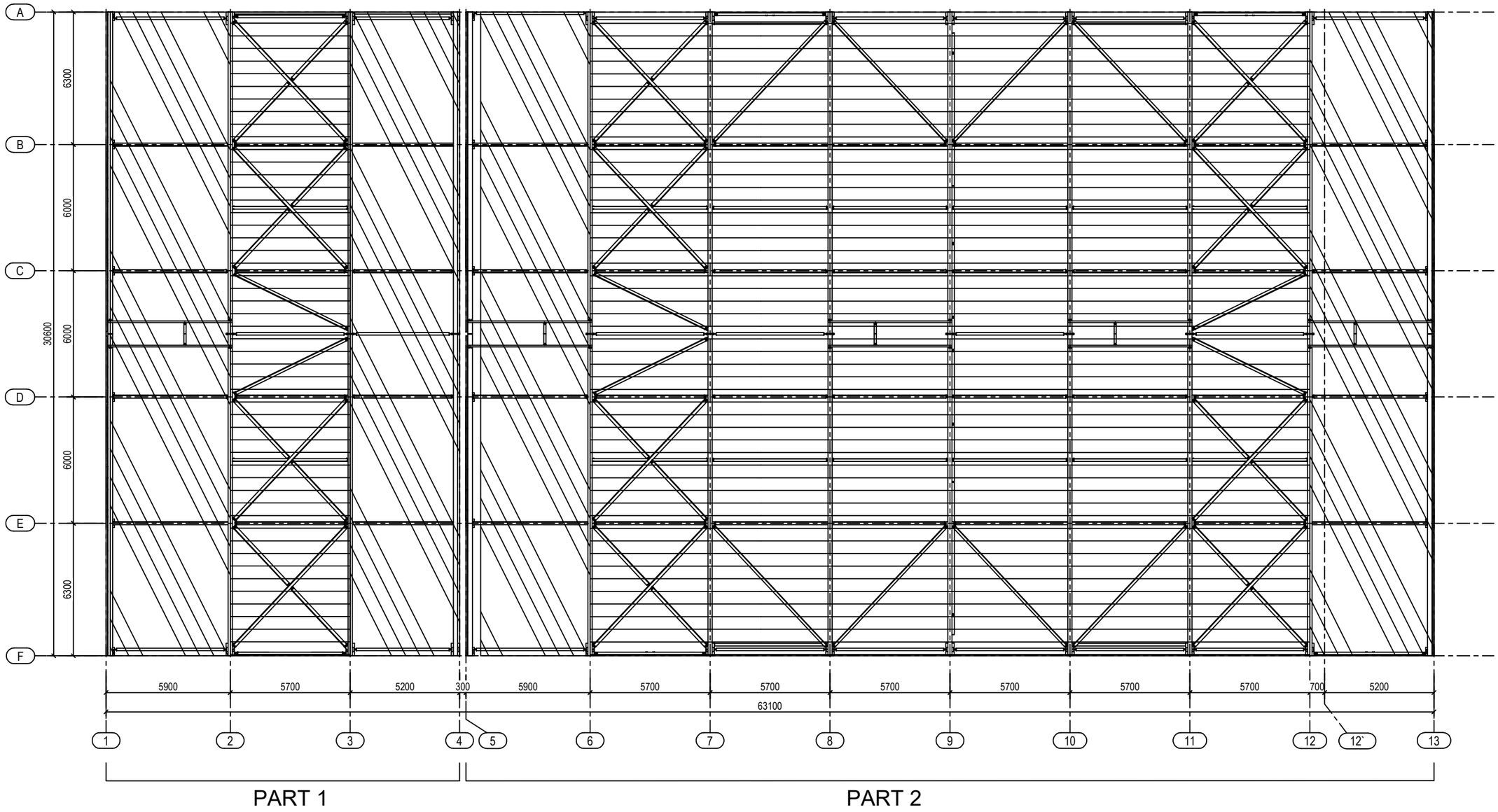
LOAD BEARING PROFILE PLAN FOR ROOF BEFORE OPTIMIZATION.



