

### 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	
<b>Impact of extraction</b>	Removal of clay creates a visual impact. There is potential for damage to local ecosystems during raw material extraction.
<b>Energy use</b>	Energy is required in clay roof tile manufacture. No specific data is available (a ceramic tile is rated as 2.5 MJ/kg).
<b>By-products/emissions</b>	Some glazing materials and pigments can be hazardous to the environment – check with supplier. There are emissions from kilns.
Sourcing	
<b>Material sources</b>	Clay roof tiles are mainly imported by sea from Australia. Tiles from Europe (Italy, Spain) and Asia may also be available.
<b>Availability</b>	Standard profiles are readily available. Less common profiles are available on order/indent.
<b>Cost</b>	Up-front material costs are relatively high. Clay roof tiles require a more substantial roof structure than lightweight roof claddings.
<b>Transport to site</b>	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	
<b>Health and safety during construction/installation</b>	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.
<b>Ease of construction</b>	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.
<b>Adaptability</b>	Clay roof tiles are relatively easy to replace.
Performance	
<b>Health and safety during life of building</b>	Clay roof tiles are inert, non-toxic and not prone to off-gassing of volatile materials. They are suitable for roof water catchment.
<b>Structural capability</b>	Clay roof tiles are not a structural element.
<b>Expected durability</b> (assuming correct installation and maintenance)	50+ years.
<b>Maintenance rating</b>	Low. Clay roof tiles can be easily damaged during roof maintenance work.
<b>Moisture resistance</b>	Clay tiles may absorb and hold some moisture.

<b>Rot, mould and corrosion</b>	Lichens and mosses will grow on damp, weathered surfaces.
<b>Thermal performance</b>	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.
<b>Sound insulation</b>	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.
<b>Fire performance</b>	Clay roof tiles won't burn.
<b>Waste disposal/recycling/re-use</b>	
<b>Re-use</b>	Clay roof tiles can be readily re-used if carefully removed. Expect damage losses up to 30% in re-use.
<b>Recycling</b>	Not currently recycled
<b>Waste disposal</b>	Clay roof tiles are non toxic so can be safely scrapped.