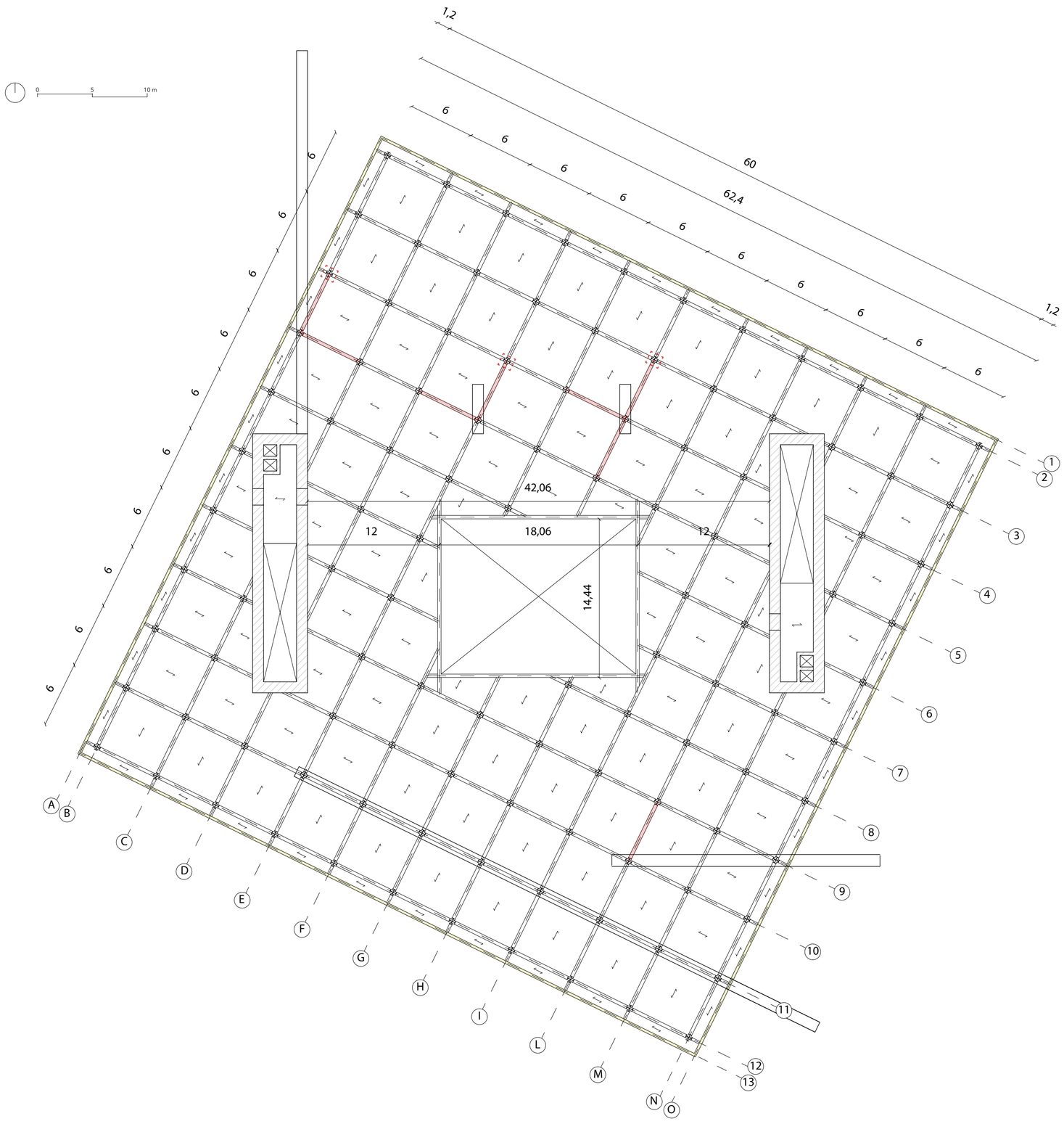
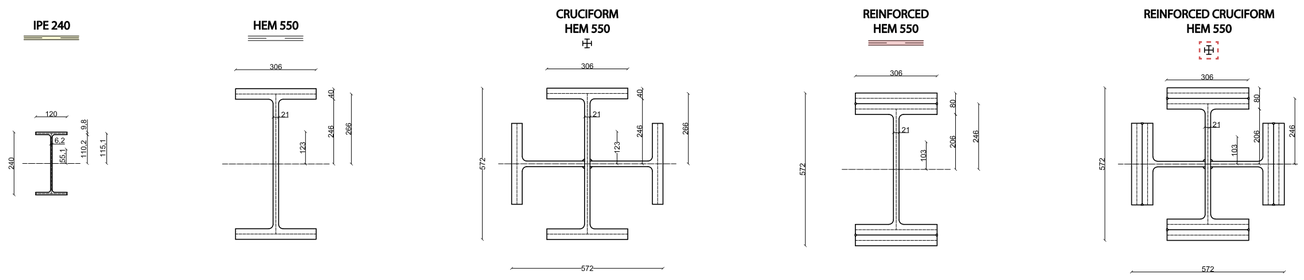
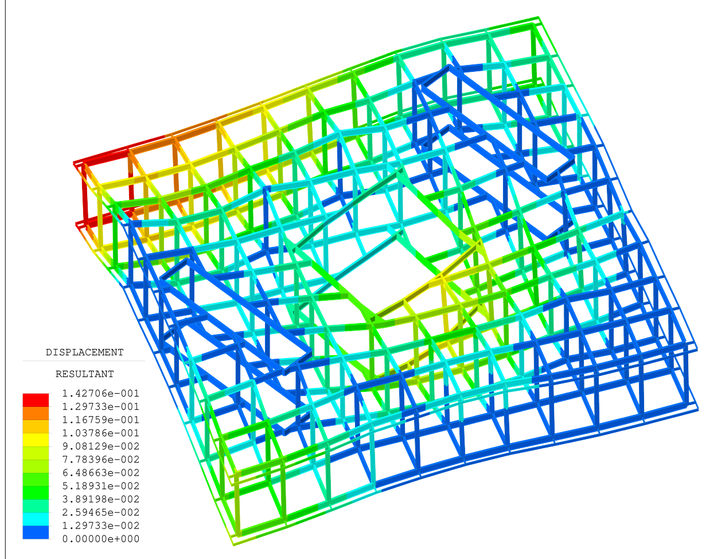




