

Thermal Elastic Stress Analysis of Steel Fiber Reinforced Aluminum Composites

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Abstract : A thermal elastic stress analysis of steel fiber reinforced aluminum laminated composite plate is investigated. Four sides of the composite plate are clamped and subjected to a uniform temperature load. The analysis is performed both analytically and numerically. Laminated composite is manufactured via hot pressing method. The investigation of the effects of the orientation angle is provided. Different orientation angles are used such as $[0^\circ/90^\circ]_s$, $[30^\circ/-30^\circ]_s$, $[45^\circ/-45^\circ]_s$ and $[60^\circ/-60^\circ]_s$. The analytical solution is obtained via classical laminated composite theory and the numerical solution is obtained by applying finite element method via ANSYS.

Keywords : laminated composites, thermo elastic stress, finite element method.

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