

CHAPTER II

LITERATURE REVIEW

Sevalia, Siddhpura, Shah, Kapadia, and Agrawal (2009) have researched the use of bamboo as reinforcement in axially loaded cement concrete members. This research is only focused on its use as a column. During this study, they performed a compression test on cement concrete cube and a compression test on bamboo reinforced cement concrete column elements. In addition, they used a coating on the bamboo culms to reduce swelling and to improve the bonds between the bamboo and the concrete. The coatings selected include araldite, coal tar, and epoxy resin. The results for the average failure load of this study were the plain type of bamboo coating was 185.67 kN, araldite was 274.67 kN, epoxy resin was 242.33 kN, and coal tar was 337.67 kN. The failure pattern for plain cement concrete column is brittle failure, while for all of the bamboo reinforced column showed the same type of failure, it was ductile failure.

Ramaswamy and Mathew (2019) have conducted observations and evaluations on the use of bamboo as reinforced concrete and as a substitute for steel as reinforcement. The experimental program carried out includes a compressive strength test, a splitting tensile strength test, a splitting tensile strength test for bamboo, and a flexural test of the beam. The specimens prepared for the test consist of a plain concrete beam, a singly reinforced concrete beam, and a doubly reinforced concrete beam. This research used Universal Testing

Machine (UTM) as a test tool. From the experiments that have been carried out, the following results were obtained for the compressive strength test was 24.72 MPa (average), the tensile strength test was 2.77 MPa (average), the tensile strength of bamboo with 3 nodes was 110.66 MPa (average), the tensile strength of bamboo with The 5 nodes was 102.54 MPa (average), and for the flexural strength of the beam, the maximum deflection obtained was 0.26 mm for the plain concrete beam, 1.18 mm for the singly reinforced beam, and 2.12 mm for the doubly reinforced beam.

