General Guidelines for Adhesive-Bonded Joint Design

Joint configuration should be designed so that the basic stress is primarily shear, tensile or compressive with cleavage and peel stresses minimized on the bond line. Joints should be designed so that all of the bonded area equally shares the load.

Lap Joints

Lap joints are the most practical design and applicable in bonding thin materials. Lap joints are used to enhance joint strength by reducing its potential to peel stress.

Illustrations provided depict both recommended joint design alternatives and joint designs to be avoided.

<table>
<thead>
<tr>
<th>Do</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shear &amp; Others – Single Lap Shear Joint</td>
<td>Tension &amp; Others – Straight Butt Joint</td>
</tr>
<tr>
<td>Compression – Corner Single Lap Joint</td>
<td>Tension – Corner Single Lap Joint</td>
</tr>
<tr>
<td>Compression &amp; Shear – Offset Lap Joint</td>
<td>Peel, Tension &amp; Shear – Offset Lap Joint</td>
</tr>
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<td>(Toggle Lap Joint)</td>
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</tr>
</tbody>
</table>
Butt Joints
In tension, the straight butt joint is impractical for load bearing assemblies. To minimize this stress, the angle design applies compression. Compressive loading will not affect the joint unless bucking of the vertical component occurs.

Illustrations provided depict both recommended joint design alternatives and joint designs to be avoided.

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Compression & Shear – Right Angle Butt Joint (L Angle Joint)

Do

Compression & Shear – Double Right Angle Butt Joint

Don’t

Peel, Tension & Shear – Right Angle Butt Joint (L Angle Joint)

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