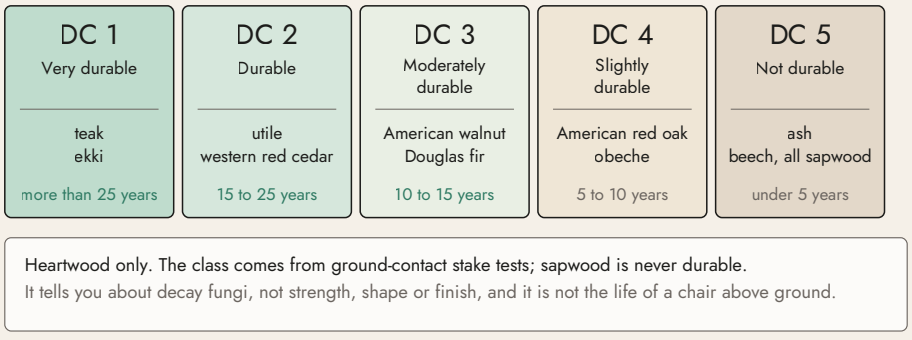
Outdoor *timber durability* for furniture

How to read an outdoor timber durability class, and the details that decide how long the furniture lasts.

AT A GLANCE

Timber	BS EN 350 class as printed (source)	Wood Handbook heartwood group	Note for outdoor furniture
Teak	Class 1 (AHEC example)	Very resistant (old growth); moderately resistant (young growth)	Old-growth heartwood is the one that earns the class. Ask which.
Iroko	No class printed (BWF: "high durability characteristics")	Resistant	A heartwood timber; check the pieces are not sapwood.
Oak, white (American)	Between classes 2 and 3 (AHEC)	Resistant	BWF calls it unsuitable for external use; the two bodies disagree. Ask for the class and the source.
Oak, European	No class printed (BWF: "naturally durable")	Not in the tables read	Ask for the class from the supplier, for the heartwood.
Western red cedar	Class 2 (AHEC example)	Resistant	Low-density; tannins stain with iron fixings (Wood Handbook).
Douglas fir	Class 3 (AHEC example)	Moderately resistant	Needs a finish or treatment to be left outdoors.
Sapele	No class printed (BWF: "good strength and durability")	Moderately resistant	A joinery timber; not the first choice for bare exposure.
American red oak, ash, beech	Classes 4 and 5 (AHEC examples)	Ash and beech: slightly or non-resistant	Not for exposed outdoor furniture without treatment.
Acetylated softwood	BWF states "Class 1" for one acetylated product	Chapter 19: decay resistance rises with weight gain	A supplier claim: ask for the report and the route.
Thermally modified timber	No class printed (BWF)	Chapter 19: some durability; not for ground contact	Brittle and darker; check fixings and cut ends.

The two groupings come from different systems (European stake tests, US service records) and are NOT interchangeable; a blank means the source we read gives no figure. Both describe heartwood only. Check every class against the current edition of BS EN 350 before specifying.



The five durability classes of BS EN 350 with the example timbers and in-ground stake lives printed by a timber trade body (2021). Heartwood only; stake lives are not furniture lifespans. Original drawing by Make Bespoke Studio.

REMEMBER

- The class is for heartwood and comes from stake tests: write "heartwood only".
- Seal every end grain and lift the foot clear of the wet.
- Use stainless steel fixings in oak and cedar, and ask for the report on any modified timber.

SPECIFICATION WORDING

SPECIES AND DURABILITY

Exposed frame and slat members of [species], heartwood only, no sapwood on any exposed face. Natural durability class [DC 2 or better] to BS EN 350 (current edition), with the class and the document it comes from stated by the supplier. Timber legality documents supplied with the order.

END GRAIN, FEET AND FIXINGS

All end grain, including the ends of legs, bolt holes and dowel holes, sealed with [end-grain sealer] before assembly. Leg feet fitted with [stainless steel or polymer] glides holding the timber [10] mm clear of the finished floor. Fixings [A4 stainless steel], no plain steel in contact with the timber.

MODIFIED TIMBER

Where modified timber is offered in place of a naturally durable species, the supplier states the process, the species, the class claimed and the test report to BS EN 350 (current edition), and confirms the treatment extends through the full section of every part. Samples cut and finished in the same way as production to be approved before manufacture.

TERMS USED

Heartwood

The older, inner part of the trunk. Its extractives give it natural durability and usually a darker colour. Durability classes describe heartwood only.

Sapwood

The outer, living part of the trunk. It is not durable in any species, and on exposed outdoor parts it is a weak point.

Durability class (DC 1 to DC 5)

The five-step grading of a timber's natural resistance to wood-destroying organisms in BS EN 350, from very durable to not durable.

Use class

A European way of describing how wet a timber's service position is, from dry interior to contact with soil, fresh water or sea water (EN 335).

Acetylation

A chemical modification that makes wood take up less water, improving stability and decay resistance in proportion to the weight gain.

Iron stain

A black stain where iron meets the tannins in timbers such as oak and western red cedar, mainly in damp, outdoor conditions.

STANDARDS AND SOURCES

- BS EN 350:2016: Durability of wood and wood-based products: testing and classification of the durability to biological agents. Current, under review, published 31 Oct 2016 (BSI Knowledge listing). The standard itself was not read.
- BS EN 460: The 1994 edition (guide to durability requirements by hazard class) is withdrawn (17 Feb 2023, BSI Knowledge). A later edition with a new title, "Guidance on performance", is listed by a standards seller as EN 460:2023; its BSI adoption was not confirmed.
- BS EN 335: Use classes for wood and wood-based products. Named only; edition and status not checked.
- BS EN 581-1:2017: Outdoor furniture: seating and tables for camping, domestic and contract use, general safety requirements. Current, published 31 Mar 2017 (BSI Knowledge); replaces the 2006 edition, withdrawn.
- USDA Forest Products Laboratory, Wood Handbook FPL-GTR-282 (2021): Table 14-1 heartwood decay resistance, chapters 13, 16 and 19.

Full guide: https://makebespoke.com/trade/technical/outdoor-timber-durability-for-furniture. 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.