

Stone Used in the Building Industry - The 3 Main Types

The construction and building industry uses many types of natural stone. Stonemasons and all mason contractors must be completely knowledgeable on each stone they are working with and have an understanding how each type was formed, the type of minerals and natural elements that are present in each type under its rough exterior, the characteristics of each and how each of these types of stone can be used is advantageous to the building industry.

What is a Rock?

Rock is a solid material that is naturally occurring which contains one or more minerals. These minerals are solid, naturally occurring chemical elements or compounds and are homogenous. Being homogenous, rocks have a definite chemical composition and regularly arranged atoms. Rocks are found everywhere. You can find them in the ground, in mountains and even at the bottom of the oceans. The earth's outer layer is mostly made of rocks including granite and basalt.

In the building industry, natural stone is used in numerous applications. The use of stone in the industry falls in two overlapping categories: physical and structural properties and aesthetic qualities. Most architects use stone for its aesthetic features. The stone's natural look, texture and colour plays a great influence in their selection. Costs, availability, weathering characteristics including physical properties, size as well as thickness limitations are taken into consideration.

Natural stones vary extremely providing it its own special features making it a unique material for building. It has varied texture from coarse fragments to fine grains and crystalline structures and also differs in their hardness.

Its' natural appearance, texture and colour are all influenced by the stones fabrication and finishing process. Granite colours and features holds up when exposed to external conditions but for limestone, their colour and outlook will rapidly change when placed outdoors. Textures vary from rough and flamed finishes to honed or polished surfaces. The harder the stone, the better it takes and holds a polish.

In construction, stone has always been a core element. They are used extensively in public buildings like malls, hotels, temples, churches etc. These days, it has become increasingly popular in homes. Although not all natural stone types will be discussed, we will cover three of the main natural stone types commonly used.

Geological Classification of Rocks

Igneous Rocks

Igneous rocks are formed from the slow or quick cooling of molten or partly molten material called magma or lava. "Igneous" comes from the Latin word "ignis" meaning fire. Magma is molten or melted rock under the earth's surface and when it reaches the earth's surface it is called lava.

When magma is released from the earth's crust as lava from a volcano and exposed to surface elements, it then cools and hardens producing a type of igneous stone called "extrusive." These

are more porous and less dense stones like pumice. If it hardens and cools under or inside the earth's surface it is called "intrusive" rock. These type of rocks cools slowly and contains large crystals.

Magma not reaching the earth's surface form into different geological structures. Intrusive stone are commonly used as building stone. It is quarried under the earth's surface and comes in different types like granite, basalt and obsidian.

Granite is an igneous rock that is very hard and of crystalline texture formed from quartz and orthoclase or microcline. It is used for buildings and for monuments. It is made from a mixture of quartz, feldspar and mica. Granite is composed largely of crystals that are easily seen. The black specks on granite stones are crystals of mica.

Sedimentary Rocks

Sedimentary Rocks are rocks formed from deposits of eroded and pre – existing rock that settle in layers on sea beds. They are soft and fairly porous. Best example is limestone, formed mainly from the accumulation of organic remains of corals and shell fishes which contains large amounts of calcium carbonate (CaCO_3). Limestone is generally used in the construction of buildings because of its durability and strength. It is most popular in architecture and many landmarks around the world are mainly made from limestone. One great thing about limestone is being readily available and very easy to cut into blocks or more detailed carving. It lasts long and stands well to exposure. It is also one of the best and high – quality building material that is being used today.

Metamorphic Rocks

Metamorphic rocks are formed from pre – existing rocks that has been altered by intense heat or pressure. They are hard and non – porous. The best examples are marble and slate.

Marble is widely used for sculpture and as a building material and other applications. Marble is limestone crystallized through metamorphism. It is a metamorphic rock that has gone through metamorphism composed of calcite. Marble is often used colloquially to refer to other stones that are capable of taking high polish.

Marble is used in the building industry being a strong building material that can be polished to a beautiful shine or gloss. It is has an attractive finish when polished and comes with a spectrum of colours like white, pink, gray, red, yellow, brown or black.



Stone is a highly versatile material. Deciding what kind of stone to use in any given condition, knowledge of the different kinds of stones and how they are going to be used in different areas of construction is very important. Determining the exact composition of the stone that is to be used in a structure is not that important but having enough knowledge helps in selecting or specifying which stone is best adapted to the type of structure. Durability, strength, hardness, density and appearance determines their fitness for construction.

Tips for Using Natural Stone

It is very important for Stonemasons, masonry contractors, tilers, builders and architects to understand the qualities, hardness, porosity and all other characteristics associated with the natural stone types they have selected for use in projects.

The first step in doing this is knowing the type of stone they are working with. Like when using granite, marble or limestone. Granite stone does not scratch easily compared to marble or limestone.

Stonemasons must know the type of stone they will be working with. Some inexperienced stone workmen treat granite the way they would treat brick. Proper care and due diligence when working with limestone is often seen as a neglect with some workmen of today.

For example granite, marble and limestone. Granite stone does not scratch easily like marble or limestone just like brick will not react with acids like marble will. It is best for contractors to know more about the product and its limitations well before working on them.

When working with natural stone, Stonemasons and their workers should keep in mind that one of the most important things is to have an adequate foundation to support the stone.

Builders should also know that if they are behind schedule it is not an option to speed up things. Hurrying quarries to ship out cut stone is not the best option. Most quarries or stone production outfits would want to complete all the cuts before shipping.

Another important thing that every trades person should be mindful of are the cleaning methods and products used when the project is completed.

The best way of cleaning natural stone is using approved and time tested [cleaning products](#). Using high pressured water jet systems may dig into the stone and peel off some of the stone. Next is not to use any acidic cleaners unless the stone surface is in a sawn state or ones that have low sensitivity to acids. Generally all stone types are sensitive to acid some more than the others. Acids may take some of the stone's color away and may leave them etched and roughened. Using a high quality [penetrating sealer](#) to protect the stone is tantamount and should never be compromised. Ask our professional [stone and tile care](#) consultants on which products you will need on your current stone projects.

Some natural stone are highly absorbent and it is good to use a high yielding breathable [penetrating sealer](#) so as not to allow liquids from absorbing through and potentially staining them. However, there are many stones that have minimal absorption rates and putting a penetrating sealer may just cause some unwanted problems.

Stonemasons can test the stone's ability to absorb water by placing clean water on the stone surface for 30 minutes. If it becomes dark from its absorption, it means the surface is porous and needs to be sealed. Do not make any assumptions about the stone's hardness and porosity because of the stone type. Hardness varies all the time and should be taken into consideration. Refer to the Mohs Scale for some guide into the individual stones hardness. No matter what type of stone or characteristics a stone has, when treated properly its natural beauty will last a lifetime.