VERTICAL DISPLACEMENT

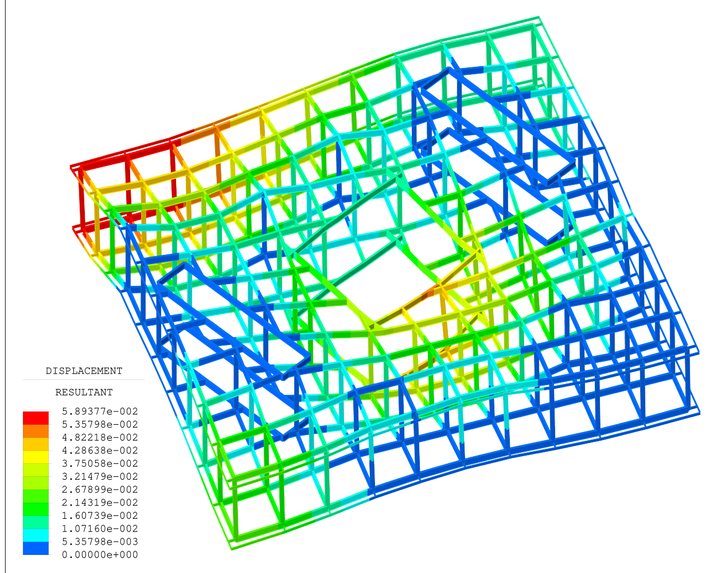
S.L.S.

$\delta_{max,1}$	142,7mm	<	2L1/250	152	mm
$\delta_{2,1}$	58,9mm	<	2L1/300	126,67	mm



S.L.S.q

$\delta_{max,2}$	100mm	<	2L2/250	136	mm
$\delta_{2,2}$	49mm	<	2L2/300	113,33	mm



VERIFICATIONS

PERIMETRAL BEAMS

Section property (IPE 240)

Geometry		u.m.	Static and material		u.m.
h	240	mm	$W_{pl,x}$	366650	mm^3
b	120	mm	f_{yk}	275	N/mm^2
t_w	6,2	mm	γ_{MO}	1,05	
t_f	9,8	mm	J_y	3891,63	cm^4
r	15	mm	J_z	283,63	cm^4
A	3912	mm^2			
A_v	1914,76	mm^2			

U.L.S. forces

		u.m.
V	189008	N
M	44210000	Nmm

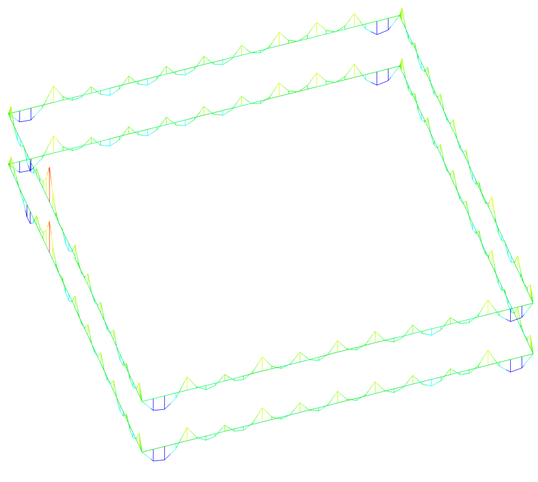
S.L.S. vertical displacement

		u.m.
δ_{max}	5,286069994	mm

Verifications

$M_{c,Rd}$	96027381	L/250	0,004
V_{rd}	289532,362		

$M_{ed}/M_{c,Rd}$	0,46	<	1
V_{ed}/V_{rd}	0,65	<	1
δ_{max}/L	0,0009	<	0,004



VIERENDEEL BEAM

HORIZONTAL ELEMENTS

Section property (HEM 550)

