

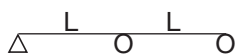
### Cross sectional data – calculated for safety class 1

Table 1

Sheet thickness, nominal	$t_{nom}$	mm	0,65	0,70	0,75
Sheet thickness in calculation	$t_{ber}$	mm	0,587	0,636	0,685
Tensile yield stress	$f_{ty}$	Mpa	350	350	350
Mass	$m$	kg/m	6,50	7,00	7,50
Selfweight including overlap	$g$	kN/m <sup>2</sup>	0,07	0,08	0,08
Bearing resistance $l_s=100$ mm	$R_d$	kN/m	22,19	25,61	29,24
Bearing resistance $l_s=200$ mm	$R_d$	kN/m	29,94	34,45	39,22
Moment narrow flange	$M_d$	kNm/m	2,60	3,01	3,45
Moment of inertia in compression	$I_{efd}$	mm <sup>4</sup> /mm	233	256	279
Moment broad flange	$M_d$	kNm/m	2,67	3,02	3,35
Moment of inertia in compression	$I_{efd}$	mm <sup>4</sup> /mm	194	215	236

### 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.

Other span, see table 3.



Specifies limited foot traffic.

See table 4 on reverse of this sheet.

Snow load $S_o$ kN/m <sup>2</sup>	Load reduction factor $\psi$	Maximum span $m$ (L) for different thicknesses and bearer width $l_s=45$		
		$t = 0,65$	$t = 0,70$	$t = 0,75$
1,0	0,6	3,84 m	4,14 m	4,44 m
1,5	0,7	3,24 m	3,50 m	3,37 m
2,0	0,7	2,84 m	3,07 m	3,30 m
2,5	0,7	2,55 m	2,76 m	2,97 m
3,0	0,8	2,33 m	2,53 m	2,72 m
4,0	0,8	2,01 m	2,18 m	2,35 m

### Explanatory notes to calculations

<p>All data are based on Swedish Board of Housing, Building and Planning design regulations BKR 99 and StBK-N5.</p> <p>The sheeting should be checked for the following load combinations.</p> <p><b>Loadbearing capacity</b> Snow + Selfweight: (1) <math>Q_d = 1,3 \times \mu \times S_o + G</math> Wind suction + Selfweight: (2) <math>Q_d = 1,3 \times \mu \times q_k - 0,85 \times G</math></p> <p><b>Deflection</b> Ord. snow + Selfweight: (3) <math>Q_n = 1,0 \times \mu \times \psi \times S_o + G</math> <math>\mu</math> = shape factor for snow load and wind load <math>S_o</math> = basic value of snow load <math>G</math> = selfweight <math>q_k</math> = characteristic value of wind load <math>\psi</math> = load reduction factor for ordinary load (See table 2)</p> <p>At pitches greater than 20°, load combinations with wind pressure should also be considered. Accumulation of snow should be considered.</p> <p>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</p>	<p>Where the span tables are insufficient, the sheeting should be designed in accordance with the conditions set out below.</p> <p>Field <math>M_f \leq M_d</math></p> <p>Intermediate <math>M_s - R_s \times l_s/8 \leq M_d</math></p> <p>bearer <math>(M_s - R_s \times l_s/4) / M_d + 0,64 \times R_s/R_d \leq 1,16</math></p> <p><math>R_s \leq R_d</math></p> <p>End bearer <math>R_s \leq R_d</math> or <math>R_d/2</math></p> <p>For end bearers, the design value <math>R_d</math> 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 <math>R_d/2</math> applies. For bearer widths of between 45 and 100 mm, <math>R_d</math> is interpolated rectilinearly. Deflection has been checked for L/90. For other deflection requirements, the specified maximum loads with respect to deflection can be obtained by proportion.</p>
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# TP 45 I/150

# ROOF

## Maximum loads in kN/m<sup>2</sup>

Table 3

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

### Foot traffic recommended by Areco

Table 4

Division into sections	0,65	0,70	0,75
Single section	1.90	2.30	2.80
Multiple section	2.60	3.70	4.50

### Explanations

Moment	Bearing capacity in field. Design load combination 1
Bearer 45	Bearing capacity for intermediate bearer with ls = 45mm. Design load combination 1
Upplag 100	Bearing capacity for intermediate bearer with ls = 100mm. Design load combination 1
Deflection	Deflection L/150. Design load combination 3
Wind suction	Bearing capacity for upwardly directed wind load. Design load combination 2

### Wind suction

When designing the sheeting for wind suction, check that  $M_{akt}$  is less than  $M_{dim}$ .  
If the sheeting is fixed with only 1 screw/every other profile bottom,  $M_{akt}$  less than  $0,75 \times M_{dim}$ .  
Wind load, see Swedish Board of Housing, snow and wind load BSV 97 edition 2 page 80.