



Cedar Shingles

Product guide

Shingles product guide

JB Western Red Cedar Shingles and Shakes from Marley Eternit are a truly renewable and sustainable roofing and cladding material, with one of the lowest carbon footprints of any widely used building product. They are light to transport yet durable and offer a high degree of thermal insulation.

Shingles and Shakes have been used for a wide range of structures from simple garden gazebos, to domestic dwellings, to major theme parks. Shingles and Shakes perform the same functions but are manufactured in different ways.

A Shingle is produced by sawing a block of wood on both sides, giving a relatively smooth face and back. A Shake is hand split from a block of cedar along the natural grain of the wood and then re-sawn to produce one smooth surface.

They can be used for both roofing and cladding. Cedar Shingles can be fixed to pitches as low as 14 degrees.

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Properties and performance

Quality and environment

Marley Eternit sources its Western Red Cedar Shingles and Shakes from manufacturers who are members of the Cedar Shake and Shingle Bureau. All Marley Eternit JB Cedar Shingles have the 'Certi-Grade' quality assurance label and have PEFC Chain of Custody to ensure both a legal and sustainable product.

Grades

Cedar Shingles are produced in 3 grades. These are referred to as Blue Label, Red label and Black Label. Marley Eternit only recommends the use of Blue Label shingles in the UK. They are:

- > 100% Heartwood – this is the durable part of the tree (sapwood easily decays)
- > 100% Edge grain – this ensures the shingle is stable, doesn't cup and again more durable
- > 100% All clear – this ensures the shingle is free of defects such as knots

Size

They are in random widths varying from 75mm to 300mm. They are produced in 3 lengths.

The most typical shingle is the FiveX or XXXXX.

- > FiveX or XXXXX – 400mm (16") Shingles > stocked product
- > Perfections – 450mm (18") Shingles > special order
- > Royals – 600mm (24") Shingles > special order

Lifespan and durability

Shingles are naturally durable, but for maximum life expectancy, Marley Eternit recommends that Cedar Shingles are preservative treated. Marley Eternit MicroPro® treated shingles have a 40 year lifespan warranty.

MicroPro® is a preservative system incorporating micronized copper and co-biocides to create a wood preservative with enhanced technical performance and distinctive environmental and aesthetic product features, when compared to other current copper-based systems. Some preservative treatments can darken the shingle. MicroPro® is almost clear with a faint green wash that allows the shingle to weather naturally to a silver grey colour.

Fire

In some instances, Cedar Shingles may require treatment with a fire retardant. JB FRT Exterior treatment gives the Cedar Shingle an EXT. S. AA B_{ROOF} (t4) fire classification to BS 476-3: 2004 - as good as a clay tile. This treatment also meets BS 476 Euroclass B when used for vertical cladding.

Always check with LABC when using shingles near a boundary, even if there is no building close by. Generally, fire retardant treatments are required when building within 5m of the boundary of the site. However, Building Regulations vary around the UK and advice may need to be taken.

Sound

Western Red Cedar is particularly effective in a sound-damping capacity and provides effective, economical sound insulation.

Insulation

Due to Western Red Cedar's low density and coarse texture, it has good insulation properties. Western Red Cedar is recognised as the best thermal insulator amongst the commonly available softwoods, and is far superior to brick, concrete and steel.

It is widely used in saunas because of its low thermal conductivity; with a value of $K=0.1067 \text{ W/m}^\circ\text{C}$ at 12% moisture content.

Climate

Shingles are resistant to frost and nail impact. Once installed, they are resistant to high winds exceeding hurricane force (each shingle is nailed twice).

Ventilation

Marley Eternit recommends Roll Vent, a relatively new ventilation product to the UK market but one that has been available in the USA for many years. It is used where both ridge and eaves ventilation is required.

Roll Vent complies with the requirements in the UK. This product gives a nett free area of $38,100\text{mm}^2$ per m (building regulations 5000mm^2) and should be installed in a balanced system. Full technical details are available on request. Roll Vent is simple to install. Extra wide ridge units should be used with this product.

Counter battens are required to maintain airflow in all applications.



What is the difference?



Shingles

Shakes

Shingles and Shakes perform the same functions but are manufactured in different ways.

A Shingle is produced by sawing a block of wood on both sides, giving a relatively smooth face and back.

A Shake is hand split from a block of cedar along the natural grain of the wood and then re-sawn to produce one smooth surface.

There is now a new product – Taper Sawn Shakes. These are sawn like a shingle but are much thicker and installed like a shake.

