

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

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Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



Project: 4H-FRAP  
Member: external staircase east

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Stabtragwerke

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Global information

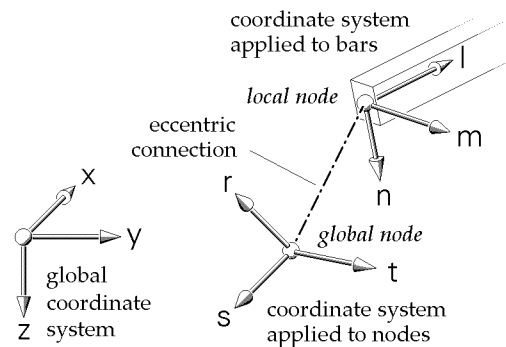
## GLOBAL INFORMATION

### Building component: external staircase east

Project: 4H-FRAP

#### COORDINATE SYSTEMS

- CALCULATION  static  
 dynamic
- NON-LINEARITY  Theory I. order  
 Theory II. order
- MATERIALS  Steel  
 Reinforced concrete  
 Wood  
 unknown



#### DATA OF SYSTEM

184	Steel bars	14	Traverses	7	Load cases
0	Reinforced concrete bars	6	Groups of incoherent bars	4	Imperfections
0	Wooden bars	19	Bedded nodes	3	Action effects
184	Total of bars	91	Total of nodes	3	Verifications

#### STATEMENTS DUE TO ITERATION CONTROL

Calculating maximum 20 iterations per load spectrum.  
Limit of accuracy of joint displacements = 1.0 %  
Limit of accuracy of joint rotations = 10.0 %  
Statements due to strut failure will be considered.

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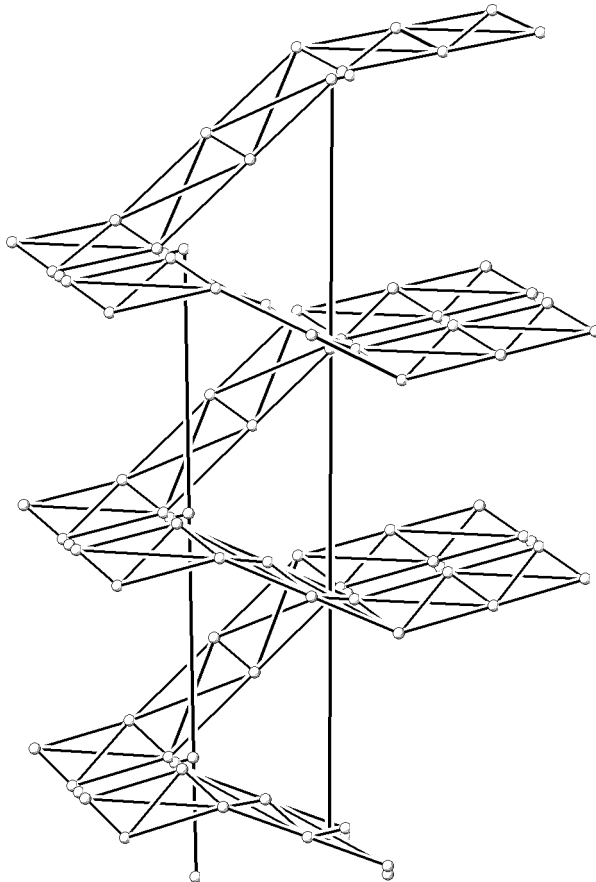
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Description of the system

**DESCRIPTION OF THE SYSTEM**

**Overview: Complete system**



**Nodes and global node coordinates**

node	x	y	z	node	x	y	z
-	m	m	m	-	m	m	m
1	4.376	1.420	0.220	16	4.506	1.420	-3.842
2	4.376	1.420	0.069	17	1.580	1.420	-5.842
3	1.580	1.420	-1.843	18	0.000	1.420	-5.842
4	0.000	1.420	-1.843	19	0.000	0.200	-5.842
5	0.000	0.200	-1.843	20	0.000	0.000	-5.842
6	0.000	0.000	-1.843	21	0.000	-0.200	-5.842
7	0.000	-0.200	-1.843	22	0.000	-1.420	-5.842
8	0.000	-1.420	-1.843	23	1.580	-1.420	-5.842
9	1.580	-1.420	-1.843	24	4.506	-1.420	-7.843
10	4.506	-1.420	-3.842	25	7.786	-1.420	-7.843
11	7.786	-1.420	-3.842	26	7.786	-0.200	-7.843
12	7.786	-0.200	-3.842	27	7.786	0.000	-7.843
13	7.786	0.000	-3.842	28	7.786	0.200	-7.843
14	7.786	0.200	-3.842	29	7.786	1.420	-7.843
15	7.786	1.420	-3.842	30	4.506	1.420	-7.843

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Description of the system

### Nodes and global node coordinates

node	x	y	z	node	x	y	z
-	m	m	m	-	m	m	m
31	1.580	1.420	-9.843	76	4.206	0.000	-3.842
32	0.000	1.420	-9.843	77	4.206	0.000	0.220
33	0.000	0.200	-9.843	78	1.880	0.000	-9.843
34	0.000	0.000	-9.843	79	1.880	0.000	-5.842
35	0.000	-0.200	-9.843	80	1.880	0.000	-1.843
36	0.000	-1.420	-9.843	81	1.880	0.000	0.220
37	1.580	-1.420	-9.843	82	3.043	-1.420	-10.843
38	4.506	-1.420	-11.843	83	3.043	-0.200	-10.843
39	7.786	-1.420	-11.843	84	3.043	0.200	-8.843
40	7.786	-0.200	-11.843	85	3.043	1.420	-8.843
42	4.376	0.200	0.069	86	3.043	-0.200	-6.843
43	1.580	0.200	-1.843	87	3.043	-1.420	-2.842
45	4.376	0.200	0.220	88	3.043	1.420	-4.842
46	1.580	0.200	-5.842	89	2.978	0.200	-0.887
48	4.506	0.200	-3.842	90	3.043	-0.200	-2.842
50	1.580	0.200	-9.843	91	2.978	1.420	-0.887
52	4.506	0.200	-7.843	92	3.043	0.200	-4.842
54	4.506	-0.200	-3.842	93	3.043	-1.420	-6.843
56	1.580	-0.200	-1.843	94	6.146	-1.420	-11.843
59	1.580	-0.200	-5.842	95	6.146	-0.200	-11.843
60	4.506	-0.200	-7.843	96	6.146	-1.420	-7.843
63	1.580	-0.200	-9.843	97	6.146	-0.200	-7.843
64	4.506	-0.200	-11.843	98	6.146	0.200	-7.843
65	1.580	0.000	-9.843	99	6.146	1.420	-7.843
66	1.580	0.000	-5.842	100	6.146	1.420	-3.842
67	4.506	0.000	-7.843	101	6.146	0.200	-3.842
68	4.506	0.000	-3.842	102	6.146	-0.200	-3.842
69	1.580	0.000	-1.843	103	6.146	-1.420	-3.842
71	4.506	0.000	-11.843	104	6.146	0.000	-7.843
74	4.206	0.000	-11.843	105	6.146	0.000	-3.842
75	4.206	0.000	-7.843				

### r-s-t-Coordinate systems:

For all nodes: r-s-t = x-y-z

### Table of nodal bearings, spring constants

node	prevention of displacement			prevention of rotation		
	Cur kN/m	Cus kN/m	Cut kN/m	Cvr kNm	Cvs kNm	Cvt kNm
1	rigid	rigid	rigid	--	--	--
10	rigid	rigid	rigid	--	--	--
11	rigid	rigid	rigid	--	--	--
12	rigid	rigid	rigid	--	--	--
14	rigid	rigid	rigid	--	--	--
15	rigid	rigid	rigid	--	--	--
23	rigid	rigid	rigid	--	--	--
24	rigid	rigid	rigid	--	--	--
25	rigid	rigid	rigid	--	--	--
26	rigid	rigid	rigid	--	--	--
28	rigid	rigid	rigid	--	--	--
29	rigid	rigid	rigid	--	--	--
37	rigid	rigid	rigid	--	--	--

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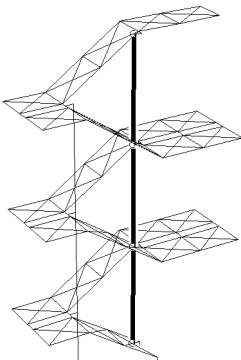
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Bars in traverse 1: column 1

### Table of nodal bearings, spring constants

node	prevention of displacement			prevention of rotation		
	Cur kN/m	Cus kN/m	Cut kN/m	Cvr kNm	Cvs kNm	Cvt kNm
38	rigid	rigid	rigid	--	--	--
39	rigid	rigid	rigid	--	--	--
40	rigid	rigid	rigid	--	--	--
45	rigid	rigid	rigid	--	--	--
77	rigid	rigid	rigid	--	--	rigid
81	rigid	rigid	rigid	--	--	rigid

### BARS IN TRAVERSE 1: COLUMN 1



### Table of bars

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bar	nodA	nodE	length m	$\alpha$ °
76	74	75	4.000	0.0
77	75	76	4.001	0.0
78	76	77	4.062	0.0

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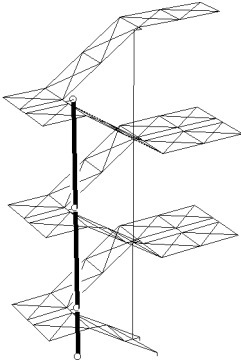
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Bars in traverse 3: corbels S1

## BARS IN TRAVERSE 2: COLUMN 2

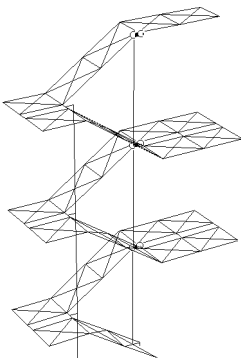


### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length m	$\alpha$ °
79	78	79	4.001	0.0
80	79	80	3.999	0.0
81	80	81	2.063	0.0

## BARS IN TRAVERSE 3: CORBELS S1



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Bars in traverse 4: corbels S2

### Table of bars

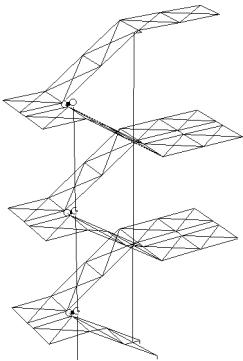
Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information).

l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane.

Vertical bars ( $\Delta x = \Delta y = 0.0$ ) remain  $m=y$  for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
82	74	71	0.300	0.0
83	75	67	0.300	0.0
84	76	68	0.300	0.0

### BARS IN TRAVERSE 4: CORBELS S2



### Table of bars

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Vertical bars ( $\Delta x = \Delta y = 0.0$ ) remain  $m=y$  for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
85	80	69	0.300	0.0
86	79	66	0.300	0.0
87	78	65	0.300	0.0

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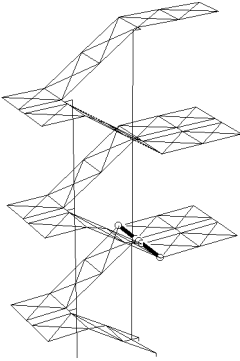
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Bars in traverse 6: WB2-S1

## BARS IN TRAVERSE 5: WB1-S1

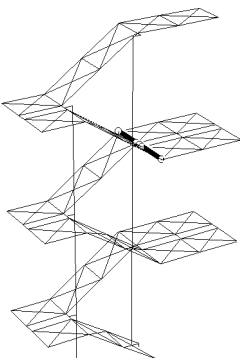


### Table of bars

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bar	nodA	nodE	length m	$\alpha$ °
95	10	54	1.220	0.0
67	54	68	0.200	0.0
60	68	48	0.200	0.0
96	48	16	1.220	0.0

## BARS IN TRAVERSE 6: WB2-S1



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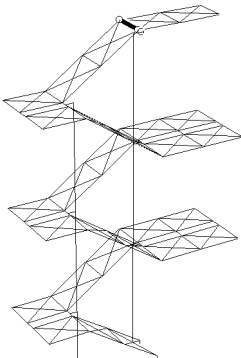
Bars in traverse 7: WB3-S1

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bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
89	24	60	1.220	0.0
66	60	67	0.200	0.0
59	67	52	0.200	0.0
90	52	30	1.220	0.0

### BARS IN TRAVERSE 7: WB3-S1



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
88	38	64	1.220	0.0
69	64	71	0.200	0.0



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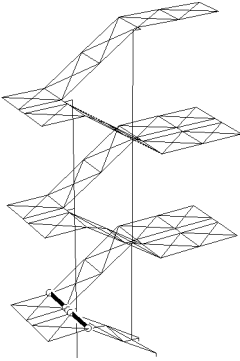
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Bars in traverse 9: WB2-S2

