

Changing the change

Design Visions, Proposals and Tools

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LIGHTWEIGHT ROOFS IN BAMBOO

Abstract

Sustainability has already entered the architectural curriculum at all levels, and a range of solutions have been proposed and/or effected in various parts of the world. One of the most popular of tropical products, 'the poor man's mahogany', is the application of bamboo in building, and one of the most immediate consideration of this cheap material is its application to lightweight roofs in many instances. Such roofs are desirable to prevent solar gain, forming a parasol dominating the permanent structure below.

The main difficulty in building such a roof is to join the bamboo members in a reasonably simple way allowing for partial or complete renewal as required. The roof is to support a very light material to absorb solar heat and should not be all that expensive. The main objective to be attained is to devise a system of joining the bamboo members together, either by overlapping or better, some system that ensures an efficient and easily operated operation of building and replacement as desired. One desirable system is to devise an appropriate jointing system to provide maximum continuity over a long span, approximately 10 to 20 meters in span along the edge of support which may require some form of girder or equivalent means of arrangement to give maximum stiffness under wind loading.

This project should have a good response in Botswana and other countries of the Southern African Development area, where Zambia has got the raw material in abundance – Botswana is its neighbour. There are many applications of avoiding steel construction and such a system would be an attractive and cheap response to the demands of sustainability in Southern Africa.