

Clay Roof Tiles

Clay roof tiles are moulded to shape from selected clays and then fired at high temperature. The firing process transforms the clay into a building component with limited tensile strength and excellent weathering qualities. Clay roof tiles in New Zealand are imported primarily from Australia.

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Extraction and manufacture	
Impact of extraction	Removal of clay creates a visual impact. There is potential for damage to local ecosystems during raw material extraction.
Energy use	Energy is required in clay roof tile manufacture. No specific data is available (a ceramic tile is rated as 2.5 MJ/kg).
By-products/emissions	Some glazing materials and pigments can be hazardous to the environment – check with supplier. There are emissions from kilns.
Sourcing	
Material sources	Clay roof tiles are mainly imported by sea from Australia. Tiles from Europe (Italy, Spain) and Asia may also be available.
Availability	Standard profiles are readily available. Less common profiles are available on order/indent.
Cost	Up-front material costs are relatively high. Clay roof tiles require a more substantial roof structure than lightweight roof claddings.
Transport to site	Clay roof tiles are heavy so transport costs, particularly as distance from port or manufacturing plant increases, will be higher than for lightweight roof claddings.
Construction/installation	
Health and safety during construction/installation	Safety equipment is required when handling cement for mortar (gloves, overalls) or cutting tiles with a masonry saw (ear muffs, safety glasses, mask and overalls) to eliminate risk of skin irritation and lung damage. There can also be danger to other site staff during installation from dropped tiles.
Ease of construction	Clay roof tiles require more substantial roof framing and more bracing to the roof and walls. The tiles can be easily handled by site labour.
Adaptability	Clay roof tiles are relatively easy to replace.
Performance	
Health and safety during life of building	Clay roof tiles are inert, non-toxic and not prone to off-gassing of volatile materials. They are suitable for roof water catchment.
Structural capability	Clay roof tiles are not a structural element.
Expected Durability (assuming correct installation and maintenance)	50+ years.
Maintenance rating	Low. Clay roof tiles can be easily damaged during roof maintenance work.
Moisture resistance	Clay tiles may absorb and hold some moisture.

Rot, mould and corrosion	Lichens and mosses will grow on damp, weathered surfaces.
Thermal performance	Clay roof tiles provide little insulation value. Clay roof tiles have some thermal mass capacity but they are isolated from the interior by roof/ceiling insulation.
Sound insulation	The thickness and weight of clay roof tiles will add some sound deadening to rain noise, but air gaps between the tiles will let some sound into the building.
Fire performance	Clay roof tiles won't burn.
Waste disposal/recycling/re-use	
Re-use	Clay roof tiles can be readily re-used if carefully removed. Expect damage losses up to 30% in re-use.
Recycling	May be crushed with concrete roof tiles and used as a metal base course under footpaths etc.
Waste disposal	Clay roof tiles are non toxic so can be safely scrapped.