



IV

7.092101 «
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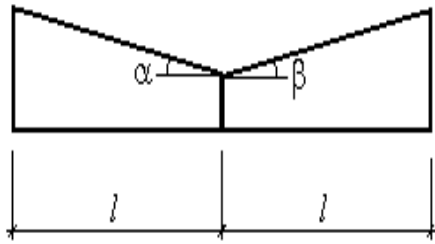
© , 2009

© - - .
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9

1.

(.1):



.1. ()

2.

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$$\alpha = 30^\circ;$$

)

$$\beta = 0;$$

)

)

$$l = 9,0 ;$$

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$$- ;$$

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$$- 800 .$$

3.

(800) 30
 (1000) 40
 (300) 30
 (150) 5
 (1800) 120
 / 3,
 *,

4.

5.

-3 2,8 .

6.

-2 12 .

7.

8.

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9.

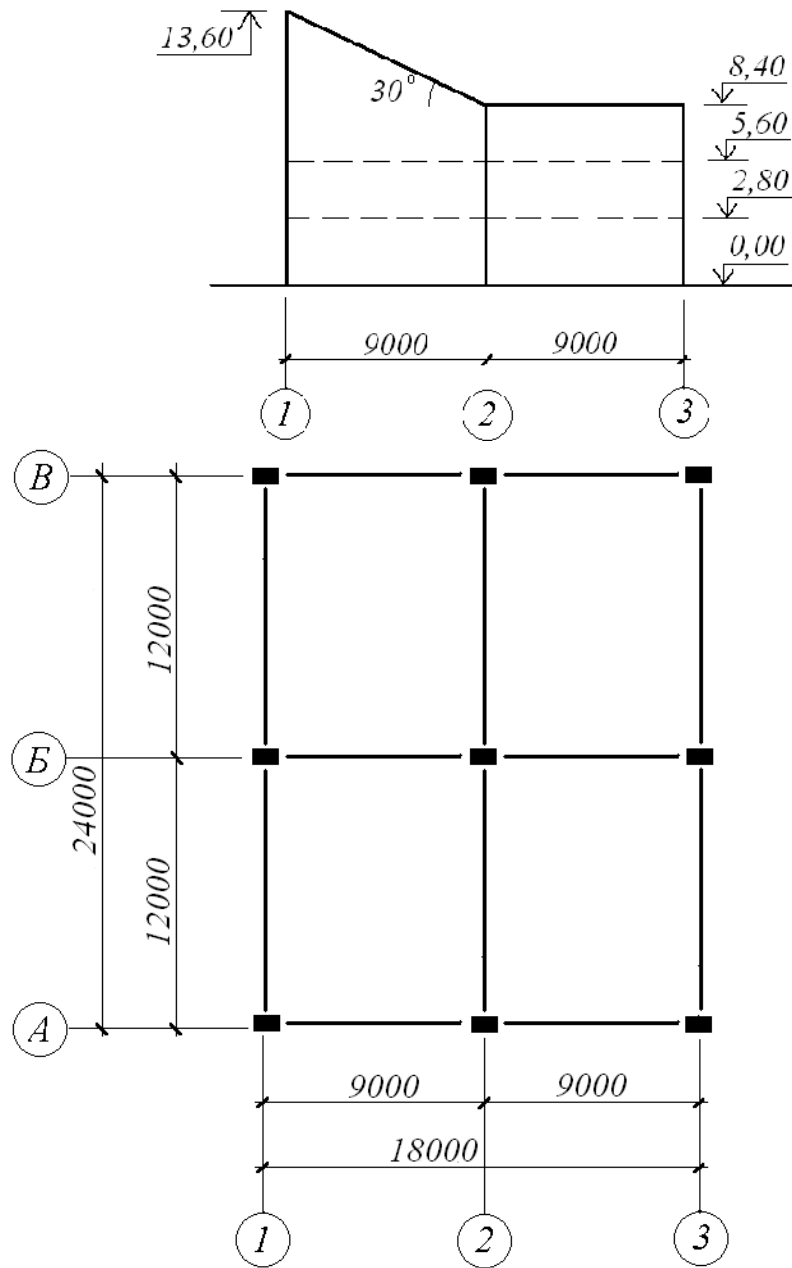
-0,7.

5, 2, -2, , 1,
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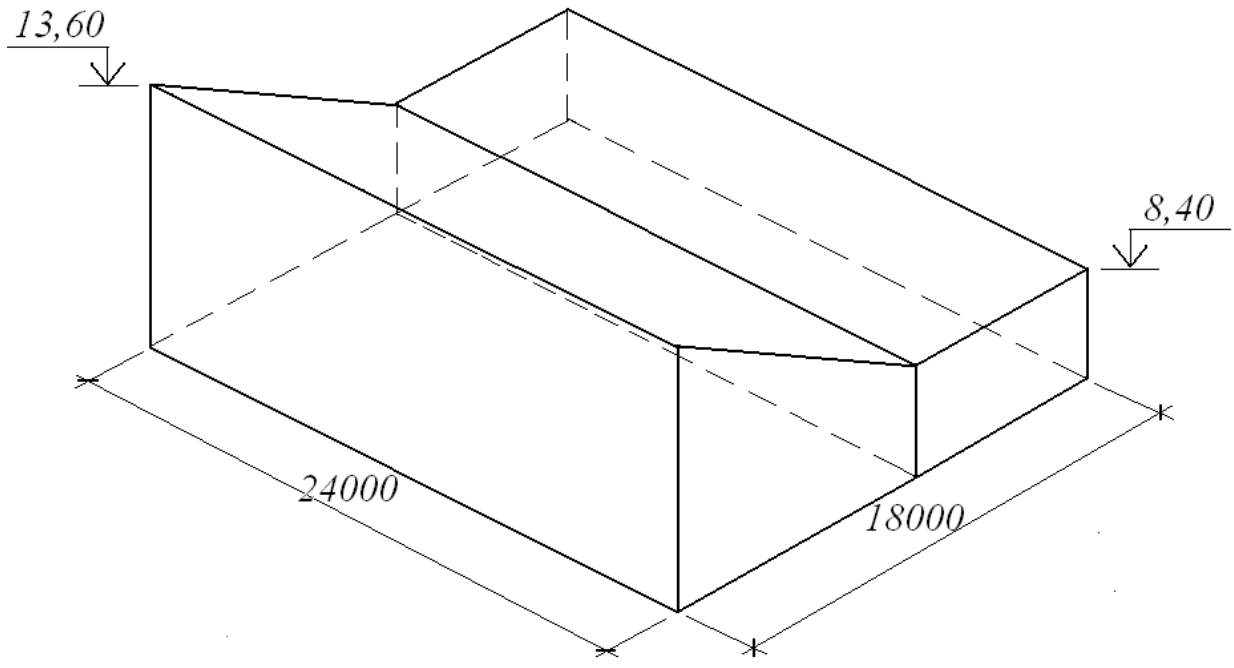
. 2.



. 2.

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— .3.



.3.

(.2 3)

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$f.$

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$\beta.$

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[2],
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. 5.1

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γ_{fm} .

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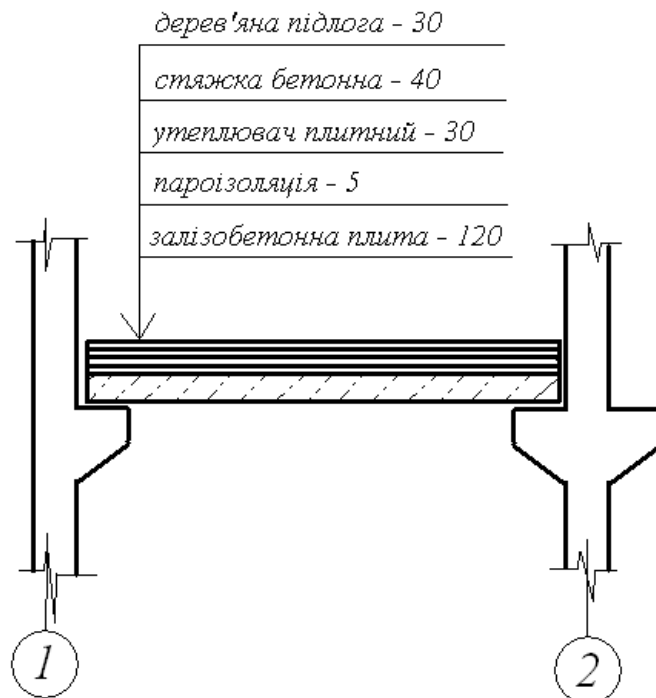
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– .4. (),

[4].



