

3

Traditional Building Materials

1 Look at these materials and match the names with the photographs.

stones cement timber bricks



1

2

3

4

Building materials can be divided into two main groups: natural and man-made. Stone and timber are natural materials, used by man since ancient times. Man-made materials include bricks, cement, concrete, steel, glass, metal and more modern materials including plastic and synthetics.

Stone

2 Read the text and then match the two parts of the sentences.

Stone walls are one of the oldest construction methods known to mankind. The first stone walls were made laying up stones without any mortar. With this method stones are held together by gravity. These walls are usually larger at the base. In Ireland and north-eastern UK counties this kind of wall was made by farmers to create fences. It was quite a long and labour-intensive method, but with no costs. When cement appeared, the first mortared stone walls were created, where cement paste fills the gaps between the stones. The first cements were made using burnt gypsum or lime, mixed with water. Concrete includes Portland cement mixed with sand, gravel and water, which makes it resistant to cracking. To make it even more resistant, steel reinforcing bars can be added. Most stone walls today are made using this method, because it is fast and cheap.

- 1 The first stone walls were made
 - 2 When cement appeared
 - 3 The first cements were created using
 - 4 Concrete is Portland cement
 - 5 Steel reinforcing bars can be added
- a ☐ burnt gypsum or lime, mixed with water.
 - b ☐ to make concrete even more resistant.
 - c ☐ the first mortared stone walls were created.
 - d ☐ without any mortar.
 - e ☐ mixed with sand, gravel and water.



Timber

3 Read the text about timber framing and answer the questions below.

Timber framing and conventional wood framing are two different forms of construction. Timber framed structures use fewer, larger timbers with dimensions from 15 to 30 cm and mortice and tenon or wooden pegs as fastening methods, whereas conventional wood-framed buildings have a greater number of timbers with dimensions from 5 to 25 cm, and nails or other mechanical fasteners are used to join the timbers.

Today timber structures are often surrounded in manufactured panels, such as Structural Insulating Panels (SIPs). They are made up of two rigid wooden-based composite materials with a foamed insulating material inside. This method is used because these structures are easier to build and they provide more efficient heat insulation.

Timber-framed construction offers a lot of advantages. It is kind to the environment (when the wood used is taken from sustainable forests) and the frames can be put up quickly. Its design is elegant and simple, and also both practical and adaptable. It can give a house character, both inside and outside. Thanks to its strength, large open spaces can be created, something which is not so easy to obtain with other techniques. It is very versatile, so timber-framed houses can also be clad with stone or brick. This offers two more advantages: the house can blend in with the surrounding area (both urban and rural) and it is very energy-efficient. Timber is also cheaper than other materials.



- 1 Do timber-framed structures use larger or smaller timbers compared to conventional wood framing?
- 2 Which fastening methods do the two different methods use?
- 3 What structures have been recently used? How are they made up?
- 4 What are the advantages of this method?

4 2 Listen to an expert speaking about the disadvantages of timber frame and complete the table.

water	Water can be (1) _____ into the material causing it to rot and mould.
fire	Wood is very (2) _____.
bugs	Ants and termites eat wood (3) _____.
environmental impact	Producing boards and beams for timber frame construction requires (4) _____ trees.
sound	Wood is an excellent (5) _____ of sound waves so any noise inside or outside is easily heard.
strength	Timber frames are quite strong up and down but not as strong as other materials (6) _____.