DESIGN MODIFICATION OF DIREKTORAT JENDRAL PAJAK BUILDING DISTRICT I EAST JAVA SURABAYA WITH NON COMPOSITE CASTELLATED BEAM

Name of Student: Indiranita Karismawardini
NRP: 3105 100 125
Department: Civil Engineering, FTSP-ITS
Supervisor: Ir. Heppy Kristijanto, MS.
Data Iranata, ST, MT, Ph.D

ABSTRACT

Changing of economical situation which grows and increases rapidly causes an increase in demand for office buildings. The lack of available land becomes a reason why many buildings are built in multistory office buildings. Although there is lack of available land, the facilities which are planned for a building can be fulfilled. In setting up a multistory office buildings takes a long time. With the technology available at this time, only materials with practical and economical value and also strong materials for the main structure will be selected by the contractor. Because of the higher building the longer and more expensive process in setting up the building. One of the practical solutions that can be used in the construction operation is using Castellated Beam.

Compared with ordinary steel profiles, the advantages of Castellated Beam are efficient if it is used in the long span, increase the flexure stiffness, inersia moment has a large value so that the strength and stiffness of the structure also has a large value without adding the weight of beam (Jihad Dokali Megharief, 1997). This final project will discuss a Building Design Modification of Direktorat Jendral Pajak District I East Java Surabaya with the main structure consists of non composite
steel. The design of this building structure uses Dual System, Ordinary Moment Resisting Frame (OMRF) and Concentric Braced Frame type Inverted V Braced.

The planning that will be applied in this final project includes floor plate, ladder, concrete plate roof, lift, bracing, secondary beam, main beam, column and foundation. By using the Dual System, the results expected of a structure is strong and rigid. Regulations used in this planning are AISC-LRFD, SNI 03 - 1726 -2002, SNI 03 - 1729 - 2002, PPIUG 1083. Analysis and structure dimensional uses SAP 2000 software.

**Keyword**: Dual System, OMRF, Braced Frame, Castellated Beam