

ABSTRACT

The objective of this project is to explore the utility of Additive Manufacturing (AM) for low cost manufacturing of wind turbine blades. Specific focus is on the required material properties (operating temperatures and pressures, coefficient of thermal expansion (CTE), thermal conductivity), surface finish (accuracy and coatings) and system integration (integrated vacuum ports, and heating element).

The project began with a simple proof of principle components, targeting surface coatings and material properties for printing a small section (approximately 20 x 5 x 2.5) of a NACA4418 airfoil section mold. Next, the second phase scaled up and integrated with the objective of capturing all of the necessary components (integrated heating to accelerate cure time, and vacuum, sealing) for resin infusion on a mold of significant size (40 x 25 x 5) in future.