

Module 2

Bio and man-made constructions

A • Wood frame house

In the United States and Canada wood frame houses have been built for about 200 years. The basis of each house is a **wooden framework of walls, the ceiling and the roof**, which is set on a footing or a concrete slab. Only the specially prepared raw material can be used for building the framework as the use of “fresh” wood will cause humidity of walls, which may result in fungi and insects. Wood frame houses are raised within three months and they may be easily built in winter as well.

Wood framing is a building technique based around structural elements, usually called **studs**, which provide a stable frame to which interior and exterior wall layers are attached and covered by a roof which is then covered by various sheathing materials to give weather resistance. The use of minimal structural materials allows builders to realize a **wide variety of architectural styles**.

Wood framed construction has many advantages as well as being **environment-friendly**. The frames can be put up quickly, allowing construction to continue under the timber roof efficiently. Timber frame is very practical and adaptable, as well as being aesthetically pleasing. Elegant and simple, timber frame houses provide incredibly strong structures that have great flexibility in their design. The strength of the framework is achieved by structuring the frame in such a way that the weight of the building is transferred from all around the frame to the ground as effectively as possible. Due to this strength, large open spaces are often seen as a characteristic of timber framed houses, something usually not possible using conventional building techniques.



1  Decide if the following statements are true or false. Correct the false ones.

- | | |
|---|------------|
| 1. Any kind of wood can be used to build the framework. | T F |
| 2. Wood frame houses can be built in any period of the year. | T F |
| 3. The walls of these houses are supported by studs. | T F |
| 4. The sheathing materials which cover the roof are not essential. | T F |
| 5. These buildings are very complex for the variety of structural materials employed. | T F |
| 6. These structures are very strong and can be built in a variety of designs. | T F |
| 7. The strength of these structures depends on the ground they are built on. | T F |
| 8. Timber framed houses typically feature large open spaces. | T F |

2  The following (1-8) are words you will find in the text below. Match each of them with its definition (a-h).

- | | | |
|-----------------|--------------------------|--|
| 1. toss | <input type="checkbox"/> | a. A stiff strip of wood or metal that has one edge straight. |
| 2. seamless | <input type="checkbox"/> | b. Natural earthy material used for making bricks, pottery, etc. |
| 3. clay | <input type="checkbox"/> | c. Small area. |
| 4. shortage | <input type="checkbox"/> | d. Deficiency in quantity. |
| 5. kiln | <input type="checkbox"/> | e. Kind of oven for bricks. |
| 6. squat | <input type="checkbox"/> | f. Continuous. |
| 7. straightedge | <input type="checkbox"/> | g. Sit on one's hips or heels. |
| 8. patch | <input type="checkbox"/> | h. Throw. |

3   Read this article, abridged from The New York Times, and answer the questions below.

MORBI, India — Meet the men and women building the new India.

Chakubhai Khabhu, old and lean, smoking a thin, hand-rolled cigarette, stands on top of a pile of

bricks his children have made with their hands. His daughter, Vanita, 20, tosses bricks to her brothers, two by two, in a human chain. One of his sons' wives takes a break to breast-feed her 2-year-old near a pile of black clay.

For every thousand bricks, they earn a bit less than \$5.50. The family, with five adult labourers, pockets on average a little more than \$2 a day.

This is the life behind the great Indian construction boom, propelled by an economy still growing at 9% a year.

With construction expanding, so, too, apparently is the demand for bricks. Chandu Bhalsod, president of an association of brick makers in Morbi, said his production doubled in the last year alone and would probably double again next year. The demand has grown so fast, Bhalsod said, that he is now facing a labour shortage. He said he planned to look for workers hundreds of miles away this year.

Much of the work is done by migrant labour families like the Khabhus, who leave their home villages near and far to brickyards for eight months of the year, except during the monsoon season, when rains stops

production.

Of all the backbreaking work available to the poorest Indian peasant, making bricks offers some of the best earnings. It pays better than making salt, or working in the roof-tile factories. It can allow families to build a proper house, pay for a wedding or buy a goat or a television. Brick-making work not much different from this has dominated construction in India since antiquity. Today it dominates the countryside. It is impossible to drive through any rural highway here without seeing - and smelling - brick kilns burning.

Brick making in India is also responsible for heavy amounts of pollution. The chimneyless kilns like the ones here are the least energy-efficient, consuming 200 tons of coal for every million bricks they produce..

Because it is piecework - workers are paid by the number of bricks they make - brick making attracts entire families. An extra pair of hands always helps, even if they belong to a child. At the brickyard in which the Khabhus work, the children's specialty is a task best suited for small hands. It is called "finishing" and it involves squatting by the raw bricks and dusting

off extra lumps of clay with a straightedge. Attempts have been made to wean children away from work. The American India Foundation, finances schools in brickyards. At this brickyard, school is a patch of ground in the shade of a tree, with a chalkboard and children sitting in two rows. Classes are held for three hours each morning. The children are back at work later.

