

15 April 2016

Project Number: FM3-10-001915

Site Address: The Symington Building, Adam & Eve Street, Market Harborough, LE16 7AG

### **ROOF ZONE 1 - Main Roof**

Tile Type: Redland Cambrian Slate  
Headlap: 50 mm

### **FIXING RECOMMENDATION**

#### **TILING**

All Slates must be twice nailed using 30mm long x 2.65 mm diameter stainless steel ring shanked nails and clipped.

#### **UNDERLAY**

Spiritech 400 2S Vapour Permeable will meet the requirements of BS5534:2014 in terms of wind uplift resistance for this site.

Where a horizontal lap in the underlay occurs the lap should be glued together using the integral double glue strips provided with the Redland underlay; peel off the protective backing and press the glue strips firmly together using the hand to form a glued joint. The resulting glued horizontal lap removes the need for an extra batten over the lap joint and restrains the lap from opening under wind uplift ensuring the installed Redland underlay complies with the wind uplift requirements of BS 5534.



#### **Redland Technical Solutions**

Monier Redland Limited, South Cerney Plant, Broadway Lane, South Cerney, Cirencester, Gloucestershire GL7 5UH  
T 08708 702595 F 08708 702596 E [technical.redland@monier.com](mailto:technical.redland@monier.com) [www.redland.co.uk](http://www.redland.co.uk)

**Registered Office** Monier Redland Limited, Spectrum House, Beehive Ring Road, Gatwick, Crawley, RH6 0LG  
**Registered No** 407552, England

15 April 2016

Project Number: FM3-10-001915

## **TILING GENERALLY**

### **TILE FIXING**

Lay Slates broken bond in even courses with tails aligned.

Nail Slates using 30mm long x 2.65 mm diameter stainless steel ring shanked nails

Clip Slates using tile clips (919600)

### **BATTENS**

Fix each batten to each support, splay nailing at ends, using 65mm long x 3.35mm diameter galvanised smooth round nails

## **ADDITIONAL COMPONENTS REQUIRED**

### **EAVES**

Eave Clip (pack of 50 + 50 nails) (Cambrian) (919200) and 55mm long x 2.65 mm diameter stainless steel ring-shanked nails (963800)

### **ROOF WINDOW**

Verge clips (919300), twice nailed to battens with 30mm long x 2.65 mm diameter stainless steel ring shanked nails

### **GRP VALLEY**

Fix Slates both sides every course with verge clips (919300) twice nailed to valley support battens with 30 mm long x 2.65 mm diameter stainless steel ring shanked nails.



#### **Redland Technical Solutions**

Monier Redland Limited, South Cerney Plant, Broadway Lane, South Cerney, Cirencester, Gloucestershire GL7 5UH  
T 08708 702595 F 08708 702596 E [technical.redland@monier.com](mailto:technical.redland@monier.com) [www.redland.co.uk](http://www.redland.co.uk)

**Registered Office** Monier Redland Limited, Spectrum House, Beehive Ring Road, Gatwick, Crawley, RH6 0LG  
**Registered No** 407552, England

Part of **BRAAS MONIER BUILDING GROUP**

15 April 2016

Project Number: FM3-10-001915

**INFORMATION PROVIDED BY CUSTOMER**

Roof type H : Duopitch  
 Roof pitch L : 45 degrees  
 Maximum rafter length : 6 metres  
 Maximum height to ridge : 17 metres  
 Building length : 30 metres  
 Insulation location : Insulation Between Rafters (Partial Fill)  
 Rafter centres : 450 mm  
 Batten size : 50 mm x 25 mm (Imported)  
 Ridges : Dry  
 Hips : Dry  
 Verges : Dry  
 Valleys : GRP  
 Side abutments : Lead  
 Roof windows : Yes  
 Fascia vent : No  
 Solar panels : None  
 Well sealed ceiling : Yes

**CALCULATED VALUES**

**SITE**

Effective height He : 13.8 metres  
 Exposure factor ce(he) : 2.54  
 Site wind speed vb : 23.65 metres per second  
 Peak velocity pressure qp : 872.05 Newtons per square metre

**TILING**

Roof Area	Cp, net	Uplift (N)	Resistance (N)	Loading
General	-0.3000	19.62	146.68	13.38%
Local	-0.7800	51.02	146.68	34.78%

