MECHANICAL PERFORMANCE OF LIGHTWEIGHT SANDWICH STRUCTURES BASED ON TRAPEZOIDAL CORRUGATED-CORES

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Master of Science

UNIVERSITI MALAYSIA PAHANG
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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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Thesis submitted in fulfillment of the requirements for the award of the degree of Master of Science

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LIST OF SYMBOLS

$\sigma$ Stress
$A$ Cross sectional area
$\varepsilon$ Strain
$E$ Elastic modulus
$w$ Width
$x$ Length
$H$ Height
$t$ Thickness
$\circ$ Degree angle
$\delta$ Displacement/ deformation
$\Theta$ Angle
$\Phi$ Displacement parameter
$\lambda$ Factor dependant on the boundary conditions
$P$ Load
$I$ Second moment of area
### LIST OF ABBREVIATIONS

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<tr>
<td>2D</td>
<td>Two Dimension</td>
</tr>
<tr>
<td>3D</td>
<td>Three Dimension</td>
</tr>
<tr>
<td>AL</td>
<td>Aluminium</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>CAE</td>
<td>Computer Aided Engineering</td>
</tr>
<tr>
<td>CFRC</td>
<td>Carbon Fibre Reinforced Composite</td>
</tr>
<tr>
<td>CFRP</td>
<td>Carbon Fibre Reinforced Polymer</td>
</tr>
<tr>
<td>CNC</td>
<td>Computer Numerical Control</td>
</tr>
<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
</tr>
<tr>
<td>CSM</td>
<td>Chopped Strand Mat</td>
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<tr>
<td>FE</td>
<td>Finite Element</td>
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<tr>
<td>FEM</td>
<td>Finite Element Method</td>
</tr>
<tr>
<td>kN</td>
<td>Kilo Newton</td>
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<tr>
<td>LAT</td>
<td>Lateral at tab top</td>
</tr>
<tr>
<td>LGM</td>
<td>Lateral gauge middle</td>
</tr>
<tr>
<td>LIT</td>
<td>Lateral inside tab top</td>
</tr>
<tr>
<td>LTSP</td>
<td>Lattice Truss Sandwich Panel</td>
</tr>
<tr>
<td>min</td>
<td>Minute</td>
</tr>
<tr>
<td>mm</td>
<td>Millimetre</td>
</tr>
<tr>
<td>MPa</td>
<td>Mega Pascal</td>
</tr>
<tr>
<td>SQP</td>
<td>Sequential Quadratic Programming</td>
</tr>
<tr>
<td>SrPET</td>
<td>Self-Reinforced Poly(Ethylene Terephthalate)</td>
</tr>
<tr>
<td>UD</td>
<td>Unidirectional</td>
</tr>
<tr>
<td>VeSCo</td>
<td>Ventable Shear Core</td>
</tr>
<tr>
<td>WR</td>
<td>Woven Roving</td>
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