DESIGNATIONS:

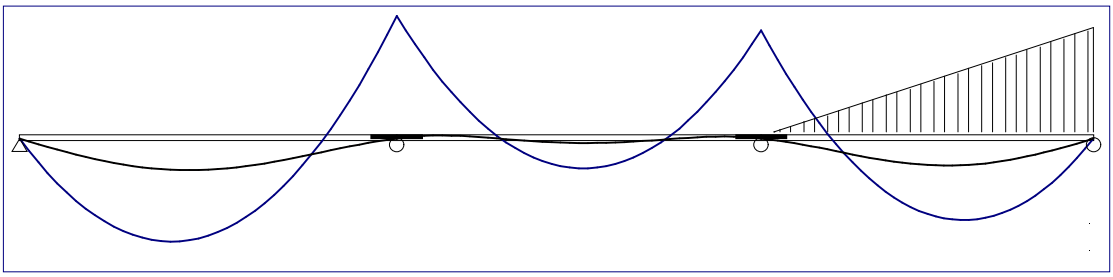
- Profile T130, t=1,5mm (A = 805 m2 with overlaps), M = 14079.45 kg

- Profile T130, t=1,25mm (A = 1485 m2 with overlaps), M = 21651.30 kg

TOTAL M = 35730.75 kg

LOADS FOR ROOF:
Dead load - 0.70 kN/m2
Basic snow load - 2.30 kN/m2
Use accidental snow load - 2.30x2 = 4.6 kN/m2
Wind velocity - 21 m/s
Terrain type III

PART 1



I n p u t **Sheeting T135_1011**

Project ..... Roof 1-4 extra — Screws in the webbottom — Narrow trough down

Support no. ...	0	1	2	3
Span		5900	5700	5200 mm
Thickness ...		1,25	0,70	0,88 mm
Inertia, support		4532	2472	mm^4
Inertia, field	4532	2472	3146	mm^4
End overlap/screws		2:400/6	2:400/6	mm
Bearing length		200	200	mm

3

1

Distributed load	4,49	4,41	4,44	kN/m^2
Dead load	0,70	kN/m^2	(γ_Q =1,00 , γ_G =1,00 , ξ =1,00)	
Varying load qv	0,00	0,00	0,00	kN/m2
Varying load qh	0,00	0,00	0,60	kN/m2
Start a	0	0	200	mm
Load width b .	0	0	5000	mm

Snow	basic value ...	4,60	shape factor	0,80	shape factor 0,80
Wind	terrain	III	reference wind .	21	shape factor 0,73 / -0,80 ()
Sheet	top flange	90	web depth	135	profile pitch 337 mm
	bottom flange .	78	yield stress ..	320	E-modulus 210000 N/mm^2
Screws	dimension	4,8	position	W	

2

R e s u l t

Support no.	0	1	2	3	
M at support		-15,1	-13,3		kNm/m
Moment in span .	12,7	3,688	10,1		kNm/m
Support react.	10,69	28,69	26,84	9,99	kN/m
Deflection		28,4	3,88	24,3	mm ψ =1
Dist. load SLS		4,49	4,41	4,44	
M at overlap, left		-8,55	-8,50		kNm/m
M overlap, right ..		-10,01	-7,99		kNm/m
Force between sheet .		22,67	20,00		kN/m
Force in screews ...		17,43	13,47		kN/m
Force per screw		0,979	0,756		kN

U t i l i z a t i o n Consequence Class 2 γ_d = 1,00

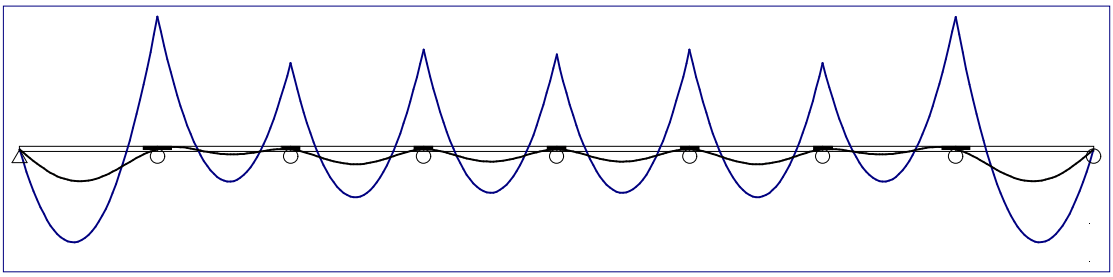
Support no. .	0	1	2	3	M_{Rk} etc
Moment in span		0,578	0,371	0,724	13,890
M at support			0,365	0,470	14,210
Interaction at support			0,347	0,445	82,88
Support react.	0,234	0,244	0,386	0,462	
Deflection		0,962	0,136	0,934	L/ 200
Moment at end of overlap		0,974	0,827		
Shear force			0,936	0,826	24,23 45,48
Screws in the web			0,583	0,526	1438

