



Comparison of Single Curvature, Single and Double Layered Space Truss Systems Regarding Their Weights

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Abstract: Space truss systems are aesthetic and safe systems that can pass wider spans economically. In this context, space truss systems can be used in different ways. Therefore, in this study, the system weights, unit weights and midspan displacements of single curvature single and double layered (vault) space truss systems were investigated. The systems were modelled and analyzed with Finite Elements Method. “Mode Combination Method” was used for the dynamic analysis. 56 single and double layered circular, elliptical and parabolic systems with varying span lengths were solved using a computer program whose results were expressed with tables and diagrams. As a result of analyses performed by this study, the investigation of each span length prepared with different geometries (circular, elliptical and parabolic) in terms of their weights presented significant outcomes for various geometric height/span length ratios.

Key words: *Space Truss System, Single Curvature, Single Layered, Double Layered, System Weight, Unit Weight, Geometry, Circle, Ellipsoid, Parabola*

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