

## Analysis of Beams with Web Opening Subject to Vertical Loads

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**Abstract :** The steel beams with web opening including the cellular and castellated I-beams are fabricated from a solid web I-beam through a double cutting method to a specific shape and size along the beam. The two halves of the beams are then welded together, increasing the overall depth of the web section. In this paper, the deflection of the cellular and castellated beams subject to uniform vertical loads are investigated using Finite Element Autodesk simulation package. The structural response of the beams with web opening are compared with regular solid beams. Additionally, parametric studies are carried out to study the influence of the geometric properties of a cellular beam to its structural responses.

**Keywords :** beams with web opening, cellular and castellated beams, finite element analysis, vertical deflection

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