

# Materials - Timbers

## SECTION 1.1

### What is Timber?

Timber is wood that has been processed from a tree into a useable product for construction, craft or furniture.



When timber has been processed it can go through a structural grading process to classify its strength and suitability for use as a structural material. There are two types of Timber – Hardwood (oak) and Softwood (pine).



The timber used in Engineering is softwood which are tree that are ever green and examples include:

- Redwood
- Western red cedar
- Spruce

The timber is sawn into standard sizes and is rough sawn but can be planed to make it smooth however this takes 3mm off the size of the timber and makes it more expensive But it is a more accurate size.

# Materials - Ceramics

## SECTION 1.1

### What is a Ceramic?

These materials are oxides, nitrates or carbides of metals, they tend to be harder than most other materials and can withstand scratching or wearing forces. They also have excellent resistance to corrosion and are superb insulators of electricity / heat, can withstand high temperatures and are very good in compression.

However, they tend to be very brittle, have a low tensile strength and very low ductility.



Ceramics are formed by moulding as they are very difficult to machine due to their hardness.

The ceramic is either compressed or held together by a liquid (clay). The shapes are then fired in a furnace to allow the ceramic particles to melt and join together. Ceramics can be recycled but they tend to be very expensive to do this.



# Timber / Ceramic

## SECTION 1.1

Name the two types of timber

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- .

Where does timber come from?

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Name three timbers of each type from the first question

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- .
- .
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What is done to the surface of timber to make it smooth

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What effect does this have on the measurement of the timber?

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Sketch down some common shapes that timber can be bought in

What are Ceramics made up of?

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What are their uses?

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- .

What advantage do these Ceramics have?

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- .

What disadvantages do Ceramics have?

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Can Ceramic materials be machined easily?

True / false

How are Ceramic materials formed?

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Can Ceramic materials be recycled? If so what economic considerations need to be taken?

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