

ABSTRACT

In the field of construction, the development of science in particular to study the properties and behavior of steel components is necessary to facilitate the planning of steel structures. The behavior of steel component to be studied is the effect of residual stress on the cast steel column which is loaded with axial pressed. The elastic critical force of the bending on the weak axis is punctuated by FEM by considering the effect of the residual stress pattern and the geometry of the components of the castellated. In this research, three test specimens are analyzed with various length and the profile used is hexagonal castellated profile. The structure modeling is conditioned in such a way that it is the same as the original condition. The analysis was done with software of finite element method Ansys v.18 and FEM result showed that the higher slim ratio then influence of the residual stress is smaller.

Key words: hexagonal castellated profile, the elastic critical force and weak axis, residual stress, finite element method Ansys