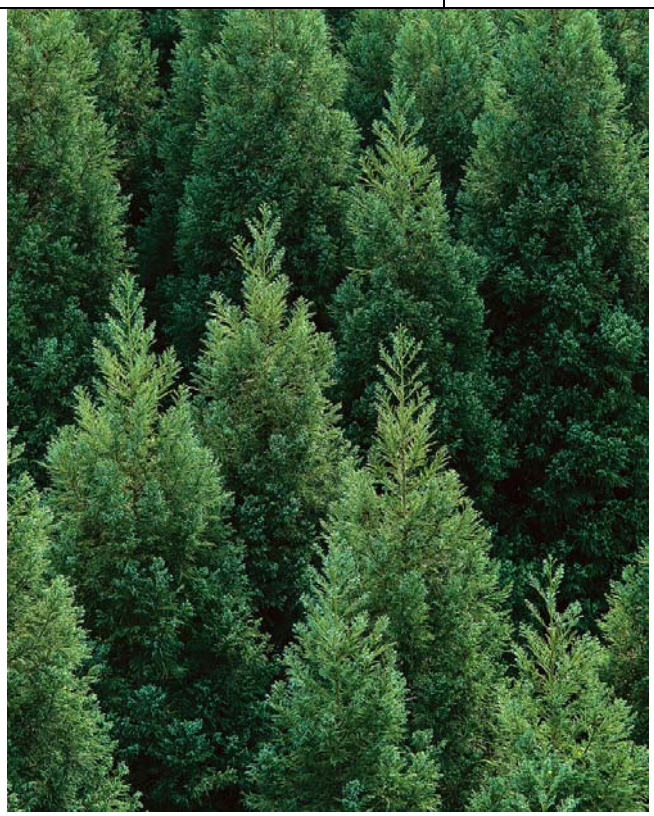
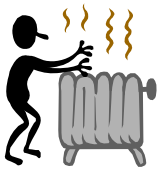
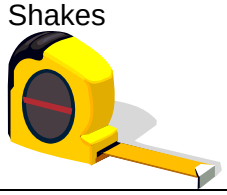
Customer Data Sheet (Ref JBCDSWRC001)
Western Red Cedar – Thuja Plicata

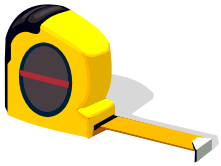
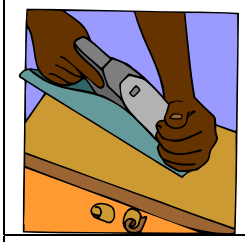
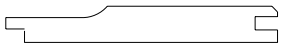
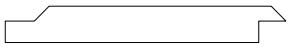
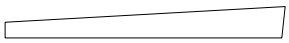
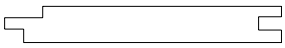
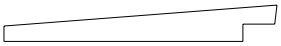
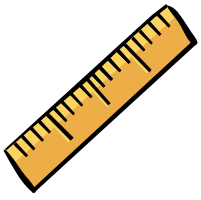
JOHN BRASH TIMBER
FOUNDED 1905 INNOVATION QUALITY SERVICE

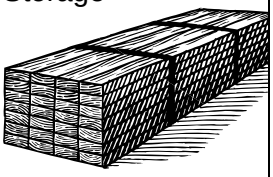
Sourcing	Botanical Species	 The botanical name of Western Red Cedar (WRC) is Thuja Plicata, also known as British Colombian Red Cedar, Giant Aborvitae and Red Cedar.
	Species Information	'The Tree of Life' – Western Red Cedar (WRC) is one of the 2 aborvitae species native to North America, the other being Eastern White Cedar. WRC is held in high esteem by the Pacific Coast First Nations for its spiritual and healing powers. It is a massive tree growing to a height of 45-75m with a trunk diameter of up to 2.6m. Not a true cedar (true cedars belong to the genus '*Cedrus'* and are not native to North America), WRC may have some similar characteristics. The tree is found throughout North America, but most commercial supplies will come from west of the Rocky Mountains in Canada and North-West USA. Some plantations can be found in New Zealand and the UK, where it grows reasonably well. WRC is one of the few timber species that is naturally at home in the outdoors. Properly finished it will last for decades, even in harsh environments. Its natural resistance to moisture, decay and insect damage make it the ideal choice for a surface that is exposed to sun, rain, heat and cold all year round. The tree's ability to naturally produce the two principal extractives that are responsible for decay resistance, thujaplicans and water-soluble phenolics, increases with age, making the outer regions of heartwood the most durable. The timber is non-resinous and usually has a straight grain of a fine to medium texture. Cedar has always been versatile, adaptable and attractive for external applications, the rich warm colour and uniformly coarse texture is very appealing and if left untreated the surface of WRC will naturally weather to a light silvery grey colour. To retain the warm 'Cedar' appearance then surface coating needs to be applied. When freshly cut, the timber has a distinctive sweet aromatic odour similar to the true Cedars and this can become apparent when stacked boards or packs are moved, even after long periods of time. It is a preferred species in applications where decay-resistance, dimensional stability and good insulation properties are important.

