



**TIMBER
DEVELOPMENT
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Timber Fencing

Fencing is a major use of UK home-grown timber, constituting a strong market for small, round timber thinning from plantations.



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Timber Fencing

Faster growing than imported species from northern Europe, British softwoods are frequently specified for fencing applications in the UK. Fencing accounts for a significant proportion of the UK's softwood consumption.

Timber fencing is versatile in both its utility and design, meeting various performance requirements depending on its intended purpose.

Examples include:

- **Domestic** – garden or boundary fencing.
- **Perimeter barriers** – boundary fencing against intruders, railway, agricultural fencing, and the protection of hazardous areas such as electricity pylons and power plants.
- **Noise** – motorway, road, or railway fencing
- **Health and safety** – playground barrier, cliff edge, or hilltop fencing

Timber's suitability for fencing applications is due to the following characteristics:

- **Versatility** - timber is available in a variety of sizes and lengths. It's easy to work with and can be formed into various product shapes and sizes.
- **Strength** - able to withstand structural damage caused by factors such as wind load and animals, especially when the appropriate species is selected and reinforced with additional protection where necessary.
- **Durability** - timber can potentially out-last and out-perform many other alternative materials, provided the appropriate timber species is selected and treated with a relevant preservative pertinent to the use and desired service life.
- **Sustainability** - it's a renewable material with a wide selection of sustainably sourced certified species to choose from.

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Fencing Design

- **Panel fences**

Popular in residential or domestic settings thanks to its privacy, panel fences are also ideal for enclosed fencing systems, such as when required to create a noise barrier.

- **Lattice and trellis fences**

Popularly used as boundary or perimeter fences for residential properties, with the additional benefit of supporting trailing plants. Panel fences are often topped with trellis sections, adding both height and aesthetic value. Diagonal lattice and trellis fencing is an ideal option for spaces such as vegetable gardens or green spaces, both for a glimpse of the space from the outside and for its ability to be incorporated into the garden landscape itself, such as being entirely covered with vines or creeper plants.

- **Post and rail fences**

Mainly used as perimeter or boundary fencing in agricultural areas, to contain livestock and on sides of motorways and major roads in rural areas, often spanning thousands of miles.

- **Palisade, picket, and pale fences**

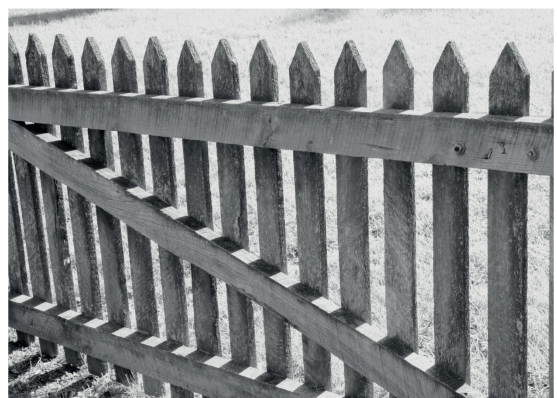
Also known as picket fencing, palisade fencing is used in domestic settings and offers decorative value, for example as a lower-level garden border. Often used for sectioning and perimeter fencing, where limited security is acceptable, and privacy is not essential. A popular choice for public access areas such as playgrounds and flower gardens, it can also be used for bin store surrounds, either with small gaps or with an opposing hit and miss pattern, allowing for air circulation without being see-through.



Panel fence



Trellis fence



Picket fence

IMAGE: Timber fencing design types

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Fencing Specification

The performance, stability, and aesthetics of a fencing system over its service lifetime depends on its initial specification, including the proposed design and eventual construction.

BS 1722 Fences offers detailed provisions regarding fences of all kinds, including appropriate timber species, timber quality, dimensions, preservation, and quality of construction. There are relevant standards for different types of timber fences, including **BS 1722-11 Panel Fencing**, **BS 1722-7 Post and Rail** and **1722-5 Palisade and Picket**. These cover the relevant specifications and installation requirements for the size and style of fence.

For domestic and DIY consumers, most fencing supplied is not sold in compliance with **BS 1722**. However, it is important for fencing suppliers to clearly state the quality and expected performance of the materials used in their products.

- **Size**

It is important to ascertain the required height, length and spacings of the fence, so that the supplier can provide the correct individual components required for the structure. **BS 1722** offers guidance to the dimensions of certain components.

- **Species**

Specification of a particular species depends on the desired performance and overall fence design. For example, softwoods require suitable preservative treatment before use.

