

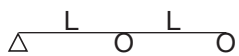
Cross sectional data – calculated for safety class 1

Table 1

Property	Symbol	Unit	0,65	0,70	0,75	0,80	0,90	1,00	1,20
Sheet thickness, nominal	t_{nom}	mm	0,65	0,70	0,75	0,80	0,90	1,00	1,20
Sheet thickness in calculation	t_{ber}	mm	0,587	0,636	0,685	0,734	0,832	0,930	1,13
Tensile yield stress	f_{ty}	Mpa	350	350	350	350	350	350	350
Mass	m	kg/m	6,40	6,90	7,40	7,90	8,90	9,80	11,80
Selfweight including overlap	g	kN/m ²	0,08	0,09	0,09	0,10	0,11	0,12	0,15
Bearing resistance $l_s=100$ mm	R_d	kN/m	19,47	22,91	26,72	30,69	39,26	48,69	70,47
Bearing resistance $l_s=200$ mm	R_d	kN/m	25,82	30,32	35,28	40,44	51,56	63,73	91,69
Moment narrow flange	M_d	kNm/m	8,52	9,43	10,31	11,19	12,86	14,38	17,47
Moment of inertia in compression	I_{efd}	mm ⁴ /mm	1390	1506	1622	1738	1970	2203	2676
Moment broad flange	M_d	kNm/m	6,87	7,75	8,65	9,58	11,48	13,45	17,19
Moment of inertia in compression	I_{efd}	mm ⁴ /mm	1360	1488	1617	1738	1970	2203	2676

Rapid design – Two section sheeting of safety class 1 and 2

Table 2



Rapid design has been done for snow load +Tp. Roof pitch 0 degrees. Remember to control the deflection.



Specifies limited foot traffic. See table 4 on reverse of this sheet.

Snow load S_o (kN/m ²)	Load reduction factor ψ	Maximum span (L) for different thicknesses and bearer widths l_s						
		$t = 0,65$ $l_s = 150$	$t = 0,70$ $l_s = 150$	$t = 0,75$ $l_s = 150$	$t = 0,80$ $l_s = 150$	$t = 0,90$ $l_s = 150$	$t = 1,00$ $l_s = 150$	$t = 1,20$ $l_s = 150$
1,0	0,6	6,54 m	6,97 m	7,36 m	7,74 m	8,31 m	8,58 m	9,07 m
1,5	0,7	5,47 m	5,84 m	6,20 m	6,53 m	7,11 m	7,61 m	8,13 m
2,0	0,7	4,76 m	5,10 m	5,42 m	5,72 m	6,25 m	6,71 m	7,25 m
2,5	0,7	4,25 m	4,56 m	4,86 m	5,14 m	5,63 m	6,05 m	6,53 m
3,0	0,8	3,86 m	4,15 m	4,43 m	4,69 m	5,15 m	5,55 m	5,98 m
4,0	0,8	3,29 m	3,55 m	3,80 m	4,04 m	4,45 m	4,81 m	5,18 m

Explanatory notes to calculations

All data are based on Swedish Board of Housing, Building and Planning design regulations BKR 99 and StBK-N5.

The sheeting should be checked for the following load combinations.

Loadbearing capacity Snow + Selfweight: (1) $Q_d = 1,3 \times \mu \times S_o + G$
 Wind suction + Selfweight: (2) $Q_d = 1,3 \times \mu \times q_k - 0,85 \times G$
Deflection Ord. snow + Selfweight: (3) $Q_n = 1,0 \times \mu \times \psi \times S_o + G$
 μ = shape factor for snow load and wind load
 S_o = basic value of snow load
 G = selfweight
 q_k = characteristic value of wind load
 ψ = load reduction factor for ordinary load (See table 2)

At pitches greater than 20°, load combinations with wind pressure should also be considered. Accumulation of snow should be considered.

