2.38 $$\int_0^\infty \exp\left[\frac{-\varphi^2}{2\sigma_{r'}^2}\right] d\varphi = \int_0^\infty \left| \frac{\sin(\pi N_u h \gamma^2 \varphi^2/(1+K^2/2))}{\pi N_u h \gamma^2 \varphi^2/(1+K^2/2)} \right| d\varphi$$

$$\int_0^\infty \exp\left(\frac{-\varphi^2}{2\sigma_{r'}^2}\right) d\varphi = \int_0^\infty \left| \frac{\sin(\pi a \varphi^2)}{\pi a \varphi^2} \right|^2 d\varphi$$

$$a = \frac{N_u h \gamma^2}{1 + K^2/2}$$

$$\sqrt{\frac{\pi}{2}} |\sigma_{r'}| = \frac{2}{3\sqrt{|a|}}$$

$$L_u = \lambda_u N_u$$

$$\sqrt{\frac{\pi}{2}} |\sigma_{r'}| = \frac{2}{3} \left| \sqrt{\frac{1+K^2/2}{N_u h \gamma^2}} \right|$$

(2.55) $$\frac{\gamma^2}{1+K^2/2} = \frac{\lambda_u}{2\lambda_1}$$

$$\frac{\pi}{2} \sigma_{r'}^2 = \frac{4}{9} \left(\frac{1+K^2/2}{N_u h \gamma^2} \right)$$

$$\frac{\pi}{2} \sigma_{r'}^2 = \frac{4}{9} \left(\frac{1}{N_u h} \right) \left(\frac{1+K^2/2}{\gamma^2} \right)$$

$$\frac{1+K^2/2}{\gamma^2} = \frac{2\lambda_1}{\lambda_u}$$

$$\frac{\pi}{2} \sigma_{r'}^2 = \frac{4}{9} \left(\frac{1}{N_u h} \right) \left(\frac{2\lambda_1}{\lambda_u} \right)$$

$$\pi \sigma_{r'}^2 = \frac{16}{9h} \left(\frac{\lambda_1}{N_u \lambda_u} \right)$$

$$\sigma_{r'}^2 = \frac{16}{9\pi h} \left(\frac{\lambda_1}{L_u} \right)$$

$$\sigma_{r'} = \frac{4}{3\sqrt{\pi}} \sqrt{\frac{\lambda_1}{h L_u}}$$

$$\sigma_{r'} \approx \frac{3}{4} \sqrt{\frac{\lambda_1}{h L_u}}$$