Max utiliztion, strength 0,974 OK deflection 0,962 OK

4

1 - Dead load
2 - Snow load
3 - Optimized thickness
4 - Utilization check

PART 2



I n p u t **Sheeting T135_1011**

Project	Roof 5-13 extra					Screws in the webbottom			Narrow trough down	
Support no. ...	0	1	2	3	4	5	6	7	8	
Span	5900	5700	5700	5700	5700	5700	5700	5900	mm	
Thickness ...	0,88	0,70	0,70	0,70	0,70	0,70	0,70	0,88	mm	
Inertia, support	3146	2472	2472	2472	2472	2472	2472		mm^4	
Inertia, field	3146	2472	2472	2472	2472	2472	2472	3146	mm^4	
End overlap/screws	2:600/6	2:400/6	2:400/6	2:400/6	2:400/6	2:400/6	2:600/6		mm	
Bearing length	200	200	200	200	200	200	200		mm	

3

1

Distributed load	4,44	4,41	4,41	4,41	4,41	4,41	4,41	4,44	kN/m^2	
Dead load	0,70	kN/m^2	(γ_Q =1,00 , γ_G =1,00 , ξ=1,00)							
Snow	basic value ... 4,60		shape factor 0,80			shape factor 0,80				
Wind	terrain III		reference wind . 21			shape factor 0,73 / -0,80			()	
Sheet	top flange 90		web depth 135			profile pitch 337 mm				
	bottom flange . 78		yield stress .. 320			E-modulus 210000 N/mm^2				
Screws	dimension 4,8		position ..... W							

2

R e s u l t

Support no.	0	1	2	3	4	5	6	7	8
M at support		-16,9	-11,0	-12,7	-12,1	-12,7	-11,0	-16,9	kNm/m
Moment in span .	11,8	4,060	6,041	5,480	5,481	6,040	4,064	11,8	kNm/m
Support react.	10,22	29,56	23,80	25,55	24,92	25,54	23,80	29,55	10,22
Deflection		27,7	4,11	13,1	10,7	10,8	13,1	4,13	27,7	mm ψ=1
Dist. load SLS		4,44	4,41	4,41	4,41	4,41	4,41	4,41	4,44	
M at overlap, left		-8,28	-6,49	-7,64	-7,20	-7,72	-6,18	-9,87	kNm/m
M overlap, right ..		-9,89	-6,18	-7,72	-7,20	-7,64	-6,50	-8,27	kNm/m
Force between sheet .		16,92	16,53	19,11	18,19	19,10	16,54	16,91	kN/m
Force in screews ...		10,22	10,70	13,42	12,49	13,28	11,22	8,56	kN/m
Force per screw		0,574	0,601	0,754	0,702	0,746	0,630	0,481	kN

