

Use Class 4 treated timber: specifying, buying and installing

To ensure best value for money and long service life, follow the Ground Rules:



Specify Use Class 4 levels of **preservative treatment** – anything less and service life, structural safety and customer satisfaction will be compromised.



Use a trusted treater who has **third party accreditation** of their operational quality management systems – such as the Wood Protection Association **WPA Benchmark** Scheme.



Be prepared to pay for quality – premium products incur higher costs but their inherent value is priceless when **performance in the field** is paramount.



Benchmark
APPROVED **TREATER**



INTERIOR and EXTERIOR environments are very different and so treated wood performance levels should reflect this

Preservative treatment provides wood with added durability (against decay and insect attack). But, it's a mistake to assume that all treated wood is the same. The level of preservative protection required depends on where it is to be used.

The technical standards for wood preservation are set out in BS 8417 and the Wood Protection Association (WPA) Code of Practice. They require the loading and penetration of preservative is tailored to the desired end use or 'Use Class' of a wood component. The most common Use Classes are 2, 3(u) and 4.

Treatment specification must take into account: the timber species; the end use; the desired service life (DSL); and the risk and consequences of failure.

INTERIOR
Use Class 2
Above the ground or DPC, covered
Roof battens, framing, joists



EXTERIOR
Use Class 3
Above the ground (uncoated)
Deck boards, cladding (inc. battens), fence rails



EXTERIOR: Use Class 4
For end uses where wood is in contact with or very close to the ground, is permanently wet (fresh water) and/or provides exterior structural support.
Fence posts, playground equipment, deck posts, joists, beams



Make sure
it's Use Class 4
GROUND CONTACT

Use Class 4 Specification

A written specification should always include:

The component type and size

For example decking support joists: 45mm x 95mm (and strength class if this is important to the application eg. C16 or C24).

The treatment Use Class*

Use Class 4 (UC4)

Desired Service Life (DSL)

15 years will be taken as the default service life unless 30 years is specified.

You may also wish to specify the timber species.

*Using generic terms such as 'green' or 'brown treated' will not achieve the correct specification.

Preservative penetration and softwood timber species

Penetration requirements differ depending on whether **heartwood** material can be distinguished from **sapwood** or not. With **spruce**, typically it cannot be distinguished.

Heartwood is naturally quite durable but usually less permeable to preservative treatment. **Sapwood is not durable but more permeable to preservatives.**

Although the same durability class, **Pine sapwood accepts treatment more readily than Spruce** (Treatability Classes – EN350-2) and so can achieve greater penetration levels.

See the table on page 3

Penetration requirements can be difficult to achieve in resistant species such as spruce or where there is a heartwood penetration requirement (even for permeable species such as pine).

Mechanical incising of the surface is now used widely to help achieve the desired penetration.

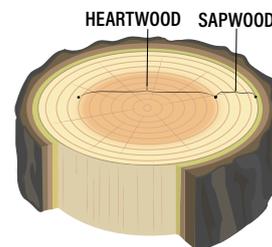
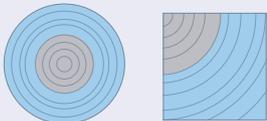
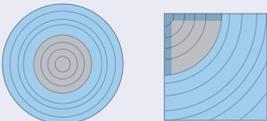
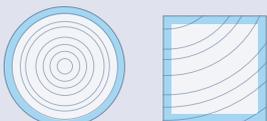
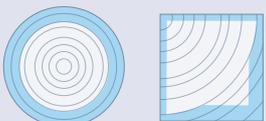


Table 1: Preservative treatment recommendations for common Use Class 4 components

Diagrams showing preservative penetration are for illustrative purposes only – actual penetration will vary by species and heartwood/sapwood ratios within each component treated.

