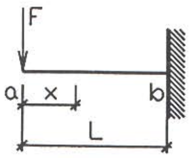
16 Ohybové momenty (M), reakce, posouvající síly (V), průhyby (δ), natočení (α), zatěžovací členy do třímomentových rovnic (ℵ) a náhradní rovnoměrné zatížení (f_e) na konzole a prostém nosníku pro základní případy zatížení



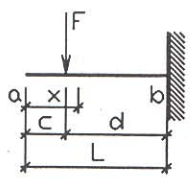
$M_b = -F \cdot L$

$M_x = -F \cdot x$

$V_b = -F$

$V_x = -F$

$\delta_a = \frac{F \cdot L^3}{3 E \cdot I}$ $\alpha = \frac{F \cdot L^2}{2 E \cdot I}$



$M_b = -F \cdot d$

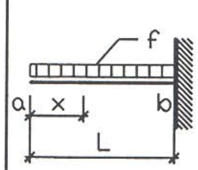
$M_x = -F \cdot (x - c)$

(pro $x < c$ je $M_x = 0$)

$V_b = V_x = -F$

(pro $x < c$ je $V_x = 0$)

$\delta_a = \frac{F \cdot d^2 \cdot (3 \cdot L - d)}{6 E \cdot I}$



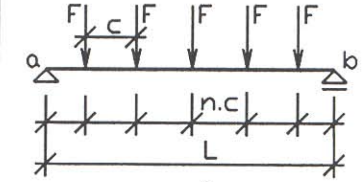
$M_b = \frac{-1}{2} f \cdot L^2$

$M_x = -0{,}5 f \cdot x^2$

$V_b = -f \cdot L$

$V_x = -f \cdot x$

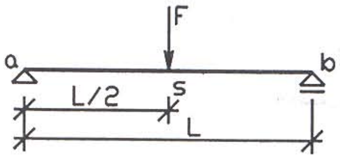
$\delta_a = \frac{f \cdot L^4}{8 \cdot E \cdot I}$ $\alpha = \frac{f \cdot L^3}{6 E \cdot I}$



$f_e = \frac{n^2 - 1}{n} \cdot \frac{F}{L}$

$V_{ab} = -V_{ba} = \frac{n - 1}{2} F$

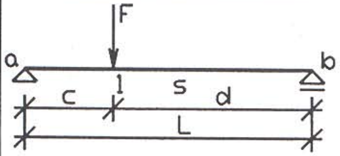
n - liché: $M_s = \frac{n^2 - 1}{8 \cdot n} \cdot F \cdot L$ n - sudé: $M_s = \frac{n}{8} \cdot F \cdot L$



$M_s = \frac{F \cdot L}{4}$ $f_e = \frac{3 \cdot F}{2 \cdot L}$

$V_{ab} = -V_{ba} = \frac{F}{2}$ $\delta_s = \frac{F \cdot L^3}{48 \cdot E \cdot I}$

$\aleph_a = \aleph_b = \frac{3}{8} F \cdot L^3$ $\alpha = \frac{F \cdot L^2}{16 E \cdot I}$



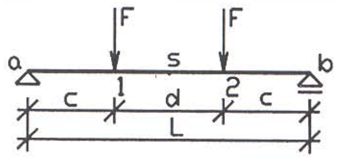
$V_{ab} = \frac{F \cdot d}{L}$

$V_{ba} = \frac{-F \cdot c}{L}$

$M_1 = \frac{F \cdot c \cdot d}{L}$ $\delta_1 = \frac{F \cdot c^2 \cdot d^2}{3 \cdot E \cdot I \cdot L}$

$\aleph_a = F \cdot c \cdot d \cdot (L + c)$ $\aleph_b = F \cdot c \cdot d \cdot (L + d)$

pro $c \le L/2$: $\delta_s = \frac{Fc(3 L^2 - 4c^2)}{48 E I}$

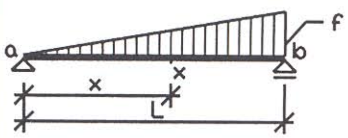


$M_1 = M_s = F c$ $\aleph_a = \aleph_b = 3 Fcl (L - c)$

$V_{ab} = -V_{ba} = F$ $\delta_s = \frac{Fc(3 L^2 - 4c^2)}{24 E I}$

pro $c = d = L/3$: $M_1 = M_2 = M_s = \frac{F \cdot L}{3}$

$\delta_s = \frac{23 \cdot F \cdot L^3}{648 \cdot E \cdot I}$ $\aleph_a = \aleph_b = \frac{2}{3} F \cdot L^3$