Minimum fastening:

End bearer 2 screw in bottom of each profile
 Intermediate, end overlap 1 screw in bottom of each profile
 Side overlap Maximum c/c 500 mm

Where the span tables are insufficient, the sheeting should be designed in accordance with the conditions set out below, whereby the dimensioning values for M_d and R_d as per table 1 are divided by partial coefficients specified below for the respective security classes.

		γ_V		
		1	2	3
Field	$M_t \leq M_d$	1,0	1,1	1,2
Intermediate bearer	$M_s - R_s \times l_s/8 \leq M_d$	1,0	1,0	1,09
End bearer	$(M_s - R_s \times l_s/4) / M_d + 0,64 \times R_s/R_d \leq 1,16$ $R_s \leq R_d$	1,0	1,0	1,09
End bearer	$R_s \leq R_d$ eller $R^d/2$	1,0	1,1	1,2

For end bearers, the design value R_d is the same as for intermediate bearers if the distance from the end of the sheeting to the nearest purlin is greater than 65 mm; otherwise $R_d/2$ applies. For bearer widths of between 100 and 200 mm, R_d is interpolated rectilinearly. For web perforated sheeting, M_d and I_{efd} are multiplied by 0.96 and R_d by 0.88. For sheeting with an extra wave of overlap, M_d , R_d and I_{efd} are multiplied by 1.46. The deflection is checked for $L/150$. Pay attention to the connecting sections, etc. For other deflection requirements, the specified maximum loads can be adjusted proportionately.