U t i l i z a t i o n Consequence Class 2 γ_d = 1,00

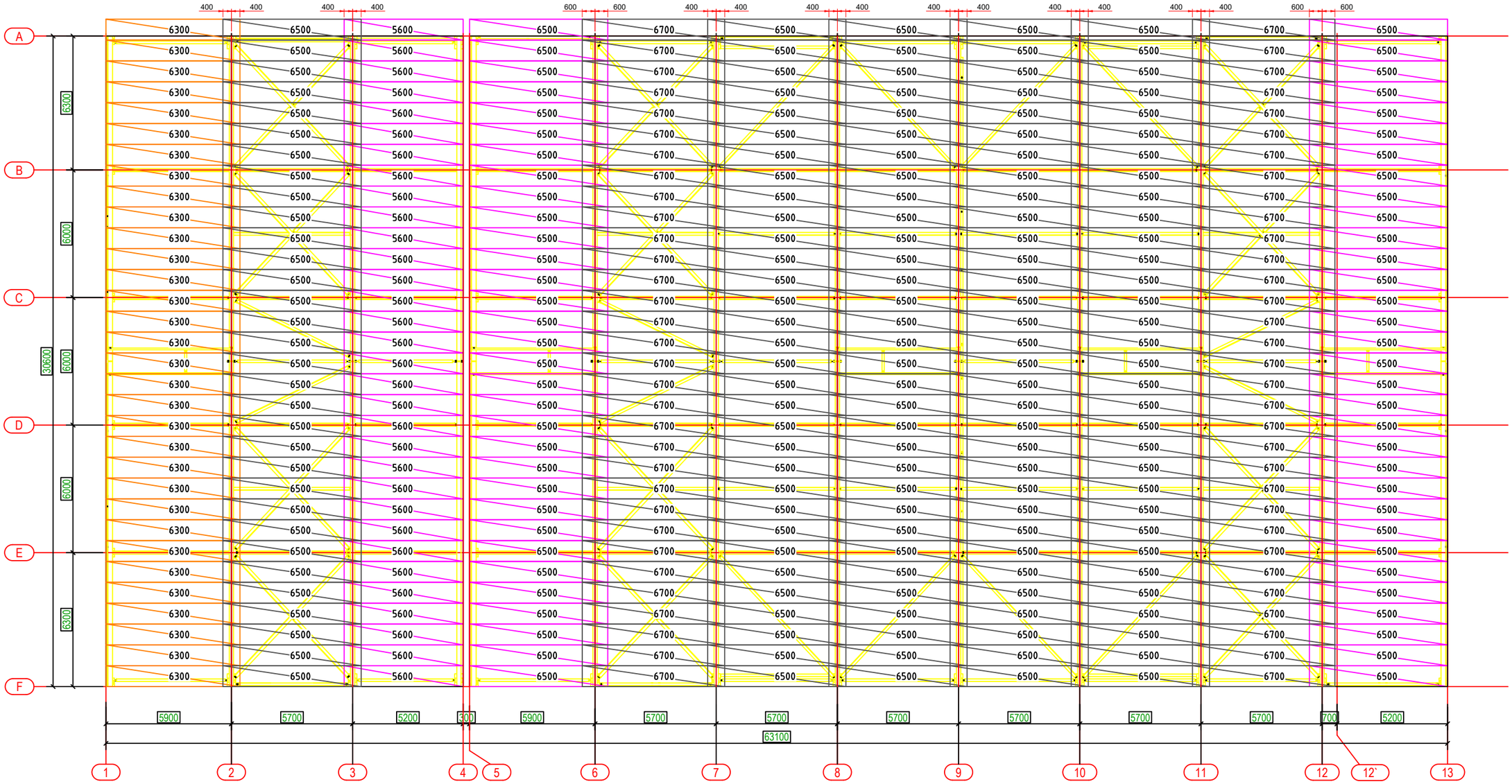
Support no. .	0	1	2	3	4	5	6	7	8	M_{Rk} etc
Moment in span	0,847	0,409	0,608	0,552	0,552	0,608	0,409	0,848		13,890
M at support		0,601	0,461	0,536	0,509	0,535	0,462	0,600		14,210
Interaction at support		0,574	0,435	0,507	0,481	0,507	0,435	0,573		39,35
Support react.	0,472	0,425	0,452	0,485	0,473	0,485	0,452	0,425	0,472	
Deflection		0,937	0,144	0,461	0,377	0,377	0,460	0,145	0,938	L/ 200
Moment at end of overlap		0,963	0,632	0,752	0,701	0,752	0,633	0,961		
Shear force		0,698	0,682	0,789	0,751	0,789	0,683	0,698		24,23 24,23
Screws in the web		0,399	0,512	0,643	0,598	0,636	0,537	0,334		1438

Max utiliztion, strength 0,963 OK deflection 0,938 OK

4

1 - Dead load
2 - Snow load
3 - Optimized thickness
4 - Utilization check

LOAD BEARING PROFILE PLAN FOR ROOF AFTER OPTIMIZATION.



Designations:

	T130	T130D-1011 RAL9010 C2 0.70mm	1484,52 m2	12113,68 kg
	T130	T130D-1011 RAL9010 C2 0.88mm	601,75 m2	6172,11 kg
	T130	T130D-1011 RAL9010 C2 1.25mm	203,82 m2	2971,70 kg
		TOTAL	2290,09 m2	21257,49 kg

BLACHPROFIL2 TRAPEZ T130D - 1011