Bruhn Limestone

Technical Specifications

Description

Mount Gambier Limestone a fossiliferous limestone quarried from the Marte 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 colour. 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, foraminifea and echinoid spines and plates. It has a dense consistent texture with shelly matter evident in its surface.

Other Names

Cream Limestone / Gambier Stone / Shell Limestone

Features and Benefits	Technical Data	
Aesthetic appeal	Stone type	Coastal limestone
Strong thermal properties	Colour	White to pale brown
Reduction of noise transfer	Bulk density	1.21 tonne/m^3
Sound clarity enhancement in public places	Comprehensive Strength	3.55mpa dry/1.44mpa wet
Fire retardant qualities	Texture	Fine to medium
Colour consistency	Content	Calcite/trace dolomite
Unique varied texture	Finishes	Plainface/bevel edge/rockface
Natural product	Forms	Ashlar block/cladding

Areas of Use

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

BRUHN

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Specifications

Limestone is a rock that contains at least 50% calcium carbonate by weight. BRUHN 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.

FIRE – Resistance Test on a Loadbearing Block Wall

Test Standard:

Australian Standard 1530, Methods for fire tests on building material, components and structures, Part 4- 1990, Fire resistance tests of elements of building construction Test Number: NFBASV1017

Description of Specimen:

The specimen comprised a single leaf loadbearing limestone block wall nominally 3000mm high x 3000mm wide x 125mm thick. The 290mm high x 600mmlong x 125 mm wide blocks were laid in stretcher bond with full mortar joints using a mortar mix comprising one part cement, one part lime and six parts sand by volume. Total load was 90 kN

Restraint:

The specimen was unrestrained on the vertical walls the vertical gap between specimen frame and wall was filled with compressed ceramic fibre

Furnace:

The furnace is lined with refractory bricks and materials with the thermal properties as specified in AS 1530.4-1990.

Temperature:

The temperature in the furnace chamber was measured by 9 K-type thermocouples housed in high – nickel steel tubes substantially sealed at the exposed ends.

Test performance results

Structural Adequacy: 133 minutes

Integrity: 127 minutes

Insulation: 134 minutes

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 BRUHN Limestone is generally monochromic some colour and texture variation may occur and it is suggested to blend pallets when laying.

Common Sizes

Bruhn Limestone is a dimension cut stone. Common sizes are 660mm long by 240mm or 290mm high and 100mm thick. Customer specified dimensions are also available.

Description	Length (mm)	Height (mm)	Thickness (mm)	Weight (Dry) (kg)
Limestone Ashlar Block	660	290	100	24
Limestone Ashlar Block	660	240	100	19
Limestone Ashlar Cladding	660	290	35	8
Limestone Ashlar Cladding	660	240	35	7

Patterns

Stretcher / Running Bond / Stacked Bond / Snecked or Random patterns. Special cuts can be produced by BRUHN Limestone on request but does attract resizing fees.

Finishes

Plainface

A flat finished ashlar block with a smooth surface with blocks cut with diamond tips saws. Limestone offers a great solution for either a modern contemporary or classic looking finish

Rockface

A rough face finish which is created by guillotining the stone. Each piece has a guaranteed unique surface. Finishes generally offer a traditional look but can also be used creatively in modern designs.

Bevel Edge

A smooth plainface stone with 10mm bevelling on the top and base course. Finishes promotes the stone beautifully with the bevel framing each individual piece

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Cleaning and Sealing

Limestone Sealer as supplied by Bruhn Limestone is designed to penetrate deep into the stone to give added strength, reduce staining and repel water and other contaminates. Limestone Sealer 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. For more information contact BRUHN where we can supply washing and sealing instructional information.

Fixing

The best fixing method to limestone is Chemset bolts
https://ramset.com.au/Product/Detail/3/ChemSet-Anchor-Stud

- Plug and screw methods also works well but please avoid dyna bolts
- For light weight hanging a simple nail will suffice
- For skirting boards we would recommend ‘liquid nails’ and base nails (10-15mm catch on stone)

Repair

For repairing marks, scratches or gouaches etc. we recommend mixing stone dust with Bondcrete to make a paste similar to the colour of the stone. This paste can be smoothed over the stone and then sanded when dried

Limitations and Precautions

Constant damp conditions may cause discolouration to the limestone. In additional 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.

Structural Integrity

Limestone when utilised as a single skin is non-structural stone and is to be used with structural framing and brick ties as per industry BCA standards.

Double skin construction is possible but should be engineered to suit. For double skin construction it is recommended that internal walls utilise 120mm thick stone and 100mm external purposes

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.

Transport & Storage

BRUHN Limestone does own and operate its transport network however deliveries can be subcontracted from time to time. Limestone is an inert material and transport loads do not need to be placarded.

Limestone can be transported on all main roads according to the current requirements for heavy transport applied to that road. Loads must be secured appropriately for transport.