.4.

$$q_0 = \gamma \cdot t$$

$$q_0 = \gamma \cdot t \tag{1}$$

(1) :

- , $q_0 = \gamma \cdot t = 800 \cdot 0,03 = 24 \text{ / } ^2 = 0,24$;

- $q_0 = \gamma \cdot t = 1000 \cdot 0,04 = 40 \text{ / } ^2 = 0,40$;

- $q_0 = \gamma \cdot t = 300 \cdot 0,03 = 9 \text{ / } ^2 = 0,09$;

- $q_0 = \gamma \cdot t = 150 \cdot 0,005 = 0,75 \text{ / } ^2 = 0,01$;

- $q_0 = \gamma \cdot t = 1800 \cdot 0,12 = 216 \text{ / } ^2 = 2,16$.

γ_{fm} , . 5.1 , :

- , $\gamma_{fm} = 1,3$.

;

- $\gamma_{fm} = 1,3.$
 - ;
 - $\gamma_{fm} = 1,2.$
 - ;
 - $\gamma_{fm} = 1,3.$
 - (),
 - ;
 - $\gamma_{fm} = 1,1.$
- 1

/		$q_0,$	γ_{fm}	$q_m,$
1.	'	0,24	1,3	0,31
2.		0,40	1,3	0,52
3.		0,09	1,2	0,11
4.		0,01	1,3	0,01
5.		2,16	1,1	2,38
		2,90		3,33

1

q_m

- 0,01.

$q_0^1 = 2,90$ $q_m^1 = 3,33$ "1"

$q_e^1 = q_0^1 = 2,90$

290 (1^2) 333

2.

- , -

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- , -

- , -

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[2] -

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6 .

. 6.5 . 6.2.

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,

. 6.11

$\gamma_{fe} = 1,0$.

. 6.7

γ_{fm} .

1,3 - 2,0 (200 / ²) 2,0 (200 / ²) 1,2 -

(4) ,

.

. 6.2

“ 4,0 ”. q_0 ,

-

4,0 () , -
 , -
 -

· , -
 -
 - 0,7 (70 %).
 0,3 (30 %),
 1,0 (100 %). -

$$q_0^2 = 4,0 \cdot 0,7 = 2,80 ;$$

$$q_0^3 = 4,0 \cdot 0,3 = 1,20 .$$

“2” “3” ,

· , -
 , -
 : $q_e^2 = q_0^2 = 2,80$ $q_e^3 = q_0^3 = 1,20$.

· :
 2,0 ; $\gamma_{fm} = 1,2$, -
 2,0 . $\gamma_{fm} = 1,3$, -

· :
 $q_m^2 = q_0^2 \cdot \gamma_{fm} = 2,80 \cdot 1,2 = 3,36$;
 $q_m^3 = q_0^3 \cdot \gamma_{fm} = 1,20 \cdot 1,3 = 1,56$.

0,01. , -
 , -
 ! -
 , -
 -
 -

, 4,0 . -
 , -
 , -
 .
 , -
 , -
 3,36 + 1,56 = 4,92 . , , ,
 , .
 , 1 2 ,
 280 , 120 -
 336 156 .

3.

... (...) ...

[2]

8

. 8.3

S_e

$$S_e = \gamma_{fe} \cdot S_0 \cdot \mu \cdot C_e \cdot C_{alt}, \quad (2)$$

γ_{fe} -

. 8.12 ;

S_0 -

. 8.5 ;

μ -

C_e -

. 8.9 ;

C_{alt} -

. 8.10 .

. 8.2

: S_m

$$S_m = \gamma_{fm} \cdot S_0 \cdot \mu \cdot C_e \cdot C_{alt}, \quad (3)$$

γ_{fm} —

. 8.11

μ ,

γ_{fe}

. 8.12

. 8.3

η
0,02.

4
 $\gamma_{fe} = 0,49$.

. 8.11

. 8.1

γ_{fm}

T (

)

T_{ef} .

100

$\gamma_{fm} = 1,14$.

S_0

. 8.1

1.

7

. 8.5

. 8.1.

1-

2-

2-

2-

$S_0 = 1000 = 1,0$

C_e

. 8.9

$C_e = 0,8$.
 $q_0^1 = 2,90$.
 $C_e = 1$,
 $2,0$,
 $2,0$,
 1 ,
 $C_e = 1$.
 C_{alt}
 8.10 :

$$C_{alt} = 1,4 \cdot H + 0,3 \quad (H \geq 0,5) \quad C_{alt} = 1 \quad (H < 0,5) \quad (4)$$

$H = 800 = 0,8$ (4)
 $C_{alt} = 1,4 \cdot 0,8 + 0,3 = 1,42$.

- (2) (3), μ .
- 1) (5 - 7)
 (8)
- 2) !
 (1 - 4)

3)

μ .

μ .

1)

(.2)

5-7

5.

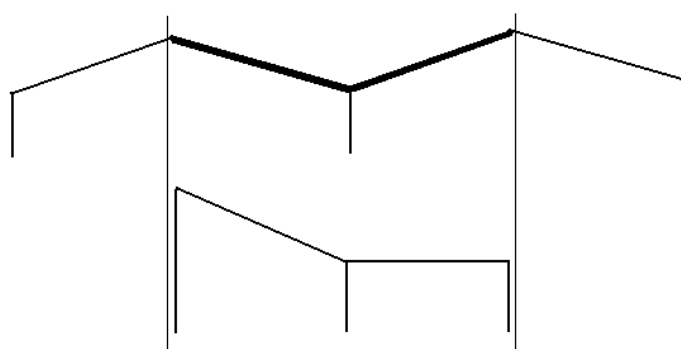
.5

5

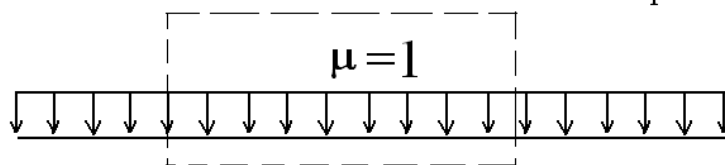
1

2

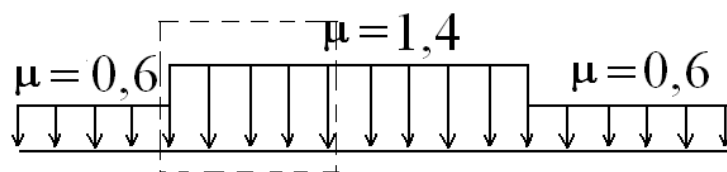
.5.



Вариант 1



Вариант 2



.5.

5

5

1

2,

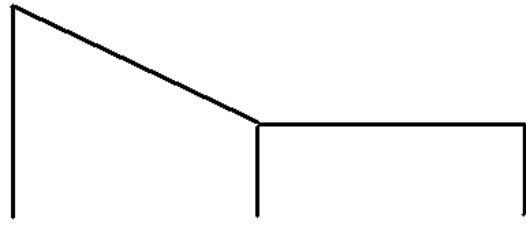
15 °.

30 °.

0, 2
.5

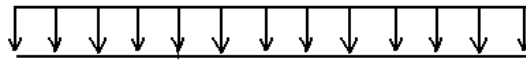
2

.6.



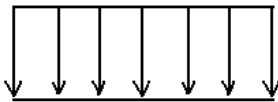
$\mu = 1$

Варіант 1



$\mu = 1,4$

Варіант 2



.6.

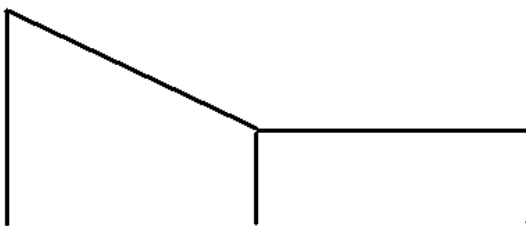
5

.6 2

2

1.

