Enlarged view of shear strains

This line is vertical

This line is perpendicular to faces

A''

A' A

γ_0

$\dfrac{dw_s}{dx}$

γ

γ'

t_c

d

B
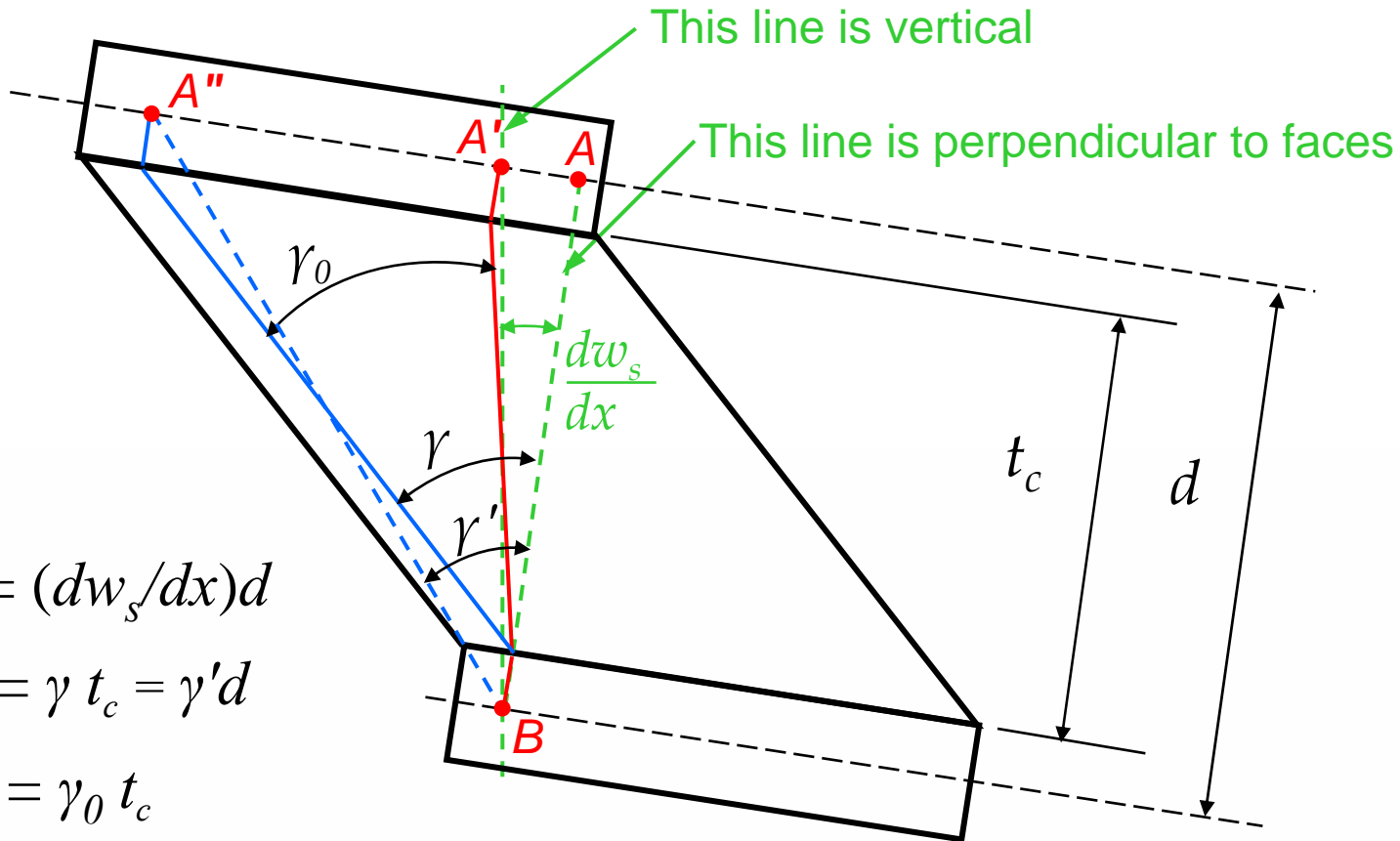
$AA' = (dw_s/dx)d$

$AA'' = \gamma\, t_c = \gamma' d$

$A'A'' = \gamma_0\, t_c$

$AA' = AA'' - A'A'' \;=> \; (dw_s/dx)d = \gamma' d - \gamma_0\, t_c$