

Analisis kinerja dinding bata yang diperbaiki dengan plester

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Abstrak

Indonesia merupakan wilayah yang rawan terhadap gempa bumi. Banyak bangunan non engineer yang mengalami kerusakan pada dinding batanya akibat terkena beban gempa. Berdasarkan kebiasaan, masyarakat melakukan perbaikan dinding bata yang retak dengan plester tanpa mengetahui kinerja dari perbaikan ini. Tujuan dari penelitian ini adalah untuk mengkaji efek perbaikan dinding bata retak dengan plester. Pemodelan dinding bata dilakukan dengan pendekatan continuum model menggunakan perangkat lunak SAP2000 v14.1 yang dianalisis pada batas linier elastis. Elemen link digunakan sebagai penghubung dinding bata dengan portal beton. Dua jenis struktur yang dimodelkan, yaitu struktur dengan satu panel dinding bata dan ruko tiga lantai tiga bentang. Kedua model dikenai beban lateral gempa berdasarkan SNI 03-1726-2002. Efek separasi antara dinding bata dan portal beton dimodelkan dengan melepas elemen link. Peningkatan kekuatan dinding bata dianalisis melalui evaluasi tegangan pada dinding bata dan plester sedangkan, perubahan kekakuannya melalui evaluasi karakteristik dinamik struktur. Hasil perbaikan dengan plester menunjukkan peningkatan kekakuan dan kekuatan dinding bata.

.....Indonesia is a vulnerable region of earthquake. Many non-engineering buildings undergo destructions on their masonry walls due to earthquake induced force. People used to repair the cracked masonry wall using plaster without clearly understanding the performance of such repairment. The aim of this research is to determine the effect of cracked masonry wall repairment using plaster. The modeling of masonry wall was done by continuum model approach using SAP 2000 v14.1 which was analyzed within the elastic linear limit state. The link element was used as the connector between masonry wall and concrete frame. Two types of structure were modeled, a structure with one masonry wall panel and a three stories three bays store-house building. Both models were induced by lateral load based on SNI 03-1726-2002. The separation effect between masonry wall and concrete frame was modeled by releasing the link element. The increasing on strength of masonry wall was analyzed through a stress evaluation on wall and plaster, though the stiffness change was analyzed through the dynamic properties of the structures. The result of the repair using plaster indicated an increasing in both strength (capacity) and stiffness of masonry wall.