.7.



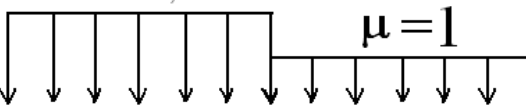
$\mu = 1$

Варіант 1



$\mu = 1,4$

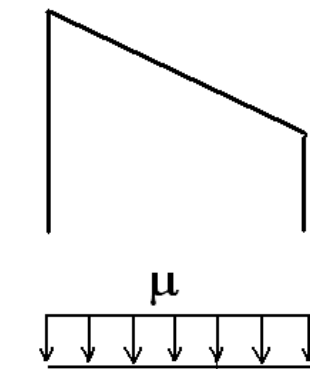
Варіант 2



$\mu = 1$

.7.

2)



Вариант 1

.8.

(5)

$\mu = 1$
 60°

25° $\mu = 0$

25°

60°

μ
 30°
 $\mu = 0,86$

μ

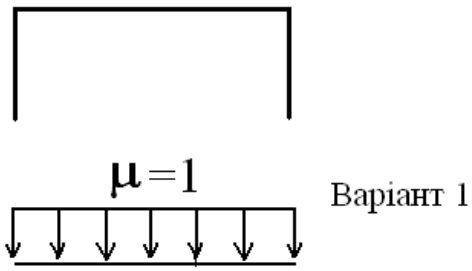
1, .

0, 1.

: $\mu = 1$.

μ

.9.



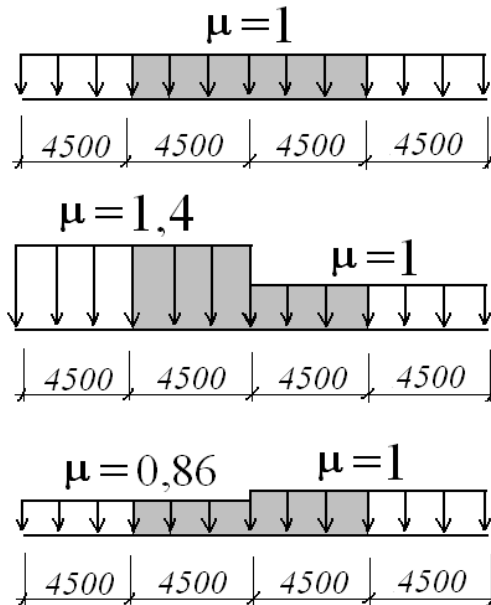
. 9.

3)

. 2. -
-

2

1.	<p style="text-align: center;">$\mu = 1$</p> <p style="text-align: center;">9000 9000</p>	<p style="text-align: center;">5 (1)</p>
2.	<p style="text-align: center;">$\mu = 1,4$ $\mu = 1$</p> <p style="text-align: center;">9000 9000</p>	<p style="text-align: center;">5 (1 + 2)</p>
3.	<p style="text-align: center;">$\mu = 0,86$ $\mu = 1$</p> <p style="text-align: center;">9000 9000</p>	<p style="text-align: center;">1, (1 + - 1)</p>



. 11.

(2) (3).

μ

$$S_{e1} = \gamma_{fe} \cdot S_0 \cdot \mu_1 \cdot C_e \cdot C_{alt} = 0,49 \cdot 1,0 \cdot 1,4 \cdot 1 \cdot 1,42 = 0,97 \quad ;$$

$$S_{m1} = \gamma_{fm} \cdot S_0 \cdot \mu_1 \cdot C_e \cdot C_{alt} = 1,14 \cdot 1,0 \cdot 1,4 \cdot 1 \cdot 1,42 = 2,27 \quad ;$$

$$S_{e2} = \gamma_{fe} \cdot S_0 \cdot \mu_2 \cdot C_e \cdot C_{alt} = 0,49 \cdot 1,0 \cdot 1 \cdot 1 \cdot 1,42 = 0,70 \quad ;$$

$$S_{m2} = \gamma_{fm} \cdot S_0 \cdot \mu_2 \cdot C_e \cdot C_{alt} = 1,14 \cdot 1,0 \cdot 1 \cdot 1 \cdot 1,42 = 1,62 \quad .$$

$$97 \quad 1 \quad ^2 \quad ($$

),

$$227 \quad (\quad) .$$

$$1 \quad ^2 \quad -$$

70

162 .

4.

(,).

(,)

[2]

9

. 9.5

W_e

$$W_e = \gamma_{fe} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d, \quad (5)$$

γ_{fe} —

. 9.15 ;

W_0 —

. 9.6 ;

C_{aer} —

. 9.8 ;

C_h —

. 9.9 ;

C_{alt} —

. 9.10 ;

C_{rel} - , . 9.11 ;

C_{dir} - , . 9.12 ;

C_d - , . 9.13 .

. 9.4 W_m :

$$W_m = \gamma_{fm} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d, \quad (6)$$

γ_{fm} - , . 9.14 .

C_{aer} , . 9.15 . 9.3 . γ_{fe} -

, , η 0,02. (4 $\gamma_{fe} = 0,21$.

. 9.14 . 9.1 . γ_{fm} -

, () -

100 , $\gamma_{fm} = 1,14$. W_0 . 9.6 -

. 9.1 1. . 9.1 (.) -

3- . -

3-

$$W_0 = 500 \quad = 0,5$$

. 9.9 .
,

. 9.02,

(2,)

13,6 (. . 2),

- 5 $h = 1,20$;
- 10 $h = 1,50$;
- 20 $h = 1,85$.

C_{alt}

. 9.10

$$C_{alt} = 2 \cdot H \quad (H \geq 0,5) \quad C_{alt} = 1 \quad (H < 0,5) \quad (7)$$

2,

$$H = 800 = 0,8 \quad (7) \quad C_{alt} = 2 \cdot 0,8 = 1,6.$$

C_{rel}

. 9.11

$$C_{rel} = 1.$$

C_{dir}

. 9.12

$$C_{dir} = 1.$$

C_d

. 9.13

. 9.5 – 9.7

1

()

. 9.5.

“ ”

18 (9),
 $- 13,6$.
 $C_d = 0,93$.

(5) (6),

1)

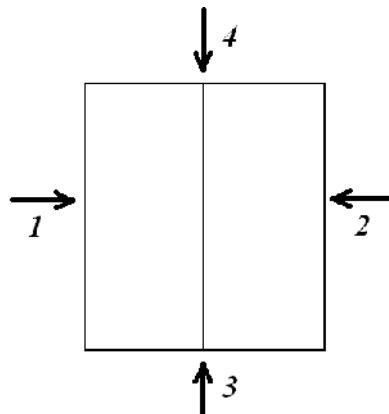
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4)

1) 2)

3 4

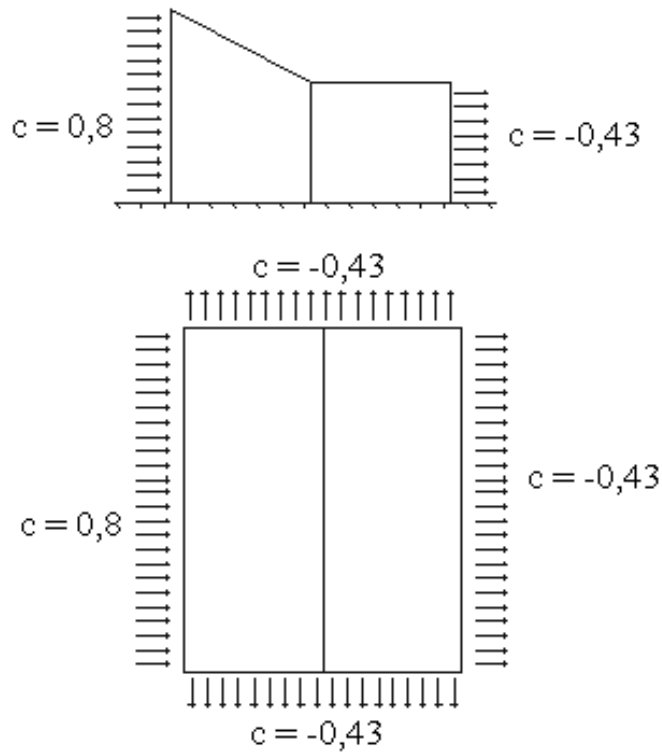


. 12.

