FAQs

Explain briefly the various characteristics of Clay Masonry.

STRONG UNDER PRESSURE

A brick house naturally provides a safe home. Thanks to its mechanical resistance, it's more stable than most other materials with insulating properties. When loads are applied on a clay brick/block wall, it will remain secure. The properties of clay masonry units are very stable even under different moisture conditions. Long-term moisture expansion or shrinkage is very low as is the coefficient of thermal expansion.

ROBUST AGAINST EXTREME WEATHER

In recent decades climate change has resulted in a greater incidence of extreme weather. Clay products are well adapted to meet the challenges extreme weather poses, in particular when it comes to flooding. In 2002, after severe flooding occurred, research work was conducted in Austria into the effects of water penetrating into buildings. The analysis demonstrated that clay masonry products greatly reduce the damage caused by flooding and preserve the usability of buildings. Depending on the design of the building, brick houses offer occupants a safe house in many different weather conditions as well as keep repair costs down should disaster strike.

FIRE RESISTANT

Clay buildings enhance occupants' personal safety by minimising the risk fire poses due to their natural fire resistance. Fired at high temperatures, bricks, blocks and roof tiles are incombustible and are therefore able to prevent the spread of fire to other rooms or neighbouring houses. A further advantage of clay building products is that they will not interact with fire to produce hazardous combustion gases. This gives occupants a greater chance to exit a burning building safely.

COMFORT AND CLEAN AIR

BEST FOR INDOOR AIR QUALITY People spend approximately 90% of their life time indoors. It is therefore important that indoor air is of optimal quality so as to prevent any health problems such as asthma or allergies from worsening. Clay masonry materials help to prevent the 'sick building syndrome'. Unlike other construction materials which often contain or are coated with harmful substances such as volatile organic compounds, formaldehyde, flame retardants and terpenes, etc., clay masonry materials are made of minerals and free from such air pollutants. As a result, indoor air in a building using clay masonry materials is healthy and less likely to provoke allergies, tiredness and headaches among occupants. Since clay products do not need any treatment with chemicals to enhance their fire resistance or durability, they do not release preservative chemicals into the ground and drinking water or soil.

HUMIDITY-FREE - Another way clay masonry materials contribute to a healthy environment is their capacity to absorb high air humidity and release it when conditions become dry again. Clay products help to balance moisture inside the building and prevent condensation from accumulating. This results in a stable indoor climate that does not require expensive mechanical ventilation systems to regulate air quality and reduces the risk of mould.

SMOG SHIELD - Massive clay brick walls will also help shield occupants from the modern-day urban hazard of 'electro smog', such as radiation from an antenna. Only little electromagnetic radiation can enter the interior when using clay brick/block walls so that the occupants are ensured a healthy and safe environment indoors. PEACE AND QUIET - Just as bricks protect against electro smog, so they can protect against noise. This is of particular benefit in heavily built-up areas where traffic can be dense and neighbours can live close by. Brick walls provide

relief from noise thanks to their capacity to reliably absorb low frequency sounds thus helping to cut out external traffic noise, bass music coming from other buildings and dampening any sound coming from inside a building such as loud TV programmes. This natural sound protection system means that the inside of a well-designed brick building remains pleasantly quiet when it's noisy outside and vice versa.

ENERGY EFFICIENCY

INSULATING PLUS STORING HEAT Today, energy is considered as a precious resource. It's no wonder then that the European Union has been introducing legislation to reduce the energy consumption of buildings. Clay masonry materials significantly help to save energy. The high thermal mass of clay bricks and blocks functions like a natural air conditioning, guaranteeing a comfortable indoor climate in all seasons, as it does not cool down quickly in winter or overheat in summer. Specially designed clay blocks for external walls have excellent thermal insulation properties. As a result, clay bricks/blocks help to keep the energy consumption of a building low and reduce the overall contribution of such a building to global warming. Thanks to that, Nearly Zero Energy Buildings and active houses are being built with clay construction products already today

WARM IN WINTER, COOL IN SUMMER - Buildings constructed with clay masonry products are able to provide a perfect indoor temperature all year round due to the good thermal mass properties of bricks and blocks. In general, thermal mass describes the capacity of materials to store heat. The ability to store heat is a combination of the mass and the thermal capacity that are both on an excellent level for clay masonry units. On hot summer days, clay brick/block walls will absorb and store heat, which will be released back to the air when the outside temperature decreases in the evening and during the night. This fact enables buildings with good thermal mass to avoid overheating during hot summer days with less need for cooling making them robust against climate change. During cold winter days, a higher thermal mass will keep rooms warm for longer even if the heating is interrupted. In this way, occupants of a clay brick/block building can enjoy the comfort of optimal indoor temperatures all year round.

