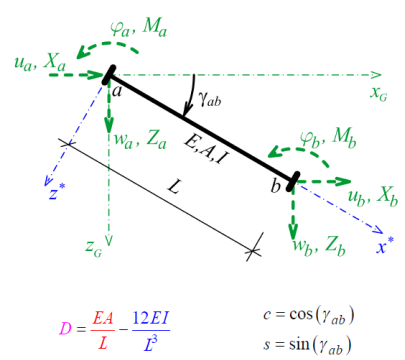
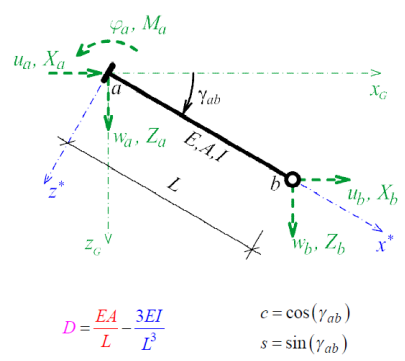
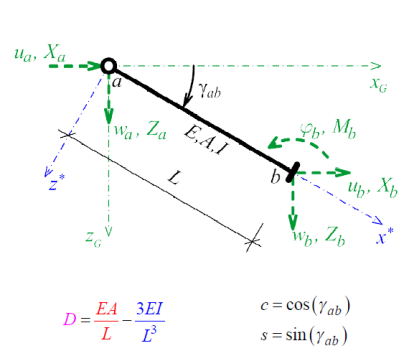
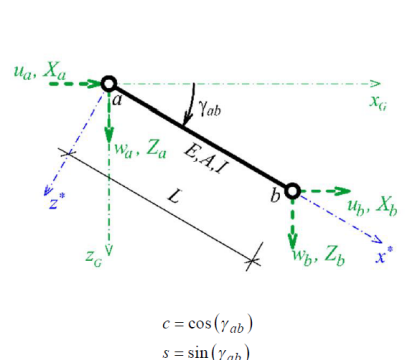


Vetknutí - Vetknutí		
 $D = \frac{EA}{L} - \frac{12EI}{L^3}$ $c = \cos(\gamma_{ab})$ $s = \sin(\gamma_{ab})$	Globální matice tuhosti	$[K_{a,b}] = \begin{bmatrix} \left(\frac{12EI}{L^3} + Dc^2\right) & Dcs & \frac{6EI}{L^2}s & -\left(\frac{12EI}{L^3} + Dc^2\right) & -Dcs & \frac{6EI}{L^2}s \\ Dcs & \left(\frac{EA}{L} - Dc^2\right) & -\frac{6EI}{L^2}c & -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & -\frac{6EI}{L^2}c \\ \frac{6EI}{L^2}s & -\frac{6EI}{L^2}c & \frac{4EI}{L} & -\frac{6EI}{L^2}s & \frac{6EI}{L^2}c & \frac{2EI}{L} \\ -\left(\frac{12EI}{L^3} + Dc^2\right) & -Dcs & -\frac{6EI}{L^2}s & \left(\frac{12EI}{L^3} + Dc^2\right) & Dcs & -\frac{6EI}{L^2}s \\ -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & \frac{6EI}{L^2}c & Dcs & \left(\frac{EA}{L} - Dc^2\right) & \frac{6EI}{L^2}c \\ \frac{6EI}{L^2}s & -\frac{6EI}{L^2}c & \frac{2EI}{L} & -\frac{6EI}{L^2}s & \frac{6EI}{L^2}c & \frac{4EI}{L} \end{bmatrix} \begin{matrix} X_a \\ Z_a \\ M_a \\ X_b \\ Z_b \\ M_b \end{matrix}$

Vetknutí - Kloub		
 $D = \frac{EA}{L} - \frac{3EI}{L^3}$ $c = \cos(\gamma_{ab})$ $s = \sin(\gamma_{ab})$	Globální matice tuhosti	$[K_{a,b}] = \begin{bmatrix} \left(\frac{3EI}{L^3} + Dc^2\right) & Dcs & \frac{3EI}{L^2}s & -\left(\frac{3EI}{L^3} + Dc^2\right) & -Dcs & 0 \\ Dcs & \left(\frac{EA}{L} - Dc^2\right) & -\frac{3EI}{L^2}c & -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & 0 \\ \frac{3EI}{L^2}s & -\frac{3EI}{L^2}c & \frac{3EI}{L} & -\frac{3EI}{L^2}s & \frac{3EI}{L^2}c & 0 \\ -\left(\frac{3EI}{L^3} + Dc^2\right) & -Dcs & -\frac{3EI}{L^2}s & \left(\frac{3EI}{L^3} + Dc^2\right) & Dcs & 0 \\ -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & \frac{3EI}{L^2}c & Dcs & \left(\frac{EA}{L} - Dc^2\right) & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \begin{matrix} X_a \\ Z_a \\ M_a \\ X_b \\ Z_b \\ M_b \end{matrix}$

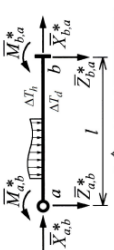
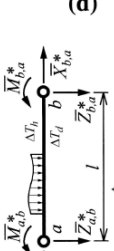
Kloub - Vetknutí		
