# MATERIALS FACT FILE 01

## Stone

- Strong in compression
- Brittle
- Ancient construction material
- Used for arches, columns and walls


PONT DU GARD NEAR REMOULINS, FRANCE


PYRAMID

## Mass concrete

- Strong in compression
- Brittle
- First developed by the Romans
- Used in foundations and in dams


PANTHEON


FAILURE OF CONCRETE

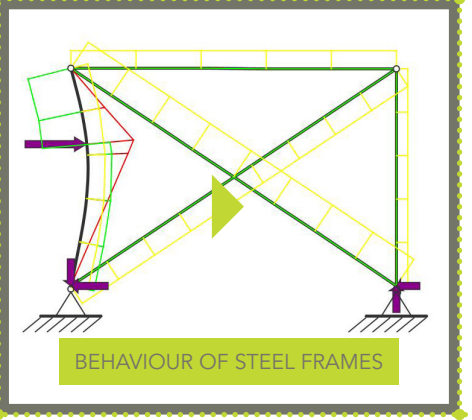

HOOVER DAM

## Steel beam/column

- Strong in compression, tension and in bending
- Used for columns and beams
- Combines strength and low weight


FAILURE OF STEEL


POMPIDOU CENTRE


BEHAVIOUR OF STEEL FRAMES

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# MATERIALS FACT FILE 02

## Glass

- Brittle but can be made tougher
- Used in the construction of some small bridges


FAILURE OF GLASS


FAILURE OF TOUGHENED GLASS

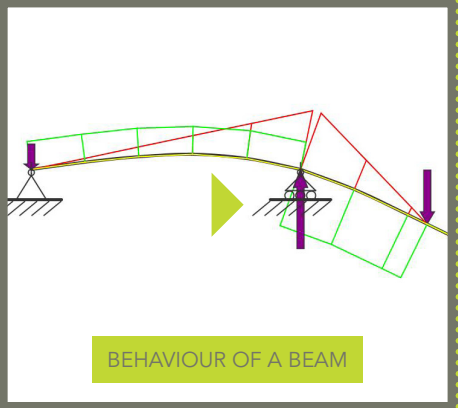

GLASS BRIDGE APPLE STORE

## Reinforced concrete

A composite material that makes the most of each of the component materials' strenght:

- Concrete's strength in compression
- Steel's strength in tension


SYDNEY OPERA HOUSE


BEHAVIOUR OF A BEAM


L'OCEANOGRAFIC, VALENCIA

## Steel cable

- Extremely high strength in tension
- Made from bundles of strands
- Stretches under tension


STEEL CABLES


CABLE NET ROOF LONDON VELODROME


STONECUTTERS BRIDGE, HONG KONG

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