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# A 3D Eight Nodes Brick Finite Element Based on the Strain Approach

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**Abstract :** This paper presents the development of a new three dimensional brick finite element by the use of the strain based approach for the linear analysis of plate bending behavior. The developed element has the three essential external degrees of freedom (U, V and W) at each of the eight corner nodes. The displacements field of the developed element is based on assumed functions for the various strains satisfying the compatibility and the equilibrium equations. The performance of this element is evaluated on several problems related to thick and thin plate bending in linear analysis. The obtained results show the good performances and accuracy of the present element.

**Keywords :** brick element, strain approach, plate bending, civil engineering
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