BAMBOO AS ABUILDING MATERIAL

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ABSTRACT: There is a huge exploitation of natural resources for making conventional building materials such as brick and reinforcing bars. Production of large amount of green house gases is also the big uissue. So there is a need to develop cheap and sustainable infrastructure. This paper presents an alternative building material for constructing the different components if cheap houses lying in village areas. Bamboo as a building material provides a good strength , elasticity etc. that makes it enormous material that can be a alternative to wood.

I. INTRODUCTION

Bamboo is a versatile material because of its high strength to weight ratio. Bamboo generally need chemical treatment due to their low natural durability. It can be used in different way for housing as beam,column, purlin, rafter, flooring, door , windows, ceiling etc.

It is good in biomass production and grow in about 7.5cm to 40cm in a day. It can be easily bend, give desired shape and can be provided with joints to suit the construction. Its enormous elasticity makes it a very useful building material and provide great resistance to earthquakes.

II. MAIN PROPERTIES OF BAMBOO

Tensile strength:- Tensile strength is more than its compressive strength. It is about 400 N/mm2

Compressive strength:- smaller dia bamboo(tube) have high compressive strength.

Elastic modulus:- the quality of the bamboo is directly depends upon the elasticity of the bamboo. It is generally found 1.5 to 2 ×105 Kg/cm2

Shrinkage :- bamboo shrinks more than wood when it loses water. Bamboo shrinks about 10-16% of its cross- section.

Fire resistance :- it contain silicate acid which provide very good fire resistance.

Anisotropic Properties:- Longitudinal direction of the bamboo is completely different from the transversal direction. It contain cellulose fiber in the longitudinal direction which is stronger and stiff and in transverse direction contains lignin which is soft and brittle.

Specific Gravity :- the specific gravity of a substance is a comparison of its density to that of water. The specific gravity of bamboo varies between 0.4 and 0.8. these possesses high moisture content.

III. CONCLUSION

Bamboo is lighter in weight but stronger than steel. It takes carbon dioxide in and releases 30% more oxygen than tree. The properties of bamboo and availability of bamboo in our country makes it possible to use. Bamboo in the field of construction. Its high value utilization not only promotes the economic development, nut also save forest resources to protect our ecological environment as a wood substitute. The age of the bamboo for the construction is about 3-6 years and gradually loses strength upto 12 years after 6 year age. If we plant structural bamboo plants then few years later we have enough mature material to build a comfortable low cost house.

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