What is Fly Ash?

Fly ash is obtained as waste material from modern thermal stations where a mixture of air and powdered coal is burnt. The fly ash is a fairly divided residue that results from the combustion of ground or powdered bituminous coal or sub-bituminous coals like lignite and transported by the flue gases of boilers fired by pulverized coal or lignite. It is a by-product of many thermal power stations and other plants using pulverized coal or lignite as a source of heat for boilers.

On burning, nearly 30% of coal is converted into ash, 75% of which is fine flay ash and the rest is coarse bottom ash. The fly flies through the chimneys and its discharge through the chimneys can be minimized by installing and proper working of fabric filters, mechanical dust collectors, and electrostatic precipitators.

## Fly ash Bricks

Fly ash bricks are manufactured by mixing water, quarry dust/river sand, cement, fly ash and stone aggregates less than 6mm, normally the actual cement volume will be replaced with 10% to 20% fly ash.

They are considered good and inexpensive building materials including Class C, fly ash and water.

## Some Key points

* Fly ash brick are environmentally friendly, manufactured by hydraulic pressure machines.
* They are 28% lighter than normal clay bricks and have a compressive strength greater than 40Mpa than normal bricks.
* They are inexpensive and eliminate the need for plaster, it can reduce high construction costs and soil erosion.

## **Properties of flyash bricks:**

1. **Appearance:**The bricks have a pleasing cement colour, which is uniform in shade and smooth, but does not require plastering for building works.
2. **Thermal conductivity:** They do not absorb heat and give maximum light reflection.
3. **Sound Insulation:** It provides an acceptable degree of sound insulation.
4. **Fire and Vermin Resistance:** They have good fire resistance, it has no problem with vermin attacks.
5. **Durability and moisture content:** These blocks are highly durable, the absorption of water is 6–12%, which reduces the humidity of the walls.
6. **Toxicity and Stability:** When mixed with lime, fly ash turns into a non-toxic product thus have potential as a good building material.

Advantages :

* They are light in weight, so suitable for multi-storey buildings because as the height of the buildings increases, the stress and strain on the foundation and structure increases.
* Due to the lighter bricks, this stress and strain are decreases manifold.
* Fly ash bricks absorb less heat and they are better than clay bricks, for Indian climate.
* Due to the high strength, there is practically no breakdown during transport and use.
* The leakage of water through bricks is reduced due to less water penetration.
* The compressive strength is very high and they are less porous.
* They absorb less water and save costs

What is Paver Blocks?

**Paver Blocks** also known as **Brick paving** is a commonly used decorative method of creating a pavement or hard standing. The main benefit of bricks over other materials is that individual bricks can later be lifted up and replaced. This allows for remedial work to be carried out under the surface of the paving without leaving a lasting mark once the paving bricks have been replaced. Bricks are typically made of concrete or clay, though other composite materials are also used. Each has its own means of construction. The biggest difference is the way they set hard ready for use. A clay brick has to be fired in a kiln to bake the brick hard. A concrete brick has to be allowed to set. The concrete paving bricks are a porous form of brick formed by mixing small stone hardcore, dyes, cement and sand and other materials in various amounts. Many block paving manufacturing methods are now allowing the use of recycled materials in the construction of the paving bricks such as crushed glass and crushed old building rubble.

Advantages :

## Versatility

The versatility of block paving makes it an excellent material to use. Coming in a range of styles and colors, block paving can be customized to your own specifications. Different designs and shapes can be formed, further adding to the appeal of the material.

## Environmentally sustainable

Compared to other surfacing materials, block paving is more environmentally sustainable because of its porous nature. This means the paving will absorb rainwater and stop it from gathering on your patio or driveway. The added benefit is that the surface area will have better drainage.

## Low maintenance

Another advantage of block paving is that they don’t require a lot of maintenance because of what the material is made from. All you’ll have to do is apply soap and water to keep it clean. Block paving is also durable enough to withstand all kinds of weather.

## Durability

Due to its durability, block paving is a long-lived material. Block paving is durable enough to withstand the pressure of an airplane, which is why it’s a common material at airports. You can drive your car over it many times and it won’t suffer from any wear and tear. Also, block paving is highly resistant to most chemicals, oils, salts and frosts.