- **Durability**

To ensure a long-lasting timber fence that performs as expected over its service life, it is essential to manage its risk of decay, especially for components in contact with the ground such as posts and gravel boards.

- **Detailing**

Innovative design can extend the durability of fencing components, such as supporting fence panels off the ground using pre-treated or concrete gravel boards, which are easier to replace than the entire fence panel. Other approaches include designing to allow for water to drain away, reducing the collection of water around joints and avoiding their decay. The tops of fence posts can also be capped or sloped to shed rainwater effectively, protecting the end-grain of posts during wet weather.

- **Preservatives**

Selection of the appropriate timber species, together with the right preservative treatment, can extend the service life of the fence for between 15 and 30 years. The timber moisture content must be kept below 30% and all machining or cutting work must be performed before the preservative treatment.

- **Finishes**

To protect the appearance of timber against the impact of weathering, protective finishes or exterior wood stains can be used. Available in a range of colours, they provide an effective coating along the timber surface, helping prevent the ingress of water.

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Strength

Selecting appropriate timber to suit a fence's structural needs is vital to ensure the fencing system performs as intended. **BS 1722** details four timber quality selection methods, depending on the type of fence being constructed:

- **Structural selection** - ideal for major structural elements of fences, such as posts and rails. **BS 1722** refers to the 'knot area ratio' method to assess knots in the timber, which has specifically been simplified for use in fencing.
- **Non-structural selection** - includes small square posts and infill boarding. Timber utilised for these purposes will be assessed on its board faces only, where knots are restricted to only one half of the face width.
- **Strength graded** - to rules originally noted in **BS 5268 Part 2**. Usually, these only apply to structures such as noise barriers for designed structural elements like posts and rails.
- **Timber used in round or cleft** - where the natural strength of the timber in the round is evaluated. For the cleft, any significant weaknesses arising from knots in the timber makes the material unsuitable for use.

BS 1722 lists limiting characteristics such as knots, wane, checks and splits, resin and bark pockets, slope of grain, pin worm and distortion.

Wind Loading

Depending on its function and structure, a fence is likely to be subjected to various external elements, such as wind loads during service. These should be anticipated and accommodated for during the design phase of the fencing system, to reduce the risk of damage or failure.

For commercial purposes, it is recommended a structural engineer evaluates the proposed structure and the loads it is likely to experience. Depending on the assessment, strength-graded timber may be specified for certain components.

Appearance

The species selected for a fencing project also depends on colour, style, or character requirements, as the type of timber will influence the fence appearance.

While the natural colouring and character of timber varies between different species and product batches, there are a wide range of stains and exterior finishes available in the market, which can be used to achieve the desired colour or to ensure consistency in its appearance.

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Installation

Installation by qualified professionals ensures a fencing system with longevity and structural integrity. Installers should hold the relevant FISS/ CSCS card or accreditation with the Association of Fencing Industries Certified Contractor Scheme, to demonstrate their qualifications.

The main aspects to consider include:

- **The top line**

Depending on ground conditions, the top line of a fence could be designed straight (this may result in gaps underneath that compromise security), or it could follow the undulation of the ground for an “up and down” effect. Panel fences need to accommodate undulating ground with “stepping.”

- **Posts**

Posts should be set inline and plumb, with the post foundations suitably sized for the ground conditions. Where ground conditions are normal, posts should be set in the ground to depths between 0.6 to 0.75m, depending on their height. Tall acoustic fences may require very deep foundations.

Posts could be back-filled, driven into the ground, fitted into metal post-spikes or into brackets bolted to concrete footings. Posts should always be bolted into the ground but in case they are going across concrete, they should be bolted down with a steel shoe.

- **Fixings**

To protect fixings from corrosion, the use of hot galvanised fixings is recommended. For timbers such as Oak (*Quercus* spp.) and Western red cedar (*Thuja plicata*), which are known to increase corrosion rate, non-ferrous fixings should be used.

Inspection and Maintenance

To ensure a fence remains in good condition, is safe and fit for purpose, regular inspections and routine maintenance should be undertaken.

Despite best efforts and choice of materials, timber finishes and preservatives can fail over time, especially due to external exposure. The timber coating can exhibit stresses due to weathering and movement of the timber. Checks and fissures, caused by swelling and shrinkage, can appear in the timber, increasing the risk of water ingress and resultant localised decay.

To protect timber fences from these potential issues, its protective layer should be maintained by regular re-application of a stain or paint. This can protect the fence from decay, helping to keep it structurally sound for a longer period.