Vanita Khabhu had once imagined a life beyond these kilns. She attended a three-week

beautician training program but that was not enough to enable her to find a job, and besides, her family needed her hands at the kilns. She left school after the second year and cannot read or write.

Her future, she knows, will be decided by the man she marries. If he and his family work in the kilns, she will join them. "For our people, this is the kind of work we do," she said.

(By Somini Sengupta)

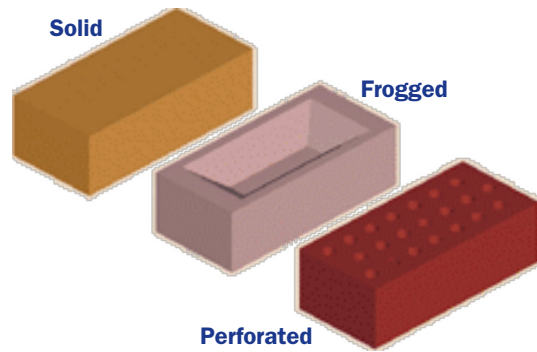
1. How many in Chakubhai Khabhu's family are working at the brick kiln?
2. How much would they earn for two thousand bricks?
3. At what rate is Indian economy developing?
4. When do brick makers have to stop working?
5. What is one of the consequences of brick-making in India?
6. Why is brick-making one of the best opportunities for the poorest Indian peasants?
7. What are children very good at?
8. Did Vanita go to school?



Brick-making sustains peasant families in India

C • Types of bricks (extensive reading)

There are literally thousands of different bricks, but they can be broken down into a handful of basic types. The vast majority are made from clay and are kiln-fired.

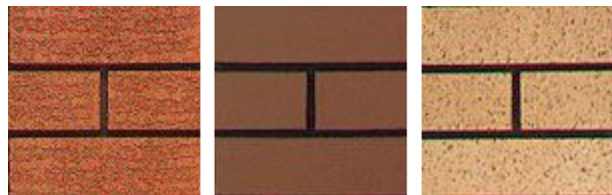


Facing Bricks

Quality, durable bricks with an attractive appearance for external use above ground.

- **Wirecut**

The clay is continuously extruded to a required size and shape and then cut into individual bricks by means of a wire, much like cheese is cut by cheesewire. There are thousands of variations in colour and texture. Usually they are the cheapest facings available as the manufacturing process is highly automated.



Typical wirecut bricks

- **Stock**

The clay is wetted to a so-called “soft mud” and then moulded to shape, before being allowed to dry prior to firing in the kiln. Much of the process is automated. They tend to be slightly irregular in shape and usually a bit more expensive than wirecuts.



Stock bricks

- **Handmade**

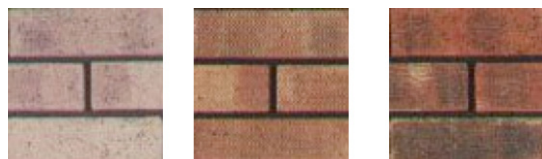
Usually made on a bench, in a mould, much as described above for a stock brick. Because the clay isn't firmly compacted by machine, each brick normally has distinctive creasing known as a 'smile'. They are the most expensive of the facings.



Handmade bricks

- **Fletton**

Also known as 'London Bricks'. A unique facing brick manufactured from the Lower Oxford clay found only in South-East England. This clay contains coal traces, which burn during firing, reducing the amount of fuel needed for the kiln, which not only keeps down costs but also produces some interesting effects in the bricks themselves.



Commons

A cheap 'fill' brick, designed to be utilitarian rather than attractive.



Engineering

The workhorses of the brick family are tough, strong, hardwearing but not usually very pretty. They have excellent resistance to frost and to water, making them ideal for groundworks, sewer works and retaining walls.



Concrete or Calcium Silicate

Popular in areas where good brick-making clay is scarce. They may be split-faced or have a pitched face to give an impression of being something different from boring concrete.



Reclaimed

Bricks rescued from old buildings and cleaned up. Their charm is undeniable, when laid properly, but there can be a high level of wastage. Many will be the old Imperial sizes which are incompatible with the modern metric bricks (65mm). Cleaning them up and sorting them is a labour intensive task and they can cost twice the price of a quality facing or a 'reproduction' reclaimed.



Genuine reclaimed bricks



Reproduction reclaimed bricks

Specials

Any brick that isn't a rectangle. Just to confuse non-bricklayers, there are "standard specials", and "special specials". These specials allow fantastic design possibilities and make brickwork the most aesthetically pleasing medium for building.

