



# GUIDE TO GRADED ROOFING BATTENS



# INTRODUCTION

As a highly competent roofer, you'll know that all roofing battens when fixed, must conform to BS 5534:2014. And of course, we will tell you in this leaflet how to recognise what a full BS batten looks like - and what markings it should have on it.

TX-PNSY/WPC

## How to recognise a BS Batten

The simplest way is to look for the distinctive “golden orange” colour of our SR Gold Battens; then you'll know that you have a highly trustworthy product that will fully meet the specification that is required of it. But you'll also need to make sure that every single batten (yes, every one) which claims to be a “BS batten” is properly stamped with all of the relevant details that BS 5534:2014 says it must have on it.

A BS batten must have the British Standard Number on it (BS 5534:2014 of course!); it also must have the batten size – either 25 x 38 or 25 x 50 written clearly upon it. Additionally it should contain the supplier/producer mark (in our case Timberex – “TX”) and also have a Species Code: which is

## *The Batten Standard*

*The British Standard which contains the rules that slating and tiling battens need to be graded to, is BS 5534:2014.*

A-BS5534-25x50 ✓ TFT

“PNSY” for Pine or “WPCA” for Spruce. Our SR Gold battens have “WPCA/PNSY” stamped on them, indicating that they may be made from either timber. Our SR Gold battens will also carry an additional mark – the TFT Diamond Mark - which shows that our grading, preservative treatment and product marking & packaging processes have all been independently verified by Technology For Timber, to ensure that every SR Gold batten performs properly on site. Lastly, a good proportion of our graded (Gold) batten has been accredited & marked with Trada’s “Q-Mark”



## Look for “the 4 S's”

If any batten does not have the full range of marks clearly stamped on it (as just described previously): that is, Standard, Size, Supplier and Species – then it is not a BS batten, and so you must check it over carefully to make sure it is fit for use.

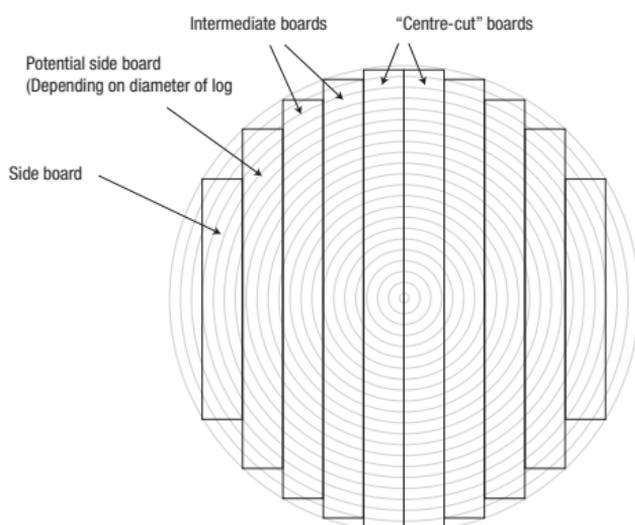


## What type of timber are battens made from?

As we said earlier, all of our battens are made either from high quality Pine or Spruce grown in Northern Europe: so the wood itself is naturally very strong.



There has been some debate about whether “centre cut” material or “side boards” can produce better or stronger battens: in other words, which part of the tree or log they were cut from. But in actual fact – and provided the grading rules have been properly followed – there is no appreciable difference in the strength of battens made from either type of timber; and certainly not enough to significantly influence the strength of any graded batten that you may be using on a roof.



**For illustrative purposes only**  
(Based on a log of approx. 30cm diameter.)

Logs of different diameters would yield a different ratio of side boards to intermediate material (I.E. two or maximum four side boards but more intermediate material from larger logs)

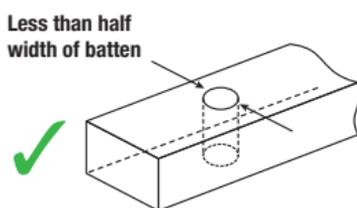
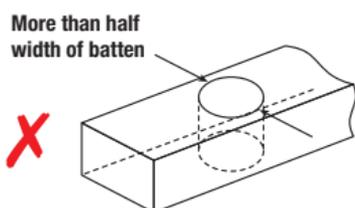
## Dimensional tolerances

As already stated, BS 5534:2014 battens come in two basic dimensions: 25 x 38mm and 25 x 50mm. The standards also state an allowed tolerance of +/- 3mm on the width, and a tolerance on the thickness of -0/+3mm.