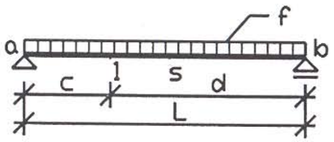
$V_{ab} = \frac{-f \cdot L}{6}$

$V_{ba} = \frac{f \cdot L}{3}$

$M_{x,max} = \frac{f \cdot L^2}{9\sqrt{3}}$ $\delta_{max} = 0{,}00652 \cdot \frac{f \cdot L^4}{E \cdot I}$

$x_M \cong 0{,}577 \cdot L$ $x_\delta \cong 0{,}519 \cdot L$

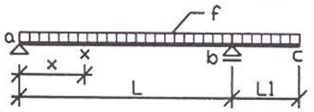
$\aleph_a = \frac{2 \cdot f \cdot L^4}{15}$ $\aleph_b = \frac{7 \cdot f \cdot L^4}{60}$



$M_1 = \frac{f c d}{2}$ $M_s = \frac{1}{8} f \cdot L^2$

$V_{ab} = -V_{ba} = \frac{f \cdot L}{2}$ $\delta_s = \frac{5 \cdot f \cdot L^4}{384 \cdot E \cdot I}$

$\aleph_a = \aleph_b = \frac{f \cdot L^4}{4}$ $\alpha = \frac{f \cdot L^3}{24 E \cdot I}$

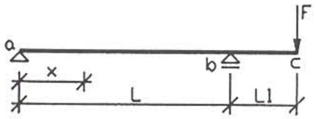


$x = \frac{L}{2}\left(1 - \frac{L_1^2}{L^2}\right)$

$M_x = \frac{f \cdot (L + L_1)^2 (L - L_1)^2}{8 \cdot L^2}$

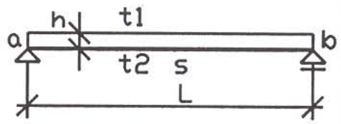
$V_{ab} = \frac{f(L^2 - L_1^2)}{2 \cdot L}$

$\delta_c = \frac{f \cdot L_1}{24 \cdot E \cdot I}(4L_1^2 \cdot L - L^3 + 3L_1^3)$



$M_x = \frac{-F \cdot L_1 \cdot x}{L}$

$V_{ab} = -F \cdot L_1 / L$ $\delta_c = \frac{F \cdot L_1}{6 \cdot E \cdot I}(2L_1 \cdot L + 2L_1^2)$

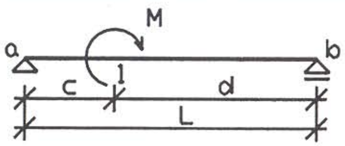


Vliv nerovnoměrného oteplení

$M = 0$ $V_{ab} = V_{ba} = 0$

$\delta_s = \frac{\varepsilon \cdot \Delta t^\circ \cdot L^2}{8 \cdot h}$ $\Delta t^\circ = t_2^\circ - t_1^\circ$

$\aleph_a = \aleph_b = \frac{3 \cdot \varepsilon \cdot \Delta t^\circ \cdot E \cdot I \cdot L^2}{h}$

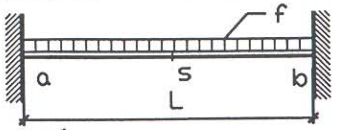


$M_{1a} = \frac{-M \cdot c}{L}$ $V_{ab} = -V_{ba} = \frac{-M}{L}$

$M_{1b} = \frac{M \cdot d}{L}$ pro $c = L/2$ je $\delta_1 = 0$

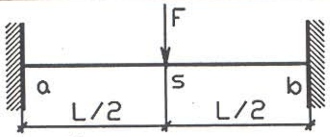
$\aleph_a = M(L^2 - 3c^2)$ $\aleph_b = M(3d^2 - L^2)$

17 Ohybové momenty (M), reakce, posouvající síly (V), průhyby (δ), na vetknutém a spojitém nosníku a jednoduchém rámu pro základní případy zatížení



