

Gypsum Plasterboard (Interior Use)

Plasterboard comes in sheets made up of:

- a core of cast gypsum plaster plus fillers, and
- paper lining.

The core can be formulated for specific parts of a home (such as dry, wet, or high impact areas) or specific uses (such as fire or bracing).

Joints between the sheets are filled with a gypsum-based stopping compound.

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Extraction and manufacture	
Impact of extraction	Gypsum is a mined material. Extraction may create dust, noise and a significant visual impact. There is also potential for damage to local ecosystems during extraction.
Energy use	Embodied energy of generic plasterboard is quoted ¹ as 7.4 MJ/kg, but specific product data for New Zealand-made plasterboard quotes 5.3 MJ/Kg
By-products/emissions	Plasterboard is an inert material.
Sourcing	
Material sources	Gypsum raw material is imported in bulk from Australia. Plasterboard products are made in NZ using locally made or imported paper facings. Imported plasterboard (from Australia, Thailand, Britain, or the US) is also be available. Plasterboard may incorporate some recycled gypsum.
Availability	Plasterboard is widely available throughout NZ.
Cost	Material costs are low to medium depending on the specification. Maintenance costs are low.
Transport to site	Plasterboard is heavy to transport in bulk.
Construction/installation	
Health and safety during construction/installation	Direct, prolonged or repeated gypsum contact with the skin may cause irritation. Dust masks are recommended when sanding gypsum based compounds.
Ease of construction/installation	Plasterboard has to be attached to a frame. Once delivered, materials can be handled by site labour.
Adaptability	Plasterboard is relatively easy to replace.
Performance	
Health and safety during life of building	Plasterboard will support toxic mould growth when wet (see below).
Structural capability	Plasterboard can be used as a structural component (for bracing, diaphragms).
Expected durability (assuming correct installation and maintenance)	50+ years

Maintenance rating	Plasterboard is relatively low maintenance once installed (redecorating usually as a result of desire to change décor rather than loss of serviceability). It can be damaged by impact.
Moisture resistance	Plasterboard has good moisture resistance if the correct product is used in wet areas.
Rot, mould and corrosion	Plasterboard should be kept dry in service. Moulds such as the toxic stachybotrys will form on wet paper linings.
Thermal performance	Plasterboard has a low R-value and provided little thermal mass.
Sound insulation	Plasterboard is suitable for use as a component of sound rated construction. Specific construction requirements must follow the manufacturer's requirements to achieve the specified rating.
Fire performance	Plasterboard is suitable for use as a component of fire rated construction. Specific construction requirements must follow the manufacturer's requirements to achieve the specified rating.
Waste disposal/recycling/re-use	
Re-use	Plasterboard can be re-used if sheets can be removed without damage.
Recycling	Plasterboard can be recycled.
Waste disposal	Plasterboard is biodegradable in contact with soil. It releases leachate and gas during decomposition. However, it is not defined as hazardous waste. Disposal may be permitted in some clean fill sites.

1. Embodied energy figures taken from work © J. Andrew Alcorn, 2010. (Alcorn, J. Andrew, Global Sustainability and the New Zealand House, a thesis submitted to Victoria University of Wellington in fulfilment of the requirements for the degree of Doctor of Philosophy in Architecture, Wellington, 2010.)