Abstract

Following the inauguration of new Indonesian Seismic Hazard Maps, also issued new earthquake code SNI 1726-2012 as a substitute of SNI 1726-2002. To align with this new earthquake code, also issued new concrete code SNI 2847-2013 to replace the previous code SNI 2847-2002. From that time the designing of the building shall be guided by the new code. This paper contains the comparison of concrete and steel ratio structures designed based on SNI 1726-2012 and SNI 2847-2013 to SNI 1726-2002 and SNI 2847-2002 especially the use of the planning of apartment, office and hotel building in Jakarta. The code of earthquake resistant buildings SNI 1726-2012 which refers to ASCE 7-10 and IBC 2009 has a very different concepts with SNI 1726-2002 which refers to the concepts of designing buildings UBC-97. Whereas for concrete code SNI 2847-2013 which use ACI 318-08 and ACI 318-11 as the main references does not change drastically compared to the previous code SNI 2847-2002 which refers to ACI 318-99 and ACI 318-02. In this study, the ratio of concrete and steel that calculated is the structure of tower, the bottom structure was not considered. The concrete and steel ratio of structure elements were reviewed are slabs, beams, columns and shear wall. Concrete ratio calculated based on the volume of concrete to the width of the structure using three-dimensional modeling program. The concrete ratio of structures designed using SNI 2012 increased by 15.18% to the structures designed based on SNI 2002. The calculation of steel ratio using the tributary area method, where the steel ratio of a dominant tributary area on the middle floor of the building represents the total steel ratio for whole building. First be tested the accuracy of the method by comparing it to the Bill of Quantity data obtained from contractor projects or QS consultants. Steel ratio of the structures designed based on SNI 2012 increased by 19.56% compared with the steel ratio of structure designed based on SNI 2002.

Key words: concrete ratio, steel ratio, tributary area method, SNI 1726-2002, SNI 1726-2012, SNI 2847-2002, SNI 2847-2013.