

General Multiaxial Stresses in Fatigue - 2-D (Section 6.12):

$$\begin{aligned}\sigma'_a &= \sqrt{\sigma_{x_a}^2 + \sigma_{y_a}^2 - \sigma_{x_a} \sigma_{y_a} + 3\tau_{xy_a}^2} \\ \sigma'_m &= \sqrt{\sigma_{x_m}^2 + \sigma_{y_m}^2 - \sigma_{x_m} \sigma_{y_m} + 3\tau_{xy_m}^2}\end{aligned}\quad (6.22b)$$

SEQA Method for Complex Multiaxial Stresses in Fatigue (Section 6.12):

$$\text{SEQA} = \frac{\sigma}{\sqrt{2}} \left[1 + \frac{3}{4} Q^2 + \sqrt{1 + \frac{3}{2} Q^2 \cos 2\phi + \frac{9}{16} Q^4} \right]^{\frac{1}{2}} \quad (6.23)$$

Fracture Mechanics in Fatigue (Section 6.5):

$$\begin{aligned}\Delta K &= \beta \sigma_{\max} \sqrt{\pi a} - \beta \sigma_{\min} \sqrt{\pi a} \\ &= \beta \sqrt{\pi a} (\sigma_{\max} - \sigma_{\min})\end{aligned}\quad (6.3b)$$

$$\frac{da}{dN} = A(\Delta K)^n \quad (6.4a)$$

6.16 REFERENCES

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