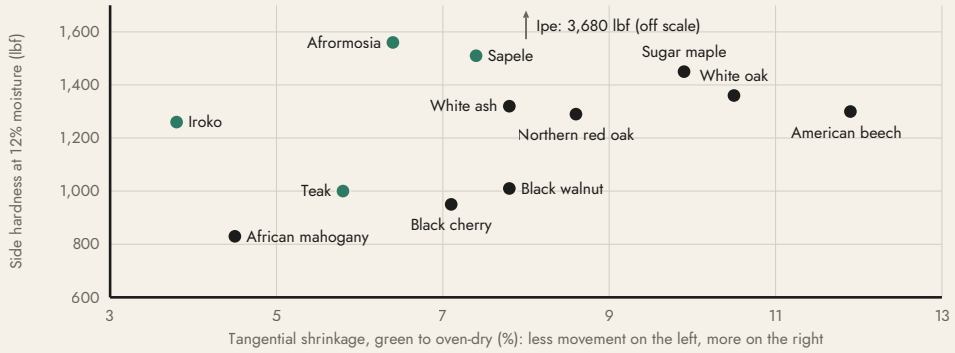
Choosing *timber species* for floors

Hardness and shrinkage for twelve floor timbers from one named source, how to turn shrinkage into millimetres, and a colour test.

AT A GLANCE

Species	Side hardness (lbf, 12% moisture)	Tangential shrinkage (%)	Radial shrinkage (%)	Plain-sawn movement, 150 mm board, 4 point swing (mm)
Iroko	1,260	3.8	2.8	0.8
African mahogany	830	4.5	2.5	0.9
Teak	1,000	5.8	2.5	1.2
Afrormosia	1,560	6.4	3.0	1.3
Sapele	1,510	7.4	4.6	1.5
Black cherry	950	7.1	3.7	1.4
Black walnut	1,010	7.8	5.5	1.6
White ash	1,320	7.8	4.9	1.6
Northern red oak	1,290	8.6	4.0	1.7
Sugar maple	1,450	9.9	4.8	2.0
White oak	1,360	10.5	5.6	2.1
American beech	1,300	11.9	5.5	2.4

Hardness from Wood Handbook (FPL-GTR-190, 2010) Tables 5-3b and 5-5b; shrinkage, green to oven-dry, from Tables 4-3 and 4-4. The movement column is our arithmetic (section 2), a ranking aid and not a design figure. 1,000 lbf is about 4,450 N. US-grown species and imports; European oak, ash and beech are not listed.



Side hardness against tangential shrinkage for twelve floor timbers. Up is harder; left is less movement. Original chart by Make Bespoke Studio from Wood Handbook (FPL-GTR-190, 2010) Tables 4-3, 4-4, 5-3b and 5-5b.

SPECIFICATION WORDING

SPECIES AND CUT

Species [European oak, Quercus robur or Q. petraea], [quarter-sawn / rift / plain-sawn], grade [ ] to [ ]; board [ ] mm wide, [ ] mm overall, [ ] mm wear layer above the tongue and groove. Common and botanical name stated on the order and the delivery note.

HARDNESS

The Supplier states the hardness of the species supplied, with the test method [BS EN 1534 / Janka], the moisture content at test and the source of the figure, and confirms in writing that the floor is suitable for [hotel restaurant] use at [location].

MOVEMENT

Board width not more than [ ] mm. The Supplier states the expected movement for the boards supplied across a moisture content swing of [ ] points and the expansion gap this requires at [perimeter / fixed points]. Installed to the maker's written method for [bonded / floating / nailed] fixing over [underfloor heating].

COLOUR

Colour to match the approved sample from the delivery batch, finished by the proposed method. A covered-strip light test sample, [ ] mm, to be supplied for approval and kept sealed for reference; spare boards of [ ] m^2 from the same batch.

LEGALITY

For each species the Supplier states the common and scientific names and the country of harvest, and provides [FSC / PEFC / other] certificate details or due diligence records on request. No species listed under CITES without a permit.

TERMS USED

Janka hardness

A measure of the force needed to press a steel ball into a timber surface; used to compare species for denting, although Brinell (BS EN 1534) is the European method.

Flat-sawn

Timber cut tangentially to the growth rings, giving broad cathedral-shaped figure and, for a given width, more movement across the board than quarter-sawn timber.

Quarter-sawn

Timber cut so the growth rings meet the face at roughly 60-90 degrees, producing straighter grain, ray fleck in oak, and generally better dimensional stability.

Fumed oak

Oak darkened by exposure to ammonia vapour or by a reactive treatment that reacts with the tannins, so the colour is within the wood rather than a surface stain.

Tangential shrinkage

Shrinkage across the growth rings, along the face of a plain-sawn board, from green to oven-dry. It is larger than radial shrinkage, which runs through the thickness of a plain-sawn board.

Fibre saturation point

The moisture content, about 30% on average, below which wood starts to shrink as it dries.

STANDARDS AND SOURCES

- Wood Handbook, Wood as an Engineering Material (FPL-GTR-190, 2010), chapters 4 and 5: Tables 4-3, 4-4, 5-3b and 5-5b. US Forest Products Laboratory.
- BS EN 1534: Wood flooring and parquet: indentation (Brinell-type) test method. A search summary listed the 2020 edition as current; not read. Confirm against the current edition.

Full guide: https://makebespoke.com/trade/technical/choosing-timber-species-for-floors. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.