## BARS IN TRAVERSE 8: WB1-S2

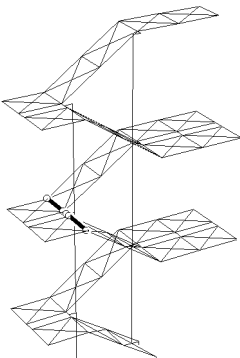


### Table of bars

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bar	nodA	nodE	length m	$\alpha$ °
98	3	43	1.220	0.0
62	43	69	0.200	0.0
68	69	56	0.200	0.0
97	56	9	1.220	0.0

## BARS IN TRAVERSE 9: WB2-S2



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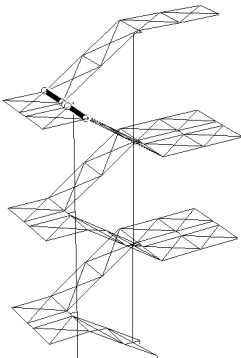
Bars in traverse 10: WB3-S2

### Table of bars

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bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
94	17	46	1.220	0.0
61	46	66	0.200	0.0
65	66	59	0.200	0.0
93	59	23	1.220	0.0

### BARS IN TRAVERSE 10: WB3-S2



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
92	31	50	1.220	0.0
63	50	65	0.200	0.0
64	65	63	0.200	0.0
91	63	37	1.220	0.0

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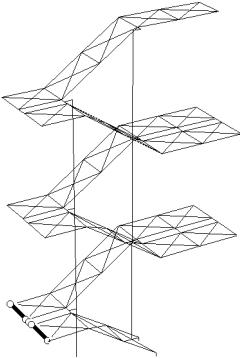
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Bars in traverse 12: ZP2

## BARS IN TRAVERSE 11: ZP1

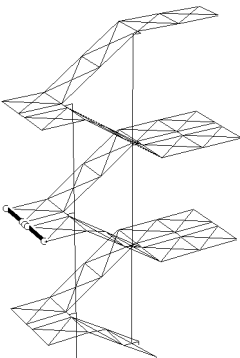


### Table of bars

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bar	nodA	nodE	length m	$\alpha$ °
-	-	-	-	-
4	4	5	1.220	0.0
5	5	6	0.200	0.0
6	6	7	0.200	0.0
7	7	8	1.220	0.0

## BARS IN TRAVERSE 12: ZP2



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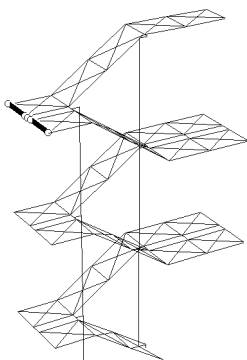
Bars in traverse 13: ZP3

### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
18	18	19	1.220	0.0
19	19	20	0.200	0.0
20	20	21	0.200	0.0
21	21	22	1.220	0.0

### BARS IN TRAVERSE 13: ZP3



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
32	32	33	1.220	0.0
33	33	34	0.200	0.0
34	34	35	0.200	0.0
35	35	36	1.220	0.0

## Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



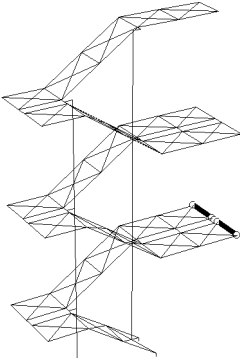
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Bars in traverse 15: HP2

## BARS IN TRAVERSE 14: HP1

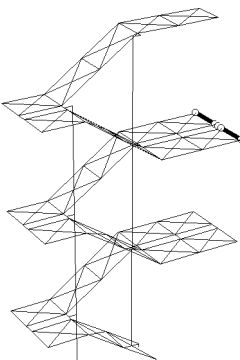


### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
11	11	12	1.220	0.0
12	12	13	0.200	0.0
13	13	14	0.200	0.0
14	14	15	1.220	0.0

## BARS IN TRAVERSE 15: HP2



## Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

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Bars in traverse 16: HP3

### Table of bars

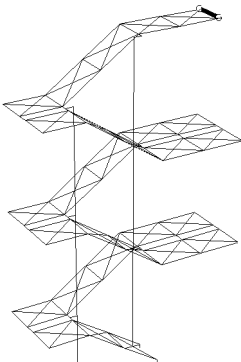
Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information).

l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane.

Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
25	25	26	1.220	0.0
26	26	27	0.200	0.0
27	27	28	0.200	0.0
28	28	29	1.220	0.0

### BARS IN TRAVERSE 16: HP3



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information).

l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane.

Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$
-	-	-	m	°
39	39	40	1.220	0.0

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



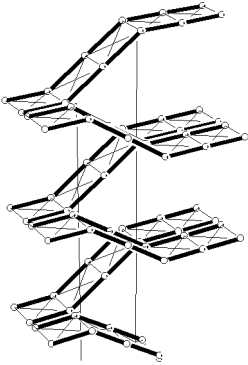
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Bars in traverse 17: stringers

## BARS IN TRAVERSE 17: STRINGERS



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta x = \Delta y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$	bar	nodA	nodE	length	$\alpha$
-	-	-	m	°	-	-	-	m	°
1	1	2	0.151	0.0	52	7	56	1.580	0.0
2	2	91	1.694	0.0	53	21	59	1.580	0.0
3	3	4	1.580	0.0	54	59	86	1.772	0.0
8	8	9	1.580	0.0	55	60	97	1.640	0.0
9	9	87	1.772	0.0	56	35	63	1.580	0.0
10	10	103	1.640	0.0	57	63	83	1.772	0.0
15	15	100	1.640	0.0	58	64	95	1.640	0.0
16	16	88	1.772	0.0	99	82	38	1.772	0.0
17	17	18	1.580	0.0	100	83	64	1.772	0.0
22	22	23	1.580	0.0	101	84	50	1.772	0.0
23	23	93	1.772	0.0	102	85	31	1.772	0.0
24	24	96	1.640	0.0	103	86	60	1.772	0.0
29	29	99	1.640	0.0	104	87	10	1.772	0.0
30	30	85	1.772	0.0	105	88	17	1.772	0.0
31	31	32	1.580	0.0	106	89	43	1.694	0.0
36	36	37	1.580	0.0	107	90	54	1.772	0.0
37	37	82	1.772	0.0	108	91	3	1.694	0.0
38	38	94	1.640	0.0	109	92	46	1.772	0.0
41	42	89	1.694	0.0	113	93	24	1.772	0.0
42	43	5	1.580	0.0	142	94	39	1.640	0.0
43	45	42	0.151	0.0	143	95	40	1.640	0.0
44	46	19	1.580	0.0	144	96	25	1.640	0.0
45	48	92	1.772	0.0	145	97	26	1.640	0.0
46	14	101	1.640	0.0	146	98	52	1.640	0.0
47	50	33	1.580	0.0	147	99	30	1.640	0.0
48	52	84	1.772	0.0	148	100	16	1.640	0.0
49	28	98	1.640	0.0	149	101	48	1.640	0.0
50	54	102	1.640	0.0	150	102	12	1.640	0.0
51	56	90	1.772	0.0	151	103	11	1.640	0.0

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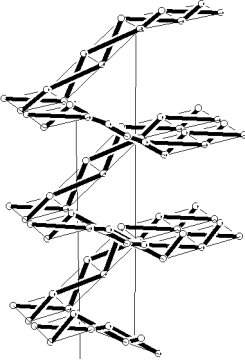
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Bars in traverse 18: diagonals

## BARS IN TRAVERSE 18: DIAGONALS



### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$	bar	nodA	nodE	length	$\alpha$
-	-	-	m	°	-	-	-	m	°
118	63	82	2.151	0.0	163	15	101	2.044	0.0
119	83	37	2.151	0.0	164	14	100	2.044	0.0
120	83	38	2.151	0.0	165	100	48	2.044	0.0
121	64	82	2.151	0.0	166	16	101	2.044	0.0
122	59	93	2.152	0.0	167	25	97	2.044	0.0
123	86	23	2.152	0.0	168	26	96	2.044	0.0
124	86	24	2.152	0.0	169	96	60	2.044	0.0
125	60	93	2.152	0.0	170	24	97	2.044	0.0
126	56	87	2.151	0.0	171	28	99	2.044	0.0
127	90	9	2.151	0.0	172	29	98	2.044	0.0
128	90	10	2.151	0.0	173	98	30	2.044	0.0
129	54	87	2.151	0.0	174	52	99	2.044	0.0
130	50	85	2.151	0.0	175	40	94	2.044	0.0
131	31	84	2.151	0.0	176	94	64	2.044	0.0
132	84	30	2.151	0.0	177	38	95	2.044	0.0
133	52	85	2.151	0.0	178	95	39	2.044	0.0
134	46	88	2.151	0.0	181	36	63	1.996	0.0
135	17	92	2.151	0.0	182	35	37	1.996	0.0
136	92	16	2.151	0.0	183	32	50	1.996	0.0
137	88	48	2.151	0.0	184	31	33	1.996	0.0
138	43	91	2.087	0.0	185	22	59	1.996	0.0
139	3	89	2.087	0.0	186	21	23	1.996	0.0
140	89	2	2.087	0.0	187	18	46	1.996	0.0
141	42	91	2.087	0.0	188	19	17	1.996	0.0
159	11	102	2.044	0.0	189	8	56	1.996	0.0
160	12	103	2.044	0.0	190	7	9	1.996	0.0
161	103	54	2.044	0.0	191	4	43	1.996	0.0
162	102	10	2.044	0.0	192	5	3	1.996	0.0



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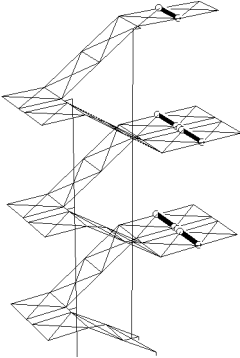
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Bars in traverse 20: MSH40 struts

## BARS IN TRAVERSE 19: T80-STRUTS

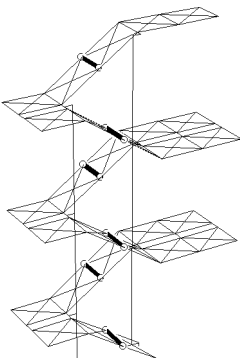


### Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta X = \Delta Y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$	bar	nodA	nodE	length	$\alpha$
-	-	-	m	°	-	-	-	m	°
152	94	95	1.220	0.0	157	101	105	0.200	0.0
153	96	97	1.220	0.0	158	102	103	1.220	0.0
154	97	104	0.200	0.0	179	104	98	0.200	0.0
155	98	99	1.220	0.0	180	105	102	0.200	0.0
156	100	101	1.220	0.0					

## BARS IN TRAVERSE 20: MSH40 STRUTS



# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

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Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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Member: external staircase east



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Loading structure

## Table of bars

Length discloses the distance between the local nodes of the bar.  $\alpha$  describes the l-m-n coordinate system of the bar (see global information). l always begins at the local start node and ends at the local end node. n is vertical to l and m. If  $\alpha=0$ , m is always parallel to the x-y-plane. Vertical bars ( $\Delta x = \Delta y = 0.0$ ) remain m=y for  $\alpha=0$ . If  $\alpha$  is positive, m rotates in the positive sense of rotation around l.

bar	nodA	nodE	length	$\alpha$	bar	nodA	nodE	length	$\alpha$
-	-	-	m	°	-	-	-	m	°
110	91	89	1.220	0.0	115	88	92	1.220	0.0
111	90	87	1.220	0.0	116	85	84	1.220	0.0
114	86	93	1.220	0.0	117	83	82	1.220	0.0

## LOADING STRUCTURE

### Description of loading structure

On the left-hand side the relationship of the actions effects, load case file and load cases to each other are shown in a tree structure. On the right-hand side the characteristics of the superposition to the associated objects on the left-hand side are denoted. A load case file is in the sense of the superposition equivalent to an extreme rule of the defined objects therein and can be additive or alternatively superpositioned.

