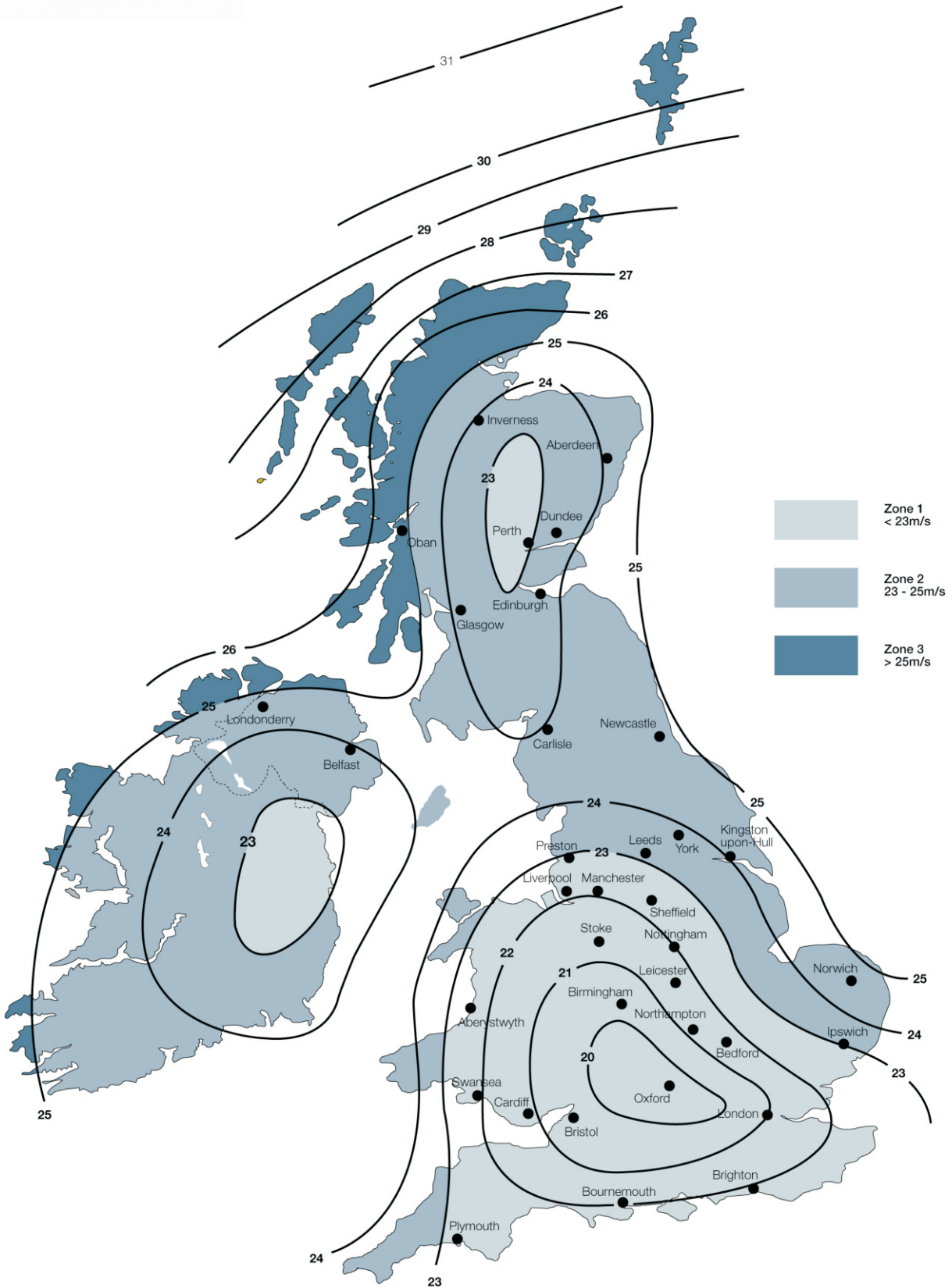




**Sandtoft**

**Balmoral**  
Fixing specification tables



# Balmoral fixing specification tables

## Balmoral roof *without* counterbattens

### Site altitude 0 to 100 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 2	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude 101 to 200 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 2	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude 201 to 300 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 2	5m	D	D	E	D	D	E
	10m	D	D	E	E	D	E
	15m	E	D	E	E	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude > 300 m