AFFORDABILITY

ECONOMICAL - Unlike other solutions currently on the market, clay masonry products ensure an easy construction method. Time has indeed proven that everyone can build with bricks. Consequently, a house built with clay bricks and blocks is less likely to suffer from expensive structural defects and during its erection it is easy to conduct quality control checks on site. Comparative surveys of various construction frameworks have shown that clay buildings have relatively low entire costs over the whole life cycle. Provided that the technical performance is comparable a clay building can be cheaper than buildings made of any other material.

MINIMAL MAINTENANCE - Those who choose to invest in clay brick/block constructions need to fear less about running up maintenance costs. According to a study developed in Germany in 2008, a two-storey house made of clay products is estimated to cost up to 24% less in terms of maintenance costs over 80 years than comparable construction materials. Many running costs can be kept low due to the long life of a clay building. The cost of preservation and maintenance of the facades is comparatively low too.

LONG LIFESPAN - Studies have shown that the average life of a building made of clay is 150 years. Many clay brick houses exist for hundreds of years. Clay houses offer other advantages on the maintenance and renovation front as well. Clay buildings can be easily adapted to the changing needs of residents and refurbished several times during their long life cycle without the

need to call on costly alternatives. Heavy objects can be mounted on clay brick walls wherever necessary and it is easy to make changes to the lining of pipes and wires. Should a clay brick house be subject to a natural disaster like a flood or a debris flow, not only will it withstand the disaster better than many other types of construction, it will also cost comparatively less to get the house back into operation again. All these factors contribute to keeping maintenance, preservation and renovation costs to a minimum and ensure the longevity of the building. This is important when it comes the re-sale of a property: the residual value of a clay brick house after one generation's use is kept significantly higher than for alternatively constructed buildings, as they maintain a higher economic value over time.

ENERGY SAVING - Every home owner wants to find ways to reduce their monthly energy bills. With a clay building, cutting such costs comes easily as the building comes with inbuilt natural energy saving devices. Thanks to their excellent thermal properties, clay masonry materials keep inside temperatures at a comfortable level all year round without the need for a mechanical ventilation. This contributes to maintaining energy bills low.

How is using Clay masonry a sustainable option. Explain.

Clay bricks, blocks, roof tiles and pavers are socially, environmentally and economically sustainable over their whole life cycle, from the quarrying step to the nal recycling-reuse stage.

One of the major factors contributing to their sustainability is that clay building products have a very long life. Given that it is still possible to find clay brick constructions dating from the ancient world, it has never been in dispute that clay products are immensely durable. The expected life of clay building products is well over a century.

Considering such a long lifespan and the bene ts in the use phase, their environmental impact is minimal.

NATURAL MATERIALS

Clay bricks, blocks, roof tiles and pavers are produced with local and environmentally-friendly materials – clay and water – and, unlike many other building products where large distances of transportation may be involved, are produced locally for local markets. This close proximity to source materials means that transport emissions are very low. Furthermore, the impact on biodiversity is minimal, as extraction of clay does not require large areas and clay pits and riverbanks are restored and returned to their natural state.

HIGHLY EFFICIENT PRODUCTION PROCESS

The brick production process is highly energy efficient, keeping CO emissions to a minimum. At the end of the building's life cycle clay masonry products can be reused or recycled for other purposes such as road construction or as a secondary raw material.

List few types of clay roof tiles. Explain one type of tile briefly.

Following are clay roof tiles that atr most commonly used in india

1. Pot tiles,
2. Mangalore tiles
3. Pan tiles

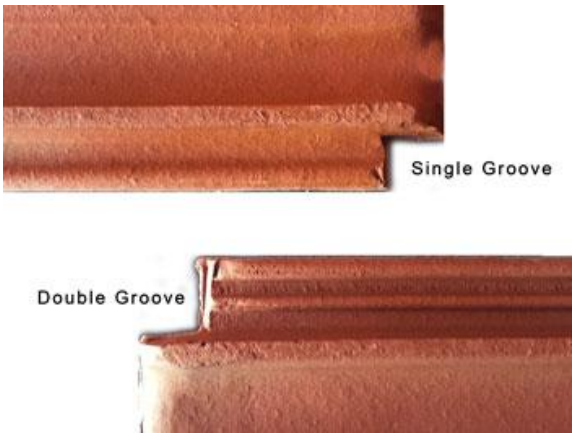
MANGALORE TILES

Mangalore tiles (also Mangalorean tiles) are a type of ROOFING TILE native to the city of Mangalore, India. These red tiles, prepared from hard laterite clay, in great demand throughout