They can be used for both roofing and cladding. Cedar Shingles can be fixed to pitches as low as 14 degrees.

Estimating and coverage

Coverage by application table (FiveX)

All quantities are exact, an allowance should be made for waste and cutting.

Use	Max. gauge	Coverage m ² per bundle	JBRED 25x38 battens per m ²	Laid weight kg/m ²
Vertical cladding, 90°	175mm	3.20m ²	5.7 metres	5.0 kg
Roofs 22-89°	125mm	2.28m ²	8.0 metres	7.0 kg
Roofs 14- 21°	95mm	1.73m ²	10.5 metres	9.3 kg

Coverage by product table

Product	Qty of pieces per box/bundle	Coverage m ² per bundle	Number of bundles
1 bundle of shingles	120 approx*	1.73 – 3.20m ² dependent on roof gauge (refer to above table)	n/a
1kg of silicon bronze nails	1450	n/a	6
1 box of JB Shingle Fix Staples	3000	n/a	12.5

* Quantity will vary from bundle to bundle due to the nature of varying widths.

1 bundle of shingles is required for 18 metres of starter course.

1 bundle of shingles is required for 7.5 metres of Hip & Ridge (Traditional method)*.

These are exact quantities. Allow extra for cutting and waste. For a simple roof this is around 5% but for complex structures (ie Octagonal Roofs this could be over 30% where there is a lot of cutting)

Coverage

Cedar Shingles are supplied in bundles. The coverage will depend on the application.

Hip and ridge capping

Marley Eternit supply pre-formed hips and ridges. These speed and simplify installation. Each bundle has 36 pieces, 18 right hand and 18 left hand mitres. These are fixed alternately at the same gauge as the roof.

Use	Max gauge	Coverage per bundle	Silicon bronze nails
Roofs 22-89°	125mm	4.5m	0.05 kg per m
Roofs 14-21°	95mm	3.4m	0.065 kg per m

Nails

For maximum life, fixing should be made with 2 no. 31mm x 1.8mm silicon bronze annular ring nails per shingle. As a guide, approximately 1kg of nails is required to fix 6 bundles of shingles.

Hip and ridge capping requires longer, 44 x 2.65mm silicon bronze nails. Each hip and ridge requires 4 nails. 144 nails are required for 1 bundle of hips and ridges. 1kg is required for 3 bundles of hip and ridge cappings.

For large projects, Marley Eternit recommends the use of JB ShingleFix S16 x 38mm Stainless Steel Staples. As a guide, approximately 1 box of 3000 staples is required to fix 12.5 bundles of shingles.

* 'Traditional method' is when two shingles are used to make a hip and ridge, in which case more shingles are required. Alternatively, hip and ridge cappings are available from Marley Eternit.

Installation

The shingles should be fixed at the appropriate gauge directly onto roofing battens. A double course of shingles should be used as a starter course at the eaves. The shingles should project at least 38mm beyond the eaves protection, or if a gutter is used, at least to the centre line of the gutter. They should extend 38mm over the verge or gable moulding/barge board.

JB Shingles should be spaced 5mm apart and be nailed or stapled twice. The nails/staples should be fixed 19mm in from the edge and 38mm above the butt of the course above.

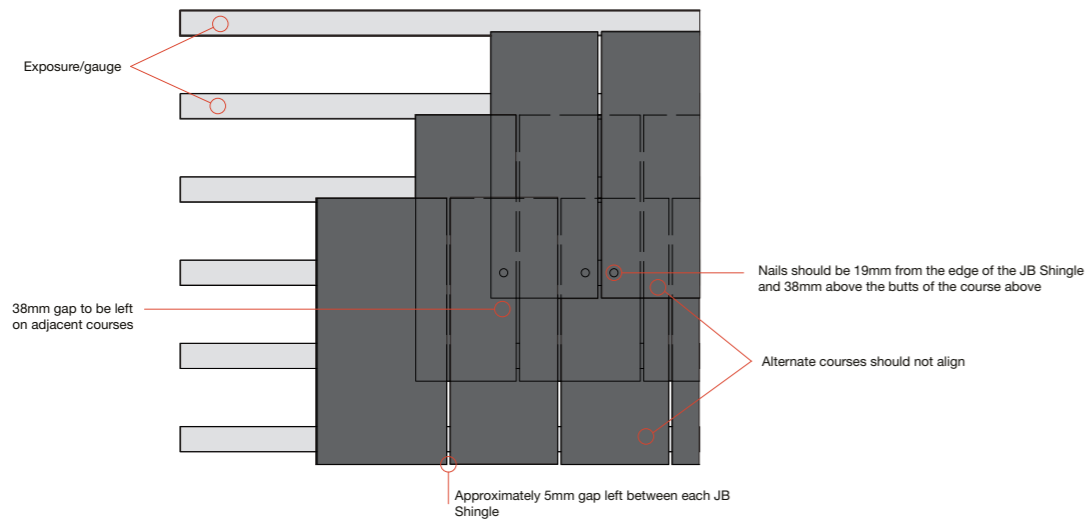
Joints in any one course should have a side lap of not less than 38mm from the joint in adjacent courses and in any 3 courses, no 2 joints should align. Battens should be strong and stiff enough to withstand the proposed loading and provide adequate fixing and alignment.