Applied symbols: Action effect Load case file Load case Imperfection cases

#### 1: dead load

1: g incl. grid

#### 2: vert. live load

2: vll external

3: vll internal

#### 3: wind load

4: w+x

5: w-x

6: w-y

7: w+y

#### Imperfection cases

1: i1 +x

2: i2 -x

3: i3 +y

4: i4 -y

#### permanent loads

additive

#### transient live loads in assembly, sales rooms

additive

additive

#### transient wind loads

alternative in group A

alternative in group A

alternative in group A

alternative in group A

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

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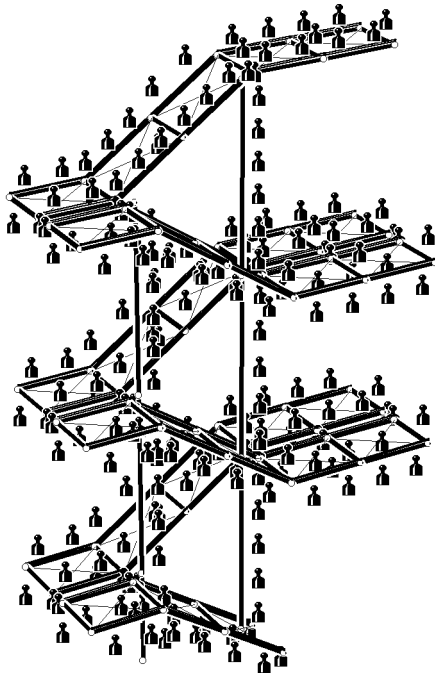
Description of load cases

## DESCRIPTION OF LOAD CASES

### Load case 1: g incl. grid

Type of superposition: additive, part of action effect 1: dead load ( permanent loads )

Load resultant:  $\Sigma F_x = 0.000 \text{ kN}$ ,  $\Sigma F_y = 0.000 \text{ kN}$ ,  $\Sigma F_z = 91.095 \text{ kN}$



### Dead load

bar	$\gamma$	bar	$\gamma$	bar	$\gamma$	bar	$\gamma$	bar	$\gamma$
-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>
76	78.500	66	78.500	4	78.500	26	78.500	30	78.500
77	78.500	89	78.500	5	78.500	27	78.500	31	78.500
78	78.500	90	78.500	6	78.500	28	78.500	36	78.500
79	78.500	69	78.500	7	78.500	39	78.500	37	78.500
80	78.500	88	78.500	18	78.500	1	78.500	38	78.500
81	78.500	62	78.500	19	78.500	2	78.500	41	78.500
82	78.500	68	78.500	20	78.500	3	78.500	42	78.500
83	78.500	97	78.500	21	78.500	8	78.500	43	78.500
84	78.500	98	78.500	32	78.500	9	78.500	44	78.500
85	78.500	61	78.500	33	78.500	10	78.500	45	78.500
86	78.500	65	78.500	34	78.500	15	78.500	46	78.500
87	78.500	93	78.500	35	78.500	16	78.500	47	78.500
60	78.500	94	78.500	11	78.500	17	78.500	48	78.500
67	78.500	63	78.500	12	78.500	22	78.500	49	78.500
95	78.500	64	78.500	13	78.500	23	78.500	50	78.500
96	78.500	91	78.500	14	78.500	24	78.500	51	78.500
59	78.500	92	78.500	25	78.500	29	78.500	52	78.500

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

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## Description of load cases

### Dead load

bar	$\gamma$	bar	$\gamma$	bar	$\gamma$	bar	$\gamma$	bar	$\gamma$
-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>	-	kN/m <sup>3</sup>
53	78.500	102	78.500	142	78.500	151	78.500	154	78.500
54	78.500	103	78.500	143	78.500	110	78.500	155	78.500
55	78.500	104	78.500	144	78.500	111	78.500	156	78.500
56	78.500	105	78.500	145	78.500	114	78.500	157	78.500
57	78.500	106	78.500	146	78.500	115	78.500	158	78.500
58	78.500	107	78.500	147	78.500	116	78.500	179	78.500
99	78.500	108	78.500	148	78.500	117	78.500	180	78.500
100	78.500	109	78.500	149	78.500	152	78.500		
101	78.500	113	78.500	150	78.500	153	78.500		

### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
1	G	0.000	0.151	0.000	C	--	--	0.300	--
2	G	0.000	1.694	0.000	C	--	--	0.300	--
3	G	0.000	1.580	0.000	C	--	--	0.300	--
41	G	0.000	1.694	0.000	C	--	--	0.300	--
42	G	0.000	1.580	0.000	C	--	--	0.400	--
43	G	0.000	0.151	0.000	C	--	--	0.300	--
8	G	0.000	1.580	0.000	C	--	--	0.300	--
9	G	0.000	1.772	0.000	C	--	--	0.300	--
10	G	0.000	1.640	0.000	C	--	--	0.300	--
50	G	0.000	1.640	0.000	C	--	--	0.400	--
51	G	0.000	1.772	0.000	C	--	--	0.300	--
52	G	0.000	1.580	0.000	C	--	--	0.400	--
15	G	0.000	1.640	0.000	C	--	--	0.300	--
16	G	0.000	1.772	0.000	C	--	--	0.300	--
17	G	0.000	1.580	0.000	C	--	--	0.300	--
44	G	0.000	1.580	0.000	C	--	--	0.400	--
45	G	0.000	1.772	0.000	C	--	--	0.300	--
46	G	0.000	1.640	0.000	C	--	--	0.400	--
22	G	0.000	1.580	0.000	C	--	--	0.300	--
23	G	0.000	1.772	0.000	C	--	--	0.300	--
24	G	0.000	1.640	0.000	C	--	--	0.300	--
53	G	0.000	1.580	0.000	C	--	--	0.400	--
54	G	0.000	1.772	0.000	C	--	--	0.300	--
55	G	0.000	1.640	0.000	C	--	--	0.400	--
29	G	0.000	1.640	0.000	C	--	--	0.300	--
30	G	0.000	1.772	0.000	C	--	--	0.300	--
31	G	0.000	1.580	0.000	C	--	--	0.300	--
47	G	0.000	1.580	0.000	C	--	--	0.400	--
48	G	0.000	1.772	0.000	C	--	--	0.300	--
49	G	0.000	1.640	0.000	C	--	--	0.400	--
36	G	0.000	1.580	0.000	C	--	--	0.300	--
37	G	0.000	1.772	0.000	C	--	--	0.300	--
38	G	0.000	1.640	0.000	C	--	--	0.300	--
56	G	0.000	1.580	0.000	C	--	--	0.400	--
57	G	0.000	1.772	0.000	C	--	--	0.300	--
58	G	0.000	1.640	0.000	C	--	--	0.400	--
99	G	0.000	1.772	0.000	C	--	--	0.300	--

## Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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### Description of load cases

## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
142	G	0.000	1.640	0.000	C	--	--	0.300	--
143	G	0.000	1.640	0.000	C	--	--	0.400	--
100	G	0.000	1.772	0.000	C	--	--	0.300	--
144	G	0.000	1.640	0.000	C	--	--	0.300	--
113	G	0.000	1.772	0.000	C	--	--	0.300	--
103	G	0.000	1.772	0.000	C	--	--	0.300	--
145	G	0.000	1.640	0.000	C	--	--	0.400	--
146	G	0.000	1.640	0.000	C	--	--	0.400	--
151	G	0.000	1.640	0.000	C	--	--	0.300	--
147	G	0.000	1.640	0.000	C	--	--	0.300	--
149	G	0.000	1.640	0.000	C	--	--	0.400	--
150	G	0.000	1.640	0.000	C	--	--	0.400	--
148	G	0.000	1.640	0.000	C	--	--	0.300	--
105	G	0.000	1.772	0.000	C	--	--	0.300	--
106	G	0.000	1.694	0.000	C	--	--	0.300	--
108	G	0.000	1.694	0.000	C	--	--	0.300	--
104	G	0.000	1.772	0.000	C	--	--	0.300	--
107	G	0.000	1.772	0.000	C	--	--	0.300	--
109	G	0.000	1.772	0.000	C	--	--	0.300	--
102	G	0.000	1.772	0.000	C	--	--	0.300	--
101	G	0.000	1.772	0.000	C	--	--	0.300	--

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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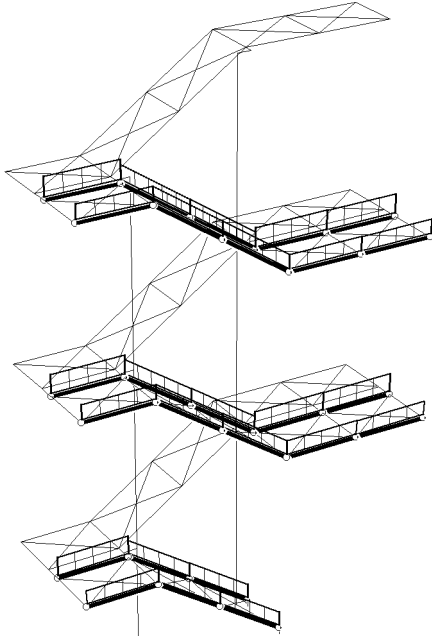
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Description of load cases

## Load case 2: vii external

Type of superposition: additive, part of action effect 2: vert. live load (transient live loads in assembly, sales rooms)

Load resultant:  $\Sigma F_x = 0.000 \text{ kN}$ ,  $\Sigma F_y = 0.000 \text{ kN}$ ,  $\Sigma F_z = 141.954 \text{ kN}$



## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
2	G	0.000	1.694	0.000	C	--	--	3.000	--
3	G	0.000	1.580	0.000	C	--	--	3.000	--
41	G	0.000	1.694	0.000	C	--	--	3.000	--
42	G	0.000	1.580	0.000	C	--	--	4.000	--
15	G	0.000	1.640	0.000	C	--	--	3.000	--
16	G	0.000	1.772	0.000	C	--	--	3.000	--
17	G	0.000	1.580	0.000	C	--	--	3.000	--
44	G	0.000	1.580	0.000	C	--	--	4.000	--
45	G	0.000	1.772	0.000	C	--	--	3.000	--
46	G	0.000	1.640	0.000	C	--	--	4.000	--
29	G	0.000	1.640	0.000	C	--	--	3.000	--
30	G	0.000	1.772	0.000	C	--	--	3.000	--
31	G	0.000	1.580	0.000	C	--	--	3.000	--
47	G	0.000	1.580	0.000	C	--	--	4.000	--
48	G	0.000	1.772	0.000	C	--	--	3.000	--
49	G	0.000	1.640	0.000	C	--	--	4.000	--
102	G	0.000	1.772	0.000	C	--	--	3.000	--

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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Description of load cases

## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

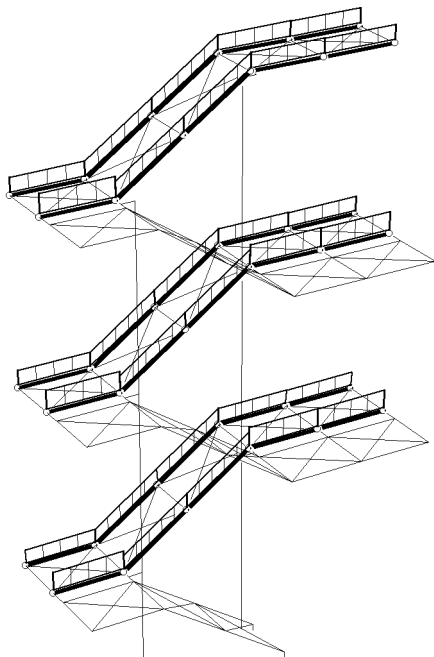
If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
147	G	0.000	1.640	0.000	C	--	--	3.000	--
101	G	0.000	1.772	0.000	C	--	--	3.000	--
148	G	0.000	1.640	0.000	C	--	--	3.000	--
105	G	0.000	1.772	0.000	C	--	--	3.000	--
106	G	0.000	1.694	0.000	C	--	--	3.000	--
108	G	0.000	1.694	0.000	C	--	--	3.000	--
109	G	0.000	1.772	0.000	C	--	--	3.000	--
149	G	0.000	1.640	0.000	C	--	--	4.000	--
146	G	0.000	1.640	0.000	C	--	--	4.000	--

## Load case 3: vll internal

Type of superposition: additive, part of action effect 2: vert. live load ( transient live loads in assembly, sales rooms )

Load resultant:  $\Sigma F_x = 0.000 \text{ kN}$ ,  $\Sigma F_y = 0.000 \text{ kN}$ ,  $\Sigma F_z = 162.576 \text{ kN}$



# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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## Description of load cases

### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
8	G	0.000	1.580	0.000	C	--	--	3.000	--
9	G	0.000	1.772	0.000	C	--	--	3.000	--
10	G	0.000	1.640	0.000	C	--	--	3.000	--
50	G	0.000	1.640	0.000	C	--	--	4.000	--
51	G	0.000	1.772	0.000	C	--	--	3.000	--
52	G	0.000	1.580	0.000	C	--	--	4.000	--
22	G	0.000	1.580	0.000	C	--	--	3.000	--
23	G	0.000	1.772	0.000	C	--	--	3.000	--
24	G	0.000	1.640	0.000	C	--	--	3.000	--
53	G	0.000	1.580	0.000	C	--	--	4.000	--
54	G	0.000	1.772	0.000	C	--	--	3.000	--
55	G	0.000	1.640	0.000	C	--	--	4.000	--
36	G	0.000	1.580	0.000	C	--	--	3.000	--
37	G	0.000	1.772	0.000	C	--	--	3.000	--
38	G	0.000	1.640	0.000	C	--	--	3.000	--
56	G	0.000	1.580	0.000	C	--	--	4.000	--
57	G	0.000	1.772	0.000	C	--	--	3.000	--
58	G	0.000	1.640	0.000	C	--	--	3.000	--
143	G	0.000	1.640	0.000	C	--	--	3.000	--
100	G	0.000	1.772	0.000	C	--	--	3.000	--
142	G	0.000	1.640	0.000	C	--	--	3.000	--
99	G	0.000	1.772	0.000	C	--	--	3.000	--
145	G	0.000	1.640	0.000	C	--	--	4.000	--
144	G	0.000	1.640	0.000	C	--	--	3.000	--
103	G	0.000	1.772	0.000	C	--	--	3.000	--
151	G	0.000	1.640	0.000	C	--	--	3.000	--
150	G	0.000	1.640	0.000	C	--	--	4.000	--
107	G	0.000	1.772	0.000	C	--	--	3.000	--
113	G	0.000	1.772	0.000	C	--	--	3.000	--
104	G	0.000	1.772	0.000	C	--	--	3.000	--



# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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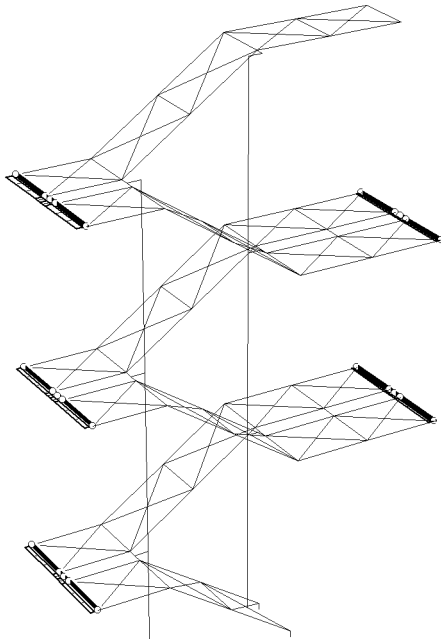
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Description of load cases

## Load case 4: w+x

Type of superposition: alternative in group A, part of action effect 3: wind load ( transient wind loads )

Load resultant:  $\Sigma F_x = 11.616 \text{ kN}$ ,  $\Sigma F_y = 0.000 \text{ kN}$ ,  $\Sigma F_z = 0.000 \text{ kN}$



## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
35	G	0.000	1.220	0.000	C	1.350	--	--	--
34	G	0.000	0.200	0.000	C	1.350	--	--	--
33	G	0.000	0.200	0.000	C	1.350	--	--	--
32	G	0.000	1.220	0.000	C	1.350	--	--	--
21	G	0.000	1.220	0.000	C	0.850	--	--	--
20	G	0.000	0.200	0.000	C	0.850	--	--	--
19	G	0.000	0.200	0.000	C	0.850	--	--	--
18	G	0.000	1.220	0.000	C	0.850	--	--	--
7	G	0.000	1.220	0.000	C	0.850	--	--	--
6	G	0.000	0.200	0.000	C	0.850	--	--	--
5	G	0.000	0.200	0.000	C	0.850	--	--	--
4	G	0.000	1.220	0.000	C	0.850	--	--	--
28	G	0.000	1.220	0.000	C	0.520	--	--	--
25	G	0.000	1.220	0.000	C	0.520	--	--	--
26	G	0.000	0.200	0.000	C	0.520	--	--	--
27	G	0.000	0.200	0.000	C	0.520	--	--	--
11	G	0.000	1.220	0.000	C	0.520	--	--	--

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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## Description of load cases

### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

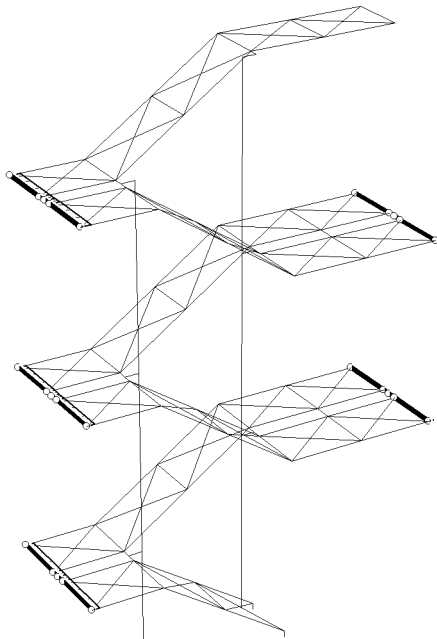
If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
12	G	0.000	0.200	0.000	C	0.520	--	--	--
13	G	0.000	0.200	0.000	C	0.520	--	--	--
14	G	0.000	1.220	0.000	C	0.520	--	--	--

### Load case 5: w-x

Type of superposition: alternative in group A, part of action effect 3: wind load (transient wind loads)

Load resultant:  $\Sigma F_x = -10.508 \text{ kN}$ ,  $\Sigma F_y = 0.000 \text{ kN}$ ,  $\Sigma F_z = 0.000 \text{ kN}$



### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
35	G	0.000	1.220	0.000	C	-1.350	--	--	--
34	G	0.000	0.200	0.000	C	-1.350	--	--	--
33	G	0.000	0.200	0.000	C	-1.350	--	--	--
32	G	0.000	1.220	0.000	C	-1.350	--	--	--

# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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Description of load cases

## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

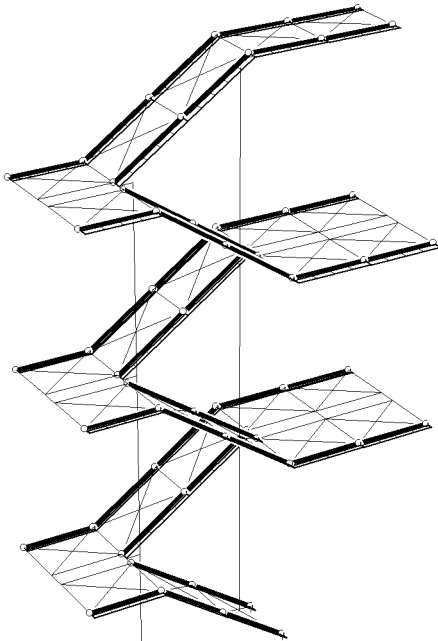
If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
21	G	0.000	1.220	0.000	C	-0.850	--	--	--
20	G	0.000	0.200	0.000	C	-0.850	--	--	--
19	G	0.000	0.200	0.000	C	-0.850	--	--	--
18	G	0.000	1.220	0.000	C	-0.850	--	--	--
7	G	0.000	1.220	0.000	C	-0.850	--	--	--
6	G	0.000	0.200	0.000	C	-0.850	--	--	--
5	G	0.000	0.200	0.000	C	-0.850	--	--	--
4	G	0.000	1.220	0.000	C	-0.850	--	--	--
28	G	0.000	1.220	0.000	C	-0.325	--	--	--
25	G	0.000	1.220	0.000	C	-0.325	--	--	--
26	G	0.000	0.200	0.000	C	-0.325	--	--	--
27	G	0.000	0.200	0.000	C	-0.325	--	--	--
11	G	0.000	1.220	0.000	C	-0.325	--	--	--
12	G	0.000	0.200	0.000	C	-0.325	--	--	--
13	G	0.000	0.200	0.000	C	-0.325	--	--	--
14	G	0.000	1.220	0.000	C	-0.325	--	--	--

## Load case 6: w-y

Type of superposition: alternative in group A, part of action effect 3: wind load (transient wind loads)

Load resultant:  $\Sigma F_x = 0.000 \text{ kN}$ ,  $\Sigma F_y = -75.463 \text{ kN}$ ,  $\Sigma F_z = 0.000 \text{ kN}$



# Hier können Sie die ersten drei Zeilen einer jeden Dokumentenseite festlegen.

Die erste Zeile wird fett gesetzt. Die zweite Zeile wird in mittelgroßer Schrift gesetzt.

Die dritte Zeile wird klein gesetzt. Wenn eine Zeile leer ist, wird sie nicht gesetzt.



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## Description of load cases

### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
29	G	0.000	1.640	0.000	C	--	-1.560	--	--
30	G	0.000	1.772	0.000	C	--	-1.560	--	--
31	G	0.000	1.580	0.000	C	--	-1.560	--	--
17	G	0.000	1.580	0.000	C	--	-0.980	--	--
16	G	0.000	1.772	0.000	C	--	-0.980	--	--
15	G	0.000	1.640	0.000	C	--	-0.980	--	--
3	G	0.000	1.580	0.000	C	--	-0.980	--	--
2	G	0.000	1.694	0.000	C	--	-0.980	--	--
8	G	0.000	1.580	0.000	C	--	-0.600	--	--
9	G	0.000	1.772	0.000	C	--	-0.600	--	--
10	G	0.000	1.640	0.000	C	--	-0.600	--	--
22	G	0.000	1.580	0.000	C	--	-0.600	--	--
23	G	0.000	1.772	0.000	C	--	-0.600	--	--
24	G	0.000	1.640	0.000	C	--	-0.960	--	--
36	G	0.000	1.580	0.000	C	--	-0.960	--	--
37	G	0.000	1.772	0.000	C	--	-0.960	--	--
38	G	0.000	1.640	0.000	C	--	-0.960	--	--
99	G	0.000	1.772	0.000	C	--	-0.960	--	--
142	G	0.000	1.640	0.000	C	--	-0.960	--	--
144	G	0.000	1.640	0.000	C	--	-0.960	--	--
113	G	0.000	1.772	0.000	C	--	-0.600	--	--
151	G	0.000	1.640	0.000	C	--	-0.600	--	--
104	G	0.000	1.772	0.000	C	--	-0.600	--	--
108	G	0.000	1.694	0.000	C	--	-0.980	--	--
105	G	0.000	1.772	0.000	C	--	-0.980	--	--
148	G	0.000	1.640	0.000	C	--	-0.980	--	--
147	G	0.000	1.640	0.000	C	--	-1.560	--	--
102	G	0.000	1.772	0.000	C	--	-1.560	--	--
57	G	0.000	1.772	0.000	C	--	-1.560	--	--
100	G	0.000	1.772	0.000	C	--	-1.560	--	--
58	G	0.000	1.640	0.000	C	--	-1.560	--	--
143	G	0.000	1.640	0.000	C	--	-1.560	--	--
48	G	0.000	1.772	0.000	C	--	-1.560	--	--
101	G	0.000	1.772	0.000	C	--	-1.560	--	--
103	G	0.000	1.772	0.000	C	--	-0.980	--	--
54	G	0.000	1.772	0.000	C	--	-0.980	--	--
109	G	0.000	1.772	0.000	C	--	-0.980	--	--
45	G	0.000	1.772	0.000	C	--	-0.980	--	--
107	G	0.000	1.772	0.000	C	--	-0.980	--	--
51	G	0.000	1.772	0.000	C	--	-0.980	--	--
106	G	0.000	1.694	0.000	C	--	-0.980	--	--
41	G	0.000	1.694	0.000	C	--	-0.980	--	--

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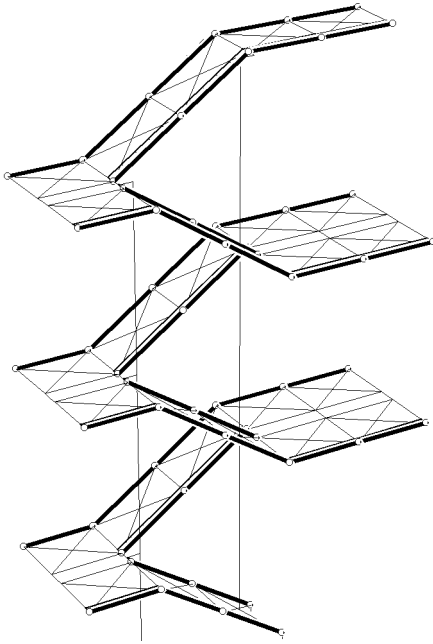
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Description of load cases

## Load case 7: w+y

Type of superposition: alternative in group A, part of action effect 3: wind load ( transient wind loads )

Load resultant:  $\Sigma F_x = 0.000 \text{ kN}$ ,  $\Sigma F_y = 68.238 \text{ kN}$ ,  $\Sigma F_z = 0.000 \text{ kN}$



## Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
29	G	0.000	1.640	0.000	C	--	1.560	--	--
30	G	0.000	1.772	0.000	C	--	1.560	--	--
31	G	0.000	1.580	0.000	C	--	1.560	--	--
17	G	0.000	1.580	0.000	C	--	0.980	--	--
16	G	0.000	1.772	0.000	C	--	0.980	--	--
15	G	0.000	1.640	0.000	C	--	0.980	--	--
3	G	0.000	1.580	0.000	C	--	0.980	--	--
2	G	0.000	1.694	0.000	C	--	0.980	--	--
8	G	0.000	1.580	0.000	C	--	0.375	--	--
9	G	0.000	1.772	0.000	C	--	0.375	--	--
10	G	0.000	1.640	0.000	C	--	0.375	--	--
22	G	0.000	1.580	0.000	C	--	0.375	--	--
23	G	0.000	1.772	0.000	C	--	0.375	--	--
24	G	0.000	1.640	0.000	C	--	0.600	--	--
36	G	0.000	1.580	0.000	C	--	0.600	--	--
37	G	0.000	1.772	0.000	C	--	0.600	--	--
38	G	0.000	1.640	0.000	C	--	0.600	--	--

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## Description of load cases

### Line loads

a designates the distance of line loads from the local start node. e describes the distance of line loads from the local end node. l is the effective length of line loads. The load ordinates at place A describes the line load at the beginning. The load coordinates at place E describes the line load at the end. At place C the line load is constant.