1) $\sigma_1 = 0,8$.

(), $h/l = 8,4/18 = 0,467$, $b/l = 24/18 = 1,333$, $h = 8,4$, $b = 24$, $l = 18$ (2).
 $\sigma_3 = -0,43$.

. 13.

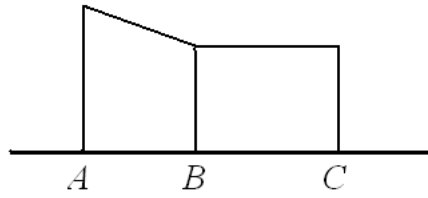
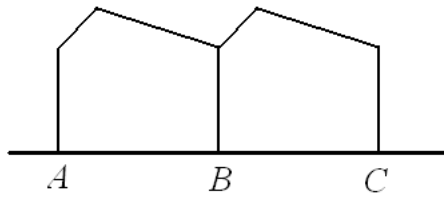


. 13.

(1)

2)

$\sigma_7 = -0,5$ (),
 $\sigma_2 = -0,5$ (),
 $\sigma_3 = -0,5$. 14.



. 14.

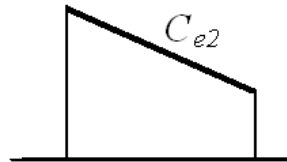
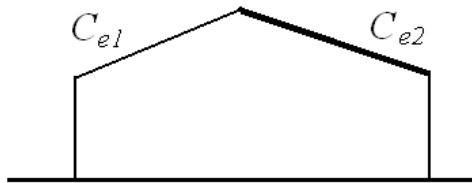
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15.

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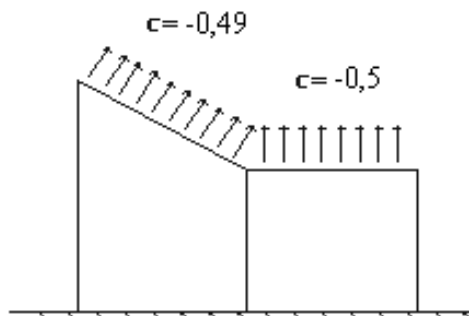
: $h = 8,4$, $l = 9$, $\alpha = 30^\circ$ (. . 2).
 $c_2 = -0,49$.



. 15.

2

. 16.



. 16.

(1)

2 .

· ;
- -

180 °.

1)

2

$$c_{aer} = 0,8.$$

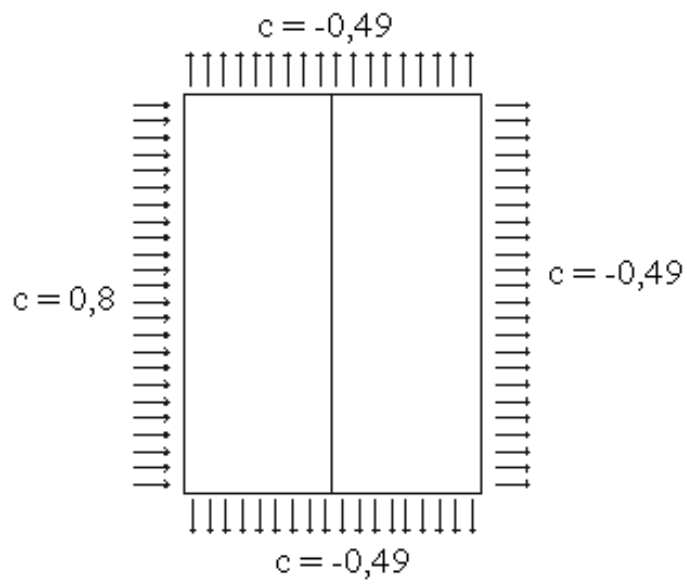
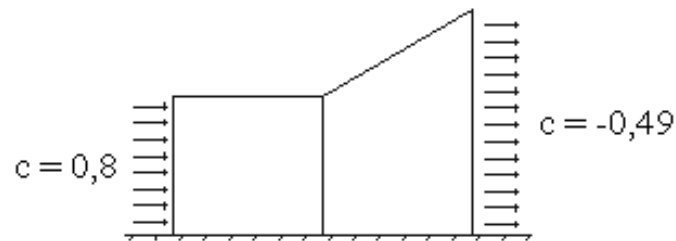
3 ·

h/l

$$h = 13,6 \quad (\quad \cdot \quad \cdot \quad 2).$$

$$c_3 = -0,49.$$

. 17.



. 17.

(2)

2)

,

1, 7

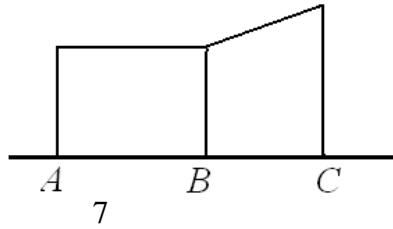
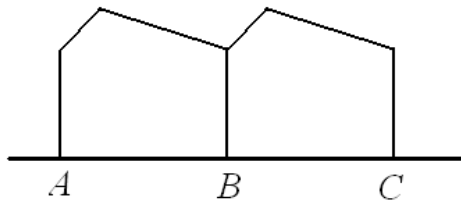
: (

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2,

(),

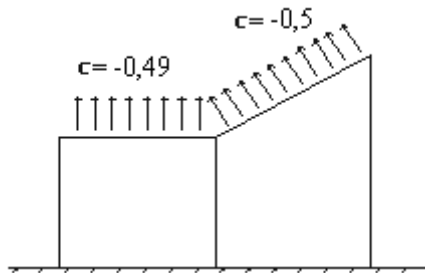
$$c_e = -0,5 \quad \cdot \quad 18.$$



. 18.

$$\begin{aligned}
 & \text{0.} \\
 & \text{2.} \\
 & \text{1.} \\
 & \text{2.} \\
 & \text{(. . 2) .} \\
 & h = 8,4 \text{ , } l = 9 \text{ , } \alpha = 0 \text{ (. . 2) .} \\
 & : \quad c_1 = -0,69 \quad c_2 = -0,49 . \\
 & \quad c_2 = -0,49 .
 \end{aligned}$$

. 19.



. 19.

(2)

3

1 2.

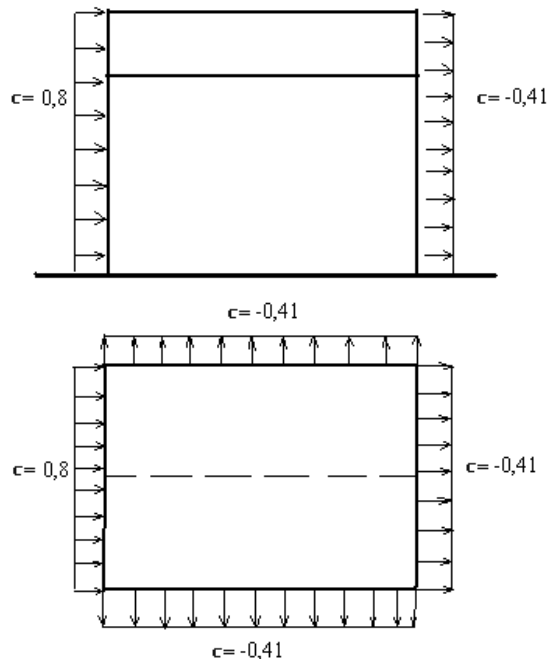
1)

2

$$c_{aer} = 0,8.$$

$$\begin{aligned}
 & 90^\circ , \\
 & : h = 13,6 \text{ , } b = 18 \text{ , } l = 24 \text{ (. . 2) .} \\
 & \quad c_3 = -0,41 .
 \end{aligned}$$

. 20.



. 20.

(3)

2)

2,

$$c_{aer} = -0,7$$

4)

. 3.

. 2.