Calculation to BS 6399 and BS 5534 is required

## Balmoral roof *with* counterbattens

### Site altitude 0 to 100 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	D	D	E
Zone 2	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	E	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude 101 to 200 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	D	D	E	D	D	E
	15m	D	D	E	E	D	E
Zone 2	5m	D	D	E	D	D	E
	10m	E	D	E	E	D	E
	15m	E	D	E	E	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude 201 to 300 m

Headlap	75mm			100mm			
	Pitch	<35°	35°-44°	45°-54°	<35°	35°-44°	45°-54°
Zone 1	5m	D	D	E	D	D	E
	10m	E	D	E	E	D	E
	15m	E	D	E	E	D	E
Zone 2	5m	E	D	E	E	D	E
	10m	E	D	E	E	D	E
	15m	E	D	E	E	D	E
Zone 3	Calculation to BS 6399 and BS 5534 is required						

### Site altitude > 300 m

Calculation to BS 6399 and BS 5534 is required

## Key to fixing specifications

- A No fixings required
- B Each tile nailed once (right hand nail hole on flat tiles)
- C Each tile nailed twice (flat tiles only)
- D Each tile clipped
- E Each tile nailed once and clipped
- F Each tile nailed twice and clipped (flat tiles only)
- X Wind uplift force exceeds tile resistance (contact Sandtoft Technical Support on **0844 9395 999**)

\* Use improved (ie ring shank) nails

Tables have been calculated using metal clips.

For plastic clip fixing recommendations please contact Sandtoft Technical Support on **0844 9395 999**.

# Balmoral fixing specification tables

## How to use these tables

1. Check if the roof has counterbattens above the underlay – tables are included for projects with and without counterbattens – use the appropriate table
2. Identify the altitude category of the site; ie less than 100m, 101 to 200m, or 201 to 300m above sea level. Refer to an ordinance survey map or visit [www.streetmap.co.uk](http://www.streetmap.co.uk)
3. Refer to the wind speed zone map on the front page to identify the correct zone; ie zone 1, 2 or 3. If the site lies on the junction of two wind speed zones use the higher wind speed zone. For the Channel Islands assume Zone 2
4. Identify the building height to ridge (5m, 10m or 15m)
5. Identify the headlap of the tiles (75 or 100mm). Where the headlap falls between 75mm and 100mm use the 75mm fixing specification
6. Identify the roof pitch category (less than 35°, 35° to 44° or 45° to 54°)
7. Read off the fixing specification code from the table. Refer to the key below the tables for a description of the fixings

## Exclusions

These fixing specification tables are not applicable in the following circumstances:

- For buildings where the site altitude is greater than 300m.
- For buildings on sites where the maximum gradient of the land within 200 m of the building is greater than 10%.
- Where the building is within 6 kilometres of an airport and is plus or minus 10 degrees each side of the runway centre line measured from the touchdown point.
- Where the ridge height of the building is greater than 15 m.
- Where the roof pitch is greater than 54°
- Where the roof substructure does not have an underlay or sub-roof system such as liner trays or sandwich panels.
- Heritage, listed or historic buildings requiring restoration using traditional skills.
- For buildings on sites located in wind zones where the wind speed is greater than 25 m/s i.e. Zone 3.
- For buildings with mono pitched roofs.

Please contact Sandtoft Technical Support for calculated fixing specifications for any excluded site or building



## Technical enquiries

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At Sandtoft we are continually innovating and improving our product range. We reserve the right to change product specifications without notice. Please contact our Customer Support Team for the latest information or visit [www.sandtoft.com](http://www.sandtoft.com)

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