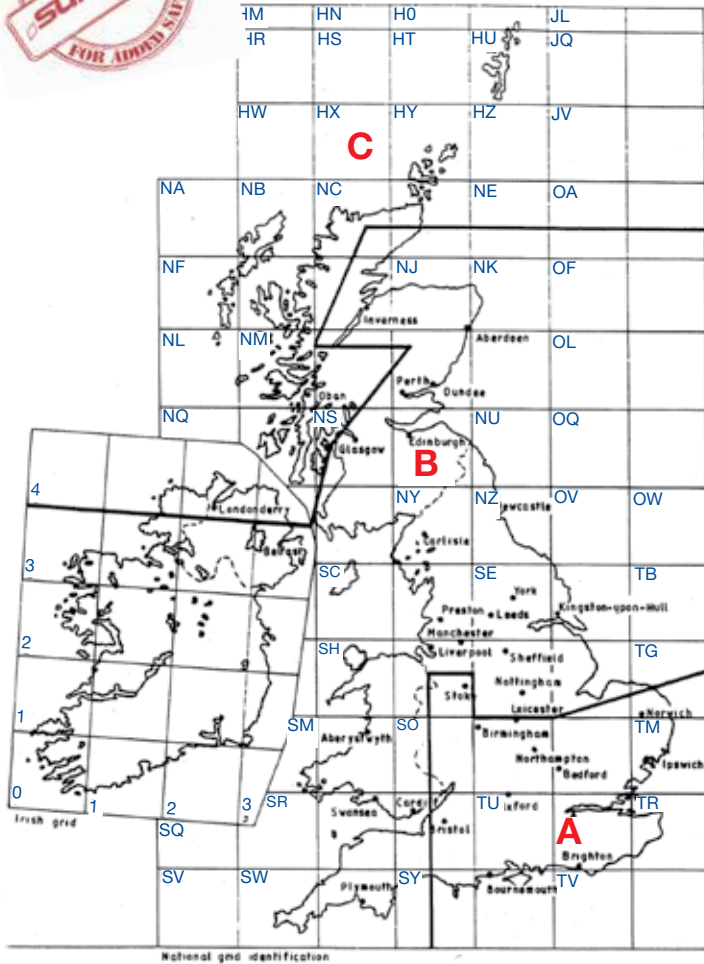




Warm Roof Installation Technical Guide



Installation details

SureTwists can be driven using a conventional hammer. A series of light taps rather than heavy blows will allow the SureTwist to rotate during insertion. Alternatively you can use the SDS Power support tool to drive the fixings home.

1. Line the counterbatten up with the rafter beneath the insulation.
2. Apply pressure to the counterbatten pressing firmly onto the insulation.
3. Place the SureTwist as near to the centre of the counterbatten as possible and hammer home. (Alternatively drive with power support tool).
4. Place the remaining fixings at the recommended spacings along the counterbatten, and hammer home.

Once fixed at the recommended density the battens will feel vertically secure, but may feel a little springy horizontally if the gap is not set tightly enough. This movement will be alleviated by the bracing effort of the tile battens which will provide additional lateral rigidity.

At CPSI we realize that safety and performance are paramount in the structural repair and fixing markets. To guarantee the products safety, tension is induced through the SureTwist helical section by the twisting motion in the manufacturing process. This ensures that all impurities in the base material are detected early, and any inferior materials discarded.

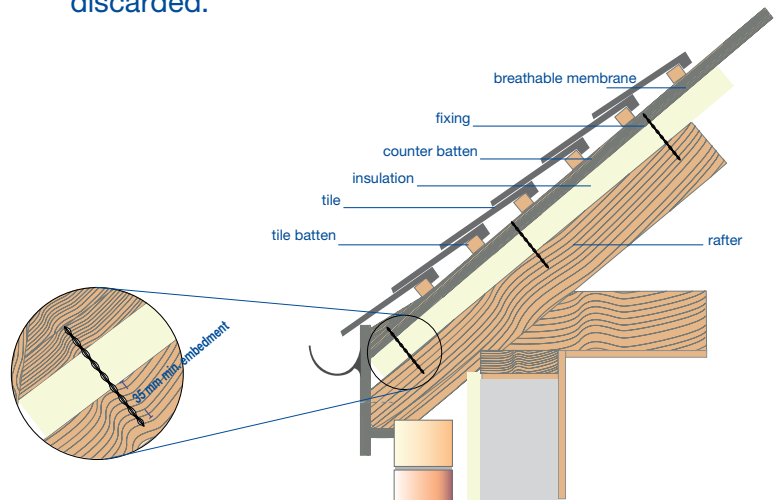
1. Factors affecting fixing density to resist wind suction loads

Wind Zones A,B and C as defined by the map above.