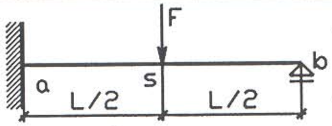
$M_a = \frac{-1}{12} f.L^2$

$M_s = \frac{1}{24} f.L^2$ $\delta_s = \frac{f.L^4}{384.E.I}$



$M_a = \frac{-1}{8} F.L$

$M_s = \frac{1}{8} F.L$ $\delta_s = \frac{F.L^3}{192.E.I}$

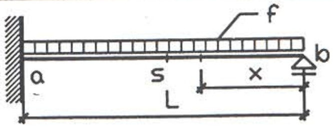


$V_{ab} = \frac{11}{16} F$

$V_{ba} = \frac{-5}{16} F$

$M_a = \frac{-3}{16} F.L$ $M_b = 0$

$\delta_s = \frac{7.F.L^3}{768.E.I}$ $M_s = \frac{5}{32} F.L$

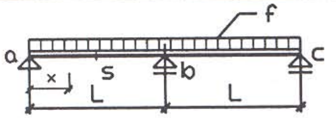


$V_{ab} = \frac{5}{8} f.L$

$V_{ba} = \frac{-3}{8} f.L$

$M_a = \frac{-1}{8} f.L^2$ $M_b = 0$ $M_s = \frac{1}{16} f.L^2$

$\delta_s = \frac{f.L^4}{192.E.I}$ $x = \frac{3}{8} L$ $M_x = \frac{9}{128} f.L^2$

