

Fabrication of Non-traditional Shapes from Bistable Carbon Fiber Reinforced Polymer Laminates

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Abstract: This research investigates the methods of fabrication for non-traditional, non-rectangular bistable structures using Carbon Fiber Reinforced Polymers. Currently, the non-rectangular shapes that have been used are rhombi (diamonds), triangles, and circles. Each shape is cut from a 12x12 inch sheet of composite laminate. The shape-when cut-must maintain a 12-inch dimension in one aspect of height, diameter, or length. As these shapes are fabricated and post-processed, it is observed that the boundary conditions, performance, curvature and options for fixturing vary significantly. It has also been observed that much of the remaining material from post-processing cutting methods also retain much of its bistability, allowing for usage in alternative capacities.