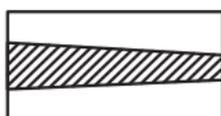
(These dimensions are supposed to be measured when at a “reference” moisture level of 20% but in reality, the 25mm thickness is the most important one: and this will barely alter, at the range of moisture levels which are encountered in batten production and on building sites – so 25mm minimum is what to look for in a good batten. 50mm and 38mm width batten offers superior quality as it is produced full size in both thickness and width.)

## What to check for on an ungraded or a partly-graded batten

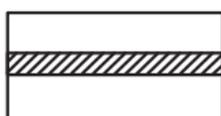
The rules on knots can be quite complicated, but essentially, you should cut out any large knot which are bigger than half the width of the batten, should it appear on both sides of the face (width), as illustrated below.



Knots smaller than 5mm diameters (which are usually referred to as “pin knots”) may be allowed anywhere: but knots over 5mm in any part of their dimension are not permitted to run across the batten from edge to edge, and so must also be cut out.



“Through” edge knot greater than 5 mm in diameter



“Through” edge knot less than 5 mm in diameter



Edge knot running across face: greater than 5mm on an edge

### Grading

It is generally accepted that whatever method of grading is used, a small percentage of misgrading is likely, although there is no allowance for this in BS5534:2014. Trade associations such as NFRC recommend that the permissible misgrade rate for battens used in the UK should be no more than 10% for borderline deviations and 0% for clear or significant failures.

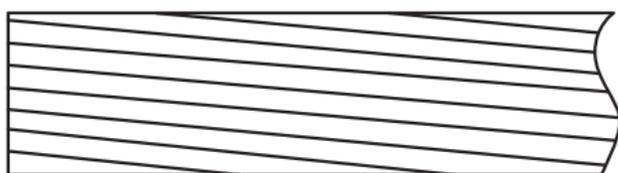
Factory graded battens have been checked at source, however no grading process can be 100% accurate and damage can occur in transit and/or during the works.

Therefore, it is recommended that even fully graded battens should be checked before installation for obvious defects and split ends or damage that may have occurred post manufacture.

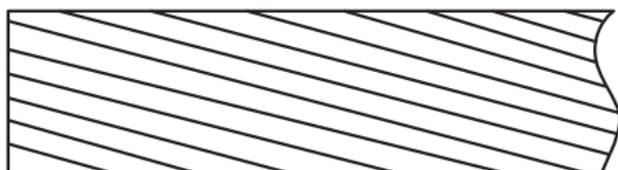
### Grain direction (“Slope of Grain”)

The “grain” of timber is the main direction of its wood fibres; and it is a fact that straight-grained wood is therefore strong wood. But the more the grain deviates from straight – that is, it “slopes” across the batten - then the weaker the piece will be, until it becomes unsafe to use.

BS 5534:2014 allows a maximum angle of “slope of grain” of 1 in 6 – you can think of it as being equivalent to judging a steep hill with that sort of gradient. And it is perhaps a useful thing to remember that the lower the number of the base-line, the worse – or steeper – the slope: so that 1 in 5 or 1 in 4, etc will be unsafe, but 1 in 7 or 1 in 8, etc will be OK to use.



Slope of grain not as bad as 1 in 6



Slope of grain worse than 1 in 6

### Wane

This term refers to a “missing” edge of any square-edged piece of sawn timber; where the natural roundness of the log is visible, rather than solid timber being present at that point.

BS 5534:2014 allows up to one-third of the batten edge to be missing due to Wane. However, SR Gold will normally not have any wane in it.



Missing or rounded edge

### Other defects

The “defects” already stated are the most important to look for when checking over the ungraded or partially-graded battens, to make them safe. But in addition, there should be no rot or other biological attack (such as “woodworm”) in any batten – although the latter will be very rare indeed!

### *Rate of growth*

Refers to the total number of growth rings visible within the 25mm cross-section of the batten. Although the rules allow as few as 4 rings in 25mm, that will not be an issue with our battens, which come from slow-grown North European forests.

### *Moisture content*

Needs to be considered: and the battens will have been preservative treated at a level of moisture within the wood appropriate to the species being treated. The standard state battens should not exceed 22% moisture content at time of fixing.



### *Discolouration* (blue stain, etc)

Is perfectly permissible in any batten, since it does not weaken the timber and it will be hidden in the finished roof. However, you should make sure that the batten is not unduly wet now; since blue stain is a sign that the wood may have had excessive moisture in it at some time in the past.