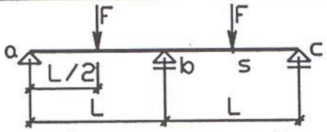


$M_b = \frac{-1}{8} f.L^2$ $M_s = \frac{1}{16} f.L^2$

$x = \frac{3}{8} L$ $M_x = \frac{9}{128} f.L^2$

$V_{ab} = A = \frac{3}{8} f.L$ $V_{bc} = \frac{5}{8} f.L$

$B = \frac{10}{8} f.L$ $\delta_x \cong \frac{f.L^4}{190.E.I}$

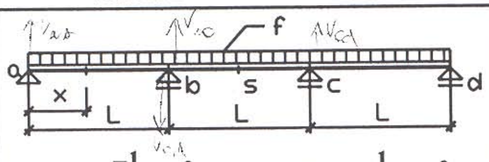


$M_b = \frac{-3}{16} F.L$ $M_s = \frac{5}{32} F.L$

$V_{ab} = A = \frac{5}{16} F$

$V_{bc} = \frac{11}{16} F$ $\delta_s = \frac{7.F.L^3}{768.E.I}$

$B = \frac{11}{8} F$

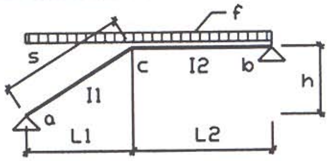


$M_b = \frac{-1}{10} f.L^2$ $M_s = \frac{1}{40} f.L^2$

$x = \frac{2}{5} L$ $M_x = \frac{2}{25} f.L^2$

$V_{ab} = A = \frac{2}{5} f.L$ $V_{cd} = \frac{3}{5} f.L$

$B = \frac{11}{10} f.L$ $V_{bc} = \frac{1}{2} f.L$

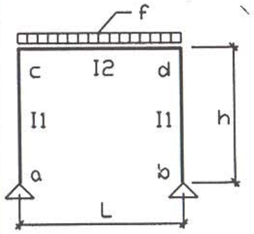


$M_c = k_1 \frac{-f.L_2^2}{8}$

$A_y = B_y = \frac{f.L_2}{8h}(4L_1 + k_1.L_2)$

$A_z = \frac{f.L_2}{8}(5k_1 + 4k_2)$ $k_1 = \frac{I_1.L_2}{I_1.L_2 + I_2.s}$

$B_z = \frac{f.L_2}{8}(3k_1 + 4k_2)$ $k_2 = \frac{I_2.s}{I_1.L_2 + I_2.s}$

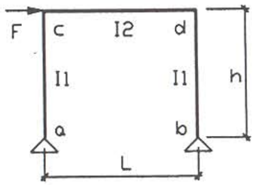


$A_z = \frac{f.L}{2}$

$A_y = k \frac{f.L^2}{2.h}$

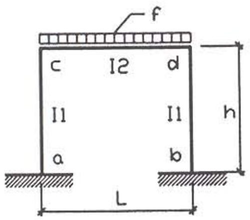
$k = \frac{I_1.L}{6 I_1.L + 4 h.I_2}$

$M_c = M_d = k \frac{-f.L^2}{2}$



$M_c = -M_d = \frac{F.h}{2}$

$A_z = -B_z = \frac{F.h}{L}$ $A_y = B_y = \frac{F}{2}$



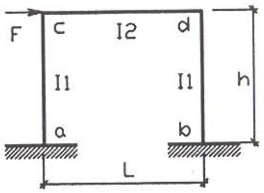
$k = \frac{I_1.L}{2 I_1.L + I_2.h}$

$A_z = \frac{f.L}{2}$

$A_y = k \frac{f.L^2}{4h}$

$M_a = M_b = k \frac{f.L^2}{12}$

$M_c = M_d = k \frac{-f.L^2}{6}$



$k_1 = \frac{I_2.h}{I_1.L + 6 I_2.h}$

$k_2 = \frac{I_1.L + 3 I_2.h}{I_1.L + 6 I_2.h}$

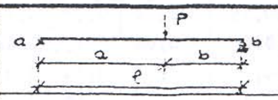
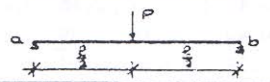
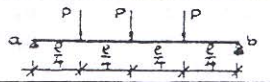
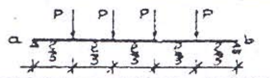
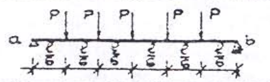
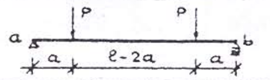
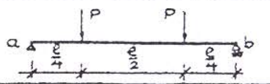
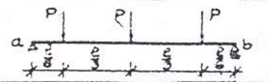
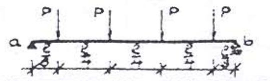
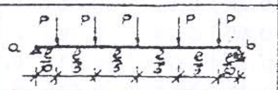
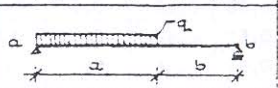
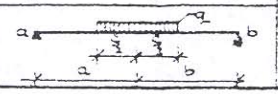
$A_z = -B_z = = k_1 \frac{-3 F.h}{L}$

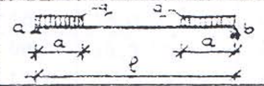
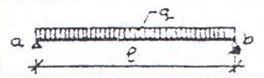
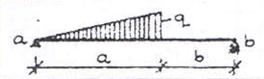
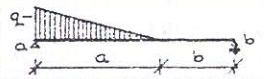
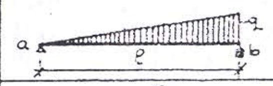
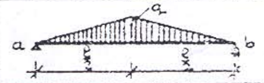
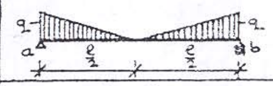
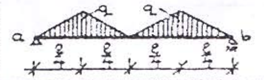
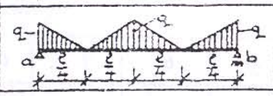
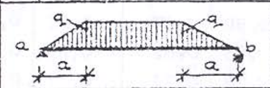
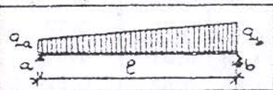
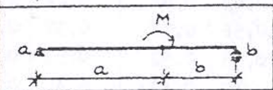
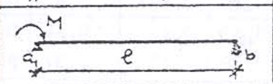
$M_a = -M_b = k_2 \frac{-F.h}{2}$

$M_c = -M_d = k_1 \frac{3 F.h}{2}$ $A_y = B_y = \frac{F}{2}$

TABULKA (2)

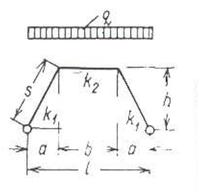
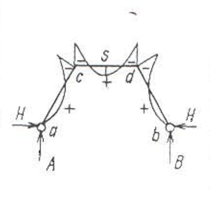
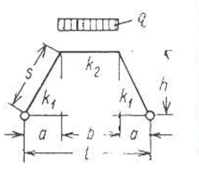
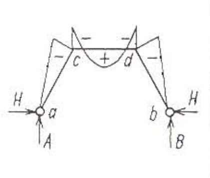
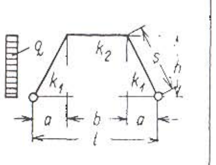
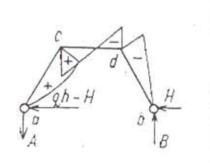
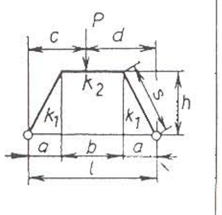
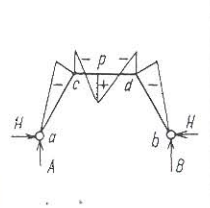
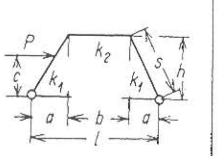
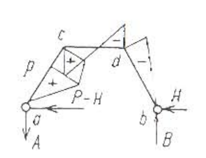
DEFORMACE PROSTÉHO NOSNÍKU KONSTANTNÍHO PRŮŘEZU

