Ultimate load analysis of pretensioned inverted T-beams with circular web openings

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ABSTRACT
The provision of transverse openings in floor beams to facilitate the passage of utility pipes and service ducts not only results in a more systematic layout of pipes and ducts, it also translates into substantial economic savings in the construction of a multi-storey building. In this paper, ultimate load analysis of statically loaded simply supported pretensioned inverted T-beams with circular web openings is presented. Major findings relevant to ultimate load analysis of pretensioned beams with circular web openings are summarized. An attempt has been made to answer the frequently asked questions related to ultimate load analysis on multiple circular web openings. It has been shown that the analysis method for pretensioned beams with multiple large circular web openings can be further simplified without sacrificing rationality.

KEYWORDS
Pretensioned inverted T-beams; Web openings

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