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## Which Stone Where – an introductory guide to material selection

We have all been bamboozled by salespeople trying to explain the virtues of the latest product – whether it be a computer or a car.

Choosing stone need not be the same experience. By understanding stone's basic properties you can make an educated decision when you are selecting stone for your next project.

The 'right stone' for your project needs to meet requirements based on appearance and performance. Selecting suitable flooring, for example, is firstly a matter of personal taste. One of the appealing aspects of using stone is how its unique character can be used to display your own distinctive personality.

The range of colours, textures and finishes available in stone now rivals the range available in more 'traditional' floor coverings. Like these coverings, choosing a stone that is durable and resistant to staining and wear is important. The first step is to understand the strengths and challenges of the various types of stone available.

Below is a brief beginner's guide to the seven main stone types commercially available.

### **Stone Type: Sandstone**

**Formation and composition:** A sedimentary rock composed predominantly of quartz usually cemented together with clay and/or fused with secondary silica which has been chemically deposited. Minor minerals containing iron and manganese (among others) give the stone its unique characteristics. The movement of these soluble minerals throughout the stone can produce banding or develop as a uniform colour.

**Surface finishes:** The typical gritty nature of sandstone precludes the development of a polished finish, but some dense materials can produce a honed finish. Coarser surface textures include sawn, sandblasted, bush hammer and rock-face.

**Appearance:** Typically white, gold or brown but also available in shades of red, purple, grey, green and black.

**Common usage:** Sandstone is commonly used as pedestrian paving, internal and external cladding, statuary and masonry construction.

**Reasons for selection:** Sandstone is a very versatile material that can easily be cut and transformed into just about any form imaginable. Most surface finishes will comply with the most rigorous slip resistance requirements. As sandstone doesn't absorb heat rapidly, it tends to stay cool under foot and is therefore a good choice for entertaining areas.

#### ***A NOTE FROM CINAJUS:***

*Cinajus Sandstone is imported from China and India and has similar physical properties, hardness and durability to Australian quarried sandstone. Cost of material is a big factor during construction works and Cinajus offers a wide range of Sandstone pavers, tiles and wall cladding at very competitive rates.*

## Stone Type: Granite

**Formation and composition:** An igneous rock formed at depth. True granites contain quartz, mica and feldspar but in the commercial sense the term covers just about any igneous rock that will take a polish. The colour and texture of granite varies greatly and is dependent on the stone's mineral composition and rate of cooling.

**Appearance:** The most versatile of materials. Granite can be processed to produce a wide range of finishes from a highly reflective polish to a rough exfoliated (flamed) surface. Other surface finishes include honed, sandblasted, antiqued and water-jet blasted.

**Colour range:** Granite covers the whole pallet of colours, from jet black to ice white. Other common colours are red, brown, green, grey, yellow-gold, blue. Granite, by definition is 'granular', but the grain size varies widely from less than 1mm to more than 5cm.

**Common usage:** Paving, internal and external cladding, wall and floor tiles, bench tops and monuments.

**Reasons for selection:** Granite could be considered the most durable stone type; it is generally strong and hard wearing. Granite has a relatively low water absorption capacity and combined with chemically inert minerals gives the stone good resistance to most stains.

### *A NOTE FROM CINAJUS:*

*Cinajus Granite is imported from China and has similar physical properties, hardness and durability to Australian quarried bluestone and porphyry. Cost of material is a big factor during construction works and Cinajus offers a wide range of Granite pavers, tiles, cobblestones and wall cladding at very competitive rates.*

## Stone Type: Limestone

**Formation and composition:** A sedimentary rock composed predominantly of calcium carbonate. Most limestone is formed by the deposition and compaction of marine fossil debris (e.g. shells, coral and bones) but freshwater and aeolian (wind blown) deposits are also known and available commercially.

**Surface finishes:** The density of limestone varies considerably and this affects the surface finishes available for different types of limestone. High density limestone (e.g. Jura from Germany) can be processed to produce a 'satin' honed finish. Coarser and less dense types of limestone are limited to a sawn or coarse-honed finish.

**Appearance:** Predominantly white, cream or tan sometimes with golden 'highlights' due to the presence of limonite (iron hydroxide). Limestone is also available in blue-grey, grey and black.

**Common usage:** Paving, internal and external cladding, floor and wall tiles.

**Reasons for selection:** Limestone is a sensual stone being pleasing to the eye as well as to the touch. It offers a range of subtle pastel and natural colours which blend in with today's minimalist trend while still imbuing warmth. Most limestone is resistant to salt attack making it a good choice for pool surrounds.