	ZATÍŽENÍ	PRŮHYB y $y_{max}=f$	POOTOČENÍ PODPOROVÝCH PRŮŘEZŮ
1		$f=\frac{Pab}{27EJ\ell}\sqrt{3a(\ell+b)^3}$ v $x=\sqrt{\frac{1}{3}a(\ell+b)}$	$\varphi_a=\frac{Pb}{6EJ\ell}(\ell^2-b^2)$ $\varphi_b=\frac{Pa}{6EJ\ell}(\ell^2-a^2)$
2		$f=\frac{P\ell^3}{48EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{P\ell^2}{16EJ}$
3		$f=\frac{P\ell^3}{28{,}17EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{P\ell^2}{9EJ}$
4		$f=\frac{P\ell^3}{20{,}22EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{5}{32}\cdot\frac{P\ell^2}{EJ}$
5		$f=\frac{P\ell^3}{15{,}73EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{1}{5}\cdot\frac{P\ell^2}{EJ}$
6		$f=\frac{P\ell^3}{13{,}05EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{35}{144}\cdot\frac{P\ell^2}{EJ}$
7		$f=\frac{P\ell^3}{24EJ}\left(3\frac{a}{\ell}-4\frac{a^3}{\ell^3}\right)$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{Pa}{2EJ}(\ell-a)$
8		$f=\frac{11}{384}\cdot\frac{P\ell^3}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{3}{32}\cdot\frac{P\ell^2}{EJ}$
9		$f=\frac{P\ell^3}{24{,}45EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{19}{144}\cdot\frac{P\ell^2}{EJ}$
10		$f=\frac{P\ell^3}{19{,}04EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{33}{192}\cdot\frac{P\ell^2}{EJ}$
11		$f=\frac{P\ell^3}{15{,}1EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{51}{240}\cdot\frac{P\ell^2}{EJ}$
12		$y=\frac{qa^3b}{24EJ}\left(4-3\frac{a}{\ell}\right)$ v $x=a$	$\varphi_a=\frac{qa^2\ell}{6EJ}\left(1-\frac{a}{2\ell}\right)^2$ $\varphi_b=\frac{qa^2\ell}{12EJ}\left(1-\frac{a^2}{2\ell^2}\right)$
13		$y=\frac{qc}{6EJ}\left[\frac{ab}{\ell}\left(2a\ell-2a^2-\frac{c^2}{4}\right)+\frac{c^3}{64}\right]$ v $x=a$	$\varphi_a=\frac{q}{24EJ}\cdot\frac{bc}{\ell}\left[4a(\ell+b)-c^2\right]$ $\varphi_b=\frac{q}{24EJ}\cdot\frac{ac}{\ell}\left[4b(\ell+a)-c^2\right]$