## Visual appeal

With the variety of styles on offer, block paving is guaranteed to improve the appearance of your home. There’s the option to use a simplistic design, or go for something more intricate. If you’re planning to sell the property in future, then a clean, well-maintained driveway will add value, highlighting another advantage of block paving. At Premier Surfacing, we offer a[bespoke block paving service](https://www.premiersurfacing.co.uk/residential/block-paving/)that adheres to the requirements of relevant British and European standards. With a range of products and styles on offer, we’ll work with you to make sure you find the right kind of design.

What is Boundary Walls?

Boundary wall refers to any wall, fence or enclosing structure erected on or directly next to registry property boundary, including entrance gates or doors. Boundary walls include privacy walls, boundary-marking walls on property, and town walls. These intergrades into fences. The conventional differentiation is that a fence is of minimal thickness and often opens in nature, while a wall is usually more than a nominal thickness and is completely closed, or opaque.

What are Interlocking Bricks?

The [construction process](https://civildigital.com/calculation-loads-building-modeling-structure-load-calculation-design-building-excel-spreadsheet/) and masonry can be tedious, time consuming, and expensive. To overcome the hardships and issues encountered during construction, varied methods of construction is being considered and developed. Simultaneously, materials and equipment used for construction are also being fabricated to enhance the quality of construction and furthermore minimize the time and cost**. Interlocking bricks** is one such advancement in the construction industry.

Interlocking bricks are compressed and stabilized earth bricks which contributes to strength of the structure. They are usually not subjected to baking. Interlocking bricks come in various sizes and locking systems depending on the supplier.

A typical brick size is 230x100x75mm (9x4x3 in).

**Interlocking** **bricks** made for easy access to infrastructure elements so that portions of walls don't need to be torn down for maintenance. The **bricks** feature open internal spaces for insulation, which means that buildings made with the **bricks** require less energy for heating and cooling.

## How are Interlocking Bricks made?

High quality interlocking bricks are made of **cement,**[**sand**](https://civildigital.com/ground-improvement-with-sand-compaction-piles/)**and Stone dust**mixed together in appropriate proportions. The required materials are batched and [mixed proportionately](https://civildigital.com/steps-involved-mix-proportioning-per-102622009-solved-example/). Once the required mix is prepared, it is then compressed to form bricks with desirable interlocking patterns. The compression is achieved by using hydraulic compression system. The bricks are then subjected to curing for about **7 days**.

## Benefits of Inter-locking Bricks

### 1.Earthquake resistant:

During earthquakes, there are various stresses acting on the structure. Conventional bricks are not fully equipped to transfer the **seismic loads** throughout the structure since the only medium of load transfer is the mortar. If the mortar fails then the whole structure fails under seismic forces. Interlocking bricks are an effective and proven **earthquake resistant** construction materials. The self locking pattern of the bricks enables the seismic forces to travel across the whole structure equivalently.

### 2. Provides cooler interior

High compacted bricks generally result in higher density, which in turn converts itself into high thermal mass. Henceforth, the walls made of high compacted [bricks](https://civildigital.com/testing-bricks-at-site-quality-of-clay-bricks-visual-and-experimental-tests-for-quality-bricks/) typically furnish warm interiors. Interlocking bricks are less heat intensive. The tests have shown that interlocking bricks provides a much cooler interior (3oC – 5oC). This enables lesser/no use of air conditioners resulting in minimized energy consumption and more cost saving.

### 3.Minimizes cost

Since there is no use of mortar in the construction process, the cost of buying cement, sand, [mortar](https://engineeringcivil.org/articles/building-materials/cement-mortar-estimation-of-cement-sand-water-in-mortar-types-of-mortar-applications/) and stone dust can be neglected. Also the cost for transportation can also be immensely reduced along with the cost on skilled labour. It does not require plasterwork, minor bar bending work, lesser cement and fewer labourers hence contributing to the overall cost reduction of the construction project.

### 4.Time Efficient

It is proved as the most time efficient way of construction. The normal conventional bricks has to be cured for about 21 days whereas the self-locking bricks require only 7 days of curing. In addition to that, time required for setting and curing of the structure can be diminished completely. By eliminating all the time consuming tasks, the project can be completed faster.

