

Softwood sizes

Timber is an internationally traded material and the UK has traditionally imported timber from a wide range of countries, as well as producing its own. Although timber structures and non-structural applications can be designed using many sizes, the sawmills producing timber generally do not know the intended end-use for the material at the time it is cut. They therefore produce a range of 'customary' sizes. Specifying timber in these sizes is the most economic method, both in terms of material usage and cost.

The range of sizes available throughout Europe is large, with individual countries having different traditions as to the sizes in common use. European Standards therefore include the 'preferred' sizes whilst those in common use in individual countries are included in National 'informative' annexes to the Standard.

A point to watch when specifying timber is that the dimensions of a piece of wood vary depending upon its moisture content. A 'rule of thumb' for calculating the changes is included in this sheet.

Some of the terminology associated with the specification of sizes is specific to timber; an explanation of some of the key terms included in BS EN 844 'Terminology' Parts 1 - 6 is given below.

Basic size

The size of sawn timber at a stated moisture content.

Machined timber

Sawn timber (at end-use moisture content) that has been machined further in thickness and/or width on at least one face to obtain a smooth surface. For example, timber for joists is commonly machined on one or both edges - a process which used to be referred to as regularising.

Planed

Sawn timber (at end-use moisture content) that has been machined for its full length and width on at least one face to obtain a smooth surface.

Permitted deviation

The difference between actual size and target size, taking into account difference in size due to the moisture content.

Preferred sizes

The most usual sizes available on the European market.

Prepared timber

Sawn timber (at end-use moisture content) that has been cut to length and/or machined on one or more surface to agreed permitted deviations.

Target size

The size desired at a specified moisture content (in most Standards, 20%), after a production process and to which permissible deviations are related.

Tolerance

The sum of permitted deviations.

Moisture content

The moisture content quoted in European Standards relating to sizes is 20%. The change in size with change in moisture content is calculated as follows:

- ◆ 0.25% increase in thickness and width for every 1% increase in moisture content over 20% and up to 30% moisture content (above 30% no further increase in size occurs).
- ◆ 0.25% decrease in thickness and width for every 1% decrease in moisture content below 20% moisture content.

Length is not significantly affected by changes in moisture content.

Sawn softwood

There are two main standards dealing with softwood sizes: *BS EN 1313-1: 1997 'Round and sawn timber - Permitted deviations and preferred sizes'* Part 1 'Softwood sawn timber' and *BS EN 336: 1995 'Structural timber - Coniferous and poplar - Sizes - Permissible deviations'*.

BS EN 1313-1: 1997 covers the full range of sawmill output ie structural and non-structural sizes. The sizes customary in the UK are included in an informative annex.

BS EN 336: 1995 covers only structural softwoods. The sizes customary in the UK are included in a National Annex to the standard and are shown in orange in Table 1.

Table 1 Sizes of softwood sawn timber

Thickness (mm)	Width (mm)											
	75	100	115	125	138	150	175	200	225	250	275	300
16	✓	✓		✓		✓						
19	✓	✓		✓		✓						
22	✓	✓		✓		✓	✓	✓	✓			
25	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
32		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
38	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
47	✓	✓		✓		✓	✓	✓	✓	✓		✓
50	✓	✓		✓		✓	✓	✓	✓	✓		✓
63		✓		✓		✓	✓	✓	✓			
75		✓		✓		✓	✓	✓	✓	✓	✓	✓
100		✓				✓		✓	✓	✓	✓	✓
150						✓		✓				✓
250										✓		
300												✓

✓ Customary sizes of sawn softwood in the UK

✓ Customary sizes of structural sawn softwood in the UK

Note: some sizes may not be available in all species and grades

Permitted deviations for sawn softwood

(BS EN 1313-1: 1997)

thicknesses and widths up to and including 100mm:

-1mm, + 3mm

thicknesses and widths over 100mm:

-2mm, + 4mm

These are equivalent to Tolerance Class 1 set out in BS EN 336 for structural softwood, see opposite.

Lengths

Softwood is generally sold in increments of 300mm. lengths likely to be available are shown in Table 2.

Table 2 Softwood lengths

m	1.8			
	2.1	2.4	2.7	
	3.0	3.3	3.6	3.9
	4.2	4.5	4.8	
	5.1	5.4	5.7	
	6.0	6.3	6.6	6.9
	7.2			

Lengths of 6m and over may not be available without finger jointing.

Permitted deviations

For length, no minus tolerance is permitted; plus tolerances can be agreed by contract.

Machined timber

Structural softwoods are often machined on one or both edges to ensure a uniform width (depth) when used as a joist. Table 3 shows the preferred target sizes for timber machined on two opposing faces.

Table 3 Target sizes for timber machined on two opposing faces

Thickness (mm)	Width (mm)									
	72	97	122	147	170	195	220	245	270	295
22		✓	✓	✓	✓	✓	✓			
25	✓	✓	✓	✓	✓	✓	✓			
38	✓	✓	✓	✓	✓	✓	✓			
47	✓	✓	✓	✓	✓	✓	✓	✓		✓
63			✓	✓	✓	✓	✓	✓		
75		✓	✓	✓	✓	✓	✓	✓	✓	✓
100		✓		✓		✓	✓	✓		✓
150				✓		✓				✓

Permitted deviations for structural softwood machined on two faces

The deviations permitted by BS EN 336 on cross sections of structural softwood are given in two Tolerance Classes.

Tolerance Class 1 corresponds to the tolerances for sawn timber given in BS EN 1313-1(see opposite).

Tolerance Class 2 is generally used for machined or planed timber. The recommended limits are:

for thickness and widths up to and including 100mm
-1mm, + 1mm

for thicknesses and widths over 100mm:
-1.5mm, + 1.5mm

Surfaced timber

BS EN 1313-1 and BS EN 336 include structural softwood surfaced to sizes which originated in North America as imperial dimensions. Known as CLS or ALS (Canadian or American Lumber Sizes), softwood is now widely produced to these sizes in the UK and in Europe. The timber has rounded arrises not exceeding 3 mm radius. Metric equivalents of these sizes are given in Table 4. Note that 38 x 114 is not normally available in the UK.

Table 4 Sizes of surfaced timber (ALS, CLS)

Thickness (mm)	Width (mm)						
	63	89	114	140	184	235	285
38	✓	✓	✓	✓	✓	✓	✓

Planed timber

Structural timber which is planed is subject to the same reductions as machined material ie
3mm off basic sections up to and including 150mm
5mm off basic sections over 150mm.

Permitted deviations

Maximum permitted deviations after planing are
-0 mm, +1 mm.

BS EN 1313-1 includes maximum permitted reductions from target sizes by planing for some generic applications, including construction timber, matching and interlocking boards (but not floor boards), wood trim and joinery and cabinet work. However, where other Standards specify finished sizes for specific applications, the more specific rules apply.

References

- BS EN 336: 1995 Structural timber - Coniferous and poplar - Sizes - Permissible deviations. (amdt 1997)
- BS EN 844-1: 1995 Round and sawn timber - Terminology. Part 1 General terms common to round timber and sawn timber.
- BS EN 844-3: 1995 Round and sawn timber - Terminology. Part 3 General terms related to sawn timber.
- BS EN 844-6: 1997 Round and sawn timber - Terminology. Part 6 Terms relating to dimensions for sawn timber.
- BS EN 1309: 1997 Round and sawn timber - Method of measurement of dimensions.
- BS EN 1313-1 1997 Round and sawn timber - Permitted deviations and preferred sizes. Part 1 Softwood sawn timber. (amdt 2000)

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