 $D = \frac{EA}{L} - \frac{3EI}{L^3}$ $c = \cos(\gamma_{ab})$ $s = \sin(\gamma_{ab})$	Globální matice tuhosti	$[K_{a,b}] = \begin{bmatrix} \left(\frac{3EI}{L^3} + Dc^2\right) & Dcs & 0 & -\left(\frac{3EI}{L^3} + Dc^2\right) & -Dcs & \frac{3EI}{L^2}s \\ Dcs & \left(\frac{EA}{L} - Dc^2\right) & 0 & -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & -\frac{3EI}{L^2}c \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\left(\frac{3EI}{L^3} + Dc^2\right) & -Dcs & 0 & \left(\frac{3EI}{L^3} + Dc^2\right) & Dcs & -\frac{3EI}{L^2}s \\ -Dcs & -\left(\frac{EA}{L} - Dc^2\right) & 0 & Dcs & \left(\frac{EA}{L} - Dc^2\right) & \frac{3EI}{L^2}c \\ \frac{3EI}{L^2}s & -\frac{3EI}{L^2}c & 0 & -\frac{3EI}{L^2}s & \frac{3EI}{L^2}c & \frac{3EI}{L} \end{bmatrix} \begin{matrix} X_a \\ Z_a \\ M_a \\ X_b \\ Z_b \\ M_b \end{matrix}$

Kloub - Kloub		
 $c = \cos(\gamma_{ab})$ $s = \sin(\gamma_{ab})$	Globální matice tuhosti	$[K_{a,b}] = \begin{bmatrix} \frac{EA}{L}c^2 & \frac{EA}{L}cs & 0 & -\frac{EA}{L}c^2 & -\frac{EA}{L}cs & 0 \\ \frac{EA}{L}cs & \frac{EA}{L}s^2 & 0 & -\frac{EA}{L}cs & -\frac{EA}{L}s^2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{EA}{L}c^2 & -\frac{EA}{L}cs & 0 & \frac{EA}{L}c^2 & \frac{EA}{L}cs & 0 \\ -\frac{EA}{L}cs & -\frac{EA}{L}s^2 & 0 & \frac{EA}{L}cs & \frac{EA}{L}s^2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \begin{matrix} X_a \\ Z_a \\ M_a \\ X_b \\ Z_b \\ M_b \end{matrix}$

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(a)	(8.1a/1)	(8.1a/2)	(8.1a/3)	(8.1a/4)	(8.1a/5)	(8.1a/6)	(8.1a/7)	(8.1a/8)	(8.1a/9)	(8.1a/10)	
Obdélník, průřez: $\Delta T_0 = (\Delta T_d + \Delta T_b)/2$ $\Delta T_1 = \Delta T_d - \Delta T_b$	$\bar{X}_{a,b}^*$	$-\frac{b}{l} F_x$	$-\frac{1}{2} F_x$	0	0	0	$-\frac{1}{2} nl$	$-\frac{2al - a^2}{2l} n$	$-\frac{1}{8} nl$	$-\frac{2n_a + n_b}{6} l$	$EA\alpha_T \Delta T_0$
	$\bar{Z}_{a,b}^*$	$-b^2 \frac{3l - 2b}{l^3} F_z$	$-\frac{1}{2} F_z$	$-\frac{6ab}{l^3} M$	$-\frac{3M}{2l}$	0	$-\frac{1}{2} ql$	$-\frac{2al^3 - 2a^3l + a^4}{2l^3} q$	$-\frac{3}{32} ql$	$-\frac{7q_a + 3q_b}{20} l$	0