3 (8

1.		: 2 : 7, 2
2.		: 2 : 7, 2
3.		: 2 : 2

3

3-

$$a_{er} = 0,8.$$

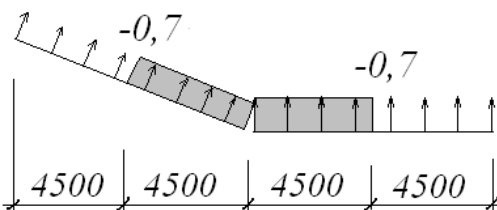
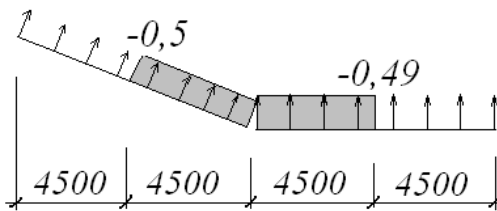
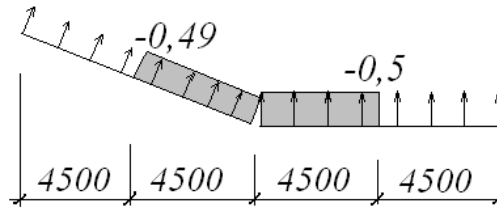
(. . . 10).

$$F_i . . . 21$$

a_{er}

30 °:

- 1 $F_1 = 4500 \cdot (-0,49) / \cos 30^\circ + 4500 \cdot (-0,5) = -4796$;
- 2 $F_2 = 4500 \cdot (-0,5) / \cos 30^\circ + 4500 \cdot (-0,49) = -4803$;
- 3 $F_3 = 4500 \cdot (-0,7) / \cos 30^\circ + 4500 \cdot (-0,7) = -6787$.



. 21.

1.

$$a_{er} = -0,5$$

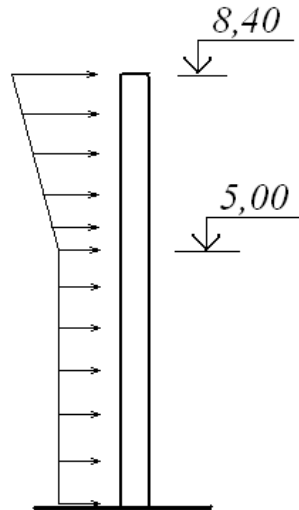
a_{er}

$$: a_{er} = -0,49$$

(5) (6).

h

. 22.



. 22.

:

- 5,00

$$W^{5,00} = \gamma_{fe} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 0,21 \cdot 0,5 \cdot 0,8 \cdot 1,20 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = 0,15 \quad ;$$

$$W_m^{5,00} = \gamma_{fm} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 1,14 \cdot 0,5 \cdot 0,8 \cdot 1,20 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = 0,81 \quad ;$$

- 8,40 ($h = 1,40$)

$$W^{8,40} = \gamma_{fe} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 0,21 \cdot 0,5 \cdot 0,8 \cdot 1,40 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = 0,18 \quad ;$$

$$W_m^{8,40} = \gamma_{fm} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 1,14 \cdot 0,5 \cdot 0,8 \cdot 1,40 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = 0,95 \quad .$$

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,

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-

$$, 11,00 \quad 8,40 , \quad -$$

$$h = 1,54 \quad h = 1,40 .$$

:

-

$$W_{e1} = \gamma_{fe} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 0,21 \cdot 0,5 \cdot (-0,49) \cdot 1,54 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = -0,12 \quad ;$$

$$W_{m1} = \gamma_{fm} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 1,14 \cdot 0,5 \cdot (-0,49) \cdot 1,54 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = -0,64 \quad ;$$

-

$$W_{e2} = \gamma_{fe} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 0,21 \cdot 0,5 \cdot (-0,5) \cdot 1,40 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = -0,11 \quad ;$$

$$W_{m2} = \gamma_{fm} \cdot W_0 \cdot C_{aer} \cdot C_h \cdot C_{alt} \cdot C_{rel} \cdot C_{dir} \cdot C_d = 1,14 \cdot 0,5 \cdot (-0,5) \cdot 1,40 \cdot 1,6 \cdot 1 \cdot 1 \cdot 0,93 = -0,59 \quad .$$

.

-

12

$\frac{1}{64}$

$\frac{1}{11}$

$\frac{2}{59}$

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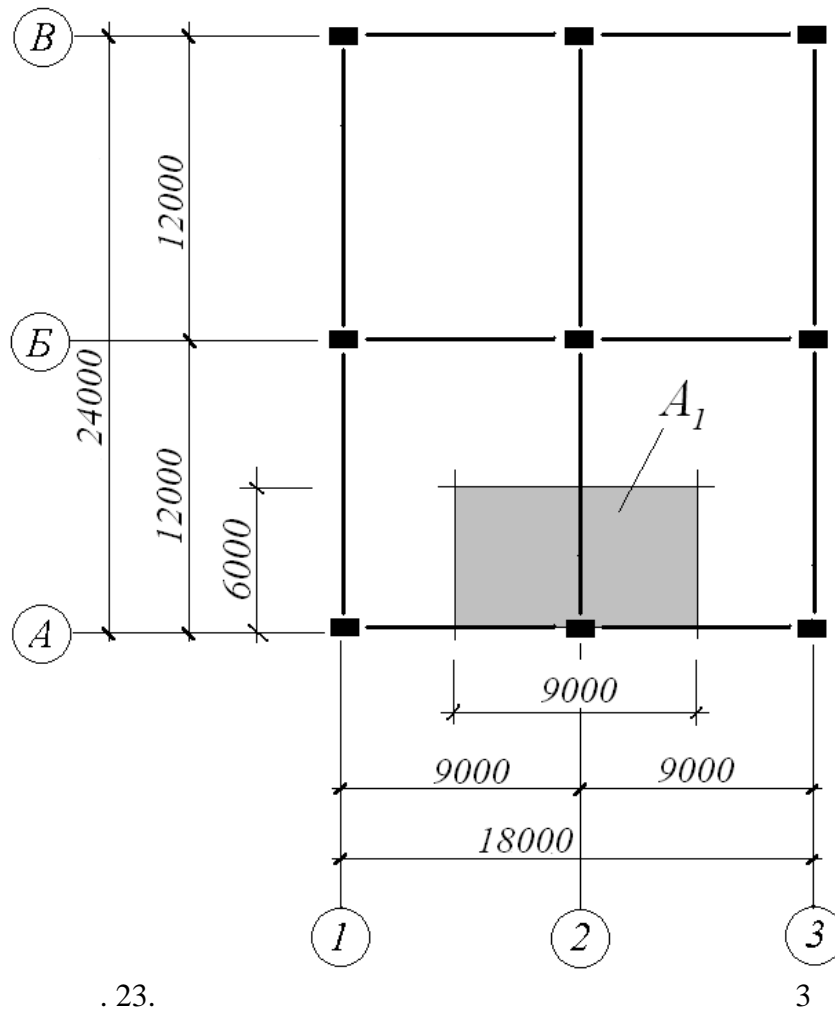
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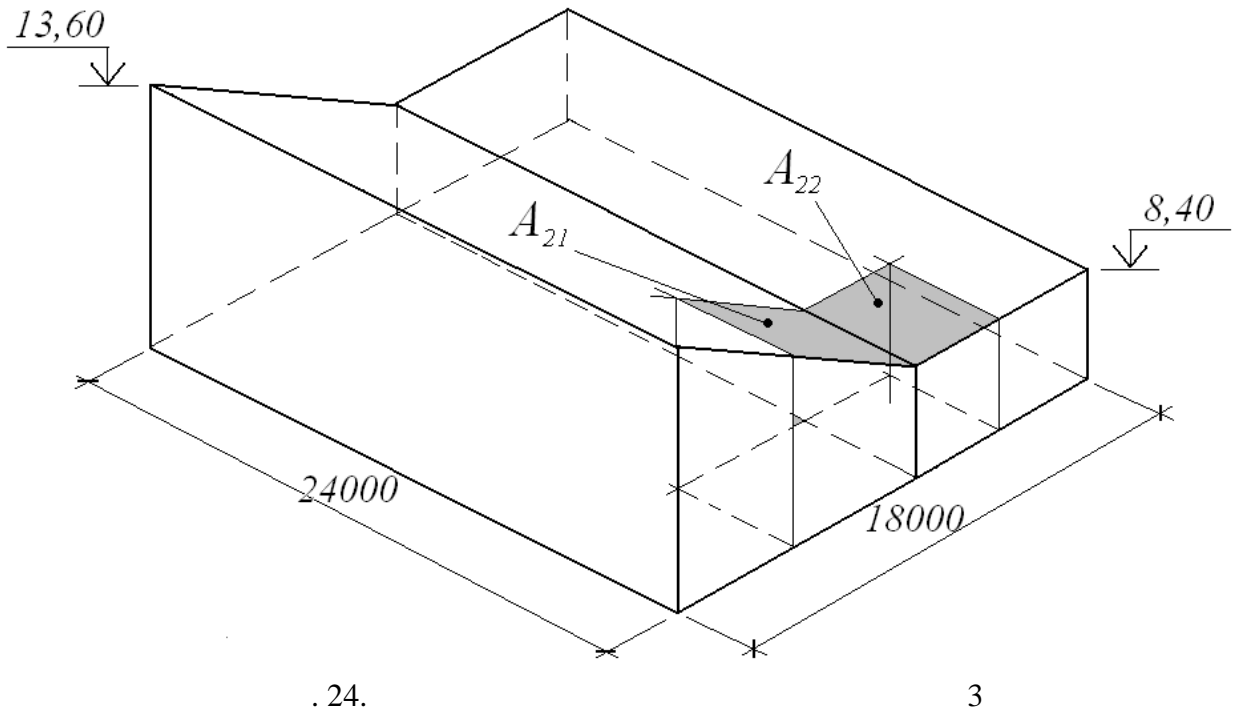
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A_1 , . 23
 $: A_1 = 9 \cdot 6 = 54 \text{ }^2$.