the country and are exported extensively.Mangalore Tiles are the oldest and the most popular tiles favourite since ages because of their nostalgic and evocative use in heritage buildings and the peculiar pattern. Many a magical structures can be created by using this versatile Mangalore roof tile with channels and angles by fabricating in steel. In earlier times the wood was used for this purpose. But as the time passed the cost of the wood became increased and the versatility and the availability of the steel fabrication increased. So steel became more popular than the wooden roof purling. Still the premium works are done in the wood.
The conventional size of Mangalore Tiles is 10 x 16 inches but are available in different sizes to suit different requirements. Now, Glazed Mangalore Tiles in different sizes are also available to suit the modern times.

Available Size (Inches)	Required Per Sft
16 x 10	1.3 Nos
11 x 7	2.2 Nos
9 x 6	3.2 Nos
8 x 5	4.5 Nos

Mangalore Roof Tiles - Double Groove



This is the locking system on the Mangalore Roof Tiles, the tile to tile linking is better on a Double Mangalore Roof Tiles is better than the Single groove Mangalore Roof Tiles. This is the tile which is used over the metal or wooden fabricated roof. Because of the better interlocking, the chances of leakage is lesser compared to the single groove roof tiles. The cost will be almost 40% more than the single groove roof tiles.

Mangalore Roof Tiles - Single Groove

Competitively the interlocking between tiles is less in Single Groove Mangalore tiles to Double groove Mangalore Tiles. This can be used as a decorative tiles over RCC slope roofs. Where there is an concrete roof to protect from small water dripping.

Usages

1.Over RCC Slop Roof
2.Over A Metal or Wooden Fabrication

The usage Mangalore tiles as decorative tiles over the RCC roofing is also a trend as it can add the ethnic looks to the modern homes.

What are the advantages and disadvantages of Clay Tile roofing.

Clay tile roofing is one of the oldest and most used types of roofing in the world. There has been evidence found of its use dating back to 10,000 BC, and in locations from North America, to Egypt, to Rome. Its use and popularity fluctuates over time, but it is always there on some level.

A well cared for roof of this type can last for over 100 years. Though clay tiles have many advantages, they do have their disadvantages as well. Here's a look at a few of each.

Advantages of clay tile roofing

Of the many advantages of clay tile roofing, it durability is probably the biggest one. Any roofing material that can last for over 100 years has to be good! Another advantage is that it is available in a variety of shapes, sizes, and colors, unlike regular shingles, adding more character and interest to the appearance of your home. It also has reflective properties, which help to increase the efficiency of heating and cooling systems. This type of material is not susceptible to mold or rot, can withstand hurricane-force winds, and does not shrink and expand with the temperature like wood.

Disadvantages of clay tile roofing

As wonderful as clay tile roofing is, it does come with disadvantages as well. The first is the weight of the individual tiles. If your home already has this type of roof, then the roof was built strong enough to support it. However, if you are installing them for the first time, you need to be sure that your roof can support the weight. You may need to add support beams before beginning installation. The other real disadvantage is the cost. Though much more expensive than other types of roofing materials initially, the fact that they probably will never need replaced should be considered. Concrete tiles with many of the same properties are available as well. Many people choose this as a substitute for clay.

What are ceramic tiles? Explain its characteristics and list the types of ceramic tiles commercially available.

Ceramic tile is made up of sand, natural products, and CLAY and once it has been moulded into shape they are then fired in a kiln. When making ceramic tiles they can either be glazed or unglazed, but the majorly glazed ceramic tiles are used for home interiors.

Following are the different types of ceramic tiles available in the market.

1. Unglazed - these types of tiles don't have a decorative and protective top coat which is called a glaze. This types is also called quarry tiles. They are Inexpensive, durable and can also be used outdoors. This type is porous, which means that it can become stained
2. Glazed - These types of tiles have a glaze coat on top which carries the colour and pattern of the finished tile. These types of tiles are less porous making them more stain resistant. Different types of glazed tiles available in the market are
    - Common Ceramic tile - a quarry tile with a glazed layer on top.
    - Porcelain tile - ceramic tile made of porcelain clay.
    - Mosaic tile - Mosaic tiles are usually less than six square inches and made of porcelain or clay composition. Many come in squares, octagons, hexagons or other unique shapes. The tiles are also available in pre-mounted paper or fabric mesh sheets.