**UNDERLAY**

Design Wind Pressure Pu : 654.04 Newtons per square metre  
 Design Uplift Resistance Pd : 2,200.00 Newtons per square metre



**Redland Technical Solutions**

Monier Redland Limited, South Cerney Plant, Broadway Lane, South Cerney, Cirencester, Gloucestershire GL7 5UH  
 T 08708 702595 F 08708 702596 E technical.redland@monier.com www.redland.co.uk

**Registered Office** Monier Redland Limited, Spectrum House, Beehive Ring Road, Gatwick, Crawley, RH6 0LG  
**Registered No** 407552, England

15 April 2016

Project Number: FM3-10-001915

Site Address: The Symington Building, Adam & Eve Street, Market Harborough, LE16 7AG

### **FROM SITE LOCATION INFORMATION**

Basic wind speed	vb,Map	: 22 metres per second
Maximum site altitude		: 80 metres
Minimum distance from sea		: 74 kilometres
Nominal site terrain		: Town
Distance inside town		: 0 kilometres
Within an airport zone		: No
Surrounding building height	have	: 6 metres
Spacing between buildings	x	: 20 metres

### **SITE INFORMATION PROVIDED BY CUSTOMER**

Site bordered by open space	: No
Nearby tall structures	: No

### **SITE WIND SPEED FACTORS**

Altitude factor	calt	: 1.075
Directional factor	cdir	: 1
Seasonal factor	cseason	: 1
Design life of building		: 50 years
Annual risk	Q	: 0.02
Probability factor	cprob	: 1

For sites in towns not bordered by open spaces the average height of the surrounding buildings and their relative spacing are considered in order to calculate Effective Height (He). Following advice in BRE Digest 436: Part 1, default values of Average Roof Height (have) = 6 m and Maximum Separation Distance (X) = 20 m are used unless otherwise requested.



#### **Redland Technical Solutions**

Monier Redland Limited, South Cerney Plant, Broadway Lane, South Cerney, Cirencester, Gloucestershire GL7 5UH  
T 08708 702595 F 08708 702596 E technical.redland@monier.com www.redland.co.uk

**Registered Office** Monier Redland Limited, Spectrum House, Beehive Ring Road, Gatwick, Crawley, RH6 0LG  
**Registered No** 407552, England

Part of **BRAAS MONIER BUILDING GROUP**

15 April 2016

Project Number: FM3-10-001915

## **GENERAL NOTES**

The fixing specification complies with the requirements of the following standards:

BS EN 1991-1-4:2005 + A1:2010, Eurocode 1 - Actions on structures, Part 1-4: General actions - Wind actions;

NA to BS EN 1991-1-4:2005 + A1:2010, UK National Annex to Eurocode 1 - Actions on structures, Part 1-4: General actions - Wind actions;

BS 5534: 2014, Slating and tiling for pitched roofs and vertical cladding - Code of practice.

BS 5534 requires that perimeter tiles are mechanically fixed using a minimum of two fixings (subject to meeting the wind loading requirements), one of which can be a tile clip, adhesive, suitable dry hip or dry verge system where appropriate. To avoid the use of small pieces of cut tiles, which are difficult to fix, double tiles, tile-and-a-half or half tiles should be used where available. Small pieces (less than half tile width) of cut single lap tiles that cannot be fixed as above should be bonded or mechanically fixed to the adjoining full-width tile using C-clips (9518) and Tail Clips (9519/9522), or secured using Kro-clips (9142).

The specification is based upon the information provided by you and the correctness of this information remains your responsibility. On re-checking, should you find a need to revise your specification, please let us know and we will re-run the program and produce a revised fixing specification.

For practical reasons on site, the fixing recommendations have been consolidated into a simplified format where appropriate.

Standard building design values have been used for calculation of the probability factor. Should you wish to revise either of these values, again please let us know and we will re-run our computer based program and produce a revised fixing specification.



**Redland Technical Solutions**

Monier Redland Limited, South Cerney Plant, Broadway Lane, South Cerney, Cirencester, Gloucestershire GL7 5UH  
T 08708 702595 F 08708 702596 E [technical.redland@monier.com](mailto:technical.redland@monier.com) [www.redland.co.uk](http://www.redland.co.uk)

**Registered Office** Monier Redland Limited, Spectrum House, Beehive Ring Road, Gatwick, Crawley, RH6 0LG  
**Registered No** 407552, England

Part of **BRAAS MONIER BUILDING GROUP**