If type = G and S, the coordinate directions are 123=xyz. If type = W, the coordinate directions are 123=lmn.

bar	type	a	l	e	place	q1	q2	q3	m1
-	=	m	m	m	-	kN/m	kN/m	kN/m	kNm/m
99	G	0.000	1.772	0.000	C	--	0.600	--	--
142	G	0.000	1.640	0.000	C	--	0.600	--	--
144	G	0.000	1.640	0.000	C	--	0.600	--	--
113	G	0.000	1.772	0.000	C	--	0.380	--	--
151	G	0.000	1.640	0.000	C	--	0.380	--	--
104	G	0.000	1.772	0.000	C	--	0.380	--	--
148	G	0.000	1.640	0.000	C	--	0.980	--	--
105	G	0.000	1.772	0.000	C	--	0.980	--	--
147	G	0.000	1.640	0.000	C	--	1.560	--	--
102	G	0.000	1.772	0.000	C	--	1.560	--	--
57	G	0.000	1.772	0.000	C	--	1.560	--	--
100	G	0.000	1.772	0.000	C	--	1.560	--	--
58	G	0.000	1.640	0.000	C	--	1.560	--	--
143	G	0.000	1.640	0.000	C	--	1.560	--	--
101	G	0.000	1.772	0.000	C	--	1.560	--	--
48	G	0.000	1.772	0.000	C	--	1.560	--	--
103	G	0.000	1.772	0.000	C	--	0.980	--	--
54	G	0.000	1.772	0.000	C	--	0.980	--	--
109	G	0.000	1.772	0.000	C	--	0.980	--	--
45	G	0.000	1.772	0.000	C	--	0.980	--	--
106	G	0.000	1.694	0.000	C	--	0.980	--	--
41	G	0.000	1.694	0.000	C	--	0.980	--	--
108	G	0.000	1.694	0.000	C	--	0.980	--	--
107	G	0.000	1.772	0.000	C	--	0.980	--	--
51	G	0.000	1.772	0.000	C	--	0.980	--	--

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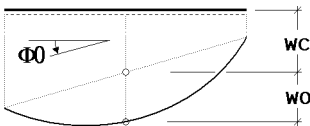
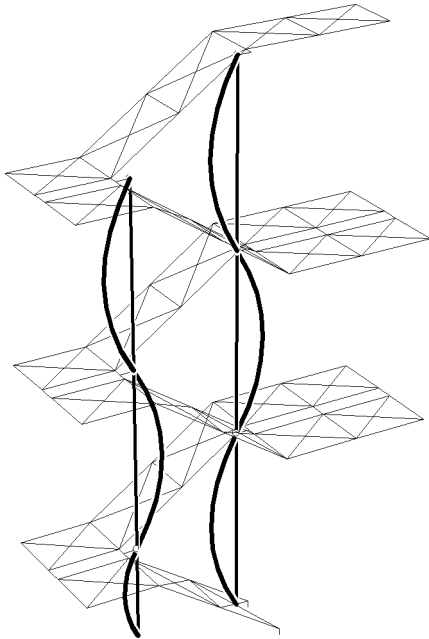
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Description of imperfections

## DESCRIPTION OF IMPERFECTIONS

### Imperfection 1: i1 +x

type: user-defined



#### Imperfection parameters

*wc* constant displacement

*wo* previous deformation

$\Phi$  obliquity

### Imperfection figures

bar	in local m-direction			in local n-direction		
	wc mm	wo mm	$\Phi$ %	wc mm	wo mm	$\Phi$ %
78	0.000	0.000	0.000	0.000	16.000	0.000
77	0.000	0.000	0.000	0.000	-16.000	0.000
76	0.000	0.000	0.000	0.000	16.000	0.000
81	0.000	0.000	0.000	0.000	8.000	0.000
79	0.000	0.000	0.000	0.000	16.000	0.000
80	0.000	0.000	0.000	0.000	-16.000	0.000

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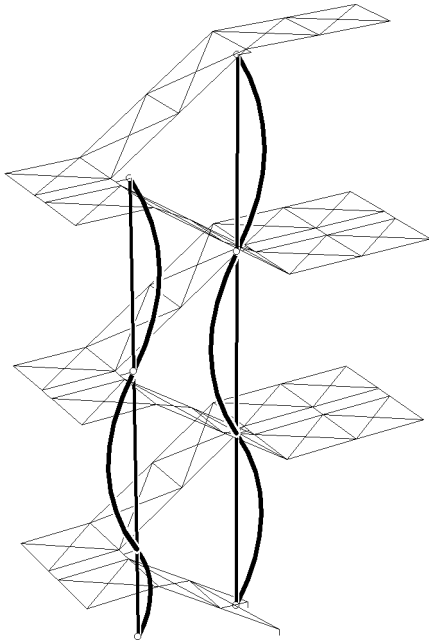
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Description of imperfections

**Imperfection 2: i2 -x**

type: user-defined



**Imperfection figures**

bar	in local m-direction			in local n-direction		
	wc mm	wo mm	ϕ0 %	wc mm	wo mm	ϕ0 %
78	0.000	0.000	0.000	0.000	-16.000	0.000
77	0.000	0.000	0.000	0.000	16.000	0.000
76	0.000	0.000	0.000	0.000	-16.000	0.000
81	0.000	0.000	0.000	0.000	-8.000	0.000
79	0.000	0.000	0.000	0.000	-16.000	0.000
80	0.000	0.000	0.000	0.000	16.000	0.000



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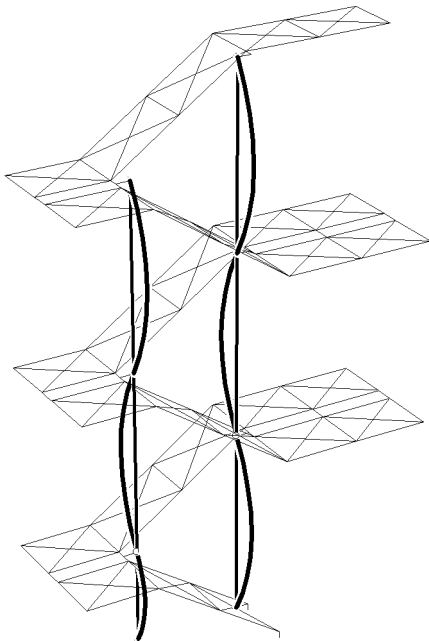
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Description of imperfections

### Imperfection 3: i3 +y

type: user-defined



### Imperfection figures

bar	in local m-direction			in local n-direction		
	wc mm	wo mm	ϕ0 %	wc mm	wo mm	ϕ0 %
76	0.000	16.000	0.000	0.000	0.000	0.000
77	0.000	-16.000	0.000	0.000	0.000	0.000
78	0.000	16.000	0.000	0.000	0.000	0.000
79	0.000	16.000	0.000	0.000	0.000	0.000
80	0.000	-16.000	0.000	0.000	0.000	0.000
81	0.000	8.000	0.000	0.000	0.000	0.000

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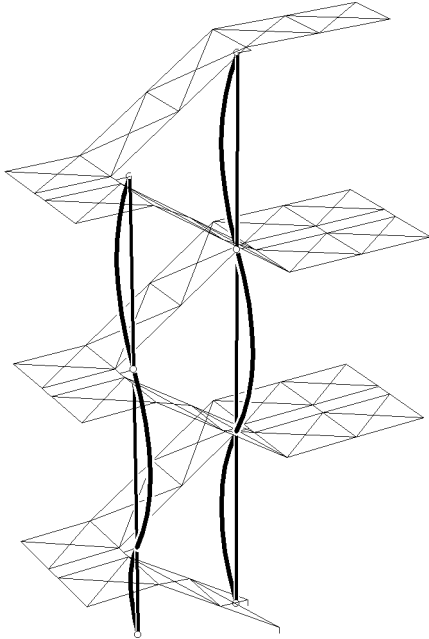
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Description of demanded verifications

## Imperfection 4: i4 -y

type: user-defined



## Imperfection figures

bar	in local m-direction			in local n-direction		
	wc mm	wo mm	$\Phi\Phi$ %	wc mm	wo mm	$\Phi\Phi$ %
76	0.000	-16.000	0.000	0.000	0.000	0.000
77	0.000	16.000	0.000	0.000	0.000	0.000
78	0.000	-16.000	0.000	0.000	0.000	0.000
79	0.000	-16.000	0.000	0.000	0.000	0.000
80	0.000	16.000	0.000	0.000	0.000	0.000
81	0.000	-8.000	0.000	0.000	0.000	0.000

## DESCRIPTION OF DEMANDED VERIFICATIONS

The following means:

- $\Psi_{dom}$  at rule of superposition DIN 1055-100: Combination coefficient of a leading traffic load action  
at rule of superposition DIN 18800: Combination coefficient of a minor combination
- $\Psi_{sub}$  at rule of superposition DIN 1055-100: Combination coefficient of a non-leading traffic load action  
at rule of superposition DIN 18800: Combination coefficient of a main combination
- $\gamma_{sup}$  Partial safety factor for unfavourable load positions
- $\gamma_{inf}$  Partial safety factor for favourable load positions

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Description of demanded verifications

The following means:

Rules of superposition FB101 and Eurocode behaves with DIN 1055-100  
In non-linear analysis, rules of maxi- and minimizing will not be considered

## Verification 1: Steel design resistance (th. 1. order)

DIN 18800 Design resistance (th. I. order): Design resistance according to DIN 18800 11.90

### 1: TH.1.O. Design resistance Extr.1

Rules for building extremes of verification 1, type: user-defined, rule of superposition: DIN 18800

action	$\Psi_{dom}$	$\Psi_{sub}$	$\gamma_{sup}$	$\gamma_{inf}$
1	1.00	1.00	1.35	1.00
2	1.00	0.90	1.50	0.00
3	1.00	0.90	1.50	0.00

### Table of bars of verification 1:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of column 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexural moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$	$\tau_n$	$\sigma_v$	limited plasticity			$M_{max}$	b/t
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	elastic	yes	yes	yes	yes	yes	no	--	yes
2	elastic	yes	yes	yes	yes	yes	no	--	yes
3	elastic	yes	yes	yes	yes	yes	no	--	yes
4	elastic	yes	yes	yes	yes	yes	no	--	yes
5	elastic	yes	yes	yes	yes	yes	no	--	yes
6	elastic	yes	yes	yes	yes	yes	no	--	yes
7	elastic	yes	yes	yes	yes	yes	no	--	yes
8	elastic	yes	yes	yes	yes	yes	no	--	yes
9	elastic	yes	yes	yes	yes	yes	no	--	yes
10	elastic	yes	yes	yes	yes	yes	no	--	yes
11	elastic	yes	yes	yes	yes	yes	no	--	yes
12	elastic	yes	yes	yes	yes	yes	no	--	yes
13	elastic	yes	yes	yes	yes	yes	no	--	yes
14	elastic	yes	yes	yes	yes	yes	no	--	yes
15	elastic	yes	yes	yes	yes	yes	no	--	yes
16	elastic	yes	yes	yes	yes	yes	no	--	yes
17	elastic	yes	yes	yes	yes	yes	no	--	yes
18	elastic	yes	yes	yes	yes	yes	no	--	yes
19	elastic	yes	yes	yes	yes	yes	no	--	yes
20	elastic	yes	yes	yes	yes	yes	no	--	yes
21	elastic	yes	yes	yes	yes	yes	no	--	yes
22	elastic	yes	yes	yes	yes	yes	no	--	yes
23	elastic	yes	yes	yes	yes	yes	no	--	yes
24	elastic	yes	yes	yes	yes	yes	no	--	yes
25	elastic	yes	yes	yes	yes	yes	no	--	yes
26	elastic	yes	yes	yes	yes	yes	no	--	yes
27	elastic	yes	yes	yes	yes	yes	no	--	yes
28	elastic	yes	yes	yes	yes	yes	no	--	yes
29	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

