# Bamboo - A Building Material for Construction

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## Abstract

Concrete and steel are the most widely used construction materials in the world. The concrete has high compressive strength but low tensile strength. Therefore, steel is used to reinforce the concrete. Steel has a very high tensile strength as compared to concrete, but there are certain problems associated with it. Some of these problems are high production cost, large energy consumption during its production; it is a non-renewable resource and large amount of carbon emission during its production. The urge to overcome these problems without the tensile capacity of reinforced concrete being compromised, has prompted numerous scientists and engineers to seek out locally sourced materials as a replacement for conventional steel reinforcement. Specifically bamboo is one of the most suitable materials that may be used as reinforcing bar in concrete. This project work assessed the suitability of bamboo as reinforcement in concrete. In this project, size of beams selected is 230x 300 x 2000 mm. treated bamboo reinforced concrete (TBRC) beam and steel reinforced concrete (SRC) beam was casted for each size of beam and they were tested on loading frame machine. The compare of the results for the bamboo reinforced beam and steel reinforced beam shows that the load was varying from the percentage of bamboo and steel. Hence, it can be recommended to use bamboo reinforced concrete beam for light load bearing structures like beam, plinth beam and slab for small panel. Also, it may be used for temporary structure.

## Image

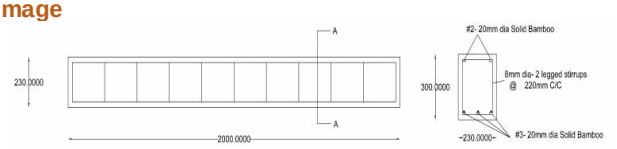



**Fig. 4.1** Bamboo reinforced beam details

## Recent Publications

| Sl. No. | Title of the paper | Month, Year of publication | Title of the Journal | DOI/Volume, page number | Impact factor |
|---|---|---|---|---|---|
| 1. | Influence of soil grading on the characteristics of cement stabilised soil compacts | July, 2013 | Materials and Structures | DOI:10.1617/s11 527-013-0142-1 | 1.714 |
| 2. | Retrieving clay minerals from stabilised soil compacts | 2014 | Applied Clay Science | Vol. 101, pp – 362 - 368 | 2.467 |
| 3. | Experimental and numerical study on | Jan, 2015 | International Research | Vol. 02, Issue 01 | 4.45 |
| | the behavior of masonry using various blocks and mortars | | Journal of Engineering and technology | | |
| 4. | Effect of P Delta due to different eccentricities in tall | June, 2015 | International Research Journal of | Vol. 03, Issue 03 | 4.45 |

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| | structures | | Engineering and technology | | |
| 5. | Swell-shrink properties of stabilised earth products | Feb, 2016 | Construction Materials, Institution of Civil Engineers | DOI: 10.1680/jcoma.15 .00031 | 1.868 |
| 6. | Behavior of reinforced concrete beam with opening | July, 2017 | International Journal of Civil Engineering and Technology | Volume 8, Issue 7, July, 2017 | 4.19 |


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