



Technical Data

2024 Edition 1

Shell Limestone is a fossiliferous limestone quarried from the Martre deposits found west of Mount Gambier in South Australia. It is a sedimentary rock formed from aqueous deposits composed largely of the minerals calcite and aragonite, which are different crystal forms of calcium carbonate (CaCO₃).

The Shell limestone is predominately light in colour but can range into deeper tones of cream to yellow or biscuit color. The stone originated from extensive colonies of lace coral that flourished on an open-marine shelf in shallow calm warm waters. It has been estimated to have formed over 30 million years ago and its composition consists of bryozoa, foraminifera and echinoid spines and plates. It has a dense consistent texture with shelly matter evident in its surface.

TECHNICAL DATA

Stone Type	Coastal limestone
Colour	White to pale brown
Bulk Density	1.21 tonne/m ³
Compressive Strength	3.55 mpa dry / 1.4 mpa wet
Texture	Fine to medium
Content	Calcite / trace dolomite
Finishes	Saw cut and split face
Forms	Blocks, cladding and rubble

SPECIFICATIONS

Limestone by definition is a rock that contains at least 50% calcium carbonate by weight. Shell limestone is calcium carbonate, dominantly calcite with trace dolomite. All limestones contain a small percentage of other materials. These can be particles of quartz, feldspar, clay minerals, pyrite, siderite and other minerals.

COMMON SIZES

Generally Shell limestone is a dimension cut stone. Common sizes are 500mm long by 245mm or 330mm high and 100mm or 30mm thick. Customer specified dimensions are also available.

	Length	Height	Thickness	Weight (dry)
Limestone Block	500mm	330mm	100mm	20kg
	660mm	290mm	100mm	24kg
	660mm	240mm	100mm	19kg
Limestone Cladding	500mm	330mm	35mm	6kg
	660mm	290mm	35mm	8kg
	660mm	240mm	35mm	7kg

Heights and lengths can vary +/- 5mm

Cream limestone is sourced from coastal deposits found in the extensive sedimentary core of the Carnarvon and Perth basins. Ancient coastal sand dunes formed by sediment deposited by winds during the middle to late Pleistocene era were converted to rock by water percolating dissolved lime through small shell particles and sand cementing the grains together.

This limestone is composed of coarse to medium grained calcarenite with variable amounts of quartz sand having a cross-bedded nature. Cream limestone from this region is a distinctive stone with unique textures. It is generally a slightly harder stone with a composition that is more dense than other limestone from this region. The aesthetic appeal of this limestone is derived by its rich cream colour, unique textures and subtle imperfections created by natural pitting and embedded fossil material in the stone.

TECHNICAL DATA

Stone Type	Coastal limestone
Colour	Cream
Bulk Density	1.5 tonne/m ³
Compressive Strength	3.5 mpa on average / 4.4 mpa dry / 2.0 mpa wet
Texture	Fine to medium grade
Content	70-90% calcium carbonate
Finishes	Honed, rustic, split face and sand blasted
Forms	Blocks, cladding and quarry spalls

SPECIFICATIONS

Cream limestone contains at least 70%-90% calcium carbonate by weight. All limestones contain a small percentage of other materials. These can be particles of quartz, feldspar, clay minerals, pyrite, siderite and other minerals.

COMMON SIZES

Generally Cream Limestone is a dimension cut stone. Common sizes are 500mm long by 245mm or 330mm high and 100mm or 30mm thick. Customer specified dimensions are also available.

	Length	Height	Thickness	Weight (dry)
Limestone Block	500mm	330mm	100mm	27kg
	500mm	245mm	100mm	20kg
Limestone Cladding	500mm	330mm	30/35mm**	8kg
	500mm	245mm	30/35mm**	6kg

Heights and lengths can vary +/- 10mm

** Rustic cladding is 35mm thick

Oyster Limestone comes from a recently re-opened historical stone quarry located at Coobowie near Edithburgh on the Yorke Peninsula in South Australia. Oyster limestone is a fine-grained, light grey to taupe color, flat-lying, fossiliferous stone. Its age has been determined to be from the Miocene age (15-20 Ma) and is correlated with the Port Willunga Formation. The component of visible shelly material is variable. Stone dug from a nearby well around the 1890s showed no signs of fretting and had developed surface hardness.

The department of mines conducted tests of the limestone for suitability as building stone during the 1950s and the performance of the blocks used in local buildings around this time show no visible signs of fretting or decay. Contemporary geotechnical testing reveals the limestone to compare favourably to Gambier (shell) limestone and Western Australian limestone (Cream/ Biscuit).

TECHNICAL DATA

Stone Type	Coastal limestone
Colour	Cream to grey
Bulk Density	1.324 tonne/m ³
Compressive Strength	2.8 mpa dry / 1.8 mpa wet
Texture	Fine to medium grade
Content	70-90% calcium carbonate
Finishes	Honed, split face and sand blasted
Forms	Blocks and cladding

SPECIFICATIONS

Oyster limestone contains at least 70%-90% calcium carbonate by weight. All limestones contain a small percentage of other materials. These can be particles of quartz, feldspar, clay minerals, pyrite, siderite and other minerals.

COMMON SIZES

Generally Oyster limestone is a dimension cut stone. Common sizes are 500mm long by 245mm or 330 mm high and 100mm or 35mm thick. Customer specified dimensions are also available.