	Environmental 	*Imported* – Forestry practices across Canada and the USA are extensive and logging is carefully controlled. WRC is abundant in the province of British Colombia, and grows nowhere else in Canada. British Colombia has approximately 750 million m3 of WRC, with more than half of it found in the coastal region. Volumes are monitored strictly and are always below the Annual Allowable Cut, which currently is approximately 6 million m3 per year (less than 1% of the growing stock volume). The Annual Allowable Cut is reviewed every 5 years. Increasing volumes of accredited Cedar are available with full chain of custody. Canadian Standards Authority (CSA) and Sustainable Forestry Initiative (SFI) are the most common, and both are recognised within the PEFC umbrella. Limited volumes of FSC are available. Chain of custody – John Brash is a responsible and ethical supplier and only source fully accredited timber from responsible suppliers. We are members of both the FSC and PEFC chain of custody schemes and our membership numbers are :- **PEFC:–** BMT-PEFC-0109FSC **FSC:-** TT-COC-1967 *Home-grown* – FSC timber is available and UK forestry practices ensure that all cutting is sustainable. Home-grown Heartwood is available but commercially difficult to source due to the small diameter of the harvested trees.
Key Properties	Flammability 	WRC has flame spread and smoke development classifications that are superior to the minimums set by most building codes, which permit the use of cedar heartwood without preservative treatment. Because of its favourable performance WRC can be used for interior applications where other species would not be permitted. In some instances fire/flame retardant treatments are required. The interpretation of building regulations varies around the country and John Brash recommend checking with your local area. Where treatments are required: FRT Exterior® meets BS 476: Part 3: 2004 giving a double 'AA' rating and BS 476: Parts 6&7: 1997 giving a Class 1 Surface Spread of Flame. Additionally it is the only treatment, when slightly modified that can meet the even more stringent requirement to give a Class 0 Surface Spread of Flame. This treatment is available to special order at a small additional cost. (When used as vertical cladding Cedar Shingles and Shakes can be specified to BS EN 13501-1 to either Euro-class B (the equivalent of Class 0) or C (the equivalent of Class 1).
	Thermal 	Due to WRC's low density and coarse texture it has good insulation properties. WRC 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=0.11 W/m^{o}C at 12% moisture content.
	Acoustic 	WRC is particularly effective in a sound-damping capacity and provides effective economical sound insulation by converting sound energy into heat by frictional and visco-elastical resistance. WRC can therefore be used effectively to reduce noise or confine it to certain areas.
	Durability 	Although WRC is naturally durable leaving the sapwood untreated is not recommended, as a finish or protective coating will greatly increase its service life. WRC heartwood is renowned for its high decay resistance. If the timber has sapwood present and/or is going to be exposed to conditions where decay could be a factor, such as in constant ground contact, for prolonged periods of time, then preservative treatment is advised. For cladding and decking applications John Brash, in line with BS EN 335-1:2006, recommend treating to use class 3 or use class 4, depending upon the service location and potential exposure to wetting.

	Timber Coating 	Translucent – to preserve the warm appearance of WRC for longer periods then John Brash recommends using the Morrells Omnia coating, which is a clear, high-performance coating system for exterior joinery products. Opaque – John Brash recommends coating the WRC with colours from our JB Traditional range, which applies a low to medium build waterborne, semi-transparent wood stain to provide both protection and decoration to the exterior timber. ****For very exposed or coastal locations the effectiveness of the coatings can be reduced and annual inspections and maintenance programmes are recommended.
	Service Life 	WRC heartwood is naturally durable and resistant to decay. BS5589:1989 classifies the heartwood of Western Red Cedar as Highly Durable and resistant to decay. This gives an expected service life of 60 year without the need for preservative treatment. For roofing applications, John Brash recommend using a pressure impregnated preservative, Osmose Naturewood to BS8417:2003 use class 3, which would give a 25 year lifespan, with our shingles having a 40 year lifespan.
	End Uses 	Exterior Cladding, Shelters, Saunas, Doors, Windows, Shutters, Panelling, Shakes & Shingles (for roofing or cladding) and exterior decking.