The characteristics of Ceramic Tile are

1. Durability

When choosing a type of flooring to have installed in your home, it is important to consider whether it will be durable or not, especially if you have a family or pets. Ceramic tiles have a much longer life in comparison to other materials that are used to cover floors and walls. Another benefit associated with the durability of ceramic tiles is that they are resistant to

moisture. If you are looking for flooring in wet areas, you may want to consider using ceramics as they are impervious.

2. Resistances

Alongside general durability, ceramic tiles are also known because of their ample amount of resistances. If you have been to a variety of different commercial areas, you know that ceramic tile is generally placed in high-traffic areas. With that being said, ceramics are far more resistant to tread wear in comparison to other flooring materials. Also, ceramics are virtually slip resistant once an abrasive glaze is added to the tiles.

3. Color Permanence

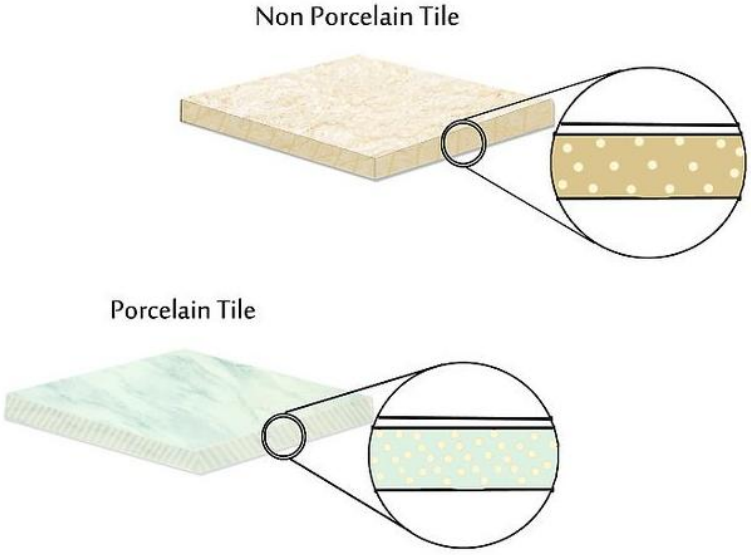
Flooring can be exposed to a numerous amount of materials ranging from chemicals to sunlight. With that being said, ceramic tiles that are constantly exposed to sunlight will not lose their color or begin to fade. Having color permanence in your flooring helps to ensure that they will remain in pristine condition for their entire lifetime.

4. Hygienic

If you have high sanitary standards for your home or if you own property that requires you to have high standards of hygiene, you will want to consider using ceramic tiles. In comparison to other flooring such as hardwood and carpet, cleaning ceramics is simple and can be completed by using an array of different cleaning products. With that being said, your floors will be able to be kept clean on a regular basis.

What is the difference between ceramic and porcelain tiles?

They are both made from a mixture of clays and other materials, then kiln-fired to approximately 1400 degrees. In general, both porcelain and ceramic tile are called "ceramic tile". These tiles are divided into two groups: Non-porcelain tiles and porcelain tiles. The non-porcelain tiles are referred to as ceramic tiles by themselves, separate from porcelain tiles. Let's further define the two groups:



- Group one: the non-porcelain tiles are generally made from red or white clay mixtures. They are finished with a durable glaze which carries the color and pattern of the finished tile; although an assortment of tile dyes are used for coloring. They are used in both wall tile and floor tile applications and are softer and easier to cut than porcelain. These non-porcelain ceramic tiles are usually suitable for very light to moderate traffic as they are more prone to wear and chipping than porcelain tiles.
- Group two: the porcelain tiles are generally made by the dust pressed method from porcelain clays which result in a tile that is denser and more durable than ceramic tile. The finish is a finer grained and smoother with sharply formed faces. Glazed porcelain

tiles are much harder and are more wear and damage resistant than non-porcelain ceramic tiles. They are excellent for light traffic and heavy traffic. Full body porcelain tiles carry the color and pattern through the entire thickness of the tile making them virtually impervious to wear and are suitable for any application. Porcelain tiles are available in matte, unglazed or a high polished finish. Porcelain tile usually cost approximately 10% more than the regular group one ceramic tile.