COMPARATIVE STUDY OF DUAL SYSTEM BUILDING DESIGN BASED ON REINFORCED CONCRETE CODE SNI 03-2847-2002 USING EARTHQUAKE LOAD CODE SNI 03-1726-2002 AND ASCE 7-05

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Abstrak

The design of earthquake resistant building structures in Indonesia became increasingly expand along with the approach of the new seismic force calculation. Therefore the understanding of earthquake behavior and methods of calculation are very important. Design of earthquake resistance for buildings and houses, SNI 03-1726-2002 used in Indonesia is currently referring to UBC in 1997 where this code has a lot of development. While recent code now is ASCE 7-05 which has many changes. Therefore it is necessary for the comparison between the two codes.

In this study conducted Dual System building design with the function as office buildings, building height 32 m, is located in the seismic zone 6, on the ground hard. This building will be designed with earthquake loading from SNI 03-1726-2002 and ASCE 7-05. Seismic behavior of building structures will be analyzed using static pushover analysis.

Performance point for structures with SNI 03-1726-2002 earthquake loading for pushover analysis can be found by various methods contained in FEMA 356, ATC-40, FEMA 440 and SNI 03-1726-2002. Whereas the point performance for ASCE 7-05 earthquake loading will only use the method of FEMA 356, ATC-40, FEMA 440.

The results of this study indicate that the base shear generated by ASCE 7-05 is greater than the SNI 03-1726-2002,
and resulting larger force and reinforcement.

Performance based evaluation resulted that the dual system building that loaded by ASCE 7-05 and SNI 03-1726-2002 shows that building structures included in the Immediate Occupancy performance level so that the building meets the performance requirements because for buildings specified by the standard office building performance level must be Life Safety.

Kata kunci: Dual System, performance-based design, pushover analysis, SNI 03-1726-2002, ASCE 7-05,