A_{22} ()
 A_1 .
 $A_{21} = 4,5 \cdot 6 / \cos 30^\circ = 31,2 \text{ }^2$;
 $A_{22} = 4,5 \cdot 6 = 27,0 \text{ }^2$.
 . 24.



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$A_1:$

$$N_m^1 = q_m^1 \cdot A_1 = 3,33 \cdot 54 = 179,8 \quad ;$$

$$N_e^1 = q_e^1 \cdot A_1 = 2,90 \cdot 54 = 156,6 \quad .$$

$A_1:$

$$N_m^2 = q_m^2 \cdot A_1 = 3,36 \cdot 54 = 181,4 \quad ;$$

$$N_e^2 = q_e^2 \cdot A_1 = 2,80 \cdot 54 = 151,2 \quad .$$

$A_1:$

$$N_m^3 = q_m^3 \cdot A_1 = 1,56 \cdot 54 = 84,2 \quad ;$$

$$N_e^3 = q_e^3 \cdot A_1 = 1,20 \cdot 54 = 64,8 \quad .$$

$A_{21} \quad A_{22} \quad , \quad 3 \quad -$
 , [2] -

$A_{21} \quad A_{22} \quad A_1:$

$$N_m^4 = (S_{m1} + S_{m2}) \cdot A_1 / 2 = (2,27 + 1,62) \cdot 54 / 2 = 105,0 \quad ;$$

$$N_e^4 = (S_{e1} + S_{e2}) \cdot A_1 / 2 = (0,97 + 0,70) \cdot 54 / 2 = 45,1 \quad .$$

$$\begin{matrix} A_{21} & A_{22} \\ N_m^{51} & N_m^{52} \end{matrix} \left(\begin{matrix} N_e^{51} & N_e^{52} \end{matrix} \right) ,$$

:

$$N_m^{51} = W_{m1} \cdot A_{21} = (-0,64) \cdot 31,2 = -20,0 \quad ;$$

$$N_e^{51} = W_{e1} \cdot A_{21} = (-0,12) \cdot 31,2 = -3,7 \quad ;$$

$$N_m^{52} = W_{m2} \cdot A_{22} = (-0,59) \cdot 27 = -15,9 \quad ;$$

$$N_e^{52} = W_{e2} \cdot A_{22} = (-0,11) \cdot 27 = -3,0 \quad .$$

OZ:

$$N_{mz}^{51} = N_m^{51} \cdot \cos 30^\circ = -20,0 \cdot \cos 30^\circ = -17,3 \quad ;$$

$$N_{ez}^{51} = N_e^{51} \cdot \cos 30^\circ = -3,7 \cdot \cos 30^\circ = -3,2 \quad ;$$

$$N_{mz}^{52} = N_m^{52} \cdot \cos 0 = -15,9 \cdot \cos 0 = -15,9 \quad ;$$

$$N_{ez}^{52} = N_e^{52} \cdot \cos 0 = -3,0 \cdot \cos 0 = -3,0 \quad .$$

$$N_{mz}^5 = N_{mz}^{51} + N_{mz}^{52} = -17,3 + (-15,9) = -33,2 \quad ;$$

$$N_{ez}^5 = N_{ez}^{51} + N_{ez}^{52} = -3,2 + (-3,0) = -6,2 \quad .$$

$$A_{21} \quad A_{22},$$

$$N_m^6 = q_m^1 \cdot (A_{21} + A_{22}) = 3,33 \cdot (31,2 + 27) = 193,8 \quad ;$$

$$N_e^6 = q_e^1 \cdot (A_{21} + A_{22}) = 2,90 \cdot (31,2 + 27) = 168,8 \quad .$$

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6,5 - 8,5 ,

15 - 18

4,5 - 10,5 ,

0,7 - 3,5 .

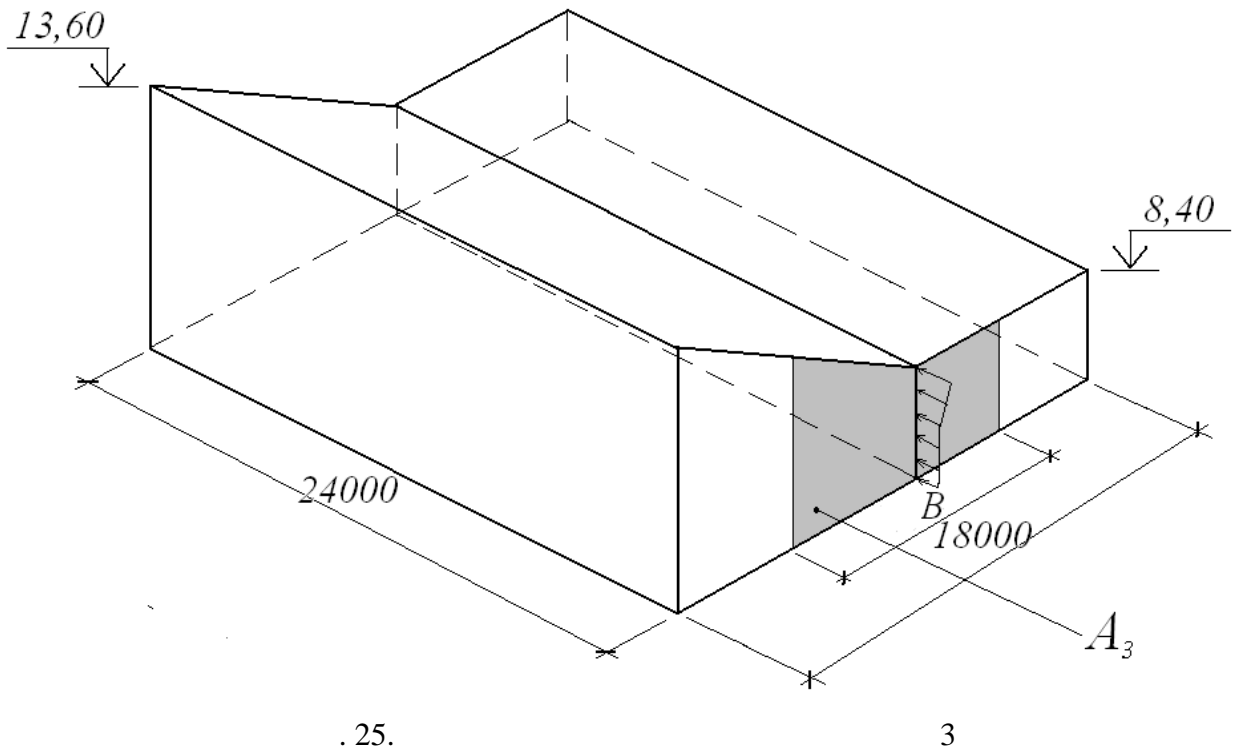
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A_3 (. 25).

