ABSTRACT

Beam is structural components that carry the gravity loads, such as dead load and live load. Component beam structure is a combination of elements of tensile and press. Many cases of beams laterally restrained enough, so that stability problems do not need to be stressed because the beam of constrained in the direction either strong axis or weak axis.

This final project to analyze behavior of element structural steel beams on buildings. Shape of profile on steel beam is the I-profile that designed on building with area 30x22 m² (distance between the span length of 5 m, the distance between the spans across of 6 m and 8 m) and 2-story building with a height of 10 m (height between floors of 5 m). In this analysis the beam is given the gravity load and lateral load variation so that the beam deflection experienced. It was analyzed using ABAQUS 6.7 and capacity for cross-sectional analysis using Xtract version 2.6.2.

In writing this Final Project, obtained the beam having lateral torsion buckling analysis with empirical formulas, and the structure of portal obtained the beam changes tension up to 593 MPa in the direction Z, the maximum strain of 0.00778 and the maximum deflection of 8.377 mm on the direction Y. Moreover, obtained for differences between the nominal moment for
capacity of beam section using Xtract v2.6.2 with an empirical formula of 4.14%.

Key words: I-Beam, lateral torsional buckling, Xtract version 2.6.2, ABAQUS 6.7