	Length	Height	Thickness	Weight (dry)
Limestone Block	500mm	330mm	100mm	22kg
	500mm	245mm	100mm	16kg
Limestone Cladding	500mm	330mm	35mm	8kg
	500mm	245mm	35mm	6kg

Heights and lengths can vary +/- 5mm

Technical Data

LAYING LIMESTONE

Blocks are laid as per normal block laying techniques on a mortar bed. Cladding is laid over masonry or a compressed sheet substrata with either an adhesive fix or a combination of adhesive and mechanical fixing. Although Shell Limestone is generally monochromatic some colour and texture variation may occur and it is suggested to blend pallets when laying. For more information refer to our 'Laying Limestone' technical data sheet.

AREAS OF USE

Building construction - commercial and residential, landscaping, feature walls, sculpting, noise retardant barriers, fencing and other varied construction uses.

CLEANING & SEALING

LIMEPROTEC limestone sealer as supplied by Limestone Australia is designed to penetrate deep into the stone to give added strength, reduce staining and repel water and other contaminants. LIMEPROTEC also contains a biocide that can inhibit mould and algal growth. Prior to applying sealant it is necessary to remove surface dust from the limestone. Most dust and residue can be removed with a stiff brush or a washing process. Once clean and dry the sealant can be applied to protect the stone.

LIMEPROTEC™ is a unique waterborne surface treatment with exceptional water repellency and binding properties. It is a hydrophobic binder rather than a film forming sealer - this feature allows treated materials to "breathe" normally. It also contains a highly effective biocide that inhibits mould and algal growth. **LIMEPROTEC™** converts fretting natural stone and masonry from a soft material to a hard dust-free natural finish with excellent weathering resistance and durability.

Suitable Substrates:

- Natural Limestone
- Natural Sandstone
- Reconstituted Stone

Note: Not suitable for use over paved or trafficable areas.

Surface Preparation:

The level of surface preparation will determine the appearance and final product performance that will be achieved. Ensure surfaces that have been in use are thoroughly cleaned with a suitable detergent or bleach to remove traces of contaminants or previous organic growth. Remove all surface dirt and dust. Allow to dry completely.

Coverage:

Maximum penetration of sealer is advised. Australian Limestone minimum coverage rate is 1litre/1m² per coat. Some limestones may accept more sealer depending on porosity and surface treatment. Sandstone and Reconstituted Stone minimum coverage rate 1litre/2m² per coat. Refer Product Data sheets. Two coats is recommended.

Application Process:

Apply a trial patch before full application to assess sealer adhesion and final finish. The recommended application method is by airless spray using a flood coat technique. Apply the first coat evenly as per recommended coverage rate. Recoat before first coat has dried (approximately 2 hours dependent upon weather and site conditions). Please note if coverage rates are achieved in the first coat application a second coat is not required.

Precautions:

Do not apply if the temperature is below 10°C, if relative humidity is above 85% or if rain is imminent. Protect other surfaces and materials from overspray or splashes. Mask windows and doors. Any spillage or marks should be removed with water immediately.

Drying:

48 hours for full cure.

Clean up:

Clean all equipment immediately with water.

Safety directions:

Provide good ventilation by opening windows and doors and the use of circulating fans. Eye protection and the use of gloves are recommended however, if product comes in contact with skin it should be washed off with water before drying. If product comes into contact with eyes gently flush with running water while holding eyelids open for 15 minutes and seek medical attention. If swallowed, contact a doctor or **Poisons Information Centre** call **13 11 26**. Do not induce vomiting. Give water to drink.

LIMITATIONS & PRECAUTIONS**Stone discolouration and staining**

Constant damp conditions may cause discolouration to the limestone. In addition to a damp proof barrier and the inclusion of appropriate weep holes as required by building regulations it is recommended to use a waterproofing additive to the mortar or grout mix.

The waterproofing additive acts to provide a barrier against dampness caused from movement of moisture by capillary action. Where areas of excessive moisture may be present additional physical barriers to eliminate the absorption of moisture into the stone is advised. Generally these areas occur to the top of exposed walls and at ground level where soil or paving may abut the limestone.

It is suggested the installation of flashing to the top of walls to dispel water from the face of the wall surface and an alternative base block at ground level be used in areas that may be susceptible to moisture penetration. In some cases utilising a waterproofing membrane may be a good solution to inhibit water penetration. It is recommended to saturate seal all exposed surfaces using a sealer designed specifically for limestone as noted above.

Blending pallets

Although limestone is fairly consistent in colour some tonal variation can occur. It is recommended units from different pallets should be mixed together to make allowances for these natural variants.

Non structural

Limestone is not a structural stone and is to be used with structural framing and brick ties as per industry standards.

Bespoke cutting limitations

For bespoke cutting dimensions are limited to the sizes of the raw material as processed from the quarry. Raw Limestone is generally cut as large blocks 1320mm x 650mm x 240mm. Designing of special pieces should be within these parameters. In some cases longer lengths may be available. Contact your supplier for additional sizing.

HEALTH & SAFETY

When quarry products are cut, drilled, sawed, routed, chased, sanded, broken up or ground, crystalline silica dust may be released. To stop dust build-up regularly wet, sweep or vacuum and put dust in a covered container.

Breathing crystalline silica dust repeatedly may lead to lung diseases including bronchitis and silicosis. Breathing heavy concentrations of dust may cause coughing and sore throat. The 'National Exposure Standard for Respirable Crystalline Silica' must be complied with. Wear an approved P2 dust mask (AS/NZS 1715/1716) when exposed to dust. Dust can cause eye irritation, wear eye protection (AS/NZS 1337).

Stone weight is generally worked out at 1500kg per cubic metre when dry. Stone blocks can vary in weight due to size and the amount of water content that may have penetrated the stone. A water saturated stone will increase in weight. Care must be taken in using correct lifting procedures to eliminate injury in handling stone. Please note 'Common Sizes' chart for approximate weights of stone.



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