	$\bar{M}_{a,b}^*$	$\frac{ab^2}{l^2} F_z$	$\frac{1}{8} F_z l$	$b \frac{2l - 3b}{l^2} M$	$\frac{1}{4} M$	$-M_1$	$\frac{1}{12} ql^2$	$\frac{6a^2l^2 - 8a^3l + 3a^4}{12l^2} q$	$\frac{5}{192} ql^2$	$\frac{3q_a + 2q_b}{60} l^2$	$\frac{EI}{h} \alpha_T \Delta T_1$
	$\bar{X}_{b,a}^*$	$-\frac{a}{l} F_x$	$-\frac{1}{2} F_x$	0	0	0	$-\frac{1}{2} nl$	$-\frac{a^2}{2l} n$	$-\frac{3}{8} nl$	$-\frac{n_a + 2n_b}{6} l$	$-EA\alpha_T \Delta T_0$
(b)	$\bar{Z}_{b,a}^*$	$-a^2 \frac{3l - 2a}{l^3} F_z$	$-\frac{1}{2} F_z$	$6 \frac{ab}{l^3} M$	$\frac{3M}{2l}$	0	$-\frac{1}{2} ql$	$-\frac{2a^3l - a^4}{2l^3} q$	$-\frac{13}{32} ql$	$-\frac{3q_a + 7q_b}{20} l$	0
	$\bar{M}_{b,a}^*$	$-\frac{a^2 b}{l^2} F_z$	$-\frac{1}{8} F_z l$	$a \frac{2l - 3a}{l^2} M$	$\frac{1}{4} M$	$-M_2$	$-\frac{1}{12} ql^2$	$-\frac{4a^3l - 3a^4}{12l^2} q$	$-\frac{11}{192} ql^2$	$-\frac{2q_a + 3q_b}{60} l^2$	$-\frac{EI}{h} \alpha_T \Delta T_1$
	$\bar{X}_{a,b}^*$	$-\frac{b}{l} F_x$	$-\frac{1}{2} F_x$	0	0	0	$-\frac{1}{2} nl$	$-\frac{2al - a^2}{2l} n$	$-\frac{1}{8} nl$	$-\frac{2n_a + n_b}{6} l$	$EA\alpha_T \Delta T_0$
	$\bar{Z}_{a,b}^*$	$-b \frac{3l^2 - b^2}{2l^3} F_z$	$-\frac{11}{16} F_z$	$-3 \frac{l^2 - b^2}{2l^3} M$	$\frac{9M}{8l}$	$\frac{3M}{2l}$	$-\frac{5}{8} ql$	$-\frac{8al^3 - 4a^3l + a^4}{8l^3} q$	$-\frac{23}{128} ql$	$-\frac{16q_a + 9q_b}{40} l$	$-\frac{3EI}{2h} \alpha_T \Delta T_1$
(b)	$\bar{M}_{a,b}^*$	$\frac{ab(l+b)}{2l^2} F_z$	$\frac{3}{16} F_z l$	$\frac{l^2 - 3b^2}{2l^2} M$	$\frac{1}{8} M$	$\frac{1}{2} M$	$\frac{1}{8} ql^2$	$\frac{(2al - a^2)^2}{8l^2} q$	$\frac{7}{128} ql^2$	$\frac{8q_a + 7q_b}{120} l^2$	$\frac{3EI}{2h} \alpha_T \Delta T_1$
	$\bar{X}_{b,a}^*$	$-\frac{a}{l} F_x$	$-\frac{1}{2} F_x$	0	0	0	$-\frac{1}{2} nl$	$-\frac{a^2}{2l} n$	$-\frac{3}{8} nl$	$-\frac{n_a + 2n_b}{6} l$	$-EA\alpha_T \Delta T_0$
	$\bar{Z}_{b,a}^*$	$-a^2 \frac{3l - a}{2l^3} F_z$	$-\frac{5}{16} F_z$	$3 \frac{l^2 - b^2}{2l^3} M$	$\frac{9M}{8l}$	$\frac{3M}{2l}$	$-\frac{3}{8} ql$	$-\frac{4a^3l - a^4}{8l^3} q$	$-\frac{41}{128} ql$	$-\frac{4q_a + 11q_b}{40} l$	$\frac{3EI}{2h} \alpha_T \Delta T_1$
	$\bar{M}_{b,a}^*$	0	0	0	0	0	0	0	0	0	0

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(c)											
	(8.1c/1)	(8.1c/2)	(8.1c/3)	(8.1c/4)	(8.1c/5)	(8.1c/6)	(8.1c/7)	(8.1c/8)	(8.1c/9)	(8.1c/10)	
