

# Analisis Buckling Restrained Braces System sebagai Retrofitting pada Bangunan Beton Bertulang akibat Gempa Kuat = Analysis of Buckling Restrained Braces System for Retrofitting in Reinforced Concrete Building due to a Strong Earthquake

Widya Apriani, author

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Abstrak

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Pada umumnya Bangunan yang ada di Indonesia telah dibangun dengan acuan pedoman SNI 1726-1989-F dan SNI 03-1726-2002, telah lahir peraturan baru SNI 03-1726-2010. Bangunan yang telah ada boleh jadi tidak memenuhi standar baru, sehingga harus diperkuat (retrofitting). Untuk mendapatkan sistem struktur dengan respon yang paling baik terhadap gempa dilakukan studi pengembangan analisis mengenai perilaku BRB. Bracing tipe ini diaplikasikan pada bangunan tinggi struktur beton bertulang. Penelitian terlingkup mengenai, mekanisme, kinerja, dan parameter-parameter aktualnya terkait dengan adanya pengaruh gempa rencana sesuai FEMA 356. Hal-hal tersebut diteliti dengan membandingkan antara struktur eksisting, dengan struktur hasil retrofitting-nya. Hasil penelitian menunjukkan bahwa hasil analisa statik nonlinier (pushover analysis) untuk struktur sistem ganda (DS) dengan BRBS sampai pada target peralihan (performance point) yang dihitung berdasarkan FEMA 356 struktur gedung yang didesain masih memiliki taraf kinerja Life safety.

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**Abstract**

In general, the existing building in Indonesia has been constructed with reference to the guidelines SNI 1726-1989-F and SNI 03-1726-2002, along with expanding knowledge of the new regulations have been born SNI 03-1726-2010. Existing buildings may be not meeting the new standards, so the buildings are vulnerable to safety and rigidity of the structure. To that end, should be strengthened (retrofitting). To get the system structure with the best response to the earthquake made the development of analytical studies on the behavior of BRB. Bracing is applied to the type of reinforced concrete structures in tall buildings. The study included about mechanisms, performance and actual parameters associated with the influence of earthquake plans with FEMA 356. Those things are investigated by comparing the existing structure with its retrofitting the structure. The results showed that the results of nonlinear static analysis (pushover analysis) for the structure of the dual system (DS) with BRBS to the intermediate targets (performance point) are calculated based on FEMA 356, designed the building structure still has the Life Safety performance level. This indicates that the building is designed according to the performance already

qualified FEMA 356 because the building is designed as an office building.