$B = 9$.



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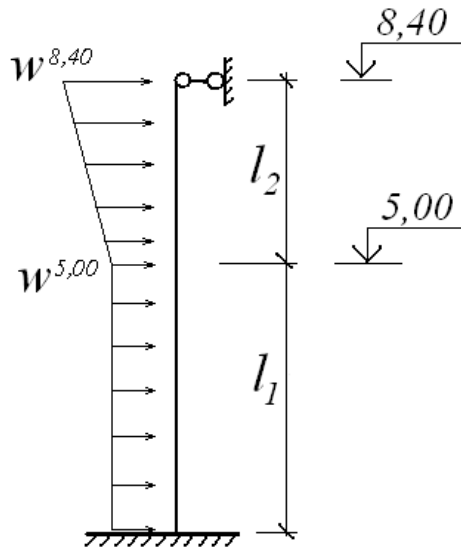
- 5,00
 $w_m^{5,00} = W_m^{5,00} \cdot B = 0,81 \cdot 9 = 7,29$ / ;
 $w_e^{5,00} = W_e^{5,00} \cdot B = 0,15 \cdot 9 = 1,35$ / ;

- 8,40
 $w_m^{8,40} = W_m^{8,40} \cdot B = 0,95 \cdot 9 = 8,55$ / ;
 $w_e^{8,40} = W_e^{8,40} \cdot B = 0,18 \cdot 9 = 1,62$ / .

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q

$$M = q \cdot l^2 / 8,$$

$w,$

$l-$

:

$$M^5 = \left(w^{5,00} \cdot l_1^2 + \frac{w^{5,00} + w^{8,40}}{2} \cdot l_2 \cdot \left(l_1 + \frac{l_2}{2} \right) \right) / 8.$$

:

$$M_m^5 = \left(w_m^{5,00} \cdot l_1^2 + \frac{w_m^{5,00} + w_m^{8,40}}{2} \cdot l_2 \cdot \left(l_1 + \frac{l_2}{2} \right) \right) / 8 =$$

$$\left(7,29 \cdot 5^2 + \frac{7,29 + 8,55}{2} \cdot 3,4 \cdot \left(5 + \frac{3,4}{2} \right) \right) / 8 = 45,3$$

$$M_e^5 = \left(w_e^{5,00} \cdot l_1^2 + \frac{w_e^{5,00} + w_e^{8,40}}{2} \cdot l_2 \cdot \left(l_1 + \frac{l_2}{2} \right) \right) / 8 =$$

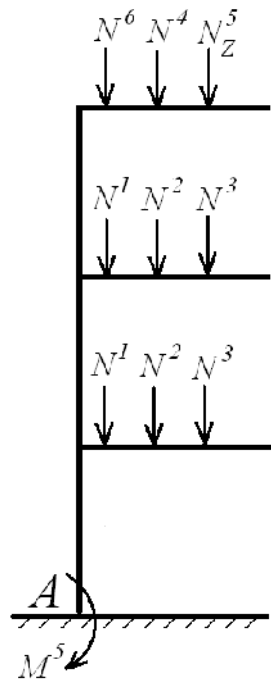
$$\left(1,35 \cdot 5^2 + \frac{1,35 + 1,62}{2} \cdot 3,4 \cdot \left(5 + \frac{3,4}{2} \right) \right) / 8 = 10,4$$

. 4.5, 4.11 – 4.14

- 1) — (1);
- 2) — (1);
- 3) — ();
- 4) — (2);
- 5) — (3);
- 6) — (2).

. 27.

. 27



. 27.

$$N_m^1 = 2 \cdot N_m^1 = 2 \cdot 179,8 = 360 \quad ;$$

$$N_e^1 = 2 \cdot N_e^1 = 2 \cdot 156,6 = 313 \quad ;$$

$$N_m^1 = 2 \cdot N_m^2 = 2 \cdot 181,4 = 363 \quad ;$$

$$N_e^1 = 2 \cdot N_e^2 = 2 \cdot 151,2 = 302 \quad ;$$

$$N_m = 2 \cdot N_m^3 = 2 \cdot 84,2 = 168 \quad ;$$

$$N_e = 2 \cdot N_e^1 = 2 \cdot 64,8 = 130 \quad ;$$

$$N_m^2 = 1 \cdot N_m^4 = 1 \cdot 105,0 = 105 \quad ;$$

$$N_e^2 = 1 \cdot N_e^4 = 1 \cdot 45,1 = 45 \quad ;$$

$$N_m^3 = 1 \cdot N_m^5 = 1 \cdot (-33,2) = -33 \quad ;$$

$$N_e^3 = 1 \cdot N_e^5 = 1 \cdot (-6,2) = -6 \quad ;$$

$$N_m^2 = 1 \cdot N_m^6 = 1 \cdot 193,8 = 194 \quad ;$$

$$N_e^2 = 1 \cdot N_e^6 = 1 \cdot 168,8 = 169 \quad .$$

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$$2^4 = 16.$$

$n=4$

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$\psi = 1,0$.

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6 (“ $\Sigma + + 1$ ”)

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$$N_m = N_m^1 + N_m^2 + N_m + N_m^{K1} = 360 + 194 + 168 + 363 = 1085 \quad ;$$

$$N_e = N_e^1 + N_e^2 + N_e + N_e^{K1} = 313 + 169 + 130 + 302 = 914 \quad .$$

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/					
		$N_m,$	$M_m,$	$N_e,$	$M_e,$
1.	Σ	554	0	482	0
2.	$\Sigma +$	722	0	612	0
3.	$\Sigma + 1$	917	0	784	0
4.	$\Sigma + 2$	659	0	527	0
5.	$\Sigma + 3$	521	45,3	476	10,4
6.	$\Sigma + + 1$	1085	0	914	0
7.	$\Sigma + + 2$	827	0	657	0
8.	$\Sigma + + 3$	689	45,3	606	10,4
9.	$\Sigma + 0,9 1 + 0,9 2$	975	0	794	0
10.	$\Sigma + 0,9 1 + 0,9 3$	851	40,8	748	9,4
11.	$\Sigma + 0,9 2 + 0,9 3$	619	40,8	517	9,4
12.	$\Sigma + + 0,9 1 + 0,9 2$	1143	0	924	0
13.	$\Sigma + + 0,9 1 + 0,9 3$	1019	40,8	878	9,4
14.	$\Sigma + + 0,9 2 + 0,9 3$	787	40,8	647	9,4
15.	$\Sigma + 1 + 0,8 2 + 0,6 3$	981	27,2	816	6,2
16.	$\Sigma + + 1 + 0,8 2 + 0,6 3$	1149	27,2	946	6,2

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$$\psi = 1,0,$$

$$\psi = 0,8$$

$$- \psi = 0,6.$$

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(1 5),

(4),

$$- M_{1m} M_{2m}$$

$$- M_{1e} M_{2e} \cdot 4$$

$$1) N_m \quad M_m \quad ;$$

$$2) M_m \quad N_m \quad .$$

(.4):