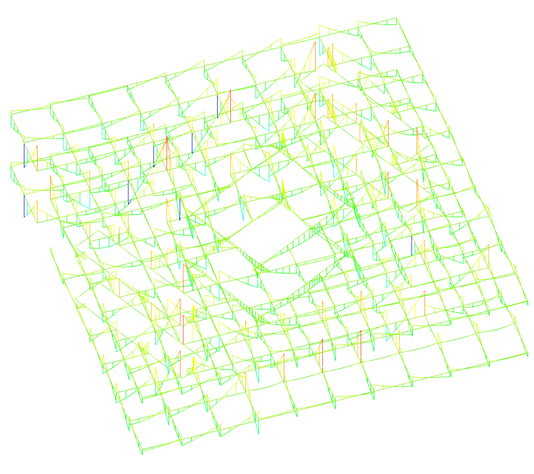
Geometry		u.m.	Static and material		u.m.
h	572	mm	$W_{pl,x}$	7993000	mm^3
b	306	mm	f_{yk}	355	N/mm^2
t_w	21	mm	γ_{MO}	1,05	
t_f	40	mm	J_y	198000	cm^4
r	27	mm	J_z	19160	cm^4
A	35440	mm^2	i_y	23,64	cm
A_v	13960	mm^2	i_z	7,35	cm
l	600	cm	l_0	300	cm

U.L.S. forces

		u.m.
V	1189800	N
M	2674700000	Nmm
N_c	2551470	N
N_t	2827020	N

Verifications

				$N_{b,Rd}$	11813350,46	N	
$M_{c,Rd}$	2702395238			χ	0,99	<	1
V_{rd}	2724983,3			ϕ	0,52		
$N_{c,Rd}$	11982095,2			λ	0,17		
$N_{t,Rd}$	11982095,2			α	0,21	curve a	
				N_{cr}	455643038,2	N	
$M_{ed}/M_{c,Rd}$	0,99	<	1	λ	12,69	<	200
V_{ed}/V_{rd}	0,44	<	1				
$N_{Ed}/N_{c,Rd}$	0,21	<	1	$N_c/N_{b,Rd}$	0,22	<	1
$N_{Ed}/N_{t,Rd}$	0,24	<	1				



VIERENDEEL BEAM

VERTICAL ELEMENTS

Section property (cruciform HEM 550)

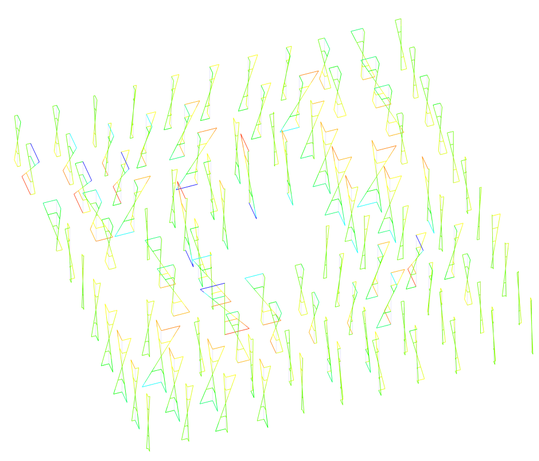
Geometry		u.m.	Static and material		u.m.
h	572	mm	$W_{pl,x}$	7993000	mm^3
b	306	mm	f_{yk}	355	N/mm^2
t_w	21	mm	γ_{MO}	1,05	
t_f	40	mm	J_y	198000	cm^4
r	27	mm	J_z	19160	cm^4
A	70880	mm^2	i_y	16,71	cm
A_v	13960	mm^2	i_z	5,20	cm
l	600	cm	l_0	300	cm

U.L.S. forces

		u.m.
V	812802	N
M	2449400000	Nmm
N_c	3025370	N
N_t	337548	N

Verifications

				$N_{b,Rd}$	23267027,45	N	
$M_{c,Rd}$	2702395238			χ	0,97	<	1
V_{rd}	2724983,3			ϕ	0,54		
$N_{c,Rd}$	23964190,5			λ	0,24		
$N_{t,Rd}$	23964190,5			α	0,21	curve a	
				N_{cr}	455513520	N	
$M_{ed}/M_{c,Rd}$	0,91	<	1	λ	17,95	<	200
V_{ed}/V_{rd}	0,30	<	1				
$N_{Ed}/N_{c,Rd}$	0,13	<	1	$N_c/N_{b,Rd}$	0,13	<	1
$N_{Ed}/N_{t,Rd}$	0,01	<	1				



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