- A = Basic wind speed up to 44 m/s
- B = Basic wind speed up > 44 m/s up to 52 m/s
- C = Basic wind speed > 52 m/s

2. Local land contour within 1km of site.

- (a) Flat or gently sloping surrounding land, where slopes do not exceed 1:20. ($S_1 = 1$) *
- (b) Moderately sloping surrounding land where slopes are between 1:20 and 1:12.5 ($S_1 = 1.1$) *
- (c) Surrounding land sloping steeply in excess of 1:12.5, declined as 'No Limit'. ($S_1 = 1.36$) *



CONSTRUCTION PRODUCTS SOLUTIONS INTERNATIONAL LTD.

Unit 3, Haslemere Industrial Estate, Pig Lane, Bishop's Stortford, Hertfordshire. CM23 3HG. United Kingdom.
 Tel: +44(0)1279 505 514 - Fax: +44(0)1279 755190 - e mail: info@surecps-group.com - www.surecps-group.com
 Company Reg. 6969591 VAT Reg. GB 824 4246 40



Please always wear the appropriate safety and protective clothing when installing fixing and anchor products. Always observe the necessary Health & Safety guidelines.

© All text copyright. Above information is given as guidance only and should always be verified by a suitable engineer.

The above information is given in good faith, and may be subject to alteration at any time without prior notification.



Information required to calculate the fixing length and axial spacing

- a) Counter-batten thickness Minimum 25mm, British standards now advise 38mm.
- b) Insulation Thickness.
- c) Addition material IE Ply or plasterboard which is placed between the counter-batten and rafter.
- d) Rafter centre.
- e) Location of contract.
- f) Roof pitch.
- g) Weight of tile.
- h) Roof area.

Table 1. Min. fixings/m² to resist sliding loads

Warm Roof Fixing Roof Pitch								Weight of laid roofing measured on the slope kg/m ²	
20°	30°	40°	50°	60°	70°	80°	90°		
Insulation Thickness: 0 – 35mm									
1.5	2.0	1.8	1.6	1.0	0.5	0.7	0.7	10	A.C. or steel sheet A.C.slates
1.6	2.2	2.3	1.9	1.7	1.0	1.0	1.0	20	
1.8	2.5	2.6	2.4	2.0	1.5	1.6	1.6	30	Natural slates
2.0	2.8	3.0	2.8	2.5	2.0	2.1	2.1	40	
2.1	3.2	3.2	3.2	3.0	2.5	2.6	2.6	50	
2.2	3.4	3.7	3.4	3.7	3.0	3.1	3.2	60	Interlocking concrete tiles
	3.6	4.0	4.0	4.0	3.7	3.8	3.8	70	
	4.0	4.4	4.6	4.6	4.0	4.4	4.4	80	Plain clay tiles
	4.2	4.7	5.0	5.0	4.5	5.0	5.0	90	
	4.5	5.2	5.3	5.4	5.1	5.4	5.4	100	Concrete slates Cotswold stone
Insulation Thickness: 36 – 50mm									
3.0	4.2	3.8	3.0	2.1	0.9	1.1	1.1	10	A.C. or steel sheet A.C.slates
3.4	4.6	4.4	3.9	3.1	1.9	2.0	2.1	20	
3.7	5.2	5.2	4.6	4.0	3.0	3.2	3.2	30	Natural slates
4.0	5.5	6.0	5.6	4.9	4.1	4.1	4.2	40	
4.4	6.1	6.5	6.4	5.6	5.0	5.2	5.3	50	
4.7	6.8	7.2	7.1	6.7	6.0	6.2	6.3	60	Interlocking concrete tiles
	7.2	8.0	8.0	7.7	7.1	7.6	7.5	70	
	8.0	8.6	9.0	8.6	8.1	8.4	8.6	80	Plain clay tiles
	8.5	9.4	9.6	9.8	9.0	9.8	9.8	90	
	8.9	10.0	10.5	10.5	10.0	10.7	10.7	100	Concrete slates Cotswold stone
Insulation Thickness: 51 – 75mm									
5.2	7.4	7.0	5.6	3.7	1.7	1.7	1.8	10	A.C. or steel sheet A.C.slates
6.0	8.5	8.2	7.0	5.4	3.6	3.7	3.7	20	
6.7	9.3	9.5	8.5	7.0	5.4	5.5	5.6	30	Natural slates
7.3	10.3	10.6	10.0	8.7	7.2	7.5	7.6	40	
8.1	11.2	12.1	11.5	10.6	8.8	9.6	9.6	50	
8.6	12.2	13.1	13.0	12.1	11.0	11.2	11.4	60	Interlocking concrete tiles
	13.2	14.6	14.4	13.9	12.5	13.1	13.3	70	
	14.1	15.5	16.0	15.5	14.5	15.2	15.3	80	Plain clay tiles
	15.0	16.9	17.5	17.0	16.3	17.1	17.3	90	
	16.1	18.4	18.9	18.9	18.0	19.1	19.2	100	Concrete slates Cotswold stone
Insulation Thickness: 76 – 100mm									
7.5	10.5	9.6	7.6	5.5	2.4	2.6	2.6	10	A.C. or steel sheet A.C.slates
8.5	11.7	11.5	9.8	7.6	5.0	5.3	5.3	20	
9.3	13.0	13.2	11.8	10.1	7.7	8.0	8.0	30	Natural slates
10.2	14.5	14.9	14.0	12.3	10.3	10.5	10.5	40	
11.3	15.9	16.6	16.0	14.9	12.7	13.4	13.4	50	
12.1	17.1	18.4	18.1	17.0	15.3	15.3	15.9	60	Interlocking concrete tiles
	18.5	20.2	19.4	19.2	17.6	18.5	18.7	70	
	20.2	21.8	22.1	21.8	20.3	21.2	21.7	80	Plain clay tiles
	21.4	23.6	24.4	24.1	22.9	23.5	24.3	90	
	22.6	25.5	26.4	26.5	25.5	26.3	27.0	100	Concrete slates Cotswold stone

