

Buckling Resistance of GFRP Sandwich Infill Panels with Different Cores under Increased Temperatures

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Abstract : This paper presents numerical analysis in terms of buckling resistance strength of polymer matrix composite (PMC) infill panels system under the influence of temperature on the foam core. Failure mode under in-plane compression is investigated by means of numerical analysis with ABAQUS platform. Parameters considered in this study are contact length and both the type of foam for core and the variation of its Young's Modulus under the thermal influence. Variation of temperature is considered in static cases and only applied to core. Indeed, it is shown that the effect of temperature on the panel system mechanical properties is significance. Moreover, the variations of temperature result in the decrements of the system strength. This is due to the polymeric nature of this material. Additionally, the contact length also displays the effect on performance of infill panel. Their significance factors are based on type of polymer for core. Hence, by comparing difference type of core material, the variation can be reducing.

Keywords : buckling, contact length, foam core, temperature dependent

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