Timber Components	Species Selection ¹	15 year DSL Penetration Requirement	30 year DSL Penetration Requirement	Other considerations ²
Fence and deck posts, deck substructures (whether in direct soil contact or not) Soil retaining walls, raised beds, bridge timbers (above water)	PERMEABLE All Pine species	Full sapwood (NP5) 	Full sapwood plus minimum 6mm into exposed heartwood (NP6) 	Incising will normally be required to achieve the heartwood penetration required for 30-year DSL .
	RESISTANT Spruce, Larch, Douglas Fir	Minimum 6mm into sapwood (NP3) 	12mm into sapwood plus minimum 6mm into exposed heartwood 	See Note 3 concerning differentiation between sapwood and heartwood . Spruce will normally require incising to achieve NP3. All resistant species will normally require incising to achieve 30-year requirements.

- NOTES:
- BS EN350 gives four classes to indicate the treatability of the sapwood and heartwood for a range of wood species. For UK preservative treatment purposes, however, only two classes are used: permeable (Treatability Class 1) and resistant (Treatability Classes 2, 3 and 4), in both cases based on the treatability of the sapwood.
 - Sampling requirements under the WPA Benchmark quality scheme: Check on retention and penetration levels initially once every 6 months by analysis of typically 13 treated samples. See WPA Benchmark scheme document for further details.
 - With spruce, typically heartwood and sapwood cannot be distinguished and so, to meet the requirements, penetration to either 6 mm (15 years) or 12mm (for 30 years) has to be achieved in any exposed surface in sawn material. In roundwood products, where heartwood is not exposed, only sapwood penetration has to be achieved. However, heartwood may sometimes be exposed where regularising cuts through the outer sapwood layer.

Specification Check List

Tell your supplier in writing, that the wood must be treated to **Use Class 4** to comply with BS 8417. **Ask them to verify that the wood supplied meets your specification – on the delivery note and invoice or a treatment certificate.**

Use a **trusted treater** who has **third party accreditation** of their operational quality management systems – such as the **WPA Benchmark Scheme**



For wood in permanent ground or fresh water contact, or providing exterior structural support, **Use Class 4** levels of protection **MUST** be achieved. Anything less and service life, structural safety and customer satisfaction will be compromised.

Find a treater: www.thewpa.org.uk

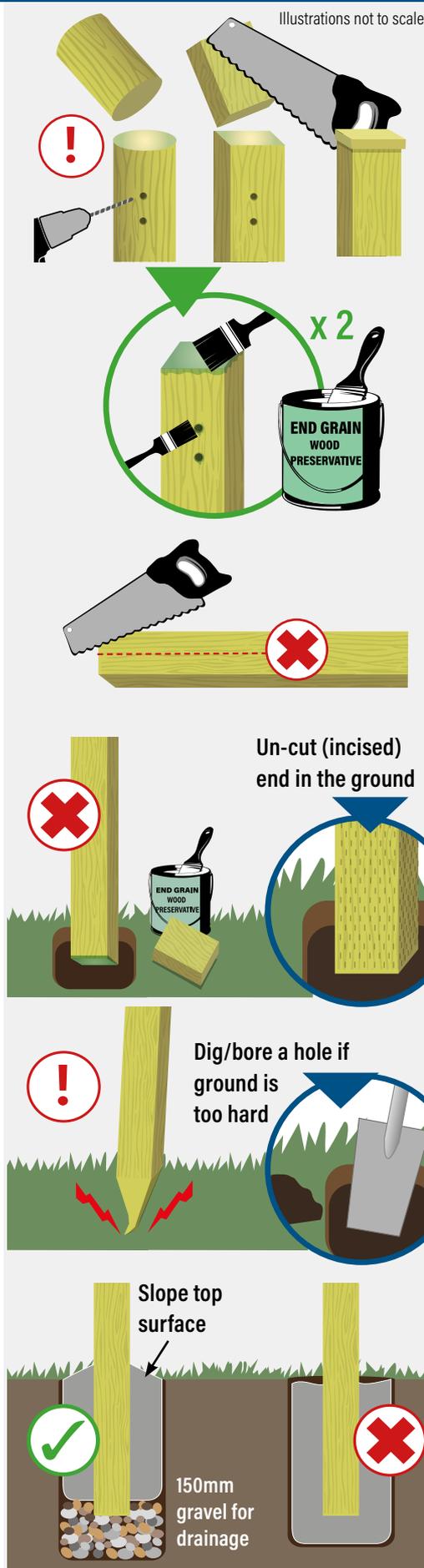
DO NOT substitute wood that has been treated for an indoor application for use in an external application – failure is inevitable.



