ROSEMARY CLAY PLAIN TILES

'Best' Tiles - Product Standard

Composition and manufacture
Rosemary plain tiles are machine-made clay tiles extruded and cut from a blend of clays that produce tiles that are highly frost resistant, strong and durable.

Description
Clay plain tiles, traditionally measuring 10½" x 6½" x ½" (265mm x 165mm x 12mm) can be cambered from head to tail (known as single or longitudinal camber), or from side to side (known as double or cross cambered). The Rosemary range has nine single cambered products (colours 80, 81, 82, 83, 84, 85, 87, 91, 95 and 98) and one double cambered product (94). Plain tiles are laid broken bonded and double lapped to ensure water is kept out of the roof; they do not interlock at either the top or the side of the tile.

Standards
Rosemary clay plain tiles and fittings are manufactured to conform to BS EN 1304:2013 Clay roofing tiles and fittings – Product definitions and specifications. The Bedworth factory that produces Rosemary operates a quality system to BS EN ISO: 9001.

The production of Rosemary is governed by the following standards:

Products, Definitions and Specifications	BS EN 1304:2013
Determination of Geometric Characteristics	BS EN 1024:2012
Impermeability Test	BS EN 539-1:2005
Test for Frost Resistance	BS EN 539-2:2013
Flexural Strength Test	BS EN 538:1994

In respect of the product specification for Rosemary, MUK produces clay tiles to dimensional tolerances that are well within those permitted by the British Standard (shown in the table below).

Performance
Rosemary Plain Tiles have been rigorously tested in MUK's wind tunnel where combinations of high wind and driving rain are used to determine the tile's performance with respect to wind loading and weathertightness. Tiles will meet all the requirements of BS 5534: Part 1: 2014: Code of practice for Slating and tiling providing MUK fixing recommendations are complied with.

Fire Resistance
Rosemary Plain Tiles are non-combustible and are classified S.A.A. when tested for fire protection and spread of flame, BS 476-3:2004: Fire tests on building materials and structures.

Environmental and Biological Factors
Rosemary Plain Tiles are unaffected by frost action, temperature extremes, exposure to ultraviolet and sunlight, or atmospheric pollution (sulphur dioxide levels below 70 micrograms/m^3 of air). Tile durability is unaffected by birds, rodents, insects, or the growth of lichens and mosses.

Product Dimensions, Regularity of Shape and Strength Standard

	MUK In-house Tolerances		British Standard	
Linear dimension (mm) Tolerance	**Rosemary Plain Tile**	**Rosemary Gable Tile**	**Plain Tile**	**Gable Tile**
Length	261.8 – 268.2	261.8 – 268.2	259.7 - 270.3	259.7 - 270.3
Width	162.4 – 167.6	245 - 251	161.7 - 168.3	243 - 253
Thickness	11 – 14	11 – 14	No BS	No BS
Twist *	0 - 3.0	0 - 3.0	0 - 6.8	0 - 8.5
Leading Edge Flatness *[1]	0 - 3.0	0 - 3.0	No BS	No BS
Squareness*[2]	0 - 4.0	0 - 4.0	No BS	No BS
Hanging Length *[3]	250 – 258	250 – 258	No BS	No BS
Strength	780N min	No BS	600N min	No BS

- Dimensional tolerances are measured as an average over 10 tiles
- Compliance with the British Standard for dimensions and regularity of shape requires 100% of the mean values (where values are expressed as an average result from a sample of ten tiles)
- Strength requires compliance of 99% of the individual values
- ***[1]** - Fired Tile Check introduced to quantify effects on aesthetics (mainly for corner lift) when tiles are laid/ viewed on pitched elevations
- ***[2]** ***[3]** **-** Fired Tile Checks introduced in May 2001 to ensure hanging integrity on battens
- * See Definitions below for full explanation

Definitions

Twist — This is calculated as a coefficient of the product length and width and the results are expressed as a percentage.

Leading edge flatness — BS 1024 states that the test for cross/transverse cambers across the tile width should be on the central two-thirds of the tile omitting the critical corners. This is why MUK has incorporated tile leading edge 'flatness' into its standard. This is a better indication of the actual visual effect observed by customers on site and will also, by default, ensure compliance with twist.

Fit — No specification other than 'there shall be no manufacturing faults which prevent the proper fitting together of the products, nor any structural faults'.

Water absorption — Maximum individual value for all Rosemary clay products is 3% (this QC test correlates to 'good frost resistance'). Frost tests are required and conducted annually by Technology Laboratories.

Structural Faults

95% of individual products must comply with the structural fault standard. More than 5% of failures would constitute product failure. These type of faults comprise:

Break consists of a separation of the product into two or more fragments.

Structural Crack consists of a regular crack running throughout the entire thickness of the product that is visible to the naked eye.

Loss of a Nib consists of the complete loss of a nib or nibs from the main tile body.

Superficial Surface Faults

Superficial faults do not compromise tile performance. These type of faults comprise the following:

Defect	BEST TILES	
	MUK	British Standard
Blistering	None	Greater than 10mm
Pit	See below	Greater than 7mm
Chip	Below 3.5mm	Greater than 7mm
Brindle Colour Spotting	Above headlap <5mm Below headlap – None Fine overspray only	Insufficient to spoil overall appearance, where not by design
Surface Clay Folds	None	Permitted
Surface Indents	None	Permitted

MUK standard for pits:

On the visible area of 100 tiles there should be:

- No more than 100 pits in the size range 1-2mm and no more than 20 of these on any one tile
- No more than 8 pits in the size range 2-4mm and no more than 2 of these on any one tile
- No more than 4 pits in the size range 4-8mm and no more than 1 of these on any one tile
- No pits greater than 8mm

British Standard Definitions

Blistering Localised raising of material with a mean dimension of over 10mm.

Pit

A fraction of material detached from the body of the tile on the visible surface with a mean dimension of over 7mm. This is often due to the expansion of a particle of, for example chalk (lime blowing) or pyrites.

Chip

A fraction of material detached from the body of the tile with a mean dimension of over 7mm. There are two types - a chip on one of the corners of the tile or a chip on the surface of the tile.

Brindle Colour Spotting

The following are not considered as defects: any scratches, scrapes and signs of friction that appear on tiles during manufacture, packing, handling or transport.

Nail holes should be open or easily opened without damaging the tile and are designed for nailing the tile to the tiling batten