They should comply to BS 5534: 2014. Marley Eternit recommends JB Red factory graded battens, 25 x 38mm. A vapour permeable type underlay that meets annex A BS 5534: 2014 is recommended.

Check list and ordering:

- > Certi-grade® label
- > Hip and ridge units
- > JB Shingles
- > Treatment guarantee
- > JB Red Battens
- > Silicon bronze nails or JB ShingleFix

Cedar Shingles fixing details



Faster installation times

JB ShingleFix is a unique fixing system exclusively available from Marley Eternit designed to cut the installation cost of a Western Red Cedar shingle roof. Independent tests witnessed by the NFRC and recently completed projects have confirmed the system. This system is suitable for all project sizes.

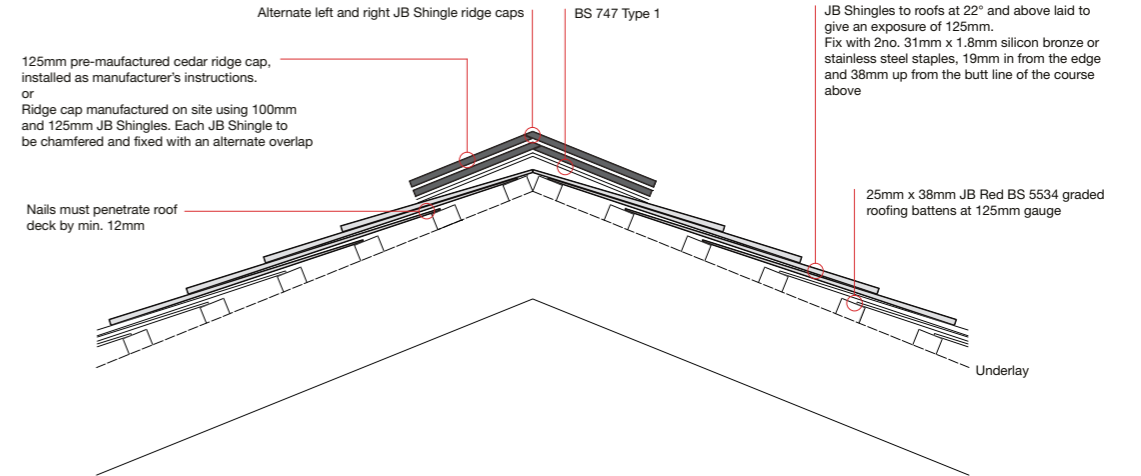
Shingle roof projects using JB ShingleFix have seen installation times reduced by up to 65% for low pitched roofs (95mm gauge) and 50% for standard roofs (125mm gauge)*.

JB ShingleFix uses specially designed stainless steel staples to fix the shingle instead of using the traditional silicon bronze nail. These can only be used with our recommended Paslode staple gun.