	ZATÍŽENÍ	MAXIMÁLNÍ PRŮHYB f	POOTOČENÍ PODPOROVÝCH PRŮŘEZŮ
14		$f=\frac{q\ell^4}{48EJ}\cdot\frac{a^2}{\ell^2}\left(3-2\frac{a^2}{\ell^2}\right)$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{qa^2}{12EJ}(3\ell-2a)$
15		$f=\frac{5}{384}\cdot\frac{q\ell^4}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{1}{24}\cdot\frac{q\ell^3}{EJ}$
16		$y=\frac{qa^3\ell}{45EJ}\left(5-9\frac{a}{\ell}+4\frac{a^2}{\ell^2}\right)$ v $x=a$	$\varphi_a=\frac{qa^2\ell}{360EJ}\left(40-45\frac{a}{\ell}+12\frac{a^2}{\ell^2}\right)$ $\varphi_b=\frac{qa^2\ell}{90EJ}\left(5-3\frac{a^2}{\ell^2}\right)$
17		$y=\frac{qa^2b\ell}{360EJ}\left(20\frac{a}{\ell}-13\frac{a^2}{\ell^2}\right)$ v $x=a$	$\varphi_a=\frac{q\ell^2a}{360EJ}\left(20-15\frac{a}{\ell}+3\frac{a^2}{\ell^2}\right)$ $\varphi_b=\frac{qa\ell^2}{360EJ}\left(10-3\frac{a^2}{\ell^2}\right)$
18		$f=0{,}00652\,\frac{q\ell^4}{EJ}$ v $x=0{,}519\ell$	$\varphi_a=\frac{7}{360}\cdot\frac{q\ell^3}{EJ}$ $\varphi_b=\frac{8}{360}\cdot\frac{q\ell^3}{EJ}$
19		$f=\frac{1}{120}\cdot\frac{q\ell^4}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{5}{192}\cdot\frac{q\ell^3}{EJ}$
20		$f=\frac{3}{640}\cdot\frac{q\ell^4}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{1}{64}\cdot\frac{q\ell^3}{EJ}$
21		$f=\frac{7}{1024}\cdot\frac{q\ell^4}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{17}{768}\cdot\frac{q\ell^3}{EJ}$
22		$f=\frac{19}{3072}\cdot\frac{q\ell^4}{EJ}$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{5}{256}\cdot\frac{q\ell^3}{EJ}$
23		$f=\frac{5}{384}\cdot\frac{q\ell^4}{EJ}\left(1-\frac{8}{5}\frac{a^2}{\ell^2}+\frac{16}{25}\frac{a^4}{\ell^4}\right)$ v $x=0{,}5\ell$	$\varphi_a=\varphi_b=\frac{q\ell^3}{24EJ}\left(1-2\frac{a^2}{\ell^2}+\frac{a^3}{\ell^3}\right)$
24		$f=0{,}0065(q_a+q_b)\ell^4$ v x od $0{,}5\ell$ do $0{,}519\ell$	$\varphi_a=\frac{\ell^3}{360EJ}(8q_a+7q_b)$ $\varphi_b=\frac{\ell^3}{360EJ}(7q_a+8q_b)$
25		$y=\frac{Mab}{3EJ}\cdot\frac{a-b}{\ell}$ v $x=a$	$\varphi_a=\frac{M\ell}{6EJ}\left(1-3\frac{b^2}{\ell^2}\right)$ $\varphi_b=\frac{M\ell}{6EJ}\left(1-3\frac{a^2}{\ell^2}\right)$
26		$f=\frac{M\ell^2}{15{,}59EJ}=0{,}0642\,\frac{M\ell^2}{EJ}$ v $x=0{,}423\ell$	$\varphi_a=\frac{M\ell}{3EJ}$; $\varphi_b=\frac{M\ell}{6EJ}$

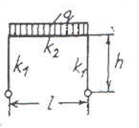
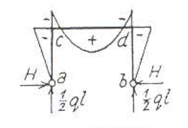
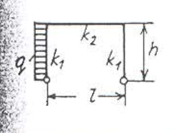
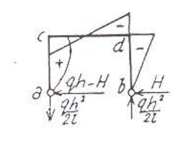
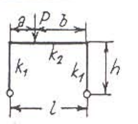
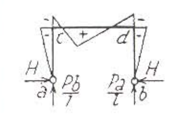
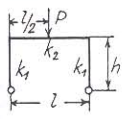
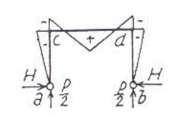
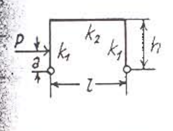
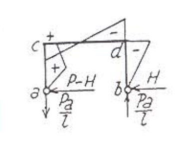
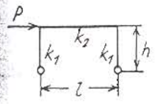
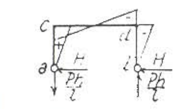
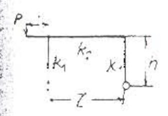
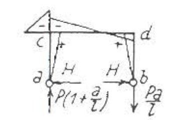
Tabulka C.72. Lichoběžníkový portálový rám kloubově uložený

