*Bamboo Vertical Axis Wind Turbine*

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## Abstract

The focus of this research was to determine the viability of bamboo as a material for use in wind turbine applications. Bamboo is a strong natural material that has the added benefit of fast growth and harvest times. Integration of this material into a wind turbine, if practical, will increase its sustainability. The suitability of this material for wind applications was examined by conceiving of a number of design possibilities, and testing them out individually. The goal was to produce a Vertical Axis Wind Turbine model that could rotate quickly and have sufficient torque to turn a small motor and generate electricity. Designs were helical in shape and used either halved bamboo culms or modified airfoils to rotate. The final focus is on a model that uses three helical airfoils shelled with thin bamboo veneer. This style of wind turbine uses lift forces, similar to a sailboat, and is capable of higher rotation rates then some of the drag type wind turbines that were first looked at.