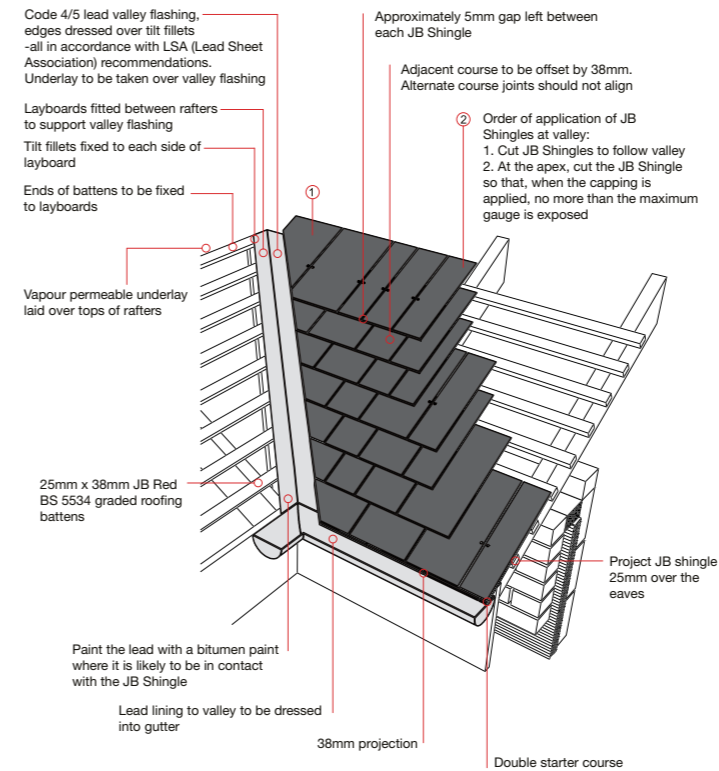
For more details, including for warm and low pitched roofs, consult the Marley Eternit website or call technical sales on 01427 675588.

*excluding felt & battens.

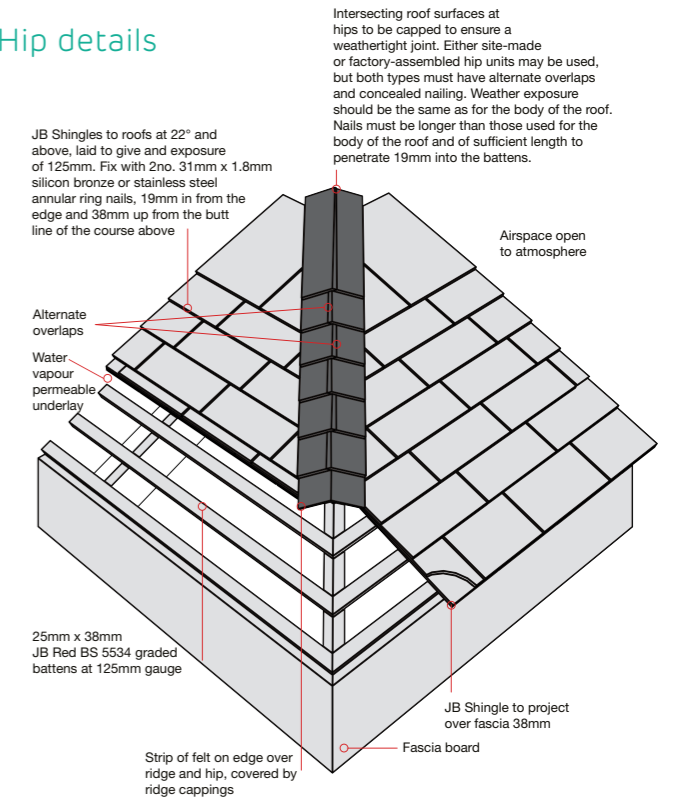
Roof ridge without ventilation



Cold roof construction



Hip details



Note: to allow for adequate airflow, counter battens should be used for all applications

Wood for Good

Timber is without doubt one of the most environmentally friendly building materials available. It is extraordinarily versatile, naturally renewable, beautiful, light and strong to build with – warm and welcoming to live within.

Whether it is a landmark building, government office, housing, school or hospital, architects look to timber to express a contemporary beauty. Timber is a high performance material, light in weight, with excellent thermal properties.



PEFC

Marley Eternit has full chain of custody. The PEFC (Programme for the Endorsement of Forest Certification schemes) is an internationally recognised organisation that ensures that our timber is purchased from both legal and sustainable sources. This scheme traces the timber from forest to end use. PEFC also acts as an umbrella organisation, incorporating national schemes such as a CSA (Canadian Standards Authority) and SFI (Sustainable Forestry Initiative).

Carbon cycle

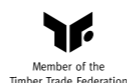
Carbon, and especially CO₂ emissions, are recognised as a key factor in climate change. In the UK, 40% of all carbon emissions come from buildings, split evenly between domestic and commercial.

There is a drive towards zero carbon homes. Timber can contribute significantly with the carbon sink effect of the forests, the carbon storage of the timber, and as substitute for carbon intensive materials.

- Every 1m³ of timber absorbs 1 tonne of CO₂
- Timber energy is CO₂ neutral (only the CO₂ absorbed is returned back to the atmosphere)
- There is little waste in manufacturing, as the by-products can be used for energy generation in bio-mass power plants used to generate power for the site or the grid

Fire

Timber can burn but unlike other materials it behaves predictably. The timber forms a charred surface that acts as protection to the inner surface. Modern fire retardant treatments are also available that reduce the risk further still.

