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Boundary element analyses in the analysis of single-lap joints

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The most common damage models of adhesive joints that allow a given bonding solution to be analyzed are carried out by numerical methods such as the FEM [1]. However, BEM (Boundary Element Method) is a numerical alternative technique that has been successfully applied for the solution of a wide variety of engineering problems [2-3]. This work describes the application of the boundary element code BEASY as an analysis tool to analyze adhesive joints. The BEM solutions are compared against FEM and analytical models in terms of stress distributions and failure load of a single-lap bonded joint under tensile loading. Good agreement between the numerical and experimental results is achieved. The time required for setting up an analysis and solving it are also compared.

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