

C13

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fx

$$=(((B7-B8)*B9*9.81)/(2*B8*B10))*1.25$$

	A	B	C	D	E	F	G	H	I
1	Cell C13 contains the European standard equation for calculating the number of straps required.								
2									
3	(Factor of Safety 1.25, other acceleration figs, + angle of straps, appropriate to roundwood timber road haulage)								
4									
5	4 Variables.... in cells B7, B8, B9, B10								
6									
7	Headboard or no Headboard		0.8						
8	Coeff of Friction, roundwood logs		0.71						
9	M, (Load in Kgs), single bay of roundwood		8000						
10	Strap Tension force, Newtons		3000						
11									
12									
13	Number of Straps required(with above data)	=	2.07						
14									
15									
16									
17									
18	John Lyons: This is pre-tension force <u>IN</u> the strap, not the tension force rating <u>of</u> the strap.								
19	I tonne or 1,000 Kgs is 9,800 N								
20									
21									
22									
23									
24									
25									

John Lyons:
Headboard, use 0.5
No headboard, use 0.8.
For these sensitivity analysis, the fig for no headboard is used, 0.8

John Lyons:
Swedish TIMRA project, 0.78.
NZ trials, 0.71
Ireland???

Vertical bolsters act as positive restraint to increase friction. Also aggressive bolsters, designed for roundwood logs but these extras are not included in this calculation.

John Lyons:
Approx. weight of a single bay of timber, contained by at least 2 uprights