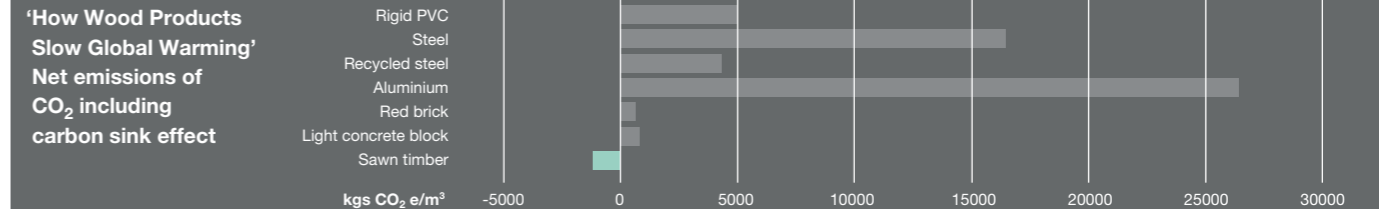


Life cycle

Life cycle assessment measures the environmental impacts of a building component right the way through its life. It takes into account where the material comes from and how it is used, all the way through to disposal or recycling. **There are 3 phases:**

Production phase or embodied energy (FiveX)

Timber has the lowest embodied energy of any commonly used building material.

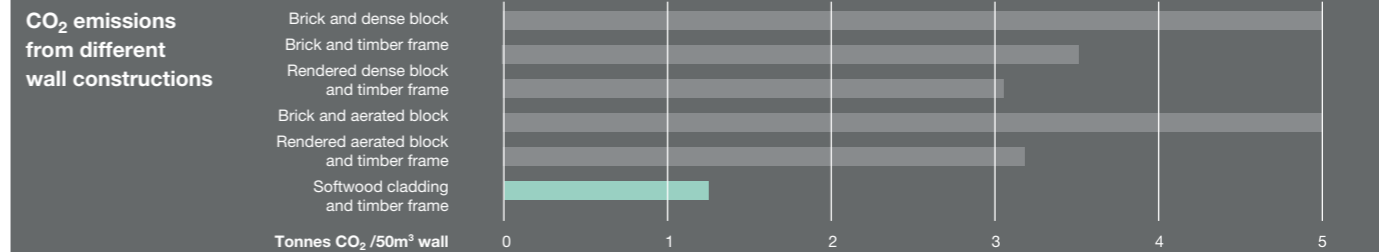


In use phase

Timber buildings can be most cost effective in constructing energy efficient buildings.

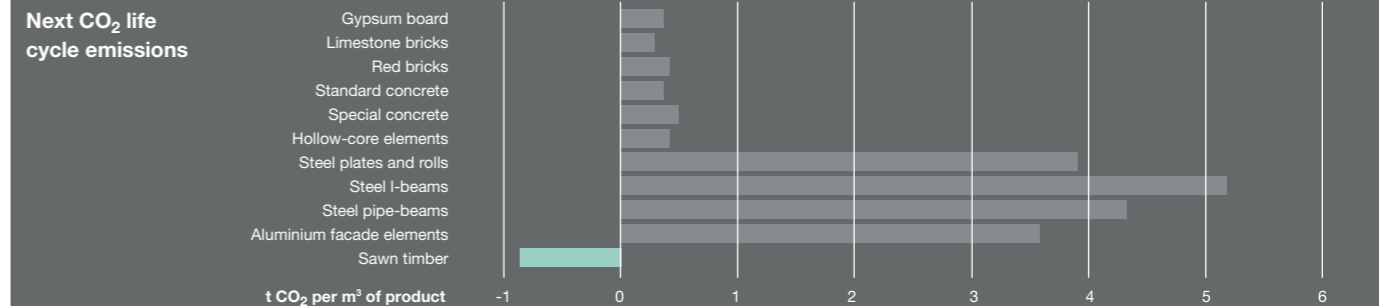


A 2001 Swedish study showed the difference to be equivalent to 27 years heating, or driving a Volvo s0 130,000km



End of life

If the timber cannot be recycled, it can be used as a substitute for fossil fuels, providing renewable energy.



CO₂ can be saved using timber over the whole life cycle. Substituting 1m³ of timber for other construction materials can result in savings of up to 1 tonne of CO₂. This combined with the carbon storage, means that 1m³ of timber stores and substitutes 2 tonnes of CO₂.

Source: TRADA

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