BEST PRACTICE

FEM 2D Elementqualität (Elementverzerrung)

FEM 2D Element Quality (Element Distorsion)

Rev. 00

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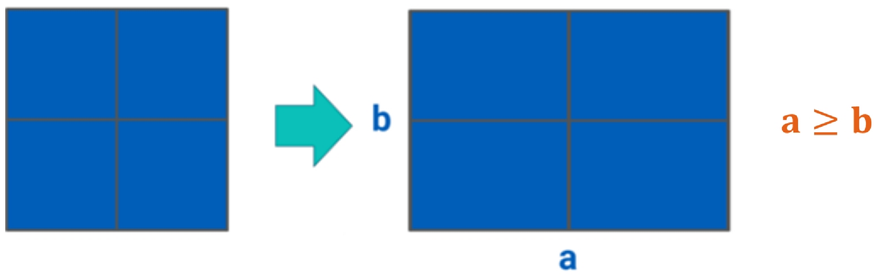
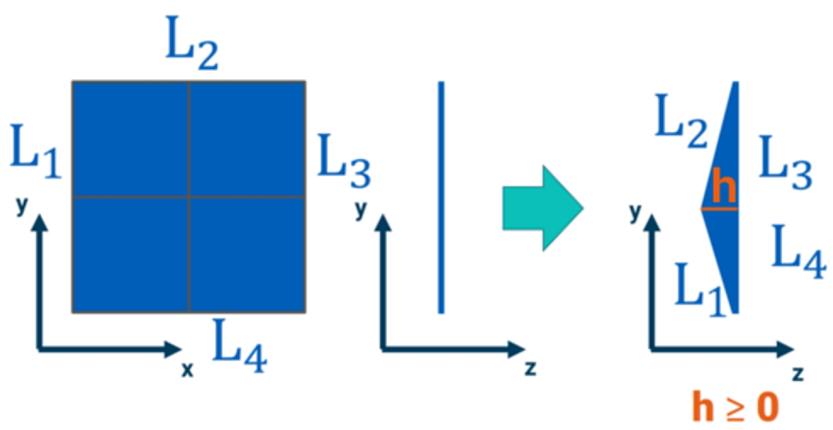
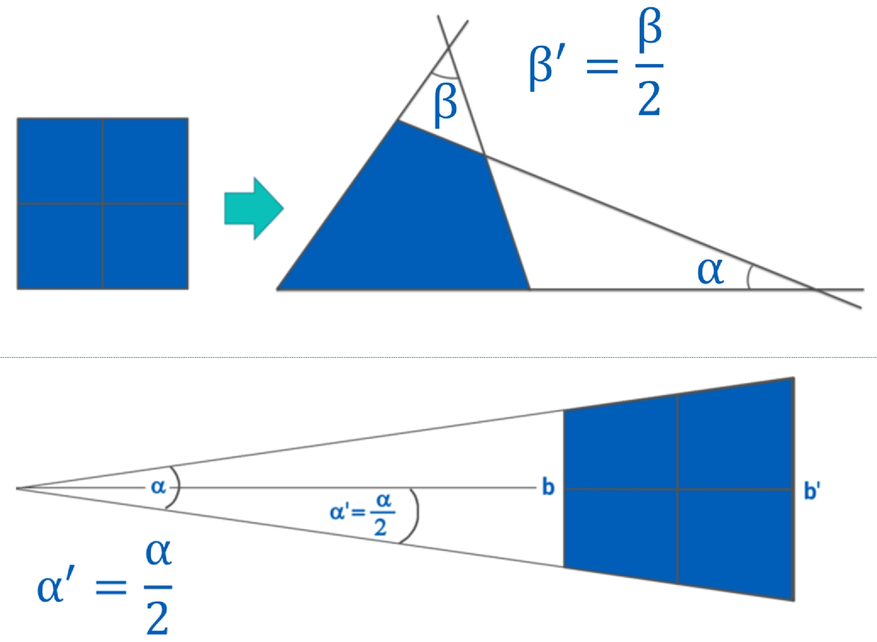
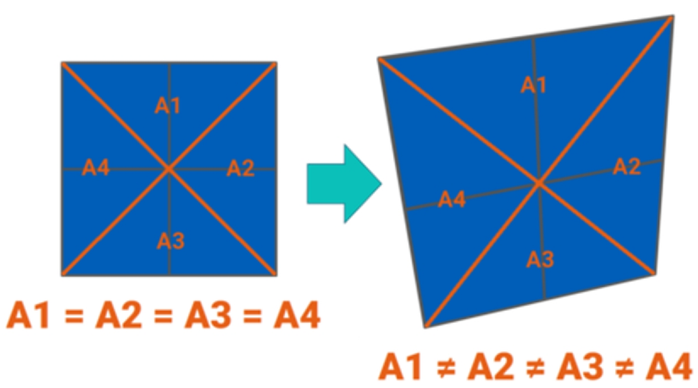
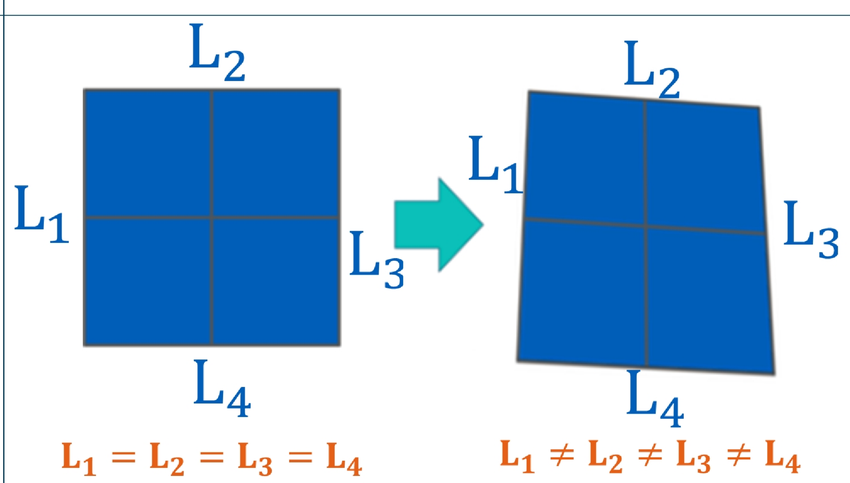
Nr. *no.*	Abbildung *illustration*	Beschreibung *description*	Definition *definition*	Optimum *optimum*	Daumenregel *rule of thumb*
1		**Seitenverhältnis** aspect ratio	$A_R = \frac{a}{b}$	$A_R = 1$	$1 \leq \frac{a}{b} \leq \begin{cases} 4 & \text{Spannungen (tension)} \\ 8 & \text{Verschiebungen (displacement)} \end{cases}$
2		**Schrägstellung** *skew*	γ, δ	$\gamma = 0°$, $\delta = 0°$	$60° < \alpha \leq 90°$ $90° \leq \beta < 120°$
3		**Wölbung** *warping*	$\Omega = \frac{h}{L_{max}} \cdot 100$	$\Omega = 0\%$	$\Omega < 18\%$
4a		**Kegelwinkel** *taper angle*	$\varphi = \max[\alpha'; \beta']$	$\alpha' = 0°$, $\beta' = 0°$	$b \leq b' < 4b$
4b		**Formschräge (Flächendefinition)** *taper* *(area definition)*	$\Phi = \frac{4A_{min}}{\sum_{i=1}^{4} A_i}$	$\Phi = 1$	$0{,}65 < \Phi \leq 1$
5		**Jacobi Verhältnis** *(Jacobian ratio)*	$D_j = \frac{\det(J_f(a))_{min.}}{\det(J_f(a))_{max.}}$	$D_j = 1$	$0{,}7 < D_j \leq 1$