Table of bars of verification 1:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
30	elastic	yes	yes	yes	yes	yes	no	--	yes
31	elastic	yes	yes	yes	yes	yes	no	--	yes
32	elastic	yes	yes	yes	yes	yes	no	--	yes
33	elastic	yes	yes	yes	yes	yes	no	--	yes
34	elastic	yes	yes	yes	yes	yes	no	--	yes
35	elastic	yes	yes	yes	yes	yes	no	--	yes
36	elastic	yes	yes	yes	yes	yes	no	--	yes
37	elastic	yes	yes	yes	yes	yes	no	--	yes
38	elastic	yes	yes	yes	yes	yes	no	--	yes
39	elastic	yes	yes	yes	yes	yes	no	--	yes
41	elastic	yes	yes	yes	yes	yes	no	--	yes
42	elastic	yes	yes	yes	yes	yes	no	--	yes
43	elastic	yes	yes	yes	yes	yes	no	--	yes
44	elastic	yes	yes	yes	yes	yes	no	--	yes
45	elastic	yes	yes	yes	yes	yes	no	--	yes
46	elastic	yes	yes	yes	yes	yes	no	--	yes
47	elastic	yes	yes	yes	yes	yes	no	--	yes
48	elastic	yes	yes	yes	yes	yes	no	--	yes
49	elastic	yes	yes	yes	yes	yes	no	--	yes
50	elastic	yes	yes	yes	yes	yes	no	--	yes
51	elastic	yes	yes	yes	yes	yes	no	--	yes
52	elastic	yes	yes	yes	yes	yes	no	--	yes
53	elastic	yes	yes	yes	yes	yes	no	--	yes
54	elastic	yes	yes	yes	yes	yes	no	--	yes
55	elastic	yes	yes	yes	yes	yes	no	--	yes
56	elastic	yes	yes	yes	yes	yes	no	--	yes
57	elastic	yes	yes	yes	yes	yes	no	--	yes
58	elastic	yes	yes	yes	yes	yes	no	--	yes
59	elastic	yes	yes	yes	yes	yes	no	--	yes
60	elastic	yes	yes	yes	yes	yes	no	--	yes
61	elastic	yes	yes	yes	yes	yes	no	--	yes
62	elastic	yes	yes	yes	yes	yes	no	--	yes
63	elastic	yes	yes	yes	yes	yes	no	--	yes
64	elastic	yes	yes	yes	yes	yes	no	--	yes
65	elastic	yes	yes	yes	yes	yes	no	--	yes
66	elastic	yes	yes	yes	yes	yes	no	--	yes
67	elastic	yes	yes	yes	yes	yes	no	--	yes
68	elastic	yes	yes	yes	yes	yes	no	--	yes
69	elastic	yes	yes	yes	yes	yes	no	--	yes
76	elastic	yes	yes	yes	yes	yes	no	--	yes
77	elastic	yes	yes	yes	yes	yes	no	--	yes
78	elastic	yes	yes	yes	yes	yes	no	--	yes
79	elastic	yes	yes	yes	yes	yes	no	--	yes
80	elastic	yes	yes	yes	yes	yes	no	--	yes
81	elastic	yes	yes	yes	yes	yes	no	--	yes
82	elastic	yes	yes	yes	yes	yes	no	--	yes
83	elastic	yes	yes	yes	yes	yes	no	--	yes
84	elastic	yes	yes	yes	yes	yes	no	--	yes
85	elastic	yes	yes	yes	yes	yes	no	--	yes
86	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

Table of bars of verification 1:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
87	elastic	yes	yes	yes	yes	yes	no	--	yes
88	elastic	yes	yes	yes	yes	yes	no	--	yes
89	elastic	yes	yes	yes	yes	yes	no	--	yes
90	elastic	yes	yes	yes	yes	yes	no	--	yes
91	elastic	yes	yes	yes	yes	yes	no	--	yes
92	elastic	yes	yes	yes	yes	yes	no	--	yes
93	elastic	yes	yes	yes	yes	yes	no	--	yes
94	elastic	yes	yes	yes	yes	yes	no	--	yes
95	elastic	yes	yes	yes	yes	yes	no	--	yes
96	elastic	yes	yes	yes	yes	yes	no	--	yes
97	elastic	yes	yes	yes	yes	yes	no	--	yes
98	elastic	yes	yes	yes	yes	yes	no	--	yes
99	elastic	yes	yes	yes	yes	yes	no	--	yes
100	elastic	yes	yes	yes	yes	yes	no	--	yes
101	elastic	yes	yes	yes	yes	yes	no	--	yes
102	elastic	yes	yes	yes	yes	yes	no	--	yes
103	elastic	yes	yes	yes	yes	yes	no	--	yes
104	elastic	yes	yes	yes	yes	yes	no	--	yes
105	elastic	yes	yes	yes	yes	yes	no	--	yes
106	elastic	yes	yes	yes	yes	yes	no	--	yes
107	elastic	yes	yes	yes	yes	yes	no	--	yes
108	elastic	yes	yes	yes	yes	yes	no	--	yes
109	elastic	yes	yes	yes	yes	yes	no	--	yes
110	elastic	yes	yes	yes	yes	yes	no	--	yes
111	elastic	yes	yes	yes	yes	yes	no	--	yes
113	elastic	yes	yes	yes	yes	yes	no	--	yes
114	elastic	yes	yes	yes	yes	yes	no	--	yes
115	elastic	yes	yes	yes	yes	yes	no	--	yes
116	elastic	yes	yes	yes	yes	yes	no	--	yes
117	elastic	yes	yes	yes	yes	yes	no	--	yes
118	elastic	yes	yes	yes	yes	yes	no	--	yes
119	elastic	yes	yes	yes	yes	yes	no	--	yes
120	elastic	yes	yes	yes	yes	yes	no	--	yes
121	elastic	yes	yes	yes	yes	yes	no	--	yes
122	elastic	yes	yes	yes	yes	yes	no	--	yes
123	elastic	yes	yes	yes	yes	yes	no	--	yes
124	elastic	yes	yes	yes	yes	yes	no	--	yes
125	elastic	yes	yes	yes	yes	yes	no	--	yes
126	elastic	yes	yes	yes	yes	yes	no	--	yes
127	elastic	yes	yes	yes	yes	yes	no	--	yes
128	elastic	yes	yes	yes	yes	yes	no	--	yes
129	elastic	yes	yes	yes	yes	yes	no	--	yes
130	elastic	yes	yes	yes	yes	yes	no	--	yes
131	elastic	yes	yes	yes	yes	yes	no	--	yes
132	elastic	yes	yes	yes	yes	yes	no	--	yes
133	elastic	yes	yes	yes	yes	yes	no	--	yes
134	elastic	yes	yes	yes	yes	yes	no	--	yes
135	elastic	yes	yes	yes	yes	yes	no	--	yes
136	elastic	yes	yes	yes	yes	yes	no	--	yes
137	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

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bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
138	elastic	yes	yes	yes	yes	yes	no	--	yes
139	elastic	yes	yes	yes	yes	yes	no	--	yes
140	elastic	yes	yes	yes	yes	yes	no	--	yes
141	elastic	yes	yes	yes	yes	yes	no	--	yes
142	elastic	yes	yes	yes	yes	yes	no	--	yes
143	elastic	yes	yes	yes	yes	yes	no	--	yes
144	elastic	yes	yes	yes	yes	yes	no	--	yes
145	elastic	yes	yes	yes	yes	yes	no	--	yes
146	elastic	yes	yes	yes	yes	yes	no	--	yes
147	elastic	yes	yes	yes	yes	yes	no	--	yes
148	elastic	yes	yes	yes	yes	yes	no	--	yes
149	elastic	yes	yes	yes	yes	yes	no	--	yes
150	elastic	yes	yes	yes	yes	yes	no	--	yes
151	elastic	yes	yes	yes	yes	yes	no	--	yes
152	elastic	yes	yes	yes	yes	yes	no	--	yes
153	elastic	yes	yes	yes	yes	yes	no	--	yes
154	elastic	yes	yes	yes	yes	yes	no	--	yes
155	elastic	yes	yes	yes	yes	yes	no	--	yes
156	elastic	yes	yes	yes	yes	yes	no	--	yes
157	elastic	yes	yes	yes	yes	yes	no	--	yes
158	elastic	yes	yes	yes	yes	yes	no	--	yes
159	elastic	yes	yes	yes	yes	yes	no	--	yes
160	elastic	yes	yes	yes	yes	yes	no	--	yes
161	elastic	yes	yes	yes	yes	yes	no	--	yes
162	elastic	yes	yes	yes	yes	yes	no	--	yes
163	elastic	yes	yes	yes	yes	yes	no	--	yes
164	elastic	yes	yes	yes	yes	yes	no	--	yes
165	elastic	yes	yes	yes	yes	yes	no	--	yes
166	elastic	yes	yes	yes	yes	yes	no	--	yes
167	elastic	yes	yes	yes	yes	yes	no	--	yes
168	elastic	yes	yes	yes	yes	yes	no	--	yes
169	elastic	yes	yes	yes	yes	yes	no	--	yes
170	elastic	yes	yes	yes	yes	yes	no	--	yes
171	elastic	yes	yes	yes	yes	yes	no	--	yes
172	elastic	yes	yes	yes	yes	yes	no	--	yes
173	elastic	yes	yes	yes	yes	yes	no	--	yes
174	elastic	yes	yes	yes	yes	yes	no	--	yes
175	elastic	yes	yes	yes	yes	yes	no	--	yes
176	elastic	yes	yes	yes	yes	yes	no	--	yes
177	elastic	yes	yes	yes	yes	yes	no	--	yes
178	elastic	yes	yes	yes	yes	yes	no	--	yes
179	elastic	yes	yes	yes	yes	yes	no	--	yes
180	elastic	yes	yes	yes	yes	yes	no	--	yes
181	elastic	yes	yes	yes	yes	yes	no	--	yes
182	elastic	yes	yes	yes	yes	yes	no	--	yes
183	elastic	yes	yes	yes	yes	yes	no	--	yes
184	elastic	yes	yes	yes	yes	yes	no	--	yes
185	elastic	yes	yes	yes	yes	yes	no	--	yes
186	elastic	yes	yes	yes	yes	yes	no	--	yes
187	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

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Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of column 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexural moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
188	elastic	yes	yes	yes	yes	yes	no	--	yes
189	elastic	yes	yes	yes	yes	yes	no	--	yes
190	elastic	yes	yes	yes	yes	yes	no	--	yes
191	elastic	yes	yes	yes	yes	yes	no	--	yes
192	elastic	yes	yes	yes	yes	yes	no	--	yes

### Verification 2: Steel design resistance (th. 2. order)

DIN 18800 Design resistance (th. II. order): Design resistance according to DIN 18800 11.90

#### Design options of verification 2:

No lateral torsional buckling

#### Load spectra of verification 2

Factorization of load cases. Negative numbers of load cases refer to imperfections

LK	1	2	3	4	5	6	7	-1	-2	-3	-4
1	1.00	-	-	-	-	-	-	1.00	-	-	-
2	1.35	1.35	1.35	1.35	-	-	-	1.00	-	-	-
3	1.35	1.35	1.35	-	1.35	-	-	1.00	-	-	-
4	1.35	1.35	1.35	-	-	1.35	-	1.00	-	-	-
5	1.35	1.35	1.35	-	-	-	1.35	1.00	-	-	-
6	1.00	-	-	-	-	-	-	-	1.00	-	-
7	1.35	1.35	1.35	1.35	-	-	-	-	1.00	-	-
8	1.35	1.35	1.35	-	1.35	-	-	-	1.00	-	-
9	1.35	1.35	1.35	-	-	1.35	-	-	1.00	-	-
10	1.35	1.35	1.35	-	-	-	1.35	-	1.00	-	-
11	1.00	-	-	-	-	-	-	-	-	1.00	-
12	1.35	1.35	1.35	1.35	-	-	-	-	-	1.00	-
13	1.35	1.35	1.35	-	1.35	-	-	-	-	1.00	-
14	1.35	1.35	1.35	-	-	1.35	-	-	-	1.00	-
15	1.35	1.35	1.35	-	-	-	1.35	-	-	1.00	-
16	1.00	-	-	-	-	-	-	-	-	-	1.00
17	1.35	1.35	1.35	1.35	-	-	-	-	-	-	1.00
18	1.35	1.35	1.35	-	1.35	-	-	-	-	-	1.00
19	1.35	1.35	1.35	-	-	1.35	-	-	-	-	1.00
20	1.35	1.35	1.35	-	-	-	1.35	-	-	-	1.00
21	1.35	1.50	1.50	-	-	-	-	1.00	-	-	-
22	1.35	1.50	1.50	-	-	-	-	-	1.00	-	-
23	1.35	1.50	1.50	-	-	-	-	-	-	1.00	-
24	1.35	1.50	1.50	-	-	-	-	-	-	-	1.00
25	1.35	-	-	1.50	-	-	-	1.00	-	-	-
26	1.35	-	-	-	1.50	-	-	1.00	-	-	-
27	1.35	-	-	-	-	1.50	-	1.00	-	-	-
28	1.35	-	-	-	-	-	1.50	1.00	-	-	-
29	1.35	-	-	1.50	-	-	-	-	1.00	-	-

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## Description of demanded verifications

### Load spectra of verification 2

Factorization of load cases. Negative numbers of load cases refer to imperfections

LK	1	2	3	4	5	6	7	-1	-2	-3	-4
30	1.35	-	-	-	1.50	-	-	-	1.00	-	-
31	1.35	-	-	-	-	1.50	-	-	1.00	-	-
32	1.35	-	-	-	-	-	1.50	-	1.00	-	-
33	1.35	-	-	1.50	-	-	-	-	-	1.00	-
34	1.35	-	-	-	1.50	-	-	-	-	1.00	-
35	1.35	-	-	-	-	1.50	-	-	-	1.00	-
36	1.35	-	-	-	-	-	1.50	-	-	1.00	-
37	1.35	-	-	1.50	-	-	-	-	-	-	1.00
38	1.35	-	-	-	1.50	-	-	-	-	-	1.00
39	1.35	-	-	-	-	1.50	-	-	-	-	1.00
40	1.35	-	-	-	-	-	1.50	-	-	-	1.00

