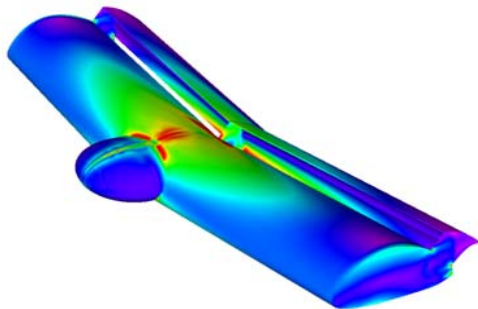
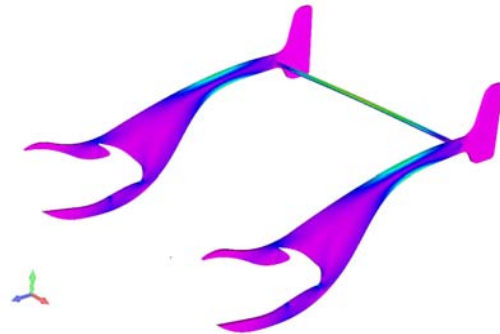
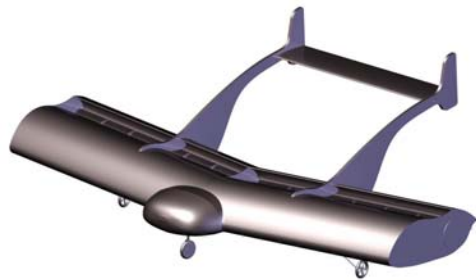


## Aerospace Case Study (Propulsive Wing, LLC – Propulsive Wing UAV)



Propulsive Wing, LLC ([www.propulsivewing.com](http://www.propulsivewing.com)) of Elbridge, NY is collaborating with Allred & Associates, Inc. to commercialize a revolutionary unmanned aircraft platform. This design utilizes partially embedded cross-flow fans for thrust and flow control instead of the conventional propeller. Tests to date demonstrate large gains in both lifting capacity and internal payload volume compared with current UAV designs. Propulsive Wing is marketing the unmanned airplanes to solve critical missions where a compact, high-lift, high load-carrying vehicle is ideal. Examples include aerial wildfire suppression, delivery of supplies to remote and high-altitude areas, and military surveillance.

The current prototype under developed has a seven-foot wingspan. The entire vehicle is custom designed and fabricated out of carbon-fiber composites. Surface modeling techniques in NEi Nastran were essential to investigate the effect of various laminate schedules on the distribution of stresses in the airframe. In particular, plots of areas of large stress concentrations were identified, which provided valuable data when determining final construction techniques and material thicknesses.

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