**Fencing Pillars:**

Durability. Concrete pillars for the fence shall remain operational for not one dozen years. It is worth remembering that the lifetime depends on the quality of the material used in the manufacture of the supports. Professionals usually use these brands of cement, as the M-300, M-400, M-500;

The ability to create various designs. So, using additional materials (plaster, paint, decorative stone, plastic panels, etc.), you can easily change the appearance of the concrete supports;

Easy to install.Installation of concrete poles do not require the use of special equipment and expensive materials. You can make it yourself, without resorting to professionals.

## FENCE PILLARS WITH STRENGTH AND STYLE

Fence Pillars provide structure for fencing. A full range of sizes and designs are available to ensure a perfect fit. We will build custom fence pillars to suit existing structures. Our manufacturing process ensures extra strength. Pillars are cast with a 150mm void in the centre. We then fill this void with wet cement that hardens after installation to lend unrivaled strength to your fence. Our Fence Pillars come in various sizes and designs to compliment any home*.*

## ****Why use concrete pillars?****

1. Fencing and capping solutions are a great way to add value and a bit of flair to your home or business. Not only do our decorative additions look beautiful, but importantly they age well. Another reason people often buy fence pillars and columns is that they provide structure for fencing.
2. Maan multi vision designs and manufactures a wide range of sizes and designs to ensure you always receive the perfect fit. We take great pride in our work and our fencing contractors get a real kick out of seeing their work throughout the region. Chances are your neighbours’ fence was probably built by us!
3. We come highly recommended because our unique manufacturing process ensures extra strength and durability.

## What is Concrete Cover Block?

A cover block is basically a spacer that is used to lift the rebar matrix off the ground so that concrete may flow below the rebar.

In order to prevent corrosion of the rebar, it has to be totally sheathed in concrete. It usually needs about 2 to 3 inches of coverage on all sides. So the cover block lifts the rebar up by about 2 to 3 inches and becomes a permanent and integral part of the poured concrete, make certain that no part of the rebar sags and minimizes that required concrete coverage throughout the pour.

## Why is Cover Block used in the construction?

While doing RCC work it is important to embed the steel in the concrete (also known as cover) so that the Rebar doesn't corrode and to provide fire protection to the Rebar. If the cover is not recommended the Rebar will corrode with time and will ultimately result in premature failure of the structure. Thus using cover blocks enhances the life of the structure significantly without adding much to the cost.

### Advantages of Cover Block

Concrete Spacers prevent rebars from corrosion, protect them from fire to certain length of time and help to provide proper transfer of stresses from concrete to steel rebars, by helping provide proper cover to rebars.

* a) Protection of the Rebar from the environment by providing a physical barrier.
* b) It provides thermal insulation, which protects the reinforcement bars from the fire.
* c) To give reinforcing bars sufficient embeddingto enable them to be stressed without slipping.
* d) Ensures that concrete completely encircles Rebar allowing passivation.
* e) Ensures that concrete completely encircles Rebar allowing the complete bond to develop. Allows the Rebar to assume the position and act as designed.
* f) Prevents staining.
* g) Provides a time lag in case of fire.

### Alternatives to concrete spacers are PVC/plastic spacers.

As plastic is a different material than concrete and has a different coefficient of thermal expansion than concrete, it does not bond properly with concrete. It is observed that hair cracks develop between plastic and concrete surface, which allow ingress of corrosive gases, which in turn accelerates corrosion.

While concrete spacers are made from high strength concrete, these concrete spacers bond perfectly with the surrounding concrete.

### Technical Specifications:

| **PARAMETER** | **PVC/PLASTIC SPACER** | **CONCRETE COVER BLOCKS** |
| --- | --- | --- |
| Strength | Cannot be designated | M30 and more |
| Wastage | 10% to 15% - minimum | No Damages |
| Area Coverage | 150 to 200 Sq. Ft per 100 Nos. | 300 to 400 Sq. Ft per 100 Nos. |
| Finishing | NIL | Concrete Finish |
| Bondage | No bondage | As good as concrete |
| Mix | Plastic Waste | Design Mix |