### *A NOTE FROM CINAJUS:*

*Cinajus Limestone is imported from China, India and Turkey. Cost of material is a big factor during construction works and Cinajus offers a wide range of Limestone pavers, tiles, cobblestones and wall cladding at very competitive rates.*

## Stone Type: Travertine

**Formation and composition:** A sedimentary rock formed by the precipitation of calcium carbonate from mineral springs. The calcium carbonate is often deposited onto vegetation such as moss or algae which plays a part in developing the typical porous nature of the stone.

**Surface finishes:** Commercial travertine usually has a relatively high density; therefore it usually processed to produce a 'satin' honed finish. The material can be used with the pores unfilled or filled with a stable

cementitious or polymer filler. Travertine can also be processed with textured finishes such as sandblasted or bush hammered finish.

**Appearance:** Predominantly white, cream or tan sometimes with subtle golden or blue-grey tones. The appearance of travertine can vary dramatically depending on how it is cut. Cutting travertine across the 'grain' highlights the tonal variations in the deposition layers and exposes the large, normally elongated pores. Material slabbed in this fashion is called vein-cut. If the travertine is cut parallel, or along the grain, the variations in the layers are presented as a flowery, blotchy or circular pattern – this slabbing orientation is called cross-cut or fleuri cut.

**Common usage:** Internal and external cladding, floor and wall tiles.

**Reasons for selection:** The unique patterning and texture of travertine has been admired for thousands of years. Travertine is generally a dense and durable material that is soft to the touch and stays cool under foot which makes it a good choice for barefoot areas such as bathrooms or pool surrounds.

*A NOTE FROM CINAJUS:*

*Cinajus Travertine is imported from Turkey. Cost of material is a big factor during construction works and Cinajus offers a wide range of Turkish travertine tiles and Iranian travertine pavers and wall cladding at very competitive rates.*

**Stone Type:** Marble

**Formation and composition:** A metamorphic rock composed predominantly of calcite formed from limestone after the application of heat and/or pressure. Commercially, the term is also used for types of high density limestone that will take a polish.

**Surface finishes:** The high density and low porosity of marble allows it to be processed to a high polish. Other surface finishes available are honed, sawn and sandblasted.

**Appearance:** Typically white, often with some minor veining but also available in colours such as black, blue-grey, red and pink. Marble is generally very fine grained although some types with large grains (+5cm) are available.

**Common usage:** Paving, internal and external cladding, bench and vanity tops, floor and wall tiles.

**Reasons for selection:** Its translucent nature and pearly lustre is unique and no other material suggests elegance like marble. The range of materials available allows selection of uniform colours, subtle veining or a dramatic mosaic effect.

*A NOTE FROM CINAJUS:*

*Cinajus Marble is imported from Turkey and China. Cost of material is a big factor during construction works and Cinajus offers a wide range of marble, tiles, pavers and wall cladding at very competitive rates.*

**Stone Type:** Bluestone Basalt

**Formation and composition:** Bluestone is a loose term covering a range of stone types that are not easily dressed such as sandstone (classed as a 'freestone'). In Victoria, basalt is known as bluestone while in South Australia the term refers to a range of metamorphic rocks including schists and siltstone. Porphyry quarried in Queensland could also be classed as bluestone.

**Surface finishes:** Most types of bluestone are marketed with 'natural' split or rock face finishes. Victorian bluestone (basalt) is usually used with a sawn finish. Some bluestone products are also available with honed and sandblasted finishes.

**Appearance:** Victorian bluestone is black to dark grey-blue while South Australian bluestone is predominantly grey-blue with 'autumn' colour highlights. Porphyry is available in grey-blue tones as well as golden autumn colours. Victorian bluestone is characterised by large pores called vesicles but commonly known as 'cats paws'.

**Common usage:** Bluestone is processed as cubic material for masonry construction and also as setts or flags for pedestrian and vehicular paving. Victorian bluestone can be sawn into calibrated slabs and tiles for use as paving and cladding.

**Reasons for selection:** Bluestone is a group of stone materials that is generally considered to be strong, dense, durable and stain resistant. In Victoria and South Australia, bluestone is seen as an integral part of the local history and the earthy colour range is effectively used to blend the contemporary and natural environments.

**Characteristics to consider:** Most types of bluestone are not calibrated during processing therefore significant thickness variations needs to be taken into account during installation.

**Performance evaluation criteria:** Water absorption, density, modulus of rupture, secondary mineral content.

*A NOTE FROM CINAJUS:*

*Cinajus Basalt Bluestone and Porphyry is imported from China and has similar physical properties, hardness and durability to Australian quarried bluestone and porphyry. Cost of material is a big factor during construction works and Cinajus offers a wide range of Bluestone Basalt pavers, tiles, cobblestones and wall cladding at very competitive rates.*

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