



design guide and product information sheet

40 a
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data providing related information to assist with correct product selection, application and specification

W.R.C. and Hardwoods the mysteries, mis-understandings and myths unravelled



the selection of a timber specie for any product should only be made after close analysis of its natural properties and their relevance to the particular application
this Design Guide addresses some important specie properties relative to Hardwoods and Western Red Cedar and highlights the superiority of Cedar in many applications

timber – prized as a building material

The versatility of timber makes it one of the most valuable materials available to the building industry. One key element to that versatility is the wide array of available species and specie groups, most of which have unique properties which make them ideal for differing applications. A good understanding of the attributes of those properties is essential to ensuring appropriate specie selection, particularly for visually exposed products and where a decision lies between Hardwoods or Western Red Cedar.

visually exposed categories

- internal (weather protected) – panelling, ceiling lining, screening & décor.
- external (weather protected) – soffit lining, sheltered cladding, sheltered window & door joinery.
- external (weather exposed) – cladding, fascias, screening, decking, window & door joinery.

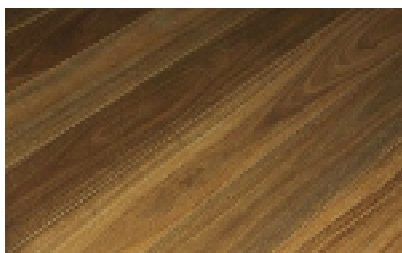
properties of timber – which ones are important for visually exposed applications

density – timber's comparative *weight* – also a guide to *hardness, strength & workability*. In the majority of visually exposed applications, a high density is not necessary. It becomes more important for flooring, decking, some wall surfaces in some public areas or surfaces subject to frequent contact (bar fronts). Favouring lower density species where possible achieves added benefits - better room acoustics, easier workability, improved coating retention – Cedar has an enviably low density.

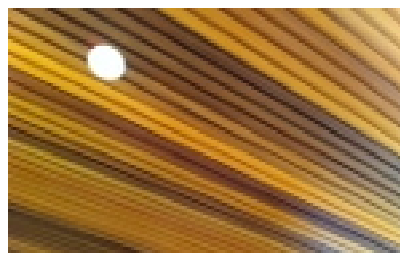
Weight (related to density) is also critical in some applications like louvre blades and adjustable screening, and selecting Western Red Cedar for its light weight in these applications is logical.

durability – related to the timber's natural resistance to decay and weathering - *durability* is often confused with *density* at the expense of missing out on the most suitable option.

- durability is important in selecting weather exposed products – cladding, fascias, decking, joinery – these products should be from durability class 1 or 2 timbers – Cedar is 2
- durability is irrelevant when selecting weather protected products – panelling, ceilings, soffits.



HWD floor - good wearing surface



W R C ceiling - good room acoustics

durability is irrelevant for all weather protected applications – floors, walls, ceilings, soffits

density is important for wearing surfaces

low density will improve room acoustics



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shrinkage – All timbers are hygroscopic and will absorb or discharge moisture to attain equilibrium with the surrounding atmosphere. Movement of the wood fibre will occur during this process and this induces surface checking and other forms of degradation.

	WRC	Hwds
Durability (ab grd)	2	1 to 3
Density (kg/m3)	380	675 - 1100
Shrinkage (tan) %	2.2	4 to 14

Timbers which perform best in weather exposed situations are those with low shrinkage rates. Western Red Cedar has a very low shrinkage rate making it the most suitable for claddings, fascias and the like.

fixings – timbers with high densities and high shrinkage rates are more prone to higher movement with climatic variations. This needs restraining and can often only be addressed with robust fixings. In the case of many hardwoods, expensive screw fixing systems are the only recommendation. With Western Red Cedar, more economical conventional nailing can even be concealed.

colour – with today's coating technology, the natural colour of timber ceases to become a major consideration. Where lively colour variations are favoured, Western red Cedar is the stand out performer – where more subdued or negligible colour variation is required, the natural characteristics of Cedar can be tamed substantially with lacquers or oils, finishes likely to be required on all timbers in any case.

insulation – not a commonly referred to category but one in which interest is growing rapidly due to climate and energy considerations. Insulation properties are directly related to density – the lower the density of the timber specie, the greater are its insulation properties. Once again, Western Red Cedar is the stand out performer.

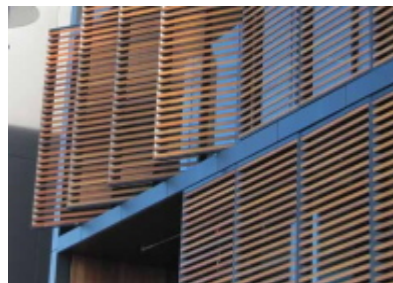
paintability – this term loosely refers to the timber's general compatibility with coatings, whether they be stains, oils or paints. The lower density species provide a better 'key' for coating adhesion or allow greater penetration for oils and stains – once again, Western Red Cedar outperforms all the others.

length availability – this is an often overlooked attribute when considering visually exposed applications whether they be internal OR external. The very nature of the supply arrangements for Western Red Cedar is based on set length specifications. Within residential construction in particular, this means that single length pieces are available for most ceiling and wall applications, negating the need for on-site butt joints, characteristics common to many other species.

Conclusion – when comparing all relevant properties, Western Red Cedar is the stand out performer for visually exposed applications – internally & externally



durability class 2 makes WRC ideal for cladding & fascias



light weight low density WRC essential for motorised louvres

Western Red Cedar weather exposed products

- # suitable durability class 2
- # excellent coating adhesion
- # excellent oil penetration
- # higher coating performance
- # superior insulation properties
- # good range of set lengths

some common myths

western red cedar is too soft – cedar is certainly a soft species but for the majority of applications, hardness is irrelevant and softer characteristics offer added advantages. Except in some cases as outlined earlier, most visually exposed applications never experience even the touch of a hand. Manufacturers of Cedar products acknowledge the slightly increased vulnerability to transport damage, and package accordingly.

hardwood will last longer – not true. Longevity is related to durability. For weather protected applications, durability is irrelevant – for weather exposed applications, Cedar's rating of Class 2 exceeds code requirements for life expectancy performance of these visually exposed products.

hardwood requires less maintenance – again, not true, and the opposite is more correct. Maintenance of timber predominately entails maintenance of the applied coating, and performance is directly related to the quality of the product applied. Western Red Cedar provides superior adhesion and penetration of coatings and oils due to its low density.

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