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18/ENG03/002
CIVIL ENGINEERING MATERIALS (CVE 307)

MATERIALS	USES OF THE MATERIALS	PROPERTIES
1, Brick	1, are used as an alternative of stones in civil engineering, they are used for construction of walls, and floors	may be solid or hollow core (holes called "cells"), and the cells should not exceed 25 percent of the volume of the unit, Also bricks vary in size, color, shape & texture.
2, Mortar	Used to bind together the bricks or stones in stone masonry, used to fill up the Spaces between bricks or Stones for making walls tight, also used in concrete as a matrix It is used in plastering works to hide the joints and to Improve appearance.	A mortar should possess adhesion, it should provide adhesion to building units, it should be water resistant. It should have the capability of resisting the penetration of water, mortar should be cheap and it should possess high durability
3, Cement	it is used for binding materials in construction. It is used in constructing important structures like bridges, dams, buildings in general. It is used for water tightness of structure. It is used for preparation of foundations, water tight floors and footpath which is very important in civil engineering.	A cement should provide Strength to masonry, it should Stiffen or harden early, it Should possess good plasticity it should be workable, and it should also have good moisture-resistance.

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4, Concrete	It is used as an important building product, it is used as a sustainable choice for residential and commercial projects, It is used as an aggregate in roadbeds or as granular materials while making new concrete, concrete is used to achieve optimum environmental performance.	It has a high compressive Strength, It is free from corrosion and there is no appreciable effect of atmospheric agents on it; It hardens with age and the process of hardening continues for a long time after the concrete has attained sufficient strength
5, Sand	It is used to filter water, working as an abrasive it can be used to give a grip to the painting by combining paint with sand. It can be used to make sand paper	sand should not have any organic matter, and should not contain clay & silt, the grains should be sharp, strong & angular, sand should be completely inert
6, Stone	used mainly as aggregates for concrete which can be used in roofing, flooring & paving roads.	structure, texture, density, Strength, hardness, porosity and absorption.
7, Bamboo	Used for constructing bridges and structures also used in propping. Also for reinforcement.	Tensile Strength, Shear Strength, flexibility, toughness, modulus elasticity
8, wood	used in flooring, frames of doors & windows for its Strength and quality wood from mango and burflower tree are used for casting and piling.	color, texture, density thermal conductivity, cracking & shrinkage.

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9, Glass	used for internal partition, used as transparent glazing material in building envelope, including windows in external wall.	Hardness, Brittleness Insulation, transparency, fire resistance, weather resistance
10, Plastic	used in water proofing, wall covering electric wiring, decoration flooring.	Fire resistance, durability Thermal resistance, Ductility Strength.