

Wood Composites (For Exterior Use)

Wood composites are made from wood pulp combined with a number of binders and waterproofing agents to give a high-density (hardboard) thin plank or flat sheet for use as a cladding material. Some wood composite decking is imported. This is manufactured from reclaimed wood fibre with virgin and/or recycled plastic and some other additives (such as pigments and UV inhibitors) The details in this fact sheet apply to wood composite claddings and not the decking.

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Extraction and manufacture	
Impact of extraction	Wood composites are manufactured from left-over wood product.
Energy use	Significant amounts of energy are used in manufacture of wood composites. Embodied energy is quoted as 24.2 MJ/kg for hardboard.
By-products/emissions	Timber is a carbon sink while growing. Binders and agents may contain volatile organic compounds such as formaldehyde.
Sourcing	
Material sources	Wood composite flat sheets, generally designed for use when protected from rain, are made in New Zealand. Wood composite wall cladding is imported from Australia
Availability	Availability is limited.
Cost	Medium cost
Transport to site	Wood composites are generally lightweight to transport.
Construction/installation	
Health and safety during construction/installation	Dust when power cutting is a hazard.
Ease of construction	Sheet materials are relatively quick and easy to install. Once delivered to the site, they can be handled by site labour. Sealing or priming of sheet or plank edges during installation is critical to material performance.
Adaptability	Standard carpentry practices are used for wood composites, so materials can be readily modified.
Performance	
Health and safety during life of building	Wood composites can emit formaldehyde. However, this is not usually a problem as formaldehyde concentrations are low. Sealing can reduce formaldehyde emissions Urea formaldehyde-free panel products are now being manufactured overseas and sold with a significant cost premium. Wood composites will support toxic mould growth when wet.
Structural capability	Nil
Durability*	15-20+ years when protected by a well maintained exterior coating system.

Maintenance rating	Medium to high – the exterior protective coating needs to be recoated every 7-10 years.
Moisture resistance	Good if well maintained
Rot, mould and corrosion	Moulds such as the toxic stachybotrys will form on wet material.
Thermal performance	The R-value of wood composites is low and there is no thermal mass benefit.
Sound insulation	Although the material is dense, the manufactured product is thin and provides little sound reduction.
Fire performance	Combustible
Waste disposal/recycling/re-use	
Re-use	Wood composites in good condition may be re-used. Care must be taken with removal.
Recycling	Wood composites are not recyclable.
Waste disposal	Wood composites will decompose over time.

* with normal maintenance