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ROOF Isolated L/150

Maximum loads in kN/m²

Table 3

Bearing combination	Thick-ness mm	Limitations	Span L (m)												
			Bearer 100	3,60	3,90	4,20	4,50	4,80	5,10	5,40	5,70	6,00	6,30	6,60	
	0,65	Moment	4,24	3,61	3,12	2,71	2,39	2,11	1,88	1,69	1,53	1,38	1,26	1,15	Security class 1
		Deflection	3,13	2,47	1,97	1,61	1,32	1,10	0,93	0,79	0,68	0,59	0,51	0,45	
		Wind suction	5,26	4,48	3,86	3,37	2,96	2,62	2,34	2,10	1,89	1,72	1,56	1,43	
	0,70	Moment	4,78	4,08	3,51	3,06	2,69	2,38	2,13	1,91	1,72	1,56	1,42	1,30	
		Deflection	3,43	2,70	2,16	1,76	1,45	1,21	1,02	0,86	0,74	0,64	0,56	0,49	
		Wind suction	5,82	4,96	4,28	3,72	3,27	2,90	2,59	2,32	2,10	1,90	1,73	1,58	
	0,75	Moment	5,34	4,55	3,92	3,42	3,00	2,66	2,37	2,13	1,92	1,74	1,59	1,45	
Deflection		3,73	2,93	2,35	1,91	1,57	1,31	1,10	0,94	0,81	0,70	0,61	0,53		
Wind suction		6,37	5,42	4,68	4,07	3,58	3,17	2,83	2,54	2,29	2,08	1,89	1,73		
0,80	Moment	5,91	5,04	4,34	3,78	3,33	2,95	2,63	2,36	2,13	1,93	1,76	1,61		
	Deflection	4,01	3,15	2,52	2,05	1,69	1,41	1,19	1,01	0,87	0,75	0,65	0,57		
	Wind suction	6,91	5,89	5,08	4,42	3,89	3,44	3,07	2,76	2,49	2,26	2,06	1,88		
0,90	Moment	7,09	6,04	5,21	4,54	3,99	3,53	3,15	2,83	2,55	2,32	2,11	1,93		
	Deflection	4,54	3,57	2,86	2,32	1,92	1,60	1,35	1,14	0,98	0,85	0,74	0,65		
	Wind suction	7,94	6,77	5,83	5,08	4,47	3,96	3,53	3,17	2,86	2,59	2,36	2,16		
1,00	Moment	8,30	7,08	6,10	5,31	4,67	4,14	3,69	3,31	2,99	2,71	2,47	2,26		
	Deflection	5,08	3,99	3,20	2,60	2,14	1,79	1,50	1,28	1,10	0,95	0,82	0,72		
	Wind suction	8,88	7,56	6,52	5,68	4,99	4,42	3,95	3,54	3,20	2,90	2,64	2,42		
1,20	Moment	10,61	9,04	7,80	6,79	5,97	5,29	4,72	4,23	3,82	3,47	3,16	2,89		
	Deflection	6,17	4,85	3,88	3,16	2,60	2,17	1,83	1,55	1,33	1,15	1,00	0,88		
	Wind suction	10,79	9,19	7,93	6,90	6,07	5,37	4,79	4,30	3,88	3,52	3,21	2,94		
	0,65	Bearer 100	3,57	3,14	2,79	2,49	2,24	2,03	1,84	1,68	1,54	1,42	1,31	1,21	Safety class 1 and 2
		Bearer 200	4,21	3,68	3,24	2,87	2,57	2,31	2,09	1,90	1,73	1,59	1,46	1,35	
		Deflection	4,24	3,61	3,12	2,71	2,39	2,11	1,88	1,69	1,53	1,38	1,26	1,15	
	0,70	Bearer 100	4,06	3,57	3,16	2,82	2,54	2,29	2,08	1,90	1,74	1,60	1,48	1,37	
		Bearer 200	4,77	4,16	3,66	3,25	2,90	2,60	2,35	2,14	1,95	1,78	1,64	1,51	
		Deflection	4,78	4,08	3,51	3,06	2,69	2,38	2,13	1,91	1,72	1,56	1,42	1,30	
	0,75	Bearer 100	4,57	4,01	3,55	3,17	2,84	2,56	2,33	2,12	1,94	1,78	1,64	1,52	
Bearer 200		5,35	4,66	4,09	3,62	3,23	2,90	2,62	2,37	2,16	1,98	1,82	1,68		
Deflection		4,78	4,08	3,51	3,06	2,69	2,38	2,13	1,91	1,72	1,56	1,42	1,30		
0,80	Bearer 100	5,08	4,45	3,94	3,51	3,14	2,84	2,57	2,34	2,14	1,97	1,81	1,68		
	Bearer 200	5,92	5,15	4,52	4,00	3,56	3,20	2,88	2,61	2,38	2,18	2,00	1,84		
	Deflection	5,91	5,04	4,34	3,78	3,33	2,95	2,63	2,36	2,13	1,93	1,76	1,61		
0,90	Bearer 100	6,09	5,33	4,70	4,18	3,74	3,37	3,05	2,78	2,54	2,33	2,14	1,98		