$k_1 = \frac{I_1}{s}$ $\qquad k_2 = \frac{I_2}{b}$ $\qquad N = 3k_1 + 2k_2$

Způsob zatížení	Průběh momentů	Statické veličiny
		$H = \frac{g}{4h}\frac{6a(a+b)k_1 + b^2k_1 + a(5a+4b)k_2}{N}$ $M_c = M_d = \frac{1}{2}ga(a+b) - Hh$ $M_s = \frac{1}{8}gl^2 - Hh$ $A = B = \frac{1}{2}gl$
		$H = \frac{gb}{4hN}[bk_1 + 2a(3k_1 + 2k_2)]$ $M_c = M_d = Aa - Hh$ $A = B = \frac{1}{2}gb$
		$H = \frac{gh}{8N}(6k_1 + 5k_2)$ $M_c = B(l-a) - Hh$ $M_d = Ba - Hh$ $A = -\frac{gh^2}{2l}$ $\qquad B = -A$
		$H = \frac{P}{2hbN}[3(cd - a^2)k_1 + 2abk_2]$ $M_c = Aa - Hh$ $\qquad M_p = Ac - Hh$ $M_d = Ba - Hh$ $A = \frac{Pd}{l}$ $\qquad B = \frac{Pc}{l}$
		$H = \frac{Pc}{2hN}\left[3k_1 + \left(3 - \frac{c^2}{h^2}\right)k_2\right]$ $M_p = P_c\left[1 - \frac{ac}{hl}\right] - Hc$ $Mc = B(l-a) - Hh$ $Md = Ba - Hh$ $A = -\frac{Pc}{l}$ $\qquad B = -A$

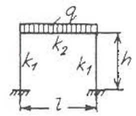
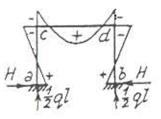
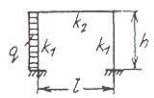
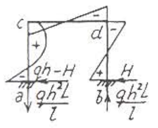
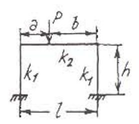
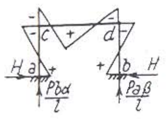
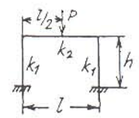
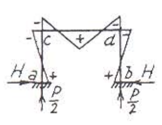
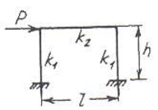
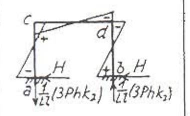
Tabulka C.73. Jednoduchý obdélníkový rám kloubově uložený

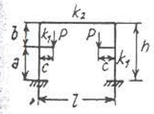
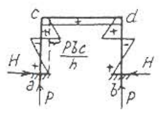
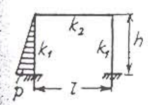
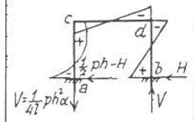
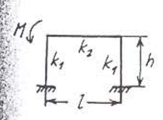
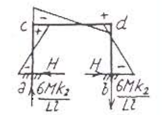
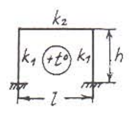
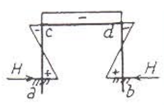
$k_1 = \frac{I_1}{h}$ $\qquad k_2 = \frac{I_2}{l}$ $\qquad N = 2(3k_1 + 2k_2)$

Způsob zatížení	Průběh momentů	Statické veličiny
		$H = \frac{gl^2}{2h}\frac{k_1}{N}$ $M_c = M_d = -\frac{gl^2}{2}\frac{k_1}{N}$
		$H = \frac{gh}{4}\frac{6k_1 + 5k_2}{N}$ $M_c = \frac{3gh^2}{4}\frac{2k_1 + k_2}{N}$ $M_d = -\frac{gh^2}{4}\frac{6k_1 + 5k_2}{N}$
		$H = \frac{3Pab}{hl}\frac{k_1}{N}$ $M_c = M_d = -\frac{3Pab}{l}\frac{k_1}{N}$
		$H = \frac{3Pl}{4h}\frac{k_1}{N}$ $M_c = M_d = -\frac{3Pl}{4}\frac{k_1}{N}$
		$H = \frac{Pa}{h^3}\frac{3h^2k_1 + (3h^2 - a^2)k_2}{N}$ $M_c = \frac{Pa}{h^2}\frac{3h^2k_1 + (a^2 + h^2)k_2}{N}$ $M_d = -\frac{Pa}{h^2}\frac{3h^2k_1 + (3h^2 - a^2)k_2}{N}$
		$H = \frac{P}{2}$ $M_c = \frac{Ph}{2}$ $\qquad M_d = -\frac{Ph}{2}$
		$H = -\frac{3Pa}{h}\frac{k_1}{N}$ Na sloupech: $M_c = M_d = \frac{3Pak_1}{N}$