Installing UC4 Preservative Treated Timber Posts

Best Practice Guidance

Illustrations not to scale



Preparing for Installation

All pre-treated wood products are impregnated in their **finished form** and are designed to be installed **without modification**.

For this reason, re-working a pre-treated post at the installation site should be avoided and limited to **cross cutting, boring, drilling or notching**.

Brush-on end grain wood preservative protection

▶ IF posts do need to be **cross-cut to height, bored, drilled or notched**, any **new exposed surfaces** should be given **two liberal brush coats of a suitable end grain wood preservative**, as recommended by the manufacturer of the industrial wood preservative used in the original treatment.

The tops should either be **cut at an angle** to shed water or, if practical, fitted with a **cap** to reduce water penetration into the end grain.

It is important to remember that the preservative penetration achieved by brush application is less than that achieved in the industrial treatment process, so it is best to avoid or minimise reworking where possible.

▶ **Treated wood must NEVER be rip sawn along its length.**

Good Installation Practice

▶ The **cross-cut end** of a treated post must **NEVER** be embedded in the ground, even if an end grain preservative has been applied.

Mechanical incising of the surface is now used widely to help achieve the desired preservative penetration*. Some fence posts only have incising along **part of their length** and, in such circumstances, the **un-cut, incised end of the post must be placed in the ground**.

▶ Posts must **NOT be hammered** into place unless the ground is known to be soft enough for this process not to damage the post and/or the integrity of the envelope of preservative protection.

Where the ground is not soft enough, a hole of a suitable size should be bored before installation to avoid damaging the post and so reducing its service life.

▶ If using a cement-based mix to fix posts in the ground, ensure that water **can drain away from the foot** of the post, add **150mm of gravel** to the bottom of the hole for drainage. If back-filling with concrete/post-mix then always finish the mix **level above ground** and **slope the top surface** of the concrete to shed water away from the post.

DO NOT make a 'boot' for a post out of concrete as this will keep the bottom of a post wet for long periods and **increase the risk of decay**.

Tests show different preservatives may react differently with components in cement and preservative suppliers should be consulted for specific advice on use of cement when installing treated posts.

The Wood Protection Association (WPA)

The WPA is affiliated to Timber Development UK.

The WPA and its members champion the use of building with timber – influencing, developing and promoting technologies that enhance its performance and value as a building resource for the future. The organisation acts as a technical and advisory body – providing guidance to specifiers, contractors, engineers and architects on the best ways to ensure wood is fit for its intended purpose.

WPA Benchmark Quality Approval Schemes

The WPA operates Benchmark quality approval schemes for preservatives, flame retardants and modified wood – providing valid independent assessment and verification. Designed to further assure products and processes are fit for purpose.

The WPA Benchmark audit process for preservative treated wood focuses on verifying that an effective quality management system is in place. This system should meet the criteria clearly set out in WPA Quality Guidance Note 2 (QGN2). Applicants must pass an initial verification audit and subsequent annual surveillance audits. Each time they are asked to provide evidence to demonstrate they are treating correctly to industry standards. This includes:

- **Treatment process operating systems – record keeping and data management**
- **Training and competence records**
- **Calibration, maintenance and preservative analysis records**
- **Management procedures, including non-compliant material**

Emphasis is also placed on the accurate specification of treated products and the description and labelling of goods. This includes the provision of adequate customer and end user Point of Sale information and training and where appropriate, guidance on the safe and effective use of treated products. Compliant companies are awarded **WPA Benchmark Approved Treater** accreditation.

TDUK Preservative Treatment Action Plan

Since 2017 Timber Development UK and the WPA have been working together to grow demand for preservative treated timber. They identified three priority areas for action, which have since been adopted as TDUK policy:

- > To address the common failure to specify treated wood correctly;
- > To address the lack of understanding on how to correctly install and use treated wood;
- > To ensure independent verification of the treatment process.

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