### Table of bars of verification 2:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

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1	elastic	yes	yes	yes	yes	yes	no	--	yes
2	elastic	yes	yes	yes	yes	yes	no	--	yes
3	elastic	yes	yes	yes	yes	yes	no	--	yes
4	elastic	yes	yes	yes	yes	yes	no	--	yes
5	elastic	yes	yes	yes	yes	yes	no	--	yes
6	elastic	yes	yes	yes	yes	yes	no	--	yes
7	elastic	yes	yes	yes	yes	yes	no	--	yes
8	elastic	yes	yes	yes	yes	yes	no	--	yes
9	elastic	yes	yes	yes	yes	yes	no	--	yes
10	elastic	yes	yes	yes	yes	yes	no	--	yes
11	elastic	yes	yes	yes	yes	yes	no	--	yes
12	elastic	yes	yes	yes	yes	yes	no	--	yes
13	elastic	yes	yes	yes	yes	yes	no	--	yes
14	elastic	yes	yes	yes	yes	yes	no	--	yes
15	elastic	yes	yes	yes	yes	yes	no	--	yes
16	elastic	yes	yes	yes	yes	yes	no	--	yes
17	elastic	yes	yes	yes	yes	yes	no	--	yes
18	elastic	yes	yes	yes	yes	yes	no	--	yes
19	elastic	yes	yes	yes	yes	yes	no	--	yes
20	elastic	yes	yes	yes	yes	yes	no	--	yes
21	elastic	yes	yes	yes	yes	yes	no	--	yes
22	elastic	yes	yes	yes	yes	yes	no	--	yes
23	elastic	yes	yes	yes	yes	yes	no	--	yes
24	elastic	yes	yes	yes	yes	yes	no	--	yes
25	elastic	yes	yes	yes	yes	yes	no	--	yes
26	elastic	yes	yes	yes	yes	yes	no	--	yes
27	elastic	yes	yes	yes	yes	yes	no	--	yes
28	elastic	yes	yes	yes	yes	yes	no	--	yes
29	elastic	yes	yes	yes	yes	yes	no	--	yes
30	elastic	yes	yes	yes	yes	yes	no	--	yes
31	elastic	yes	yes	yes	yes	yes	no	--	yes
32	elastic	yes	yes	yes	yes	yes	no	--	yes
33	elastic	yes	yes	yes	yes	yes	no	--	yes
34	elastic	yes	yes	yes	yes	yes	no	--	yes



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35	elastic	yes	yes	yes	yes	yes	no	--	yes
36	elastic	yes	yes	yes	yes	yes	no	--	yes
37	elastic	yes	yes	yes	yes	yes	no	--	yes
38	elastic	yes	yes	yes	yes	yes	no	--	yes
39	elastic	yes	yes	yes	yes	yes	no	--	yes
41	elastic	yes	yes	yes	yes	yes	no	--	yes
42	elastic	yes	yes	yes	yes	yes	no	--	yes
43	elastic	yes	yes	yes	yes	yes	no	--	yes
44	elastic	yes	yes	yes	yes	yes	no	--	yes
45	elastic	yes	yes	yes	yes	yes	no	--	yes
46	elastic	yes	yes	yes	yes	yes	no	--	yes
47	elastic	yes	yes	yes	yes	yes	no	--	yes
48	elastic	yes	yes	yes	yes	yes	no	--	yes
49	elastic	yes	yes	yes	yes	yes	no	--	yes
50	elastic	yes	yes	yes	yes	yes	no	--	yes
51	elastic	yes	yes	yes	yes	yes	no	--	yes
52	elastic	yes	yes	yes	yes	yes	no	--	yes
53	elastic	yes	yes	yes	yes	yes	no	--	yes
54	elastic	yes	yes	yes	yes	yes	no	--	yes
55	elastic	yes	yes	yes	yes	yes	no	--	yes
56	elastic	yes	yes	yes	yes	yes	no	--	yes
57	elastic	yes	yes	yes	yes	yes	no	--	yes
58	elastic	yes	yes	yes	yes	yes	no	--	yes
59	elastic	yes	yes	yes	yes	yes	no	--	yes
60	elastic	yes	yes	yes	yes	yes	no	--	yes
61	elastic	yes	yes	yes	yes	yes	no	--	yes
62	elastic	yes	yes	yes	yes	yes	no	--	yes
63	elastic	yes	yes	yes	yes	yes	no	--	yes
64	elastic	yes	yes	yes	yes	yes	no	--	yes
65	elastic	yes	yes	yes	yes	yes	no	--	yes
66	elastic	yes	yes	yes	yes	yes	no	--	yes
67	elastic	yes	yes	yes	yes	yes	no	--	yes
68	elastic	yes	yes	yes	yes	yes	no	--	yes
69	elastic	yes	yes	yes	yes	yes	no	--	yes
76	elastic	yes	yes	yes	yes	yes	no	--	yes
77	elastic	yes	yes	yes	yes	yes	no	--	yes
78	elastic	yes	yes	yes	yes	yes	no	--	yes
79	elastic	yes	yes	yes	yes	yes	no	--	yes
80	elastic	yes	yes	yes	yes	yes	no	--	yes
81	elastic	yes	yes	yes	yes	yes	no	--	yes
82	elastic	yes	yes	yes	yes	yes	no	--	yes
83	elastic	yes	yes	yes	yes	yes	no	--	yes
84	elastic	yes	yes	yes	yes	yes	no	--	yes
85	elastic	yes	yes	yes	yes	yes	no	--	yes
86	elastic	yes	yes	yes	yes	yes	no	--	yes
87	elastic	yes	yes	yes	yes	yes	no	--	yes
88	elastic	yes	yes	yes	yes	yes	no	--	yes
89	elastic	yes	yes	yes	yes	yes	no	--	yes
90	elastic	yes	yes	yes	yes	yes	no	--	yes
91	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

### Table of bars of verification 2:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
92	elastic	yes	yes	yes	yes	yes	no	--	yes
93	elastic	yes	yes	yes	yes	yes	no	--	yes
94	elastic	yes	yes	yes	yes	yes	no	--	yes
95	elastic	yes	yes	yes	yes	yes	no	--	yes
96	elastic	yes	yes	yes	yes	yes	no	--	yes
97	elastic	yes	yes	yes	yes	yes	no	--	yes
98	elastic	yes	yes	yes	yes	yes	no	--	yes
99	elastic	yes	yes	yes	yes	yes	no	--	yes
100	elastic	yes	yes	yes	yes	yes	no	--	yes
101	elastic	yes	yes	yes	yes	yes	no	--	yes
102	elastic	yes	yes	yes	yes	yes	no	--	yes
103	elastic	yes	yes	yes	yes	yes	no	--	yes
104	elastic	yes	yes	yes	yes	yes	no	--	yes
105	elastic	yes	yes	yes	yes	yes	no	--	yes
106	elastic	yes	yes	yes	yes	yes	no	--	yes
107	elastic	yes	yes	yes	yes	yes	no	--	yes
108	elastic	yes	yes	yes	yes	yes	no	--	yes
109	elastic	yes	yes	yes	yes	yes	no	--	yes
110	elastic	yes	yes	yes	yes	yes	no	--	yes
111	elastic	yes	yes	yes	yes	yes	no	--	yes
113	elastic	yes	yes	yes	yes	yes	no	--	yes
114	elastic	yes	yes	yes	yes	yes	no	--	yes
115	elastic	yes	yes	yes	yes	yes	no	--	yes
116	elastic	yes	yes	yes	yes	yes	no	--	yes
117	elastic	yes	yes	yes	yes	yes	no	--	yes
118	elastic	yes	yes	yes	yes	yes	no	--	yes
119	elastic	yes	yes	yes	yes	yes	no	--	yes
120	elastic	yes	yes	yes	yes	yes	no	--	yes
121	elastic	yes	yes	yes	yes	yes	no	--	yes
122	elastic	yes	yes	yes	yes	yes	no	--	yes
123	elastic	yes	yes	yes	yes	yes	no	--	yes
124	elastic	yes	yes	yes	yes	yes	no	--	yes
125	elastic	yes	yes	yes	yes	yes	no	--	yes
126	elastic	yes	yes	yes	yes	yes	no	--	yes
127	elastic	yes	yes	yes	yes	yes	no	--	yes
128	elastic	yes	yes	yes	yes	yes	no	--	yes
129	elastic	yes	yes	yes	yes	yes	no	--	yes
130	elastic	yes	yes	yes	yes	yes	no	--	yes
131	elastic	yes	yes	yes	yes	yes	no	--	yes
132	elastic	yes	yes	yes	yes	yes	no	--	yes
133	elastic	yes	yes	yes	yes	yes	no	--	yes
134	elastic	yes	yes	yes	yes	yes	no	--	yes
135	elastic	yes	yes	yes	yes	yes	no	--	yes
136	elastic	yes	yes	yes	yes	yes	no	--	yes
137	elastic	yes	yes	yes	yes	yes	no	--	yes
138	elastic	yes	yes	yes	yes	yes	no	--	yes
139	elastic	yes	yes	yes	yes	yes	no	--	yes
140	elastic	yes	yes	yes	yes	yes	no	--	yes
141	elastic	yes	yes	yes	yes	yes	no	--	yes
142	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

### Table of bars of verification 2:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determines, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$ (3)	$\tau_n$ (4)	$\sigma_v$ (5)	limited plasticity (6) (7) (8)			$M_{max}$ (9)	b/t (10)
143	elastic	yes	yes	yes	yes	yes	no	--	yes
144	elastic	yes	yes	yes	yes	yes	no	--	yes
145	elastic	yes	yes	yes	yes	yes	no	--	yes
146	elastic	yes	yes	yes	yes	yes	no	--	yes
147	elastic	yes	yes	yes	yes	yes	no	--	yes
148	elastic	yes	yes	yes	yes	yes	no	--	yes
149	elastic	yes	yes	yes	yes	yes	no	--	yes
150	elastic	yes	yes	yes	yes	yes	no	--	yes
151	elastic	yes	yes	yes	yes	yes	no	--	yes
152	elastic	yes	yes	yes	yes	yes	no	--	yes
153	elastic	yes	yes	yes	yes	yes	no	--	yes
154	elastic	yes	yes	yes	yes	yes	no	--	yes
155	elastic	yes	yes	yes	yes	yes	no	--	yes
156	elastic	yes	yes	yes	yes	yes	no	--	yes
157	elastic	yes	yes	yes	yes	yes	no	--	yes
158	elastic	yes	yes	yes	yes	yes	no	--	yes
159	elastic	yes	yes	yes	yes	yes	no	--	yes
160	elastic	yes	yes	yes	yes	yes	no	--	yes
161	elastic	yes	yes	yes	yes	yes	no	--	yes
162	elastic	yes	yes	yes	yes	yes	no	--	yes
163	elastic	yes	yes	yes	yes	yes	no	--	yes
164	elastic	yes	yes	yes	yes	yes	no	--	yes
165	elastic	yes	yes	yes	yes	yes	no	--	yes
166	elastic	yes	yes	yes	yes	yes	no	--	yes
167	elastic	yes	yes	yes	yes	yes	no	--	yes
168	elastic	yes	yes	yes	yes	yes	no	--	yes
169	elastic	yes	yes	yes	yes	yes	no	--	yes
170	elastic	yes	yes	yes	yes	yes	no	--	yes
171	elastic	yes	yes	yes	yes	yes	no	--	yes
172	elastic	yes	yes	yes	yes	yes	no	--	yes
173	elastic	yes	yes	yes	yes	yes	no	--	yes
174	elastic	yes	yes	yes	yes	yes	no	--	yes
175	elastic	yes	yes	yes	yes	yes	no	--	yes
176	elastic	yes	yes	yes	yes	yes	no	--	yes
177	elastic	yes	yes	yes	yes	yes	no	--	yes
178	elastic	yes	yes	yes	yes	yes	no	--	yes
179	elastic	yes	yes	yes	yes	yes	no	--	yes
180	elastic	yes	yes	yes	yes	yes	no	--	yes
181	elastic	yes	yes	yes	yes	yes	no	--	yes
182	elastic	yes	yes	yes	yes	yes	no	--	yes
183	elastic	yes	yes	yes	yes	yes	no	--	yes
184	elastic	yes	yes	yes	yes	yes	no	--	yes
185	elastic	yes	yes	yes	yes	yes	no	--	yes
186	elastic	yes	yes	yes	yes	yes	no	--	yes
187	elastic	yes	yes	yes	yes	yes	no	--	yes
188	elastic	yes	yes	yes	yes	yes	no	--	yes
189	elastic	yes	yes	yes	yes	yes	no	--	yes
190	elastic	yes	yes	yes	yes	yes	no	--	yes
191	elastic	yes	yes	yes	yes	yes	no	--	yes
192	elastic	yes	yes	yes	yes	yes	no	--	yes

