ABSTRAK

Nowadays prestress concrete design is one of structural design technology that commonly used for developing high rised bulding which has long stretching and column free. Re-design of Direktorat Jenderal Pajak Jawa Timur Wilayah I Surabaya building using these prestress concrete concept which explained in this book is one of an applicable model of using prestress concrete for high rise building structural design. There are some modification on its existing design such as story adding from 8 to 10, and the top story designed using prestress concrete with a void between it and 9th story.

Implementation of those design in this book was emphasized on the comparison of SNI 03-2847-2002 and ACI 318-2008 codes, especially in seismic endurance of the concrete. ACI 318-2008 codes permits prestress concrete’s tendon steel accepting positive or negative seismic load until maximum value of 25%. In the other hand, SNI 03-2847-2002 does not permit the tendon to accept seismic load, the seismic load must be 100% distributed to reinforcing steel rebars.

The result obtained from this research proves that using ACI 318-2008 codes in the area with low seismic load (Seismic Area 2) is less effective, because it will produce the bigger dimesion of prestress beam and more section area of steel rebars than SNI 03-2847-2002-based design. But, there are some possibilities that in the larger seismic area, it will come out with different result and it could become the next research topic.
Keywords: Prestress concrete, seismic endurance of prestress concrete, Direktorat Jenderal Pajak Building in east java Distric I Surabaya