$$1) \quad 16 N_m = 1149 \quad M_m = 27,2 \quad .$$

$$(N_e = 946 \quad M_m = 6,2 \quad .);$$

$$2) \quad 8 N_m = 689 \quad M_m = 45,3 \quad .$$

$$(N_e = 606 \quad M_m = 10,4 \quad .).$$

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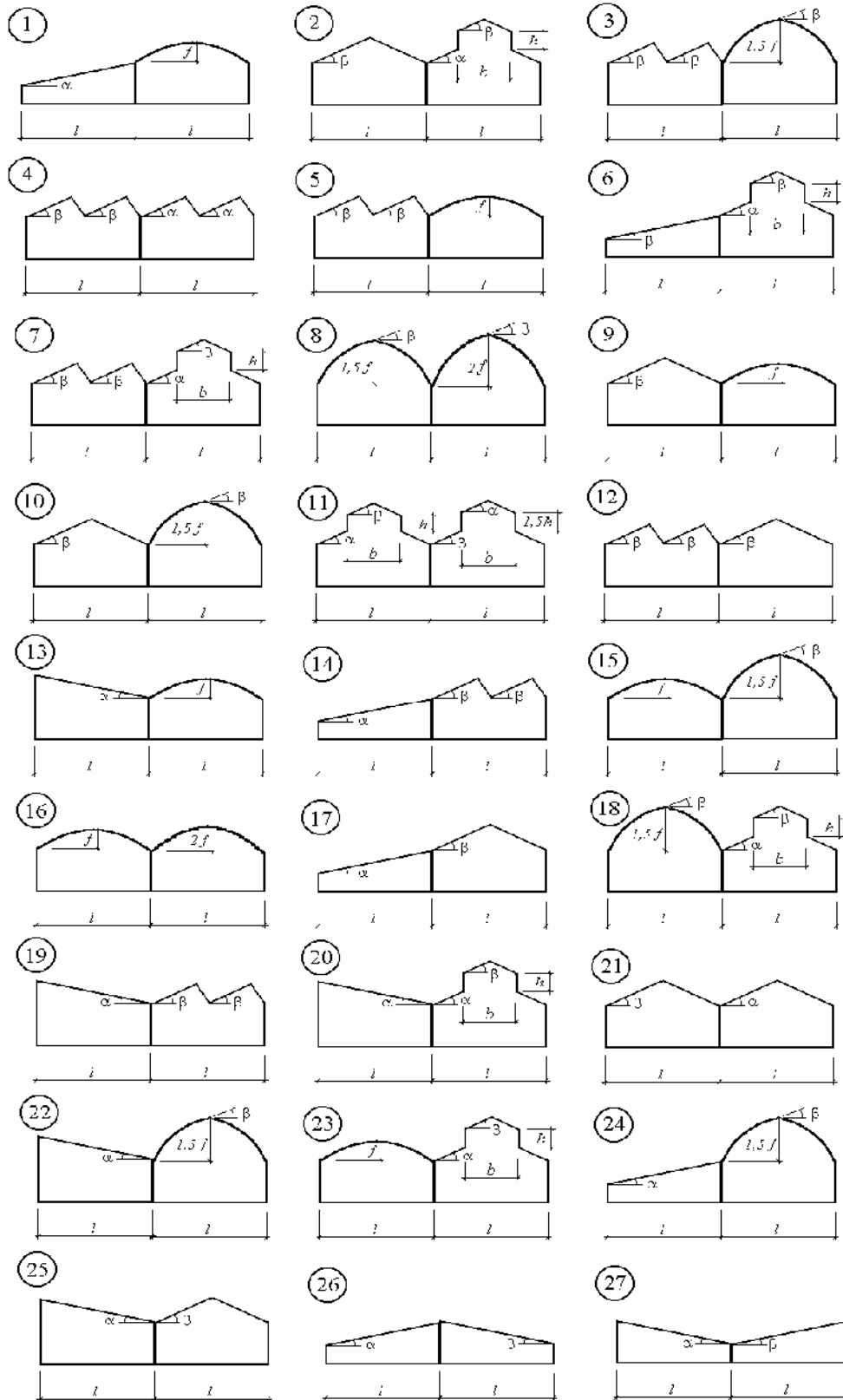
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2. .1.2-2:2006 ().
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3. 2.01.07-85.
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 . - ∴ - , 1970. - 7 .
5. : .
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 , - ∴ - , 2006. - 808 .



. 1.

	$\alpha, ^\circ$	$\beta, ^\circ$	$f,$	$l,$;
					$h,$	$b,$	
1	0	20	3,8	15,0	1,5	$l/3$	II; 400
2	10	30	1,2	6,0	1,0	$l/4$	I; 200
3	15	40	4,0	21,0	2,0	$l/2$	IV; 500
4	20	15	1,0	12,0	0,5	$l/3$	III; 300
5	25	7	3,0	9,0	3,0	$l/4$	I; 600
6	30	5	4,5	18,0	1,5	$l/2$	IV; 700
7	40	25	1,0	4,5	2,0	$l/3$	II; 300
8	50	10	2,0	24,0	2,0	$l/2$	III; 1000
9	0	45	1,4	9,0	4,0	$l/4$	IV; 900
10	5	50	2,0	4,5	2,5	$l/2$	II; 500
11	15	5	4,0	24,0	3,5	$l/4$	I; 600
12	20	10	2,0	15,0	4,0	$l/3$	III; 400
13	25	15	3,0	6,0	1,5	$l/3$	II; 700
14	30	25	4,0	12,0	4,0	$l/4$	I; 800
15	35	20	2,0	18,0	3,0	$l/2$	IV; 1000
16	45	30	1,5	15,0	2,0	$l/4$	III; 500
17	0	40	2,5	21,0	3,0	$l/4$	III; 700
18	12	20	3,0	18,0	1,0	$l/2$	II; 800
19	15	45	6,0	24,0	3,5	$l/3$	IV; 300
20	17	25	1,5	12,0	2,5	$l/2$	I; 1000
21	20	30	3,0	21,0	0,5	$l/4$	IV; 200
22	25	15	0,8	4,5	1,5	$l/2$	II; 900
23	30	35	1,8	9,0	3,0	$l/3$	III; 800
24	35	10	3,5	15,0	2,5	$l/4$	I; 100
25	40	5	1,2	6,0	0,5	$l/2$	III; 200
26	55	20	5,0	12,0	1,0	$l/4$	II; 100
27	60	7	4,2	4,5	2,5	$l/3$	IV; 100
28	22	50	2,0	18,0	4,0	$l/3$	I; 600
29	45	17	2,5	9,0	0,5	$l/4$	III; 900
30	65	40	5,5	24,0	3,5	$l/2$	II; 400

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1	(1800) 5 - (1800) 20 (1300) 65 / (2200) 70 (800) 10	8	(7200) 20 - (1700) 50 (350) 25 (2350) 80 (500) 20
2	(1600) 10 , (1300) 60 (500) 15 (250) 60 (2400) 150	9	(2100) 80 - (1900) 30 (100) 5 (200*) 120 (1200) 20
3	(1000) 12 (400) 80 (2300) 100 (40*) 85 (160*) 80	10	(1600) 120 (1450) 15 (1200) 100 / (2300) 120 (700) 25
4	(750) 35 , (850) 45 (200) 75 (150) 15 / (2250) 80	11	(800) 30 (200) 10 , (900) 40 (500) 10 (150*) 200
5	(1600) 40 - (1750) 25 (350) 5 - (1900) 40 / (2450) 180	12	(1400) 8 - (1600) 20 - (1700) 40 (2150) 100 (450) 15
6	(1900) 20 - (1700) 50 (1300) 40 (250) 100 / (2400) 80	13	(1900) 30 - (1650) 30 - (1900) 50 (500) 80 (2200) 120
7	, (750) 50 - (1800) 55 / (2300) 70 (60*) 60 (800) 20	14	(1800) 20 - (1500) 100 (2100) 100 (200) 10 (2300) 120

1	2	3	4
15	(1400) 15 (600) 75 (300) 50 (150) 5 (2500) 90 /	23	(600) 25 (1300) 30 (500) 10 (250) 15 (2500) 110
16	(150) 5 (1000) 10 - (1900) 30 (150) 5 (2100) 60 /	24	(400) 25 (1750) 40 (200) 80 (100) 15 (250*) 100
17	(200) 25 (250) 35 (50) 10 (2200) 75 (1200) 25	25	(1500) 35 (1800) 40 (300) 10 (150) 10 (2500) 130
18	(1700) 5 (250) 40 (650) 30 (1900) 70 (600) 20	26	(35*) (300) 40 (40) 5 (900) 5 / (2450) 85
19	(1850) 25 (1300) 40 (400) 70 (1500) 80 (2150) 80	27	(850) 15 (1950) 50 (250) 25 (600) 20 (130*) 170
20	(750) 30 (800) 180 (100) 10 (600) 20 (1150) 15	28	(1800) 30 (30) 15 (400) 100 (2250) 125 (35) 40
21	(1100) 5 (350) 80 (170*) 200 (2400) 80 (150) 20 /	29	(1750) 50 (40) 10 (800) 80 / (2350) 90 (20) 20
22	(700) 25 (150) 5 (800) 80 (450) 15 (2450) 130	30	(50*) (600) 90 (140*) 50 (190*) 110

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