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Description of demanded verifications

## Verification 3: serviceability

DIN 18800 Design resistance (th. I. order): Design resistance according to DIN 18800 11.90

### 1: TH.I.O s.ability extr 1

Rules for building extremes of verification 3, type: user-defined, rule of superposition: DIN 18800

action	$\Psi_{dom}$	$\Psi_{sub}$	$\gamma_{sup}$	$\gamma_{inf}$
1	1.00	1.00	1.00	1.00
2	1.00	1.00	1.00	0.00
3	1.00	1.00	1.00	0.00

### Table of bars of verification 3:

Design type (column 2) controls the calculation of the the cross-section utilization, either with interaction of member forces (plastic, EI.757) or limit stress (elastic, EI.747). Using plastic design calc. the notations of columnn 3 to 8 have no meaning. Using elastic design calc. they specifies in particular: (3) normal stress design according to eq.31, (4) shear stress design eq.32, (5) equivalent tensile stress design eq.33.. Columns 6 to ### specifies, in what way local limited plastification is allowed. In particular: (8)  $\sigma/\sigma_{R,d} < 6,0$  or  $\tau/\tau_{R,d} < 5,0$  according to EI.5, (747) commonly according to EI.749, (8) for bars with I-sections according to EI.750.. Especially for plastic design calc. column 9 specifies, whether the limit flexual moments according to EI.755 have to be limited. Column 10 determins, whether design of limit (b/t) shall be verified according to tab.12-14,15,18.

bar (1)	design type (2)	$\sigma$	$\tau_n$	$\sigma_v$	limited plasticity			$M_{max}$	b/t
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	elastic	yes	yes	yes	yes	yes	no	--	yes
2	elastic	yes	yes	yes	yes	yes	no	--	yes
3	elastic	yes	yes	yes	yes	yes	no	--	yes
4	elastic	yes	yes	yes	yes	yes	no	--	yes
5	elastic	yes	yes	yes	yes	yes	no	--	yes
6	elastic	yes	yes	yes	yes	yes	no	--	yes
7	elastic	yes	yes	yes	yes	yes	no	--	yes
8	elastic	yes	yes	yes	yes	yes	no	--	yes
9	elastic	yes	yes	yes	yes	yes	no	--	yes
10	elastic	yes	yes	yes	yes	yes	no	--	yes
11	elastic	yes	yes	yes	yes	yes	no	--	yes
12	elastic	yes	yes	yes	yes	yes	no	--	yes
13	elastic	yes	yes	yes	yes	yes	no	--	yes
14	elastic	yes	yes	yes	yes	yes	no	--	yes
15	elastic	yes	yes	yes	yes	yes	no	--	yes
16	elastic	yes	yes	yes	yes	yes	no	--	yes
17	elastic	yes	yes	yes	yes	yes	no	--	yes
18	elastic	yes	yes	yes	yes	yes	no	--	yes
19	elastic	yes	yes	yes	yes	yes	no	--	yes
20	elastic	yes	yes	yes	yes	yes	no	--	yes
21	elastic	yes	yes	yes	yes	yes	no	--	yes
22	elastic	yes	yes	yes	yes	yes	no	--	yes
23	elastic	yes	yes	yes	yes	yes	no	--	yes
24	elastic	yes	yes	yes	yes	yes	no	--	yes
25	elastic	yes	yes	yes	yes	yes	no	--	yes
26	elastic	yes	yes	yes	yes	yes	no	--	yes
27	elastic	yes	yes	yes	yes	yes	no	--	yes
28	elastic	yes	yes	yes	yes	yes	no	--	yes
29	elastic	yes	yes	yes	yes	yes	no	--	yes
30	elastic	yes	yes	yes	yes	yes	no	--	yes
31	elastic	yes	yes	yes	yes	yes	no	--	yes
32	elastic	yes	yes	yes	yes	yes	no	--	yes
33	elastic	yes	yes	yes	yes	yes	no	--	yes
34	elastic	yes	yes	yes	yes	yes	no	--	yes
35	elastic	yes	yes	yes	yes	yes	no	--	yes
36	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

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37	elastic	yes	yes	yes	yes	yes	no	--	yes
38	elastic	yes	yes	yes	yes	yes	no	--	yes
39	elastic	yes	yes	yes	yes	yes	no	--	yes
41	elastic	yes	yes	yes	yes	yes	no	--	yes
42	elastic	yes	yes	yes	yes	yes	no	--	yes
43	elastic	yes	yes	yes	yes	yes	no	--	yes
44	elastic	yes	yes	yes	yes	yes	no	--	yes
45	elastic	yes	yes	yes	yes	yes	no	--	yes
46	elastic	yes	yes	yes	yes	yes	no	--	yes
47	elastic	yes	yes	yes	yes	yes	no	--	yes
48	elastic	yes	yes	yes	yes	yes	no	--	yes
49	elastic	yes	yes	yes	yes	yes	no	--	yes
50	elastic	yes	yes	yes	yes	yes	no	--	yes
51	elastic	yes	yes	yes	yes	yes	no	--	yes
52	elastic	yes	yes	yes	yes	yes	no	--	yes
53	elastic	yes	yes	yes	yes	yes	no	--	yes
54	elastic	yes	yes	yes	yes	yes	no	--	yes
55	elastic	yes	yes	yes	yes	yes	no	--	yes
56	elastic	yes	yes	yes	yes	yes	no	--	yes
57	elastic	yes	yes	yes	yes	yes	no	--	yes
58	elastic	yes	yes	yes	yes	yes	no	--	yes
59	elastic	yes	yes	yes	yes	yes	no	--	yes
60	elastic	yes	yes	yes	yes	yes	no	--	yes
61	elastic	yes	yes	yes	yes	yes	no	--	yes
62	elastic	yes	yes	yes	yes	yes	no	--	yes
63	elastic	yes	yes	yes	yes	yes	no	--	yes
64	elastic	yes	yes	yes	yes	yes	no	--	yes
65	elastic	yes	yes	yes	yes	yes	no	--	yes
66	elastic	yes	yes	yes	yes	yes	no	--	yes
67	elastic	yes	yes	yes	yes	yes	no	--	yes
68	elastic	yes	yes	yes	yes	yes	no	--	yes
69	elastic	yes	yes	yes	yes	yes	no	--	yes
76	elastic	yes	yes	yes	yes	yes	no	--	yes
77	elastic	yes	yes	yes	yes	yes	no	--	yes
78	elastic	yes	yes	yes	yes	yes	no	--	yes
79	elastic	yes	yes	yes	yes	yes	no	--	yes
80	elastic	yes	yes	yes	yes	yes	no	--	yes
81	elastic	yes	yes	yes	yes	yes	no	--	yes
82	elastic	yes	yes	yes	yes	yes	no	--	yes
83	elastic	yes	yes	yes	yes	yes	no	--	yes
84	elastic	yes	yes	yes	yes	yes	no	--	yes
85	elastic	yes	yes	yes	yes	yes	no	--	yes
86	elastic	yes	yes	yes	yes	yes	no	--	yes
87	elastic	yes	yes	yes	yes	yes	no	--	yes
88	elastic	yes	yes	yes	yes	yes	no	--	yes
89	elastic	yes	yes	yes	yes	yes	no	--	yes
90	elastic	yes	yes	yes	yes	yes	no	--	yes
91	elastic	yes	yes	yes	yes	yes	no	--	yes
92	elastic	yes	yes	yes	yes	yes	no	--	yes
93	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

Table of bars of verification 3:

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94	elastic	yes	yes	yes	yes	yes	no	--	yes
95	elastic	yes	yes	yes	yes	yes	no	--	yes
96	elastic	yes	yes	yes	yes	yes	no	--	yes
97	elastic	yes	yes	yes	yes	yes	no	--	yes
98	elastic	yes	yes	yes	yes	yes	no	--	yes
99	elastic	yes	yes	yes	yes	yes	no	--	yes
100	elastic	yes	yes	yes	yes	yes	no	--	yes
101	elastic	yes	yes	yes	yes	yes	no	--	yes
102	elastic	yes	yes	yes	yes	yes	no	--	yes
103	elastic	yes	yes	yes	yes	yes	no	--	yes
104	elastic	yes	yes	yes	yes	yes	no	--	yes
105	elastic	yes	yes	yes	yes	yes	no	--	yes
106	elastic	yes	yes	yes	yes	yes	no	--	yes
107	elastic	yes	yes	yes	yes	yes	no	--	yes
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120	elastic	yes	yes	yes	yes	yes	no	--	yes
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122	elastic	yes	yes	yes	yes	yes	no	--	yes
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128	elastic	yes	yes	yes	yes	yes	no	--	yes
129	elastic	yes	yes	yes	yes	yes	no	--	yes
130	elastic	yes	yes	yes	yes	yes	no	--	yes
131	elastic	yes	yes	yes	yes	yes	no	--	yes
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133	elastic	yes	yes	yes	yes	yes	no	--	yes
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137	elastic	yes	yes	yes	yes	yes	no	--	yes
138	elastic	yes	yes	yes	yes	yes	no	--	yes
139	elastic	yes	yes	yes	yes	yes	no	--	yes
140	elastic	yes	yes	yes	yes	yes	no	--	yes
141	elastic	yes	yes	yes	yes	yes	no	--	yes
142	elastic	yes	yes	yes	yes	yes	no	--	yes
143	elastic	yes	yes	yes	yes	yes	no	--	yes
144	elastic	yes	yes	yes	yes	yes	no	--	yes

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## Description of demanded verifications

### Table of bars of verification 3:

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146	elastic	yes	yes	yes	yes	yes	no	--	yes
147	elastic	yes	yes	yes	yes	yes	no	--	yes
148	elastic	yes	yes	yes	yes	yes	no	--	yes
149	elastic	yes	yes	yes	yes	yes	no	--	yes
150	elastic	yes	yes	yes	yes	yes	no	--	yes
151	elastic	yes	yes	yes	yes	yes	no	--	yes
152	elastic	yes	yes	yes	yes	yes	no	--	yes
153	elastic	yes	yes	yes	yes	yes	no	--	yes
154	elastic	yes	yes	yes	yes	yes	no	--	yes
155	elastic	yes	yes	yes	yes	yes	no	--	yes
156	elastic	yes	yes	yes	yes	yes	no	--	yes
157	elastic	yes	yes	yes	yes	yes	no	--	yes
158	elastic	yes	yes	yes	yes	yes	no	--	yes
159	elastic	yes	yes	yes	yes	yes	no	--	yes
160	elastic	yes	yes	yes	yes	yes	no	--	yes
161	elastic	yes	yes	yes	yes	yes	no	--	yes
162	elastic	yes	yes	yes	yes	yes	no	--	yes
163	elastic	yes	yes	yes	yes	yes	no	--	yes
164	elastic	yes	yes	yes	yes	yes	no	--	yes
165	elastic	yes	yes	yes	yes	yes	no	--	yes
166	elastic	yes	yes	yes	yes	yes	no	--	yes
167	elastic	yes	yes	yes	yes	yes	no	--	yes
168	elastic	yes	yes	yes	yes	yes	no	--	yes
169	elastic	yes	yes	yes	yes	yes	no	--	yes
170	elastic	yes	yes	yes	yes	yes	no	--	yes
171	elastic	yes	yes	yes	yes	yes	no	--	yes
172	elastic	yes	yes	yes	yes	yes	no	--	yes
173	elastic	yes	yes	yes	yes	yes	no	--	yes
174	elastic	yes	yes	yes	yes	yes	no	--	yes
175	elastic	yes	yes	yes	yes	yes	no	--	yes
176	elastic	yes	yes	yes	yes	yes	no	--	yes
177	elastic	yes	yes	yes	yes	yes	no	--	yes
178	elastic	yes	yes	yes	yes	yes	no	--	yes
179	elastic	yes	yes	yes	yes	yes	no	--	yes
180	elastic	yes	yes	yes	yes	yes	no	--	yes
181	elastic	yes	yes	yes	yes	yes	no	--	yes
182	elastic	yes	yes	yes	yes	yes	no	--	yes
183	elastic	yes	yes	yes	yes	yes	no	--	yes
184	elastic	yes	yes	yes	yes	yes	no	--	yes
185	elastic	yes	yes	yes	yes	yes	no	--	yes
186	elastic	yes	yes	yes	yes	yes	no	--	yes
187	elastic	yes	yes	yes	yes	yes	no	--	yes
188	elastic	yes	yes	yes	yes	yes	no	--	yes
189	elastic	yes	yes	yes	yes	yes	no	--	yes
190	elastic	yes	yes	yes	yes	yes	no	--	yes
191	elastic	yes	yes	yes	yes	yes	no	--	yes
192	elastic	yes	yes	yes	yes	yes	no	--	yes