}{\pi}\frac{DL_R}{D^2}$$

$$P_{max} = \frac{4}{1.5\pi}\frac{DL_S}{D^2} + \frac{4}{\pi}\frac{DL_R}{D^2} - \frac{4.8}{\pi}\frac{M_w}{D^3} \quad [Pa]$$

where $\frac{4}{1.5\pi} = 0.8488$; $\frac{4}{\pi} = 1.2732$; $\frac{4.8}{\pi} = 1.5278$