Finite Element Analysis of Trapezoidal Corrugated-Core for Sandwich Structure

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ABSTRACT

The sandwich structure is an interesting alternative that increasingly used in the transportation and aerospace industry. Corrugated-core with trapezoidal shape allows to enhance the damage resistance to the sandwich structure, but on the other hand, it changes the structural response of the sandwich structure. The aim of this paper is to study the tensile and compression characteristics of corrugated-core using Finite Element Analysis (FEA) and compared with experimental data. The analyses of the sandwich structure with trapezoidal corrugated-core are carried out using commercially available finite element method. The displacement based homogenous method is applied to evaluate effective elastic properties of the core for a different unit cell. The comparative results of load carrying capacity and magnitude of frequency of the sandwich structure are presented this paper.

Keywords: Carbon fibre, glass fibre, corrugated-core, finite element analysis