	Bearer 200	7,06	6,13	5,37	4,74	4,22	3,78	3,40	3,08	2,80	2,56	2,35	2,16		
	Deflection	7,10	6,04	5,21	4,54	3,99	3,53	3,26	2,77	2,37	2,05	1,78	1,56		
1,00	Bearer 100	7,07	6,18	5,44	4,83	4,32	3,88	3,51	3,19	2,91	2,67	2,45	2,27		
	Bearer 200	8,16	7,06	6,18	5,45	4,84	4,33	3,90	3,52	3,20	2,92	2,68	2,47		
	Deflection	8,30	7,08	6,10	5,31	4,67	4,14	3,69	3,31	2,99	2,71	2,47	2,26		
1,20	Bearer 100	9,12	7,94	6,97	6,17	5,50	4,94	4,46	4,04	3,68	3,37	3,10	2,85		
	Bearer 200	10,43	9,00	7,85	6,90	6,12	5,46	4,91	4,43	4,02	3,67	3,36	3,05		
	Deflection	10,61	9,04	7,80	6,79	5,97	5,29	4,72	4,23	3,82	3,47	3,16	2,89		
	0,65	Bearer 100	4,25	3,75	3,33	2,98	2,69	2,43	2,22	2,03	1,86	1,71	1,58	1,47	Safety class 1 and 2
		Bearer 200	5,01	4,38	3,87	3,44	3,08	2,78	2,51	2,29	2,09	1,92	1,77	1,63	
		Deflection	5,30	4,52	3,82	3,10	2,56	2,13	1,80	1,53	1,31	1,13	0,98	0,86	
	0,70	Bearer 100	4,84	4,26	3,79	3,39	3,05	2,76	2,51	2,29	2,10	1,93	1,79	1,66	
		Bearer 200	5,68	4,96	4,38	3,89	3,48	3,13	2,83	2,58	2,35	2,16	1,99	1,83	
		Deflection	5,98	5,09	4,39	3,83	3,36	2,98	2,66	2,38	2,15	1,95	1,78	1,63	
	0,75	Bearer 100	5,45	4,80	4,25	3,80	3,42	3,09	2,81	2,56	2,35	2,16	1,99	1,85	
Bearer 200		6,37	5,56	4,90	4,35	3,88	3,49	3,16	2,87	2,62	2,40	2,21	2,04		
Deflection		6,68	5,69	4,90	4,27	3,76	3,33	2,97	2,66	2,40	2,18	1,99	1,82		
0,80	Bearer 100	6,06	5,33	4,72	4,21	3,78	3,42	3,10	2,83	2,59	2,38	2,20	2,04		
	Bearer 200	7,06	6,16	5,42	4,80	4,29	3,85	3,48	3,16	2,88	2,64	2,43	2,24		
	Deflection	7,39	6,30	5,43	4,73	4,16	3,68	3,28	2,95	2,66	2,41	2,20	2,01		
0,90	Bearer 100	7,29	6,39	5,65	5,03	4,51	4,07	3,69	3,36	3,08	2,82	2,60	2,41		
	Bearer 200	8,43	7,34	6,44	5,70	5,08	4,56	4,11	3,73	3,40	3,11	2,86	2,63		
	Deflection	8,86	7,55	6,51	5,67	4,98	4,42	3,94	3,54	3,19	2,89	2,64	2,41		
1,00	Bearer 100	8,49	7,43	6,56	5,83	5,22	4,70	4,26	3,87	3,54	3,25	2,99	2,76		
	Bearer 200	9,76	8,47	7,43	6,56	5,84	5,23	4,72	4,27	3,89	3,56	3,26	3,00		
	Deflection	10,38	8,84	7,63	6,64	5,84	5,17	4,61	4,14	3,74	3,39	3,09	2,83		
1,20	Bearer 100	10,98	9,58	8,43	7,48	6,68	6,00	5,42	4,92	4,49	4,11	3,78	3,49		
	Bearer 200	12,51	10,82	9,46	8,34	7,41	6,62	5,96	5,39	4,89	4,47	4,09	3,77		
	Deflection	13,27	11,30	9,75	8,49	7,46	6,61	5,90	5,29	4,78	4,33	3,95	3,61		

Foot traffic recommended by Areco

Table 4

Division into sections	0,65	0,70	0,75	0,80	0,90	1,00	1,20
Single section	5,00	5,50	5,90	6,30	6,90	7,20	7,50
Multiple section	6,30	6,70	7,20	7,50	7,80	8,00	8,20

Explanations

- Moment Loadbearing capacity in field. Dimensioning load case 1.
- Bearer 100 Loadbearing capacity at intermediate bearer with Is = 100 mm. Dimensioning load case 1.
- Bearer 200 Loadbearing capacity at intermediate bearer with Is = 200 mm. Dimensioning load case 1.
- Deflection Deflection L/150. Dimensioning load case 3.
- Wind suction Loadbearing capacity for vertical wind load. Dimensioning load case 2.

*** Subject to alteration without notice ***