Analisis kinerja dinding bata yang diperbaiki dengan plester dan kawat anyam

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Abstrak

Perbaikan dinding bata yang retak dengan kawat anyam semakin banyak digunakan. Penelitian ini bertujuan untuk mengetahui efektifitas metode perbaikan dinding bata yang retak dengan menggunakan kawat anyam dan plester. Analisis dilakukan dengan cara memodelkan dinding bata dengan continuum model pada perangkat lunak SAP2000 v14.1. Struktur yang dimodelkan yaitu satu panel dinding dan ruko 3-lantai-3-bentang. Koneksi panel dinding dengan portal dimodelkan dengan rigid link. Kedua model dievaluasi dengan analisis statik linier. Satu panel dinding dikenakan beban lateral statik dan ruko 3-lantai-3-bentang dikenai beban gempa statik ekuivalen. Pada model satu panel dinding juga diamati perubahan distribusi tegangan pada portal akibat pelepasan link. Untuk mengetahui peningkatan kekuatan, dilakukan analisis tegangan. Sedangkan untuk mengetahui perubahan kekakuan, dilakukan analisis terhadap karakteristik dinamik. Analisis terhadap hasil penelitian menunjukkan bahwa penambahan kawat anyam dalam perbaikan dinding bata meningkatkan kekuatan atau kapasitas dinding namun tidak signifikan pengaruhnya terhadap kekakuan.

.....Repairing cracked masonry wall with low-grade wire mesh is increasingly being used. This study aims to determine the effectiveness of the retrofitting method for cracked masonry wall using both low-grade wire mesh and plaster. The analysis was performed by modeling the masonry wall with continuum model using SAP2000 v14.1. The modeling was carried out on both a single panel of masonry wall structure and a 3-bays-3-stories store-house building (ruko) structure. The connection between panel and frames was modeled as a rigid link. Both models were then evaluated by linear static analysis. A single panel structure models were subjected to static lateral loads. The 3-bays-3-stories store¬house building models were imposed by static equivalent load based on nominal earthquake load. The change of stress distribution in frames due to the releasing of link was also observed on the single panel models. To determine the increasing on strength, the stress analysis was performed. However, to evaluate the stiffness changes, the analysis of the dynamic properties was done. The analysis of the results indicated that the addition of low-grade wire mesh in retrofitting masonry walls increases the strength of the structure but does not significantly influence its stiffness.