	Grades of Sawn Cedar 	In the UK WRC is commonly supplied with reference to the commercial grades only and not to architectural or appearance grades ie: :- a) No 2 Clear & Better b) No 4 clear. When WRC is used as an exterior timber cladding the result is an almost clear, knot-free timber that would meet BS 1186 part 3 class 1or BS EN 15146 Grade A.
	Grades of Shingles and Shakes 	The rich warm colour and texture of Cedar Shingles and Shakes can enhance the design of both traditional and modern structures. John Brash offers one of the widest ranges of Cedar Shingles in Europe and the grades available are as follows:- <u>No 1 Grade Blue Label:-</u> 100% clear (knot free) 100% heartwood 100% edge grain No defects <u>No 2 Grade Red Label:-</u> Limited sapwood and edge grain allowed. Limited knots and defects allowed. <u>No 3 Grade Black Label:-</u> Unlimited sapwood and flat grain allowed. Limited knots and defects allowed.
	Sizes of Shingles and Shakes 	Shingles: XXXXX – 400mm long, 75-300mm wide, 10mm at the butts Perfections – 450mm long Royals – 600m long Shakes: Hand Split & Re-sawn Royals – 600mm long, Random Widths 150-300mm, 19mmthick at the butt.

	Sizes of Sawn Cedar 	Cedar is available in a wide range of sizes. For Exterior Cladding the most typical are 25x150 and 25x125 with finished dimensions of 18x145 and 19x120. For decking the typical size is 38x150 or 32x150 with a finished size of 34 x145 or 28x145
Processing	Movement, Moisture & Workability 	Both imported & home-grown cedar is classified as 'small movement' as per BS 1186:Pt2 1988.
	Profiles 	**Rain-screen**  **PMV T&G**  **Channel Rebated**  **Shiplap T&G**  **PMV rebated**  **Tapered Square**  **Shiplap Rebated**  **Channel T&G**  **Tapered Rebated**  **Smooth decking with or without anti-slip inserts is available.** **Castellated (grooved) decking is not recommended.**  John Brash, unless specified differently, can either supply timber products in line with the moisture content specified by BS 1186:Pt3 1990 Issue2 1997: Exterior wood trim - **13-19%** Interior wood trim for buildings with intermittent heating -**13-17%** Interior wood trim for buildings with continuous heating between 12-19ºC – **10-14%** Interior buildings with continuous heating between 20-24ºC – **8-12%**** ****special order only and must be subjected to special protection and storage to maintain this condition. **OR** If not specified, then products are supplied with the prevailing atmospheric moisture content.
	Tolerances 	Dimensions are accurate at the time of machining, but consideration must be given to the fact that WRC, as with all timbers, is prone to slight dimensional movement as it adapts to the ambient atmospheric conditions.

	Coverage 	Square sawn – 25x125 > 10 lm per m2 (face coverage 100mm) 25x150 > 8 lm per m2 (face coverage 125mm) T&G – 25x125 > 9.3 lm per m2 (face coverage 108mm) 25x150 > 7.7 lm per m2 (face coverage 130mm) Rebated – 25x125 > 9.3 lm per m2 (face coverage 108mm) 25x150 > 7.7 lm per m2 (face coverage 130mm) Taper Rebated – 25x125 > 10.5 lm per m2 (face coverage 95mm) 25x150 > 8.3 lm per m2 (face coverage 120mm) <u>Decking</u> All thickness x 125 > 8 lm per m2 All thickness x 150 > 6.7 lm per m2 Shingles – see specialist guide or speak to our Technical Sales team for further advice.
	Packaging and Strapping 	WRC is lightweight and soft and will bruise easily, therefore great care must be used when handling, and in particular, strapping the timber. John Brash use polyester strapping and reinforced corner supports to ensure that the strapping does not place any stresses on the actual timber and therefore the potential for damage is limited. The timber should be supported evenly on even sized bearers which are in good conditions, which are spaced a maximum of 1.2m apart, to prevent sagging. WRC should be stored in dry conditions and covered on 3 sides wherever possible.
	Health & Safety Effects 	WRC in timber form can safely be used in food contact and in recent years fish has been baked on cedar planks. To release the extractives the timber has to be ground into fine dust and then boiled with a solvent. Some of the volatile WRC extractives do evaporate from surface of the wood used in a sauna, but they are not considered harmful to humans. As with many timbers fine wood dust created during machining can be an irritant and precautions should be taken to prevent exposure, particularly to the eyes and the respiratory system. The workplace should be well ventilated with effective dust extraction in place. The use of appropriate dust masks is recommended.
On Site	Storage 	Until installed WRC needs protection from the elements. The timber should be stored off the ground and should be covered with a waterproof protective cover, which should be raised in the centre to prevent water 'pooling' on top of the cover. The timber must not be completely sealed as air circulation is required.
	Field Cuts 	All field cuts of treated WRC must be finished. End grain absorbs moisture much more rapidly than the other surfaces and this should be prevented wherever possible.
	Fixing 	WRC does have some resistance to splitting but pre-drilling near the ends of boards is advisable when nailing and screwing is preferred. It glues, stains and polishes well but can be easily marked. The corrosive nature of WRC extractives require the use of corrosion-resistant nails and screws (galvanised, stainless steel or silicon bronze), particularly in applications where the timber may get wet. Iron and copper nails rapidly decompose and deteriorate, leaving holes in the timber where the nails used to be after only 1-2 years, the timber may also stain.