 Obdélník-průřez: $\Delta T_0 = (\Delta T_d + \Delta T_h)/2$ $\Delta T_1 = \Delta T_d - \Delta T_h$											
	$\bar{X}_{a,b}^*$ $\bar{Z}_{a,b}^*$ $\bar{M}_{a,b}^*$ $\bar{X}_{b,a}^*$ $\bar{Z}_{b,a}^*$ $\bar{M}_{b,a}^*$	$-\frac{b}{l}F_x$ $-b^2\frac{3l-b}{2l^3}F_x$ 0 $-\frac{a}{l}F_x$ $-a^2\frac{3l-a}{2l^3}F_x$ $-ab\frac{l+a}{2l^2}F_x$	$-\frac{1}{2}F_x$ $-\frac{5}{16}F_x$ 0 $-\frac{1}{2}F_x$ $-\frac{11}{16}F_x$ $-\frac{3}{16}F_x l$	0 $-\frac{1}{2}F_x$ 0 0 $-\frac{11}{16}F_x$ $-\frac{3}{16}F_x l$	0 $-\frac{1}{2}F_x$ 0 0 $-\frac{11}{16}F_x$ $-\frac{3}{16}F_x l$	$-\frac{1}{2}nl$ $-\frac{3}{8}ql$ 0 $-\frac{1}{2}nl$ $-\frac{5}{8}ql$ $-\frac{1}{8}ql^2$	$-\frac{2al-a^2}{2l}n$ $-\frac{8al^3-6a^2l^2+a^4}{8l^3}q$ 0 $-\frac{a^2}{2l}n$ $-\frac{6a^2l^2-a^4}{8l^3}q$ $-\frac{2a^2l^2-a^4}{8l^2}q$	$-\frac{1}{8}nl$ $-\frac{7}{128}ql$ 0 $-\frac{3}{8}nl$ $-\frac{57}{128}ql$ $-\frac{9}{128}ql^2$	$-\frac{2n_a+n_b}{6}l$ $-\frac{11q_a+4q_b}{40}l$ 0 $-\frac{n_a+2n_b}{6}l$ $-\frac{9q_a+16q_b}{40}l$ $-\frac{7q_a+8q_b}{120}l^2$	$EA\alpha_T\Delta T_0$ $\frac{3EI}{2hl}\alpha_T\Delta T_1$ 0 $-EA\alpha_T\Delta T_0$ $-\frac{3EI}{2hl}\alpha_T\Delta T_1$ $-\frac{3EI}{2h}\alpha_T\Delta T_1$	
(d)											
	(8.1d/1)	(8.1d/2)	(8.1d/3)	(8.1d/4)	(8.1d/5)	(8.1d/6)	(8.1d/7)	(8.1d/8)	(8.1d/9)	(8.1d/10)	
 Obdélník-průřez: $\Delta T_0 = (\Delta T_d + \Delta T_h)/2$ $\Delta T_1 = \Delta T_d - \Delta T_h$											
	$\bar{X}_{a,b}^*$ $\bar{Z}_{a,b}^*$ $\bar{M}_{a,b}^*$ $\bar{X}_{b,a}^*$ $\bar{Z}_{b,a}^*$ $\bar{M}_{b,a}^*$	$-\frac{b}{l}F_x$ $-\frac{b}{l}F_x$ 0 $-\frac{a}{l}F_x$ $-\frac{a}{l}F_x$ 0	$-\frac{1}{2}F_x$ $-\frac{1}{2}F_x$ 0 $-\frac{1}{2}F_x$ $-\frac{1}{2}F_x$ 0	0 $-\frac{M}{l}$ 0 0 $\frac{M}{l}$ 0	0 $-\frac{M}{l}$ 0 0 $\frac{M_1+M_2}{l}$ 0	$-\frac{1}{2}nl$ $-\frac{1}{2}ql$ 0 $-\frac{1}{2}nl$ $-\frac{1}{2}ql$ 0	$-\frac{2al-a^2}{2l}n$ $-\frac{2al-a^2}{2l}q$ 0 $-\frac{a^2}{2l}n$ $-\frac{a^2}{2l}q$ 0	$-\frac{1}{8}nl$ $-\frac{1}{8}ql$ 0 $-\frac{3}{8}nl$ $-\frac{3}{8}ql$ 0	$-\frac{2n_a+n_b}{6}l$ $-\frac{2q_a+q_b}{6}l$ 0 $-\frac{n_a+2n_b}{6}l$ $-\frac{q_a+2q_b}{6}l$ 0	$EA\alpha_T\Delta T_0$ 0 0 $-EA\alpha_T\Delta T_0$ 0 0	