### *Splits*

Are rarely a problem with battens: the Standard limits them to very short ones anyway. But if the end of a batten should be split too much, so that it cannot be nailed, then simply trim it back to sound timber.

### *Distortion*

Is one of those things where the rules can seem much more complicated than the reality: there are limits given in BS 5534:2014 for bow, twist, etc – and our SR Gold battens and Imported Softwood Timber battens will always conform to these.

But a badly-shaped batten is not, of itself, a “weak” batten: it is just difficult to work with. So the common-sense approach is to discard any batten that is too bent or twisted to use: although you could cut down a very long, bent batten into two or more shorter and more manageable lengths.

## **Safety**

Battens supplied and fixed in accordance with BS 5534 are designed to have adequate strength to support the dead, imposed and wind loads on the roof clad with slates, and may be used as an alternative to roof ladders in line with current guidance in the Health and Safety Executive’s HSG 33 “Health and Safety in Roofwork” and INDG 284 “Working on Roofs”.

Only trained tilers and slaters should have access to any roofing assembly of underlay, counter battens and/or battens, slates or tiles during the construction process. The safe place of work for the slater and tiler will usually be on or supported by the line of the rafters. To avoid unnecessary risk or damage, roof workers should not work directly on tiles or slates. Any existing slate or tile roof should be treated as a fragile roof unless a competent person has inspected it and declared it non-fragile.

## Some other helpful things you should know



Battens should be fixed by nailing to each rafter; but if any length of batten is shorter than about 1.2 metres – or it is insufficiently long to span over a minimum of three rafter supports, whichever is the greater – then it should not be used.

In cases where rafters or roof trusses are spaced at distances further apart than 200mm, there must be at least three continuous battens before each jointed batten on the same support: and where the spacing is 200mm or less, this may be reduced to a maximum of one joint every third batten.

If any of your battens should have Wane (a “missing” edge) running along all or most of their length, then it is a good idea to turn the batten over and nail it “waney-side” down; thus leaving a full square edge on which to fix the slates or tiles.

## Why should you use SR Gold Battens and Imported Softwood Timber?

Because SR Gold Battens fully meets and exceeds all of the requirements of BS 5534:2014 – both in their grading and marking – and they have also been independently audited for quality by both Technology for Timber Ltd with their stamp of approval the diamond tick mark and BM Trada’s stamp of approval the Q Mark.



## Recommended Minimum Timber Batten Sizes

### (Roofing and Vertical Work)

APPLICATION	BASIC MINIMUM SIZE OF BATTENS			
	up to 450mm Span		up to 600mm Span	
	Width mm	Depth mm	Width mm	Depth mm
<b>SLATES (double lap)</b>				
Natural - sized or random	50	25	50	25
Fibre-cement or concrete	38	25	50	25
<b>CLAY and CONCRETE TILES</b>				
Double lap	38	25	38	25
Single lap	38	25	50	25

#### Notes

- Tolerances on basic sizes: width +/-3mm; depth -0, +3mm; based on measurement at a reference moisture content of 20%.
- Where a batten is continuously supported directly by board sarking which is itself capable of supporting the roof imposed concentrated load (e.g. in Scottish practice), battens may be of a minimum size of 38mm by 19mm.
- Span is defined as the distance between centres of supports, or the clear distance between the face of supports plus half the bearing length at each end support, whichever is the lesser. The minimum end bearing length should be 17.5mm.
- Battens for spans greater than those given in Table 1 for other slates, tiles and shingles such as timber shingles and shakes or metal tiles, or other proprietary roofing products should be in accordance with manufacturers' recommendations.
- Graded battens will be marked and accompanied by the identification information given in BS 5534. Batten sizes for rafter spans greater than 600mm should be designed by structural calculation in accordance with BS 5534:2014: Annex F for strength and stiffness. When determining batten sizes, consideration should be given to adequate dimensions for nailing and using commercially economic sizes.
- Where specific batten sizes are specified for fixing only of ridge, hip capping and also valleys, these should be followed in those locations. They should not be used for general areas.
- For counter battens used in conjunction with insulation installed over rafters see BS5534 Annex B.
- Nails for use with battens, counter-battens and boarding (board sarking) should conform to BSEN 10230-1. For extra protection and in coast regions, they should be coated by zinc or zinc alloy coating methods specified in BSEN 10230-1.

**Note:** Timber containing copper based preservative can cause corrosion of uncoated mild steel nails in the presence of moisture.



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