

DESIGN OF COMPOSITE STRUCTURE OF A SMALL AIRCRAFT USING FEM ANALYSIS

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Abstract: The article describes finite element method utilization at lightweight structure design of a small aircraft made from composite material. The procedure begins at suitable material definition based on selected manufacturing technologies. Following problem presents an effective modeling of the structure depends on known restrictions of the selected methods. Evaluation of the simulation is presented as a key phase of the methodology. An open source freeware code ComPost has been written on the background of the small aircraft development projects. The code offers detailed post-processing of a composite laminates analyzed by finite elements method. A case study of a sandwich failure occurred on a fuselage central part during the static test of VUT 061 Turbo aircraft demonstrates benefits of the ComPost software at a design phase of a small aircraft development project.