Tabulka C.77. Jednoduchý obdélníkový rám dokonale vetknutý

$k_1 = \frac{I_1}{h}$ $k_2 = \frac{I_2}{l}$ $L = k_1 + 6k_2$ $N = (k_1 + 6k_2)(2k_1 + k_2)$ $R = 2k_1 + k_2$

Způsob zatížení	Průběh momentů	Statické veličiny
		$H = \frac{gl^2}{4h}\frac{k_1}{R}$ $M_a = M_b = \frac{gl^2}{12}\frac{k_1}{R}$ $M_c = M_d = -\frac{gl^2}{6}\frac{k_1}{R}$
		$H = \frac{gh}{8N}(3k_1^2 + 20k_1k_2 + 12k_2^2)$ $M_a = -\frac{gh^2}{24N}(15k_1^2 + 73k_1k_2 + 30k_2^2)$ $M_b = \frac{gh^2}{24N}(9k_1^2 + 35k_1k_2 + 18k_2^2)$ $M_c = \frac{gh^2k_2}{24N}(23k_1 + 6k_2)$ $M_d = -\frac{gh^2k_2}{24N}(25k_1 + 18k_2)$
		$\alpha = 1 + \frac{a(b-a)k_1}{Ll^2}$ $\beta = 1 - \frac{b(b-a)k_1}{Ll^2}$ $H = \frac{3Pab}{2hl}\frac{k_1}{R}$ $M_a = \frac{Pabk_1}{2l^2N}[(3k_1 + 7k_2)a + (5k_2 - k_1)b]$ $M_b = \frac{Pabk_1}{2l^2N}[(5k_2 - k_1)a + (3k_1 + 7k_2)b]$ $M_c = -\frac{Pabk_1}{2l^2N}[11ak_2 + (4k_1 + 13k_2)b]$ $M_d = -\frac{Pabk_1}{2l^2N}[(4k_1 + 13k_2)a + 11bk_2]$
		$H = \frac{3Pl}{8h}\frac{k_1}{R}$ $M_a = M_b = \frac{Pl}{8}\frac{k_1}{R}$ $M_c = M_d = -\frac{Pl}{4}\frac{k_1}{R}$
		$H = \frac{P}{2}$ $M_a = -M_b = -\frac{Ph}{2}\frac{k_1 + 3k_2}{L}$ $M_c = -M_d = \frac{3Ph}{2}\frac{k_2}{L}$

Způsob zatížení	Průběh momentů	Statické veličiny
		$H = \frac{Pc}{h}\left[1 + \frac{b(2h-3b)}{h^2} + \frac{a(2h-3a)}{h^2}\frac{k_2 - k_1}{R}\right]$ $M_a = M_b = \frac{Pc}{h^2}\left[b(2h-3b) - \frac{a(2h-3a)k_1}{R}\right]$ $M_c = M_d = \frac{Pac(2h-3a)}{h^2}\frac{k_2}{R}$
		$H = \frac{ph}{40R}(4k_1 + 3k_2)$ $M_a = -\frac{ph^2}{120N}(28k_1^2 + 151k_1k_2 + 63k_2^2)$ $M_b = \frac{ph^2}{120n}(12k_1^2 + 49k_1k_2 + 27k_2^2)$ $M_c = \frac{ph^2k_2}{120N}(28k_1 + 3k_2)$ $M_d = -\frac{ph^2k_2}{120N}(32k_1 + 27k_2)$
		$H = -\frac{3M}{2h}\frac{k_1}{R}$ $M_a = -\frac{Mk_1}{2N}(5k_2 - k_1)$ $M_b = -\frac{Mk_1}{2N}(3k_1 + 7k_2)$ Na sloupech: $M_c = \frac{Mk_1}{2N}(4k_1 + 13k_2)$ $M_d = \frac{11Mk_1k_2}{2N}$ Na trámu: $M_c = -\frac{Mk_2}{2N}(13k_1 + 12k_2)$
		$H = \frac{3E\alpha_t tl}{h^2(1 + \alpha_t t)}\frac{(k_1 + 2k_2)k_1}{R}$ $M_a = M_b = \frac{3E\alpha_t tlk_1}{h(1 + \alpha_t t)}\frac{k_1 + k_2}{R}$ $M_c = M_d = -\frac{3E\alpha_t tl}{h(1 + \alpha_t t)}\frac{k_1k_2}{R}$

Podrobněji viz O. Novák: Jednoduchý rám ve vzorcích. Praha, SNTL 1967.