CONSTRUCTION PRODUCTS SOLUTIONS INTERNATIONAL LTD.

Unit 3, Haslemere Industrial Estate, Pig Lane, Bishop's Stortford, Hertfordshire. CM23 3HG. United Kingdom.
 Tel: +44(0)1279 505 514 - Fax: +44(0)1279 755190 - e mail: info@surecps-group.com - www.surecps-group.com
 Company Reg. 6969591 VAT Reg. GB 824 4246 40



Please always wear the appropriate safety and protective clothing when installing fixing and anchor products. Always observe the necessary Health & Safety guidelines.

© All text copyright. Above information is given as guidance only and should always be verified by a suitable engineer.

The above information is given in good faith, and may be subject to alteration at any time without prior notification.



Table2. Fixings/m2 for different fixing centres

Fixing Centres – mm	Rafter Centres – mm			
	400	450	600	1200
100	25.0	22.2	16.7	8.3
125	20.0	17.8	13.3	6.7
150	16.7	14.8	11.1	5.6
175	14.3	12.7	9.5	4.8
200	12.5	11.1	8.4	4.2
225	11.1	9.8	7.3	3.7
250	10.0	8.9	6.7	3.4
275	9.1	8.0	6.0	3.0
300	8.3	7.3	5.5	2.8
312	8.0	7.1	5.3	2.7
325	7.7	6.5	5.2	2.6
350	7.2	6.0	4.8	2.4
375	6.7	5.9	4.5	2.3
400	6.3	5.6	4.2	2.1
406	6.2	5.5	4.1	2.0

Table 3. Cladding fixing densities to resist wind suction for cladding and vertical tiles

Wind Zone	Max. Slope Of Land Within 1km	Suction kN/m ²	Warm Roof Fixing Batten Thickness – mm		
			25mm	38mm	50mm
A	1:202.52	4.3	2.5	2.0	
	1:12.5	3.52	5.6	3.4	2.4
	No Limit	4.66	7.4	5.3	3.7
B	1:203.52	6.0	3.6	2.8	
	1:12.5	4.26	7.0	4.6	3.5
	No Limit	6.51	10.0	7.2	5.4
C	1:20	4.10	6.5	4.4	3.2
	1:12.5	4.94	8.0	5.4	4.0
	No Limit	7.54	12.5	8.4	6.0

Calculating the Fixing length.

Counterbatten Thickness + Insulation Thickness + Any Additional material + 35mm embedment. = total length required.

Calculating the Axial centres and qty required.

Insulation thickness, Tile weight and Roof Pitch. Go to Table 1 and cross reference the Min Fixings / M². With that figure go to Table 2, cross reference against the rafter centre, to the fixing centre. The result is the axial spacing along the counterbatten.

Calculate qty of fixings required.

Roof area M2 x Min fixings / M2 = total qty.

