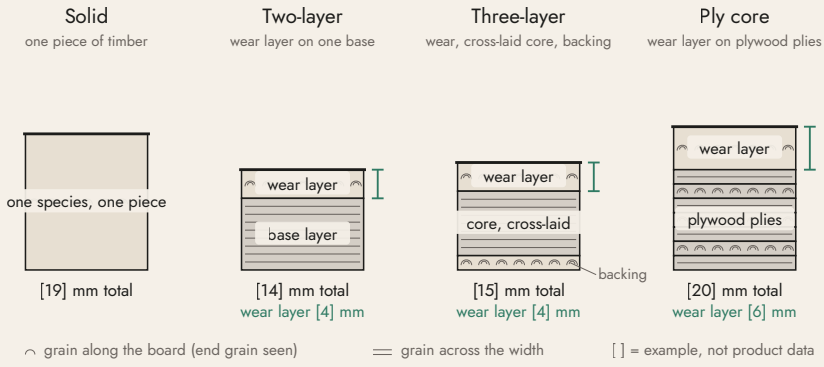
Solid vs engineered *wood flooring*: construction and what changes

Solid boards are one piece of timber; engineered boards bond a hardwood wear layer to a layered core. What changes is movement across the width, how often the surface can be sanded, and where it can be laid. Name the build: wear layer, core, thickness and width.

AT A GLANCE

Point	Solid	Engineered (multi-layer)	Write down
Build	One piece of timber, top to bottom	A hardwood wear layer bonded to a layered core: cross-laid strips, plywood plies or similar	Draw the build: wear layer, core, total thickness.
Thickness	19 mm (3/4 in) is the thickness set in the US NWFA/NOFMA rules; one UK maker lists 19 mm	Quoted as total over wear layer, for example "14/3" for a 14 mm board with a 3 mm wear layer	Write both numbers and say how the wear layer is measured.
Width	One UK maker lists 85 to 185 mm; movement rises in proportion to width	One maker rates its birch-plywood planks for underfloor heating at 450 mm and wider	State the width and ask for the maker's limit for the room and heating.
Movement across the board	Free movement of about 0.9 to 3.2 mm for a 3 point moisture swing, 90 to 300 mm flat-sawn oak	Reduced by the cross-laid core, not removed: engineered boards can dry-cup in a dry room	Control the room either way: see the acclimatisation sheet.
Refinishing	Wear layer typically about 1/4 in (6.4 mm) or more; one trade magazine says six to eight sands over a life	Wear layers run from about 1.6 to 6.4 mm; sanding is not recommended below 2.4 mm	Ask for usable depth and the maker's own count in writing.
Underfloor heating	Makers differ; narrow and quarter-sawn boards fare best	The usual choice; more stable than solid	Get the maker's written approval for width, cut and fixing.

Figures are those published in the sources named under "Standards and sources"; they are not product data. Heights and thicknesses are millimetres; 1 in = 25.4 mm.



End-view sections of four builds at one scale. Thicknesses are examples only: product data will differ and makers use the names two-layer, three-layer and multi-layer in different ways. Original drawing by Make Bespoke Studio.

SPECIFICATION WORDING

SOLID TIMBER FLOOR

Solid [European oak] flooring, [flat-sawn / quarter-sawn], [19] mm thick, [140] mm face width, [random lengths from 1.2 m], tongue and groove on all four edges, grade as approved sample [ref], kiln-dried to a moisture content of [x]% [+/- y]% at dispatch. Supplier to confirm in writing before order that the board is suitable for [the room, with / without underfloor heating] at this width and cut. Fixed [bonded / nailed to joists] to the subfloor in [ref]. Standard: BS EN 13226, declaration of performance to be supplied.

ENGINEERED FLOOR

Engineered [European oak] flooring, [multi-layer, birch-plywood core], total thickness [15] mm, hardwood wear layer [4] mm measured above the tongue and groove, [190] mm face width, [random lengths from 1.5 m], [flat-sawn], grade as approved sample [ref], moisture content [x]% [+/- y]% at dispatch. Supplier to state in writing: core material and build with a section drawing; the usable depth above the tongue and groove and the maximum number of sandings it recommends; suitability over underfloor heating at this width and cut. Fixed fully bonded with the adhesive named by the supplier. Standard: BS EN 13489 (edition [ ]), declaration of performance to be supplied.

QUESTIONS FOR THE MAKER, BEFORE ORDER

Please confirm in writing for [product ref]: (1) construction, core material and a section drawing with layer thicknesses; (2) wear layer thickness above the tongue and groove, and the number of sandings you recommend; (3) maximum recommended width for [the room / underfloor heating]; (4) moisture content at dispatch and your acclimatisation instructions; (5) species and cut, with the test used for the cut; (6) the standard the product is supplied to, and the edition.

TERMS USED

Engineered wood flooring

A floor board built from a real-wood top layer bonded to a core of timber layers, designed to move less with humidity than a single piece of solid timber.

Wear layer

The visible layer of real timber on an engineered board; its thickness limits how many times the floor can be sanded and refinished.

Core (engineered board)

The layers beneath the wear layer, usually cross-laid strips or plywood plies, whose grain runs against the grain of the surface so that they restrain its movement.

Free movement

The change in width a board would make if nothing held it, worked out from its width, its cut and the swing in moisture content. A laid floor is restrained, so the real movement shows up as small gaps or as pressure.

STANDARDS AND SOURCES

- US Forest Products Laboratory, Wood Handbook (FPL-GTR-282, 2021), chapter 4: Table 4-3 and equation 4-9. Read. Source of the oak movement chart.
- NWFA/NOFMA International Standards for Unfinished Solid Wood Flooring: National Wood Flooring Association (US). Read. Source of the 3/4 in solid thickness.
- NWFA Installation Guidelines, Appendix H (revised February 2016), and Hardwood Floors magazine (NWFA), 2017 and 2025 articles: Read. Source of the heating levers, proportional shrinkage, dry-cupping and sanding depth.
- BS EN 13226, BS EN 13489, BS EN 14342:2013 and BS 8201:2011: product standards for solid and multi-layer parquet, marking, and the UK installation code. Named; not read. BSI lists BS EN 13489:2017 as withdrawn on 7 July 2023: check the current edition.

Full guide: https://makebespoke.com/trade/technical/solid-vs-engineered-wood-flooring. 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.