



**SDI Review Form 1.6**

**PART 1:**

Journal Name:	<b><u>Physical Review &amp; Research International</u></b>
Manuscript Number:	<b>2013_PRR1_4006</b>
Title of the Manuscript:	<b>Structural Characteristic of Bamboo and Rattan Cane Reinforced Concrete Struts</b>
Type of the Article	<b>Research paper</b>

**General guideline for Peer Review process is available in this link:**

**(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)**

- This form has total 7 parts. Kindly note that you should use all the parts of this review form.



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### PART 2: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Compulsory</b> REVISION comments	<p>The results are very scarce to merit publication. Besides they are hardly enough to state that <i>"bamboo and rattan cane can be effectively used as reinforcement in struts of low load bearing structures"</i>. Authors cannot be so assertive in such conclusions. At most they can conclude that <i>"bamboo and rattan cane concrete has an acceptable mechanical performance for certain applications"</i>. For instance the authors cannot guarantee that this performance be maintain after several years.</p> <p>The literature review is very weak. Authors forget several investigations already carried out specially the durability issues:</p> <p>Ghavami (2005) mentioned that <u>"The swelling and shrinkage of bamboo in concrete create a serious limitation in the use of bamboo as a substitute for steel in concrete"</u>. To improve the bond between bamboo segments and concrete, an effective water-repellent treatment is necessary" and that "the differential thermal expansion of bamboo with respect to concrete may also lead to cracking of the concrete during service life".</p>	<p>Rattan cane and bamboo have been found to be good in supporting loads, due to various research that has been carried out in the past. The statement has been reframed.</p> <p>More literature has ben added to the work</p> <p>Olutoge et al mentioned that bamboo coated with creosote, bitumen etc are good water repellent, this was mentioned in the experimental procedures of this paper.</p>



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	<p><u>Ghavami K.</u> (2005) Bamboo as reinforcement in structural concrete elements. <i>Cement and Concrete Composites</i>, 27 (6) , pp. 637-649. Cited 42 times on Scopus.</p> <p>Khare reported that the ultimate load capacity of bamboo was about 35% of the equivalent reinforced-steel concrete beams. The strength reduction was due to the low adhesion between the cement matrix and the bamboo rebars.</p> <p>Khare L (2005) Performance evaluation of bamboo reinforced concrete beams. Master of Science in Civil Engineering. University of Texas</p> <p>Junior <i>et al.</i> (2005) mentioned just 25% of the equivalent reinforced-steel concrete beams ultimate load capacity.</p> <p>Júnior H, Mesquita L, Fabro G, Willrich F, Czarnieski C (2005) Concrete beams reinforced with bamboo <i>Dendrocalamus giganteus</i>. I: Experimental analysis. <i>R Bras Eng Agr Ambient</i> 9: 642-651.</p> <p>Analysis of adhesion between cement and bamboo by pull-off tests shows that bamboo/cement have much lower adhesion than steel rebar/cement and that adhesion results are influence by node presence (Jung, 2006).</p>	<p>This comment is on reinforced-steel concrete beams equivalent load capacity, while this research work focus on the load bearing capacity of steel-reinforced concrete struts, rattan cane and bamboo reinforced concrete struts respectively.</p> <p>Comparison were made on the percentage load bearing capacity of these materials in concrete struts</p> <p>The results of pull-out test were discussed in the literature of this paper by quoting, Lucas and Dahunsi 2004, Youseff 1976, Cox and Geymer 1969. etc</p>
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	<p>Jung Y (2006) Investigation of bamboo as reinforcement in concrete. Master of Science in Civil and Environment Engineering. University of Texas</p> <p>According to Mesquita <i>et al.</i> (2006), the bond strength of bamboo is 70% of smooth steel bond strength when a 35 MPa concrete is used. However the bond strength of bamboo is almost 90% of smooth steel bond strength when a 15 MPa concrete is used.</p> <p>Mesquita L, Czarnieski C, Filho A, Willrich F, Júnior H, Barbosa N (2006), Adhesion strength between bamboo and concrete. R Bras Eng Agr Ambient 10: 505-516.</p> <p>Concrete composition must be presented in a table with quantities expressed in kg/m<sup>3</sup>.</p> <p>The authors must identified the standards that were followed in the experimental program.</p>	<p>These have been taken care of in the corrected manuscript.</p> <p>The standards adopted were BS 8110, 1997, and ASTM D3345-74.</p>
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<b><u>Minor</u></b> REVISION comments		
<b><u>Optional/General</u></b> comments	If the authors were willing to improve the literature review and to add some results on durability only then could the present paper merit publication.	This has been taken care of.