		John Brash recommend that cladding boards are fixed to John Brash JB RED factory graded roofing battens, which are available in 25x38mm or 25x50mm and fully comply to BS 5534:2003. Stainless steel or silicon bronze annular ring shank nails are to be used to avoid staining. Annular ring shank nails are preferred for their improved holding power and should be twice as long as the thickness of the boards being fixed. The nails should be driven marginally below the surface of the timber to compensate for possible shrinkage. To prevent cladding coming into direct contact with porous or wetted surfaces John Brash recommend use of either a damp proof membrane or flashing or leaving a sufficient gap. In all cases a gap of 150mm – 200mm should be left below the bottom of the cladding and ground level. Vertical boards should always be kept clear of any flashings below, by at least 10mm. The top edges should also be well protected. Projecting roofs and Overhangs – these provide protection to cladding and joinery products during service and result in the product being only partly exposed to the elements. This can result in uneven appearance and can become unsightly if uncoated timber is used.
	Waste Disposal 	WRC should be treated as softwood for on site disposal, and can be disposed of with other site softwood waste. It is suggested that recycling opportunities are explored with a responsible waste management company.
	Maintenance Schedule and Stain Removal 	Maintenance of WRC depends upon the type of stain or coating applied. Exposure to rainwater and sunlight will cause the surface coatings to deteriorate. The darker the pigment the longer maintenance can be delayed. In the case of translucent stains maintenance should be carried out yearly. The use of a pressure washer is possible, but specialist advice should be sought first. Uncoated weathered cedar cladding can often be restored to its original colour by applying commercial products called cleaners, brighteners or restorers. Although primarily intended for restoring horizontal surfaces, such as decks they also work well on vertical surfaces. These products generally fall into 3 categories, paint strippers, bleaches and oxalic-acid based products:- **Paint Strippers** – will remove oil-based and latex stains. Usually supplied in ready-to-use liquid form. After use any residue should be rinsed from the timber before applying any other coating. **Bleaches** – are effective in counteracting mildew but do little to remove dirt or other surface deposits. Aggressive scrubbing with caustic cleaners such as bleach will remove the surface fibres of the timber and will result in a rough unnatural white pale appearance. **Oxalic-Acid Based Products** – will remove extractives bleed and iron stains but are ineffective against mildew. After application of these products the timber should be thoroughly rinsed with clean water and completely dried before re-coating. Please be aware that Oxalic Acid can cause burns to the skin and may be harmful if swallowed or inhaled. The following actions must be followed in the event of any incident :- Eye contact – immediately flush the eye with plenty of water, seek medical help if irritation persists. Skin contact – wash off immediately with water. Burns may result if left on the skin for long periods. Swallowed – wash the mouth out with water if the patient is conscious, seek medical help if amount swallowed is of concern.

		Safety glasses & gloves should always be worn when handling Oxalic Acid – please not that PVA gloves are not suitable for handling Oxalic Acid or its solutions. Small amounts only of Oxalic Acid may be disposed off using normal sinks and drains, unless local rules prohibit this. Large amounts should be neutralised before disposal. Seek specialist advice if unsure. ***Important – do not use wire brushes or wire wool for surface cleaning or preparation.**

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